



City of Sunnyvale

Notice and Agenda City Council

Tuesday, November 28, 2017

7:00 PM

Council Chambers, City Hall, 456 W. Olive
Ave., Sunnyvale, CA 94086

7 P.M. COUNCIL MEETING

Pursuant to Council Policy, City Council will not begin consideration of any agenda item after 11:30 p.m. without a vote. Any item on the agenda which must be continued due to the late hour shall be continued to a date certain. Information provided herein is subject to change from date of printing of the agenda to the date of the meeting.

CALL TO ORDER

Call to Order in the Council Chambers (Open to the Public)

SALUTE TO THE FLAG

ROLL CALL

CLOSED SESSION REPORT

ORAL COMMUNICATIONS

This category provides an opportunity for members of the public to address Council on items not listed on the agenda and is limited to 15 minutes (may be extended or continued after the public hearings/general business section of the agenda at the discretion of the Mayor) with a maximum of up to three minutes per speaker. Please note the Brown Act (Open Meeting Law) does not allow Councilmembers to take action on an item not listed on the agenda. If you wish to address the Council, please complete a speaker card and give it to the City Clerk. Individuals are limited to one appearance during this section.

CONSENT CALENDAR

All matters listed on the consent calendar are considered to be routine and will be acted upon by one motion. There will be no separate discussion of these items. If a member of the public would like a consent calendar item pulled and discussed separately, please submit a speaker card to the City Clerk prior to the start of the

meeting or before approval of the consent calendar.

- 1.A [17-0983](#) Approve City Council Meeting Minutes of November 7, 2017

Recommendation: Approve the City Council Meeting Minutes of November 7, 2017 as submitted.

- 1.B [17-1110](#) Approve City Council Special Meeting Minutes of November 8, 2017

Recommendation: Approve the City Council Special Meeting Minutes of November 7, 2017 as submitted.

- 1.C [17-0598](#) Approve City Council Special Meeting Minutes of November 17, 2017

Recommendation: Approve the City Council Special Meeting Minutes of November 17, 2017 as submitted.

- 1.D [17-0199](#) Approve the List(s) of Claims and Bills Approved for Payment by the City Manager

Recommendation: Approve the list(s) of claims and bills.

- 1.E [17-0955](#) Award of Bid No. PW 18-04 for the Fuel System Upgrade Project located at the Sunnyvale Golf Course, Finding of California Environmental Quality Act (CEQA) Categorical Exemption and Approval of Budget Modification No. 25

Recommendation: 1) Make a finding of a California Environmental Quality Act (CEQA) categorical exemption pursuant to CEQA Guidelines Section 15301, 2) Award a contract in substantially the same form as Attachment 2 to the report in the amount of \$285,895 to ConstructiCON Corp for Fuel System Upgrade Project (PW16-03) and authorize the City Manager to execute the contract when all necessary conditions have been met; 3) Approve a 10% construction contingency in the amount of \$28,589; and 4) Approve Budget Modification No. 25 in the amount of \$43,632.

- 1.F [17-0685](#) Award of Contract for SMaRT Station Flooring Replacement (F18-147)

Recommendation: 1) Award a contract in substantially the same form as Attachment 1 to the report and in the amount of \$527,977 to American Restore and authorize the City Manager to execute the contract when all the necessary conditions have been met; and 2) approve a 10% project contingency in the amount of \$52,798.

- 1.G** [17-1014](#) Modify an Existing Contract with Kimley-Horn Associates, Inc. for Temporary Personnel Services to Provide Professional Engineering Support for the Intelligent Transportation System and Authorize the City Manager to Extend the Term of the Contract

Recommendation: 1) Authorize the City Manager to execute a First Amendment to the contract with Kimley-Horn Associates, Inc., in substantially the same form as Attachment 1 to the report, increasing the not-to-exceed contract amount from \$95,000 to \$245,000, for Temporary Personnel Services and professional engineering services for the Transportation and Traffic Division, when all necessary conditions have been met.

- 1.H** [17-1013](#) Approve Budget Modification No. 21 to Appropriate \$17,700 of County of Santa Clara Emergency Management Performance Grant (EMPG) Funds for a New Project, FY 2017/18 EMPG.

Recommendation: Approve Budget Modification No. 21 to appropriate Santa Clara County Emergency Management Performance (EMPG) funds in the amount of \$17,700 to a new project, FY 2017/18 EMPG.

- 1.I** [17-1052](#) Approve Budget Modification No. 24 in the Amount of \$150,000 for Advisory Services Including Polling, and Public Education Outreach Related to the Evaluation of New Revenue Strategies to Fund New and Increasing Service Demands and/or Unfunded Capital Investments, and Find that the Action is Exempt from CEQA

Recommendation: Find that the action is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15378 (b)(4) and (b)(5) and approve Budget Modification No. 24 in the amount of \$150,000.

- 1.J** [17-1030](#) Adopt by Resolution Volume I and Sunnyvale's Annex Within

Volume II of the 2017 Santa Clara County Operational Area
Hazard Mitigation Plan

Recommendation: Adopt by resolution Volume I and Sunnyvale's Annex within Volume II of the 2017 Santa Clara County Operational Area Hazard Mitigation Plan.

- 1.K [16-1103](#) Approve New First Mortgage Refinance Loan of \$3.3 Million in Housing Funds to MidPen Housing Corp. and Modification of Outstanding Loans to Finance Phase Two of Eight Trees Apartments Rehabilitation at 183 Acalanes Drive, Sunnyvale; and Approve Budget Modification No. 26 to Appropriate Funding from the Housing Fund for the New Loan

Recommendation: 1) Find that the action is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15301(d); 2) Approve a new first mortgage refinance loan of \$3.3 million in Housing Mitigation Funds for the Eight Trees Phase Two Project and authorize the City Manager to execute the new first mortgage refinance loan documents and amendments to the existing City loans to forgive accrued interest and adjust interest rates to 0%, as further described in Attachments 2 and 5 of the report and to execute any other document or instrument and take any additional action as may be necessary to carry out the purposes the new first mortgage refinance loan; and, 3) Approve Budget Modification No. 26 to Appropriate \$3.3 million from the Housing Mitigation Fund balance to a new Project: Eight Trees Phase Two Rehabilitation Project, 183 Acalanes Drive.

- 1.L [17-1091](#) Adopt Ordinance No. 3128-17 to Amend 19.38.040 (Individual Lockable Storage Space for Multiple-Family Residential) of Chapter 19.38 (Required Facilities) of Title 19 (Zoning) of the Sunnyvale Municipal Code

Recommendation: Adopt Ordinance No. 3128-17.

- 1.M [17-1092](#) Adopt Ordinance No. 3129-17 to Amend Sections 19.92.050 (General Plan Amendment Proceedings) and 19.92.060 (Zoning Amendment Proceedings) of Chapter 19.92 (General Plan and Zoning Amendments) of Title 19 (Zoning) of the Sunnyvale Municipal Code

Recommendation: Adopt Ordinance No. 3129-17.

PUBLIC HEARINGS/GENERAL BUSINESS

If you wish to speak to a public hearings/general business item, please fill out a speaker card and give it to the City Clerk. You will be recognized at the time the item is being considered by Council. Each speaker is limited to a maximum of three minutes. For land-use items, applicants are limited to a maximum of 10 minutes for opening comments and 5 minutes for closing comments.

- 2 [17-0240](#) Appoint an Applicant to the Board of Building Code Appeals

Recommendation: Staff makes no recommendation.

- 3 [17-0988](#) Approve the Purchase and Sale Agreement for 1050 Innovation Way and 1060 Innovation Way, Sunnyvale (A Portion of Former Onizuka Air Force Station) and Approve Budget Modification No. 22

Recommendation: Alternative 1: Authorize the City Manager to execute the Purchase and Sale Agreement between the City of Sunnyvale and Google LLC, in substantially the same form as Attachment 1 to the report, for the sale of the Onizuka Property and approve Budget Modification No. 22 in the amount of \$1,000,000.

- 4 [17-0829](#) Review and Approve Recommended Changes to the Community Event and Neighborhood Grant Program Eligibility Guidelines

Recommendation: Staff makes no recommendation.

- 5 [17-1017](#) Discontinuation of Patent and Trademark Resource Center Services at the Sunnyvale Public Library

Recommendation: Alternative 1: Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library.

- 6 [17-1103](#) Consider Amendment of Council Action Previously Taken on October 17, 2017 Regarding the 2017/18 Charter Review Committee Recruitment and Appointment Process

Recommendation: Staff makes no recommendation.

COUNCILMEMBERS REPORTS ON ACTIVITIES FROM INTERGOVERNMENTAL COMMITTEE ASSIGNMENTS**NON-AGENDA ITEMS & COMMENTS**

-Council

-City Manager

INFORMATION ONLY REPORTS/ITEMS

17-0092	Tentative Council Meeting Agenda Calendar
17-0854	Information/Action Items
17-1036	Study Session Summary of November 7, 2017 - Board/Commission Interviews
17-1021	Board/Commission Meeting Minutes

ADJOURNMENT**NOTICE TO THE PUBLIC**

The agenda reports to council (RTCs) may be viewed on the City's website at sunnyvale.ca.gov after 7 p.m. on Thursdays or at the Sunnyvale Public Library, 665 W. Olive Ave. as of Fridays prior to Tuesday City Council meetings. Any agenda related writings or documents distributed to members of the City of Sunnyvale City Council regarding any open session item on this agenda will be made available for public inspection in the Office of the City Clerk located at 603 All America Way, Sunnyvale, California during normal business hours and in the Council Chamber on the evening of the Council Meeting, pursuant to Government Code §54957.5. Please contact the Office of the City Clerk at (408) 730-7483 for specific questions regarding the agenda.

PLEASE TAKE NOTICE that if you file a lawsuit challenging any final decision on any public hearing item listed in this agenda, the issues in the lawsuit may be limited to the issues which were raised at the public hearing or presented in writing to the Office of the City Clerk at or before the public hearing. PLEASE TAKE FURTHER NOTICE that Code of Civil Procedure section 1094.6 imposes a 90-day deadline for the filing of any lawsuit challenging final action on an agenda item which is subject to Code of Civil Procedure 1094.5.

Pursuant to the Americans with Disabilities Act, if you need special assistance in this meeting, please contact the Office of the City Clerk at (408) 730-7483. Notification of 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting. (28 CFR 35.160 (b) (1))

Planning a presentation for a City Council meeting?

To help you prepare and deliver your public comments, please review the "Making Public Comments During City Council or Planning Commission Meetings" available on the City website at sunnyvale.ca.gov.

Planning to provide materials to Council?

If you wish to provide the City Council with copies of your presentation materials, please provide 12 copies of the materials to the City Clerk (located to the left of the Council dais). The City Clerk will distribute your items to the Council.

Upcoming Meetings

Visit <https://sunnyvaleca.legistar.com> for upcoming Council, board and commission meeting information.



City of Sunnyvale

Agenda Item

17-0983

Agenda Date: 11/28/2017

SUBJECT

Approve City Council Meeting Minutes of November 7, 2017

RECOMMENDATION

Approve the City Council Meeting Minutes of November 7, 2017 as submitted.



City of Sunnyvale

Meeting Minutes - Draft City Council

Tuesday, November 7, 2017

6:00 PM

Council Chambers and Lobby Conference
Room, City Hall, 456 W. Olive Ave.,
Sunnyvale, CA 94086

Special Meeting: Study Session- 6 PM | Regular Meeting- 7 PM

6 P.M. SPECIAL COUNCIL MEETING (Study Session)

1 Call to Order in the Lobby Conference Room (Open to the Public)

Mayor Hendricks called the meeting to order at 6:01 p.m.

2 Roll Call

Present: 7 - Mayor Glenn Hendricks
Vice Mayor Gustav Larsson
Councilmember Jim Griffith
Councilmember Larry Klein
Councilmember Nancy Smith
Councilmember Russ Melton
Councilmember Michael S. Goldman

3 Public Comment

None.

4 Study Session

[17-0239](#) Board/Commission Interviews

The following individuals were interviewed for a vacancy on the Board of Building Code Appeals:

Andrew LaManque
Marc Ketzel

5 Adjourn Special Meeting

Mayor Hendricks adjourned the meeting at 6:25 p.m.

7 P.M. COUNCIL MEETING

CALL TO ORDER

Mayor Hendricks called the meeting to order.

SALUTE TO THE FLAG

Mayor Hendricks led the salute to the flag.

ROLL CALL

Present: 7 - Mayor Glenn Hendricks
Vice Mayor Gustav Larsson
Councilmember Jim Griffith
Councilmember Larry Klein
Councilmember Nancy Smith
Councilmember Russ Melton
Councilmember Michael S. Goldman

PRESENTATION

[17-0978](#) PRESENTATION - Welcome and Comments by Mayor
Katamine from Sunnyvale Sister City Iizuka, Japan

Mayor Hendricks welcomed Mayor Katamine, Chairman Fujiura of the Iizuka Council, and Deputy Consul General Nagayoshi who addressed the Council and expressed appreciation for the Sister City relationship with Sunnyvale.

ORAL COMMUNICATIONS

Councilmember Klein announced Charter Review Committee member recruitment and an application deadline.

Vice Mayor Larsson announced public comments would be taken for 15 minutes and the balance would be heard at the end of the agenda.

Marie Bernard, Executive Director, Sunnyvale Community Services, announced upcoming fundraiser events benefiting Sunnyvale Community Services.

Arlene Goetze spoke regarding public ethics, feeding and housing the homeless and costs associated with the Civic Center project, and provided written materials.

Ron Van Scherpe, Sunnyvale Mobile Home Park Alliance, spoke regarding mobile home rent control and requested study issue CDD 17-09 be considered again. Van Scherpe provided written materials.

Tim Kerr, Sunnyvale Mobile Home Park Alliance, spoke regarding excessive noise from the Sunnyvale UPS plant, played an audio recording of the noise from inside a home, and provided written materials.

Bill Xu spoke regarding the impacts of excessive noise at his home in Adobe Wells Mobile Home Park near the UPS office and requested assistance.

Calvin Baker spoke regarding excessive noise at Adobe Wells Park from the UPS plant during the night and requested the City Council come up with a plan.

Joyce Loewy spoke in support of the speaker from Plaza del Rey and requested the rent control issue be considered again.

Joshua Grossman, Chair of the Housing and Human Services Commission speaking for himself, spoke in support of the residents dealing with the noise issue at Adobe Wells Mobile Home Park and in support of the rent control issue.

CONSENT CALENDAR

MOTION: Vice Mayor Larsson moved and Councilmember Klein seconded the motion to approve the Consent Calendar.

FRIENDLY AMENDMENT: Councilmember Goldman requested to pull Item 1.I. Vice Mayor Larsson and Councilmember Klein accepted the friendly amendment.

The motion carried by the following vote:

Yes: 7 - Mayor Hendricks
Vice Mayor Larsson
Councilmember Griffith
Councilmember Klein
Councilmember Smith
Councilmember Melton
Councilmember Goldman

No: 0

1.A [17-0890](#) Approve City Council Meeting Minutes of October 17, 2017
Approve the City Council Meeting Minutes of October 17, 2017 as submitted.

1.B [17-0198](#) Approve the List(s) of Claims and Bills Approved for Payment

by the City Manager

Approve the list(s) of claims and bills.

1.C [17-0091](#) Approve the 2018 City Council Regular Meeting Calendar

Adopt a Resolution establishing the 2018 City Council Regular Meeting Calendar through February 2019 as submitted.

1.D [17-0894](#) Award of Contract for Temporary Personnel Placement Services for General Laborers (F18-009)

1) Award a two-year contract, in substantially the same format as Attachment 1 to the report, in an amount not-to-exceed \$200,000 to HR Management, Inc. and authorize the City Manager to execute the contract when all necessary conditions have been met; 2) authorize the City Manager to increase the not-to-exceed amount of the initial contract as operationally necessary, subject to available budgeted funding and extend the contract up to three additional years, not-to-exceed budgeted amounts, if pricing and services remain acceptable to the City.

1.E [17-0969](#) Award of Bid No. PW18-02 for Park Tennis and Basketball Court Resurfacing Project, Finding of California Environmental Quality Act (CEQA) Categorical Exemption, and Approval of Budget Modification No. 18

1) Make a finding of a California Environmental Quality Act (CEQA) categorical exemption pursuant to CEQA Guidelines Section 15301 for maintenance or repair of existing facilities involving negligible or no expansion of use beyond which presently exists; 2) Award a contract in substantially the same form as Attachment 2 to the report and in the amount of \$410,000 to Saviano Company, Inc. and authorize the City Manager to execute the contract when all necessary conditions have been met; 3) Approve a 10% construction contingency in the amount of \$41,000, and 4) Approve Budget Modification No. 18 in the amount of \$2,145.

1.F [17-0974](#) Authorize Amending Existing Contracts for Building Plan Check and Inspection Services (F18-034) and Approve Budget Modification No.19

1) Authorize the City Manager to execute amendments to three (3) existing contracts, increasing the not-to-exceed values for: Shums Coda Associates, from \$99,000 to \$300,000; 4Leaf, from \$99,000 to \$300,000; and Municipal Plan Check Services, from \$99,000 to \$200,000 in substantially the same form as Attachments 1 through 3 to the report; 2) approve Budget Modification No. 19 in the amount of

\$503,000; and 3) authorize City Manager to renew these contracts and increase contract amounts annually, within approved budget funding.

- 1.G** [17-0996](#) Receive and File the City of Sunnyvale Investment Report - 3rd Quarter 2017

Receive and file the City of Sunnyvale FY 2017/18 - Third Quarter 2017 (Period 4) Investment Report

- 1.H** [17-1019](#) Adopt Ordinance No. 3126-17 Amending the Precise Zoning Plan, Zoning Districts Map, to Rezone 35 Contiguous Properties located on Allison Way, Lennox Way, Lennox Court, Blanchard Way and Beaverton Court from R-1 (Low Density Residential) to R-1/S (Low Density Residential/Single-Story)

Adopt Ordinance No. 3126-17.

- 1.I** [17-1020](#) Adopt Ordinance No. 3127-17 to Amend Section 19.68.040 (Accessory Dwelling Units) of Title 19 (Zoning) of the Sunnyvale Municipal Code

Public Hearing opened at 7:49 p.m.

No speakers.

Public Hearing closed at 7:49 p.m.

MOTION: Vice Mayor Larsson moved and Councilmember Klein seconded the motion to adopt Ordinance No. 3127-17.

The motion carried by the following vote:

Yes: 6 - Mayor Hendricks
Vice Mayor Larsson
Councilmember Griffith
Councilmember Klein
Councilmember Smith
Councilmember Melton

No: 1 - Councilmember Goldman

PUBLIC HEARINGS/GENERAL BUSINESS

- 2** [17-0835](#) Selection of a Preferred Alternative for the Civic Center Master Plan, Approval of Budget Modification 23 in the Amount of \$30,000, and Find that these Actions are Exempt from the

California Environmental Quality Act

Interim City Manager Kent Steffens and Architect Mark Roddy, SmithGroupJJR, presented the staff report and a PowerPoint presentation. Director of Public Safety Phan Ngo and City Attorney John Nagel provided additional information.

Council recessed at 9:46 p.m.

Council reconvened at 9:58 p.m. with all members present.

Public Hearing opened at 9:58 p.m.

Mason Fong, member of the Board of Library Trustees speaking for himself, recommended consideration of a community garden and a community survey regarding the type of garden.

Genie Moore stated her appreciation for retaining the Charles Street Garden and trees, recommended more use of wood in the building design, expressed concerns regarding the height of the building, and expressed concerns regarding the phasing and timeline.

Deborah Marks expressed appreciation for preserving the redwood grove and spoke in support of Option 1 with comments including: the buildings are too close together, there is no setback on Olive Avenue, a suggestion to build city hall where the north offices are currently located to connect the plaza to the library and city hall and that the open space in the plaza is barren. Regarding Option 2, Marks provided comments that the parking structure is too far away and expressed concerns regarding traffic. Marks stated that the style of both options does not reflect Sunnyvale and expressed concerns regarding the cost, and provided a PowerPoint presentation.

Suzanne Shea spoke in support of some of the prior comments regarding the plaza in Option 1 and stated it would be hot, unwelcoming and needs trees. Shea stated the current Civic Center is welcoming and she would hate to lose the advantages of sheltering trees. Shea expressed concerns regarding cost and the risk of not having the funds to complete the project.

Mary Brunkhorst provided comments including: the designs don't match the public comments from the last few years, expressed concerns with having the library construction in phase 2 when that would serve the most people, expressed concerns regarding the cost, recommended to keep Olive Avenue open,

recommended the office building and the library be on one side of the street and DPS across the street, and stated she likes the plaza. Brunkhorst recommended the project be placed on hold until we have the financing.

Mei-Ling Stefan provided comments including: support of an energy efficient city hall, the need for fiscal responsibility, a request to rescind Council's action on July 25, the need to maximize happiness, a request to keep Olive Avenue open for the VTA bus, a suggestion for a new building for children and a bond measure, and a suggestion for a parking garage with north and south entry/exit points for safety. Stefan presented a PowerPoint slide.

Paul Brunemeier expressed concerns regarding traffic and the cost of the project, and presented a slide.

Margaret Lawson spoke in support of Option 2 in favor of the additional acre of open space, in support of net zero energy, and stated that the curved buildings make the it more interesting.

Alrie Middlebrook, sustainable landscape consultant and President of the California Native Garden Foundation, spoke regarding ecovillage models, and provided comments including support of Option 2 for its decentralized approach, more greenspace and removal of Olive Avenue. Middlebrook presented overhead slides.

Jennifer Jeffcoat, Mindful Ways, provided information about the organization and stated the utilization of the space could include much more, such as regenerative farming.

Karita Hummer, President and Clinical Director of Family Alliance for Counseling Tools and Resolution (FACTR), provided information about the organization and spoke in support of Option 2 for its open space.

Tap Merrick spoke regarding issues with the completion of downtown, pension liabilities and housing, and requested the Civic Center and Library projects be delayed until the next recession.

Zachary Kaufman expressed concerns regarding the cost of the project.

Stan Hendryx stated his preference for Option 2, suggested the aesthetics and parking be left out of the Draft Environmental Impact Report and requested the

scope be expanded have a Draft Environmental Impact Report on both options.

John Cordes, Chair of the Bicycle and Pedestrian Commission speaking for himself, spoke in favor of Option 2 for its open space, and provided comments including: support for making land use decisions not based on cars, a request for evaluation of moving the parking structure to the north side of the library to prevent having to cross the street, a request to require zero net energy, and a request that the parking structure be redesigned so it can be repurposed in the future when cars are not needed as much.

Steve Caroompas spoke in support of keeping Olive Avenue open to reduce traffic, and in support of Option 1.

Sue Serrone stated closing Olive Avenue gives a new dimension of availability of what Sunnyvale residents want, such as gardens, nature, areas for children, and the expansion of Charles Street Gardens.

Mike Serrone stated the Civic Center should be the face of Sunnyvale, iconic, enrich the community, beautiful, sustainable, serves as a gathering place and a place that efficiently provides services for the community. Serrone stated that changing the footprint or design based on the logistics of the staging is short-sighted, and spoke in support of long-term funding for the library by bond measure.

Public Hearing closed at 10:48 p.m.

MOTION: Vice Mayor Larsson moved and Councilmember Melton seconded the motion to approve Alternatives 1, 2 and 6: 1) Find that the actions taken are exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Sections 15061 (b)(3) and 15262; 2) Select Option 1 - Plaza as the preferred alternative for the Civic Center Master Plan; and 6) Approve Budget Modification No. 23 to increase the budget for the Civic Center Modernization Project by \$30,000 to fund preparation of a cost allocation study and provide financial consulting services to be included with the final Civic Center Master Plan.

The motion carried by the following vote:

Yes: 4 - Mayor Hendricks
Vice Mayor Larsson
Councilmember Klein
Councilmember Melton

No: 3 - Councilmember Griffith
Councilmember Smith
Councilmember Goldman

MOTION: Councilmember Melton moved to direct staff to put pencil to paper and start contemplating cost for phases after Phase 1; scratch together high level information of what the cost might be and where the funds might come from. Following discussion, Councilmember Melton withdrew the motion.

- 3** [17-0702](#) Introduce an Ordinance to Amend Chapter 19.92 (General Plan and Zoning Amendments) and Section 19.38.040 (Individual Lockable Storage Space for Multiple-Family Residential) of the Sunnyvale Municipal Code

Director of Community Development Trudi Ryan presented the staff report. City Attorney John Nagel provided additional information.

Public Hearing opened at 11:29 p.m.

No speakers.

Public Hearing closed at 11:29 p.m.

MOTION: Councilmember Griffith moved and Councilmember Smith seconded the motion to approve Alternatives 1 and 2: 1) Make the finding that the action is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) and introduce an ordinance (Attachment 2 to the report) to adopt the proposed amendments to Sunnyvale Municipal Code Sections 19.92.050 and 19.92.060 (votes required for Planning Commission to recommend General Plan and zoning amendments); and 2) Make the finding that the action is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) and introduce an ordinance (Attachment 3 to the report) to adopt the proposed amendments to Sunnyvale Municipal Code Section 19.38.040 (individual lockable storage space for multiple-family residential).

City Clerk Kathleen Franco Simmons read the ordinance titles.

The motion carried by the following vote:

Yes: 7 - Mayor Hendricks
Vice Mayor Larsson
Councilmember Griffith
Councilmember Klein
Councilmember Smith
Councilmember Melton
Councilmember Goldman

No: 0

MOTION: Councilmember Griffith moved and Vice Mayor Larsson seconded the motion to continue with the remainder of the meeting.

The motion carried by the following vote:

Yes: 6 - Mayor Hendricks
Vice Mayor Larsson
Councilmember Griffith
Councilmember Klein
Councilmember Smith
Councilmember Goldman

No: 0

Abstain: 1 - Councilmember Melton

COUNCILMEMBERS REPORTS ON ACTIVITIES FROM INTERGOVERNMENTAL COMMITTEE ASSIGNMENTS

Councilmember Griffith reported a meeting of the Recycling and Waste Reduction Commission of Santa Clara County in which the processing of organic materials was discussed.

Councilmember Smith reported her attendance at a meeting of the VTA Bus Rapid Transit Policy Advisory Board.

Mayor Hendricks reported December is his last meeting as a VTA board member, after which he will be an alternate board member.

Mayor Hendricks reported he will attend the upcoming first meeting of the City of San Jose/Mineta Airport Ad Hoc Advisory Committee on South Flow Issues.

NON-AGENDA ITEMS & COMMENTS**-Council**

Vice Mayor Larsson reported the recently proposed tax code changes preserve the low income housing tax credits but the proposal includes eliminating private activity bonds.

Councilmember Smith inquired if there is target date to report on the affordable housing study issue.

Interim City Manager Steffens reported a work plan would come to Council on December 12.

Councilmember Smith inquired about the noise issues at UPS.

Interim City Manager Steffens provided information regarding Department of Public Safety monitoring of noise at UPS and enforcement of the noise ordinance.

Councilmember Smith inquired about the schedule for review of the Noise Element of the General Plan.

Director of Community Development Ryan provided information regarding an upcoming meeting to review the schedule.

Councilmember Smith inquired about the status of the concern from Fortinet from a few weeks ago.

Director of Community Development Ryan provided information regarding the scope of work that has been requested from the environmental consultants and an upcoming Council action item.

Mayor Hendricks requested an update to Council in a reasonable timeframe regarding the UPS noise issue.

-City Manager

Interim City Manager Kent Steffens reminded Council of the upcoming Closed Session regarding labor negotiations.

INFORMATION ONLY REPORTS/ITEMS

[17-0867](#) Tentative Council Meeting Agenda Calendar

[17-0853](#) Information/Action Items

[17-0991](#)

Update and Recent Trends Regarding City Workers'
Compensation Programs (Information Only)

ADJOURNMENT

Mayor Hendricks adjourned the meeting at 11:40 p.m.



City of Sunnyvale

Agenda Item

17-1110

Agenda Date: 11/28/2017

SUBJECT

Approve City Council Special Meeting Minutes of November 8, 2017

RECOMMENDATION

Approve the City Council Special Meeting Minutes of November 7, 2017 as submitted.



City of Sunnyvale

Meeting Minutes - Draft

City Council

Wednesday, November 8, 2017

4:00 PM

West Conference Room, City Hall, 456 W.
Olive Ave., Sunnyvale, CA 94086

Special Meeting: Closed Session

Vice Mayor Larsson announced the items for Closed Session and invited any members of the public to provide public comments before convening to Closed Session.

1 Call to Order in the West Conference Room

Vice Mayor Larsson called the meeting to order at 4:02 p.m.

2 Roll Call

Present: 7 - Mayor Glenn Hendricks
Vice Mayor Gustav Larsson
Councilmember Jim Griffith
Councilmember Larry Klein
Councilmember Nancy Smith
Councilmember Russ Melton
Councilmember Michael S. Goldman

3 Public Comment

No speakers.

4 Convene to Closed Session

[17-0123](#)

Closed Session held pursuant to California Government Code
Section 54957.6: CONFERENCE WITH LABOR
NEGOTIATORS
Agency designated representatives: Kent Steffens, Interim City
Manager; Teri Silva, Interim Assistant City Manager
Employee organization: Communication Officers Association
(COA)

5 Closed Session Report

Council reconvened to open session. Vice Mayor Larsson reported the Council met in Closed Session held pursuant to California Government Code Section 54957.6: Conference with Labor Negotiators; Agency designated representatives: Kent Steffens, Interim City Manager; Teri Silva, Interim Assistant City Manager; Employee organization: Communication Officers Association (COA); nothing to report.

6 Adjourn Special Meeting

Vice Mayor Larsson adjourned the meeting at 5:15 p.m.



City of Sunnyvale

Agenda Item

17-0598

Agenda Date: 11/28/2017

SUBJECT

Approve City Council Special Meeting Minutes of November 17, 2017

RECOMMENDATION

Approve the City Council Special Meeting Minutes of November 17, 2017 as submitted.



City of Sunnyvale

Meeting Minutes - Draft City Council

Friday, November 17, 2017

10:00 AM

West Conference Room, City Hall, 456 W.
Olive Ave., Sunnyvale, CA 94086

Special Meeting: Closed Session

Vice Mayor Larsson announced the item for Closed Session and invited any members of the public to provide public comments before convening to Closed Session.

1 Call to Order in the West Conference Room

Vice Mayor Larsson called the meeting to order at 10:04 a.m.

2 Roll Call

Present: 7 - Mayor Glenn Hendricks
Vice Mayor Gustav Larsson
Councilmember Jim Griffith
Councilmember Larry Klein
Councilmember Nancy Smith
Councilmember Russ Melton
Councilmember Michael S. Goldman

3 Public Comment

No speakers.

4 Convene to Closed Session

[17-0863](#) Closed Session held pursuant to California Government Code
Section 54957: PUBLIC EMPLOYEE APPOINTMENT
Title: City Manager

5 Closed Session Report

Council reconvened to open session. Vice Mayor Larsson reported Council met in Closed Session held pursuant to California Government Code Section 54957: Public Employee Appointment, Title: City Manager; nothing to report.

6 Adjourn Special Meeting

Vice Mayor Larsson adjourned the meeting at 12:26 p.m.



City of Sunnyvale

Agenda Item

17-0199

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Approve the List(s) of Claims and Bills Approved for Payment by the City Manager

BACKGROUND

Pursuant to Sunnyvale Charter Section 802(6), the City Manager has approved for payment claims and bills on the following list(s); and checks have been issued.

List No.	Date	Total Disbursements
892	10-22-17 through 10-28-17	\$3,162,446.03
893	10-29-17 through 11-04-17	\$4,296,066.66
894	11-05-17 through 11-11-17	\$2,039,998.63

Payments made by the City are controlled in a variety of ways. In general, payments are reviewed by the appropriate City staff for compliance with the goods or services provided. Any discrepancies are resolved and re-submitted for payment. Different levels of dollar amounts for payments require varying levels of approval within the organization. Ultimately payments are reviewed and processed by the Finance Department. Budgetary control is set by Council through the budget adoption resolution.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a "project" with the meaning of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines section 15378(b)(4) in that it is a fiscal activity that does not involve any commitment to any specific project which may result in a potential significant impact on the environment.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

RECOMMENDATION

Approve the list(s) of claims and bills.

Prepared by: Timothy J. Kirby, Director of Finance
Reviewed by: Teri Silva, Interim Assistant City Manager
Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. List(s) of Claims and Bills Approved for Payment

11/7/2017

City of Sunnyvale

LIST # 892

Page 1

List of All Claims and Bills Approved for Payment
For Payments Dated 10/22/2017 through 10/28/2017

Sorted by Payment Number

Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
xxx296536	10/24/17	AAA SPEEDY SMOG TEST ONLY STATION	025402	Auto Maint & Repair - Labor	40.00	0.00	40.00	\$80.00
			025548	Auto Maint & Repair - Labor	40.00	0.00	40.00	
xxx296537	10/24/17	AT&T	9534228302	Software As a Service	242.19	0.00	242.19	\$242.19
xxx296538	10/24/17	AT&T	000010347579	Utilities - Telephone	1,236.01	0.00	1,236.01	\$21,371.35
			000010347581	Utilities - Telephone	1,231.99	0.00	1,231.99	
			000010363027	Utilities - Telephone	39.68	0.00	39.68	
			000010363036	Utilities - Telephone	12,409.76	0.00	12,409.76	
			000010363424	Utilities - Telephone	2,877.29	0.00	2,877.29	
			000010363623	Utilities - Telephone	36.66	0.00	36.66	
			000010366129	Utilities - Telephone	3,539.96	0.00	3,539.96	
xxx296539	10/24/17	AV CONSULTING	OCT/11/2017	Training and Conferences	425.00	0.00	425.00	\$425.00
xxx296540	10/24/17	AMERICAN CONSTRUCTION & SUPPLY INC	CTHODCUPGR D#R	Construction Project Contract Retainage	37,999.99	0.00	37,999.99	\$37,999.99
xxx296541	10/24/17	ANDERSON PACIFIC ENGINEERING	EMRGNCYFLO W#11	Construction Services	23,410.09	0.00	23,410.09	\$23,410.09
xxx296542	10/24/17	ANDRE OVISSI	CK REQ 18-090	DED Services/Training - Books	97.61	0.00	97.61	\$97.61
xxx296543	10/24/17	B & A FRICTION MATERIALS INC	579160	Parts, Vehicles & Motor Equip	58.51	0.00	58.51	\$1,219.52
			579603	Auto Maint & Repair - Labor	111.72	0.00	111.72	
			579603	Auto Maint & Repair - Materials	941.04	0.00	941.04	
			579839	Parts, Vehicles & Motor Equip	108.25	0.00	108.25	
xxx296544	10/24/17	BADGER METER INC	1195584	Inventory Purchase	7,877.40	0.00	7,877.40	\$7,877.40
xxx296545	10/24/17	BASCOM TRIM & UPHOLSTERY	6513	Auto Maint & Repair - Labor	475.00	0.00	475.00	\$1,052.35
			6513	Auto Maint & Repair - Materials	125.35	0.00	125.35	
			6566	Auto Maint & Repair - Labor	397.50	0.00	397.50	
			6566	Auto Maint & Repair - Materials	54.50	0.00	54.50	
xxx296546	10/24/17	BURTONS FIRE INC	S38537	Parts, Vehicles & Motor Equip	285.27	0.00	285.27	\$589.06
			S38562	Parts, Vehicles & Motor Equip	61.76	0.00	61.76	
			S38595	Parts, Vehicles & Motor Equip	242.03	0.00	242.03	
xxx296547	10/24/17	CAW ARCHITECTS INC	0917.14006	Consultants	30,786.76	0.00	30,786.76	\$30,786.76

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xxx296548	10/24/17	CENTRAL LABOR COUNCIL PARTNERSHIP	SEPT2017	DED Services/Training - Books	289.91	0.00	289.91	\$76,399.67
			SEPT2017	Contracts/Service Agreements	76,109.76	0.00	76,109.76	
xxx296549	10/24/17	COAST COUNTIES PETERBILT	0119128S	Parts, Vehicles & Motor Equip	228.97	0.00	228.97	\$228.97
xxx296550	10/24/17	CORIX WATER PRODUCTS (US) INC	17713032229	Inventory Purchase	451.48	4.14	447.34	\$447.34
xxx296551	10/24/17	DEEP RASTOGI	CK REQ 18-080	DED Services/Training - Books	58.11	0.00	58.11	\$58.11
xxx296552	10/24/17	DEEPTI SAWHNEY	CK REQ 18-087	DED Services/Training - Books	45.89	0.00	45.89	\$45.89
xxx296553	10/24/17	DELL MARKETING LP	10196184807	Computer Hardware	289.90	0.00	289.90	\$24,440.21
			10196553664	Computer Hardware	1,669.44	0.00	1,669.44	
			10196640917	General Supplies	98.08	0.00	98.08	
			10196744254	Computer Hardware	22,382.79	0.00	22,382.79	
xxx296554	10/24/17	DETAIL PLUS	37557	Auto Maint & Repair - Labor	65.00	0.00	65.00	\$250.00
			37576	Auto Maint & Repair - Labor	185.00	0.00	185.00	
xxx296555	10/24/17	DOUGLAS MIYAKI	CK REQ 18-060	DED Services/Training - Books	374.00	0.00	374.00	\$374.00
xxx296556	10/24/17	F&M BANK	PRMRYTRTMT 2#01	Construction Project Contract Retainage	35,625.00	0.00	35,625.00	\$35,625.00
xxx296557	10/24/17	FEDEX	5-938-36914	Mailing & Delivery Services	5.75	0.00	5.75	\$5.75
xxx296558	10/24/17	FIRE & RISK ALLIANCE LLC	132-001-15	Miscellaneous Services	28,751.74	0.00	28,751.74	\$28,751.74
xxx296559	10/24/17	GRM INFORMATION MANAGEMENT SERVICES	87538	Records Related Services	2,206.00	0.00	2,206.00	\$3,774.55
			88236	Records Related Services	1,568.55	0.00	1,568.55	
xxx296560	10/24/17	GEORGE HILLS CO INC	INV1012507	Liability Claims Adjustor	6,750.00	0.00	6,750.00	\$6,750.00
xxx296561	10/24/17	GINO GEMIGNANI	614564-2961820	DED Services/Training - Books	30.78	0.00	30.78	\$30.78
xxx296562	10/24/17	GLOBAL KNOWLEDGE TRAINING LLC	21880494	Training and Conferences	2,495.00	0.00	2,495.00	\$2,495.00
xxx296563	10/24/17	GOODYEAR COMMERCIAL TIRE & SERVICE CTR	189-1096425	Inventory Purchase	3,648.81	0.00	3,648.81	\$3,648.81
xxx296564	10/24/17	GREGORY STEELE	CK REQ 18-075	DED Services/Training - Support Services	206.14	0.00	206.14	\$206.14
xxx296565	10/24/17	HARRIS DESIGN	17.02.02	Architectural and Design Services	1,945.00	0.00	1,945.00	\$1,945.00
xxx296566	10/24/17	HYBRID COMMERCIAL PRINTING INC	26230	Printing & Related Services	139.52	0.00	139.52	\$1,232.79
			26273	Printing & Related Services	299.75	0.00	299.75	
			26306	Printing & Related Services	271.41	0.00	271.41	
			26311	Printing & Related Services	364.06	0.00	364.06	
			26331	Printing & Related Services	158.05	0.00	158.05	
xxx296567	10/24/17	IMAGEX	210171	Printing & Related Services	2,054.20	0.00	2,054.20	\$5,952.37

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			211005	Printing & Related Services	3,214.79	0.00	3,214.79	
			211262	Printing & Related Services	683.38	0.00	683.38	
xxx296568	10/24/17	INTEGRATED ARCHIVE SYSTEMS INC	0086358-IN	Software Licensing & Support	7,281.18	0.00	7,281.18	\$7,281.18
xxx296569	10/24/17	KMVT COMMUNITY TELEVISION	7073	Engineering Services	5,250.71	0.00	5,250.71	\$5,250.71
xxx296570	10/24/17	KALPNA GUPTA	109121457	DED Services/Training - Books	139.00	0.00	139.00	\$139.00
xxx296571	10/24/17	KELLER SUPPLY COMPANY	S011183232.001	General Supplies	1,474.91	0.00	1,474.91	\$1,948.53
			S011222942.002	General Supplies	48.36	0.00	48.36	
			S011223136.001	General Supplies	425.26	0.00	425.26	
xxx296572	10/24/17	KELLY PAPER CO	8801097	General Supplies	210.26	0.00	210.26	\$210.26
xxx296573	10/24/17	KOHLWEISS AUTO PARTS INC	01PL4055	Inventory Purchase	279.34	5.95	273.39	\$273.39
xxx296574	10/24/17	LC ACTION POLICE SUPPLY	371484	General Supplies	544.78	0.00	544.78	\$3,235.09
			372445	General Supplies	1,699.75	0.00	1,699.75	
			372900	General Supplies	663.78	0.00	663.78	
			373185	General Supplies	326.78	0.00	326.78	
xxx296575	10/24/17	LEHR AUTO ELECTRIC	01 139742	Parts, Vehicles & Motor Equip	320.46	0.00	320.46	\$1,320.98
			01 140028	Parts, Vehicles & Motor Equip	865.26	0.00	865.26	
			01 140057	Parts, Vehicles & Motor Equip	135.26	0.00	135.26	
xxx296576	10/24/17	LOZANO SUNNYVALE CAR WASH	041	Auto Maint & Repair - Labor	1,450.00	0.00	1,450.00	\$1,450.00
xxx296577	10/24/17	M&M COMMUNICATIONS INC	527	Miscellaneous Services	700.00	0.00	700.00	\$700.00
xxx296578	10/24/17	MARK THOMAS & CO INC	28850	Consultants	53,419.05	0.00	53,419.05	\$53,419.05
xxx296579	10/24/17	MARY MONTES	CK REQ 18-085	DED Services/Training - Books	36.56	0.00	36.56	\$36.56
xxx296580	10/24/17	MEHRDAD SHAHAMATDOUST	CK REQ 18-063	DED Services/Training - Books	405.00	0.00	405.00	\$405.00
xxx296581	10/24/17	MOUNTAIN VIEW GARDEN CENTER	90845	Materials - Land Improve	69.49	0.00	69.49	\$951.53
			90871	Materials - Land Improve	37.01	0.00	37.01	
			90981	Materials - Land Improve	42.46	0.00	42.46	
			90987	Materials - Land Improve	152.49	0.00	152.49	
			90995	Materials - Land Improve	152.49	0.00	152.49	
			90996	Materials - Land Improve	152.49	0.00	152.49	
			91008	Materials - Land Improve	152.49	0.00	152.49	
			91066	Materials - Land Improve	107.86	0.00	107.86	
			91090	Materials - Land Improve	84.75	0.00	84.75	

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xxx296582	10/24/17	NETFILE	5248	Software As a Service	4,162.50	0.00	4,162.50	\$4,162.50
xxx296583	10/24/17	PINE CONE LUMBER CO INC	725657	Hand Tools	69.58	0.00	69.58	\$69.58
xxx296584	10/24/17	PITNEY BOWES INC	1005046326	General Supplies	309.43	0.00	309.43	\$518.71
			1005062267	Equipment Rental/Lease	209.28	0.00	209.28	
xxx296585	10/24/17	POMI MECHANICAL INC	2017/275	Services Maintain Land Improv	1,975.00	0.00	1,975.00	\$1,975.00
xxx296586	10/24/17	PRIORITY 1 PUBLIC SAFETY EQUIPMENT	6429	Vehicles & Motorized Equip	10,881.40	0.00	10,881.40	\$11,032.63
			6451	Auto Maint & Repair - Labor	100.00	0.00	100.00	
			6451	Auto Maint & Repair - Materials	51.23	0.00	51.23	
xxx296587	10/24/17	RANKIN STOCK HEABERLIN	34667	Legal Services	313.09	0.00	313.09	\$313.09
xxx296588	10/24/17	READYREFRESH BY NESTLE	07I0029664380	Food Products	6.81	0.00	6.81	\$101.85
			07J0029664380	Food Products	6.81	0.00	6.81	
			07J0035365238	Miscellaneous Services	31.60	0.00	31.60	
			17I0025819772	General Supplies	31.72	0.00	31.72	
			17J0023956113	Food Products	24.91	0.00	24.91	
xxx296589	10/24/17	REED & GRAHAM INC	898795	Materials - Land Improve	447.97	0.00	447.97	\$16,760.84
			901016	Materials - Land Improve	1,120.41	0.00	1,120.41	
			901280	Materials - Land Improve	466.51	0.00	466.51	
			901416	Materials - Land Improve	487.67	0.00	487.67	
			901558	Materials - Land Improve	430.51	0.00	430.51	
			901559	Materials - Land Improve	713.07	0.00	713.07	
			901737	Materials - Land Improve	2,752.81	0.00	2,752.81	
			901883	Materials - Land Improve	689.93	0.00	689.93	
			902054	Materials - Land Improve	4,415.23	0.00	4,415.23	
			902513	Materials - Land Improve	3,378.29	0.00	3,378.29	
			902664	Materials - Land Improve	1,330.53	0.00	1,330.53	
			902780	Materials - Land Improve	527.91	0.00	527.91	
xxx296591	10/24/17	REKHA DALAL	058395-9156232	DED Services/Training - Books	94.85	0.00	94.85	\$94.85
xxx296592	10/24/17	SFO REPROGRAPHICS	43122	Printing & Related Services	95.92	0.00	95.92	\$533.63
			43131	Printing & Related Services	116.32	0.00	116.32	
			43546	Printing & Related Services	321.39	0.00	321.39	
xxx296593	10/24/17	SAFEWAY INC	721976-101517	Food Products	47.84	0.00	47.84	\$314.24

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			807931-101717	Food Products	266.40	0.00	266.40	
xxx296594	10/24/17	SAN DIEGO POLICE EQUIPMENT CO	629641	Ammunition	4,954.21	0.00	4,954.21	\$4,954.21
xxx296595	10/24/17	SANTA CLARA VLY TRANSPORTATION AUTHORITY	1800023192	Contracts/Service Agreements	2,248.08	0.00	2,248.08	\$10,303.70
			1800023267	Contracts/Service Agreements	8,055.62	0.00	8,055.62	
xxx296596	10/24/17	SATISHKUMAR SAMPATH	CK REQ 18-089	DED Services/Training - Books	84.77	0.00	84.77	\$84.77
xxx296597	10/24/17	SILICON VALLEY SECURITY & PATROL INC	2033852	Professional Services	500.00	0.00	500.00	\$1,850.00
			2033874	Professional Services	500.00	0.00	500.00	
			2033909	Professional Services	350.00	0.00	350.00	
			2034026	Professional Services	500.00	0.00	500.00	
xxx296598	10/24/17	SMART & FINAL INC	046075-100717	Food Products	55.44	0.00	55.44	\$106.46
			050756-092817	Food Products	16.55	0.00	16.55	
			057055-092817	Food Products	34.47	0.00	34.47	
xxx296599	10/24/17	SPORTS TURF MANAGEMENT	11689	Professional Services	675.00	0.00	675.00	\$845.00
			98453	Professional Services	170.00	0.00	170.00	
xxx296600	10/24/17	TURF & INDUSTRIAL EQUIPMENT CO	IV22897	Misc Equip Maint & Repair - Materials	1,008.25	0.00	1,008.25	\$1,008.25
xxx296601	10/24/17	UNITED PARCEL SERVICE	0000966608357	Mailing & Delivery Services	293.56	0.00	293.56	\$293.56
xxx296602	10/24/17	UNIVERSITY OF CALIFORNIA SANTA CRUZ	57307	DED Services/Training - Training	669.50	0.00	669.50	\$64,806.50
			57325	DED Services/Training - Training	530.50	0.00	530.50	
			57335	DED Services/Training - Training	549.00	0.00	549.00	
			57343	DED Services/Training - Training	600.00	0.00	600.00	
			57379	DED Services/Training - Training	600.00	0.00	600.00	
			57406	DED Services/Training - Training	456.00	0.00	456.00	
			57451	DED Services/Training - Training	510.00	0.00	510.00	
			57633	DED Services/Training - Training	380.00	0.00	380.00	
			57851	DED Services/Training - Training	5,400.00	0.00	5,400.00	
			57860	DED Services/Training - Training	4,482.00	0.00	4,482.00	
			57862	DED Services/Training - Training	4,896.00	0.00	4,896.00	
			57864	DED Services/Training - Training	4,824.00	0.00	4,824.00	
			57870	DED Services/Training - Training	3,366.00	0.00	3,366.00	
			57872	DED Services/Training - Training	5,148.00	0.00	5,148.00	
			57875	DED Services/Training - Training	4,905.00	0.00	4,905.00	

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			57877	DED Services/Training - Training	4,698.00	0.00	4,698.00	
			57882	DED Services/Training - Training	3,708.00	0.00	3,708.00	
			57884	DED Services/Training - Training	3,636.00	0.00	3,636.00	
			57886	DED Services/Training - Training	4,711.50	0.00	4,711.50	
			57888	DED Services/Training - Training	3,681.00	0.00	3,681.00	
			57890	DED Services/Training - Training	3,996.00	0.00	3,996.00	
			57895	DED Services/Training - Training	3,060.00	0.00	3,060.00	
xxx296604	10/24/17	VIRGIL INC	070117-093017	Contracts/Service Agreements	17,711.66	0.00	17,711.66	\$17,711.66
xxx296605	10/24/17	W A KRAUSS & CO INC	201710	Professional Services	167.75	0.00	167.75	\$167.75
xxx296606	10/24/17	WELLS FARGO FINANCIAL LEASING	5004294553	Equipment Rental/Lease	172.10	0.00	172.10	\$172.10
xxx296607	10/24/17	WEST LITE SUPPLY CO INC	54879C	Electrical Parts & Supplies	1,403.21	0.00	1,403.21	\$1,403.21
xxx296608	10/24/17	WEST VALLEY STAFFING GROUP	212332	Professional Services	1,907.75	0.00	1,907.75	\$4,572.18
			212817	Professional Services	1,513.18	0.00	1,513.18	
			213314	Professional Services	1,151.25	0.00	1,151.25	
xxx296609	10/24/17	WINSUPPLY OF SILICON VALLEY	679736 00	Materials - Land Improve	205.61	0.00	205.61	\$244.84
			680056 00	Materials - Land Improve	39.23	0.00	39.23	
xxx296610	10/24/17	ZUMAR INDUSTRIES INC	0172046	Materials - Land Improve	3,404.07	0.00	3,404.07	\$3,404.07
xxx296611	10/24/17	EPLUS TECHNOLOGY INC	V2026599	Computer Hardware	58.24	0.00	58.24	\$58.24
xxx296612	10/24/17	BAY AREA AIR QUALITY MANAGEMENT DISTRICT	4BH99	Miscellaneous Services	1,343.00	0.00	1,343.00	\$1,343.00
xxx296613	10/24/17	AAA FURNACE	2017-3487	Permit - Mechanical	68.80	0.00	68.80	\$68.80
xxx296614	10/24/17	ANYA SATYSHEVA	365214	Refund Recreation Fees	38.00	0.00	38.00	\$38.00
xxx296615	10/24/17	B JOHNSON	365975	Refund Recreation Fees	34.00	0.00	34.00	\$34.00
xxx296616	10/24/17	CHITOSE GRUNDLER	364826	Refund Recreation Fees	53.00	0.00	53.00	\$53.00
xxx296617	10/24/17	ERIQUE VALERIO LOPEZ	365129	Refund Recreation Fees	350.00	0.00	350.00	\$350.00
xxx296618	10/24/17	EVENTSCOOP INC	365404	Refund Recreation Fees	1,000.00	0.00	1,000.00	\$1,000.00
xxx296619	10/24/17	INTERMOUNTAIN SLURRY SEAL INC	OCT2017	Long Term Rent - City Real Property	3,000.00	0.00	3,000.00	\$3,000.00
xxx296620	10/24/17	KAROLYN HIGHSMITH	363394	Refund Recreation Fees	20.00	0.00	20.00	\$20.00
xxx296621	10/24/17	NATALIA MANGUM	364263	Refund Recreation Fees	13.00	0.00	13.00	\$13.00
xxx296622	10/24/17	OANH HO	365247	Refund Recreation Fees	57.00	0.00	57.00	\$57.00
xxx296623	10/24/17	ROGELIO NAVARRETE	2017-1791	Permit - Electrical	68.80	0.00	68.80	\$68.80
xxx296624	10/24/17	SUNNYVALE EMPLOYEES ASSOCIATION						\$300.00

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			363306	Refund Recreation Fees	300.00	0.00	300.00	
xxx296625	10/24/17	VALLEY HEATING AND COOLING	2017-3931	Permit - Electrical	72.80	0.00	72.80	\$145.60
			2017-3931	Permit - Mechanical	72.80	0.00	72.80	
xxx296626	10/24/17	YAN ZENG	365355	Refund Recreation Fees	103.00	0.00	103.00	\$113.00
			365355	Youth Gymnastics	10.00	0.00	10.00	
xxx296627	10/26/17	ALLIES	ELL-04	Contracts/Service Agreements	28,410.33	0.00	28,410.33	\$28,410.33
xxx296628	10/26/17	AMA GOLF	142353	Inventory Purchase	370.47	0.00	370.47	\$370.47
xxx296629	10/26/17	ADVANCED CHEMICAL TRANSPORT INC	154797	HazMat Disposal - Hazardous Waste Disposal	3,596.40	0.00	3,596.40	\$8,923.75
			155432	HazMat Disposal - Hazardous Waste Disposal	5,327.35	0.00	5,327.35	
xxx296631	10/26/17	ADVANCED PC CONCEPTS	1357	City Training Program	1,100.00	0.00	1,100.00	\$1,100.00
xxx296632	10/26/17	AGILENT TECHNOLOGIES INC	113733695	General Supplies	1,096.91	0.00	1,096.91	\$1,096.91
xxx296633	10/26/17	AIR EXCHANGE INC	41422	Facilities Maint & Repair - Labor	187.50	0.00	187.50	\$1,231.72
			41422	Facilities Maint & Repair - Materials	1,044.22	0.00	1,044.22	
xxx296634	10/26/17	AIRGAS USA LLC	9067942515	Hand Tools	1,261.27	0.00	1,261.27	\$1,507.17
			9068146756	General Supplies	245.90	0.00	245.90	
xxx296635	10/26/17	APEX LIFE SCIENCES LLC	LAB550367121	Salaries - Contract Personnel	1,200.00	0.00	1,200.00	\$1,200.00
xxx296636	10/26/17	APPLEONE EMPLOYMENT SERVICES	01-4617904	Contracts/Service Agreements	1,541.60	0.00	1,541.60	\$11,528.76
			01-4647441	Contracts/Service Agreements	1,541.60	0.00	1,541.60	
			01-4647442	Contracts/Service Agreements	8,445.56	0.00	8,445.56	
xxx296639	10/26/17	BARTEL ASSOC LLC	17-590	Financial Services	1,000.00	0.00	1,000.00	\$1,000.00
xxx296640	10/26/17	BAY AREA NEWS GROUP DIGITAL FIRST MEDIA	0005998467	Advertising Services	299.50	0.00	299.50	\$2,619.50
			0006003000	Advertising Services	91.00	0.00	91.00	
			0006003007	Advertising Services	86.00	0.00	86.00	
			0006012273	Advertising Services	95.00	0.00	95.00	
			0006017237	Advertising Services	151.00	0.00	151.00	
			0006023788	Advertising Services	568.00	0.00	568.00	
			0006024888	Advertising Services	209.00	0.00	209.00	
			0006031652	Advertising Services	1,120.00	0.00	1,120.00	
xxx296641	10/26/17	BAY-VALLEY PEST CONTROL INC	0229900	Services Maintain Land Improv	58.00	0.00	58.00	\$1,037.00
			0230040	Facilities Maintenance & Repair Labor	42.00	0.00	42.00	

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			0230040	Services Maintain Land Improv	58.00	0.00	58.00	
			0230565	Facilities Maintenance & Repair Labor	64.00	0.00	64.00	
			0230567	Facilities Maintenance & Repair Labor	32.00	0.00	32.00	
			0230568	Facilities Maintenance & Repair Labor	56.00	0.00	56.00	
			0230570	Facilities Maintenance & Repair Labor	42.00	0.00	42.00	
			0230571	Facilities Maintenance & Repair Labor	42.00	0.00	42.00	
			0230573	Facilities Maintenance & Repair Labor	42.00	0.00	42.00	
			0230574	Facilities Maintenance & Repair Labor	42.00	0.00	42.00	
			0230576	Facilities Maintenance & Repair Labor	65.00	0.00	65.00	
			0230580	Facilities Maintenance & Repair Labor	42.00	0.00	42.00	
			0230581	Facilities Maintenance & Repair Labor	68.00	0.00	68.00	
			0230583	Facilities Maintenance & Repair Labor	86.00	0.00	86.00	
			0230599	Services Maintain Land Improv	120.00	0.00	120.00	
			0230603	Services Maintain Land Improv	58.00	0.00	58.00	
			0230610	Services Maintain Land Improv	120.00	0.00	120.00	
xxx296643	10/26/17	BEE FRIENDLY HONEY BEE MGMT SOLUTIONS	5217	Services Maintain Land Improv	375.00	0.00	375.00	\$750.00
			5218	Services Maintain Land Improv	375.00	0.00	375.00	
xxx296644	10/26/17	BIBLIOTHECA ITG LLC	SI0032915-US	Library Periodicals/Databases	903.41	0.00	903.41	\$903.41
xxx296645	10/26/17	BOUND TREE MEDICAL LLC	82604372	Supplies, First Aid	5,799.88	0.00	5,799.88	\$7,208.40
			82605738	Supplies, First Aid	706.29	0.00	706.29	
			82660918	Inventory Purchase	702.23	0.00	702.23	
xxx296646	10/26/17	BROWNELLS INC	14448282.01	General Supplies	26.63	0.00	26.63	\$26.63
xxx296647	10/26/17	BUCKLES-SMITH ELECTRIC CO	3054471-00	Miscellaneous Equipment Parts & Supplies	3,865.25	0.00	3,865.25	\$3,865.25
xxx296648	10/26/17	CSG CONSULTANTS INC	13566	Consultants	7,440.00	0.00	7,440.00	\$7,440.00
xxx296649	10/26/17	CWEA-TCP	JAN-MAR2018	Training and Conferences	180.00	0.00	180.00	\$180.00
xxx296650	10/26/17	CALTEST ANALYTICAL LABORATORY	577745	Water Lab Services	57.83	0.00	57.83	\$462.64
			577746	Water Lab Services	57.83	0.00	57.83	
			577747	Water Lab Services	115.66	0.00	115.66	
			577756	Water Lab Services	115.66	0.00	115.66	
			577797	Water Lab Services	57.83	0.00	57.83	
			577798	Water Lab Services	57.83	0.00	57.83	

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xxx296651	10/26/17	CALTRONICS BUSINESS SYSTEMS	2366327	Equipment Rental/Lease	13,073.51	0.00	13,073.51	\$13,073.51
xxx296652	10/26/17	CANTO INC	3238	Software As a Service	4,800.00	0.00	4,800.00	\$4,800.00
xxx296653	10/26/17	COSCO FIRE PROTECTION INC	1000366114	Equipment Maintenance & Repair Labor	1,000.00	0.00	1,000.00	\$2,550.00
			1000366115	Equipment Maintenance & Repair Labor	1,000.00	0.00	1,000.00	
			1000366118	Equipment Maintenance & Repair Labor	550.00	0.00	550.00	
xxx296654	10/26/17	CROP PRODUCTION SERVICES INC	34490332	Materials - Land Improve	468.91	0.00	468.91	\$468.91
xxx296655	10/26/17	CYBERSOURCE CORP	235957758966	Software As a Service	75.00	0.00	75.00	\$75.00
xxx296656	10/26/17	DA LUBRICANT CO INC	2017-91134-00	Fuel, Oil & Lubricants	565.03	0.00	565.03	\$565.03
xxx296657	10/26/17	DAPPER TIRE CO INC	45061172	Inventory Purchase	517.08	0.00	517.08	\$517.08
xxx296658	10/26/17	DELIA AND ASSOCIATES	OCT2017	City Training Program	2,800.00	0.00	2,800.00	\$2,800.00
xxx296659	10/26/17	EP 21	0056832-IN	General Supplies	90.38	0.00	90.38	\$90.38
xxx296660	10/26/17	ELECTRO-MOTION INC	1710310	Facilities Maint & Repair - Labor	3,531.00	0.00	3,531.00	\$3,878.71
			1710310	Facilities Maint & Repair - Materials	347.71	0.00	347.71	
xxx296661	10/26/17	ENERGY REDUCTION SOLUTIONS	1017	Inventory Purchase	26,269.00	482.00	25,787.00	\$25,787.00
xxx296662	10/26/17	FAST RESPONSE ON-SITE TESTING INC	149696	Medical Services	275.00	0.00	275.00	\$665.00
			149696	Contracts/Service Agreements	390.00	0.00	390.00	
xxx296663	10/26/17	FEDEX	5-953-35776	Employee Recognition Expenses	59.25	0.00	59.25	\$113.05
			5-959-44259	Employee Recognition Expenses	53.80	0.00	53.80	
xxx296664	10/26/17	FITGUARD INC	0000132759	Misc Equip Maint & Repair - Labor	95.00	0.00	95.00	\$2,336.75
			0000134735	Misc Equip Maint & Repair - Labor	175.00	0.00	175.00	
			0000134735	Misc Equip Maint & Repair - Materials	1,280.75	0.00	1,280.75	
			0000134736	Misc Equip Maint & Repair - Labor	175.00	0.00	175.00	
			0000134736	Misc Equip Maint & Repair - Materials	310.65	0.00	310.65	
			0000134741	Misc Equip Maint & Repair - Labor	175.00	0.00	175.00	
			0000134741	Misc Equip Maint & Repair - Materials	125.35	0.00	125.35	
xxx296665	10/26/17	FIX AIR	3016868	Bldg Maint Matls & Supplies	1,822.90	0.00	1,822.90	\$1,822.90
xxx296666	10/26/17	FOSTER BROS SECURITY SYSTEMS INC	291261	Bldg Maint Matls & Supplies	981.00	0.00	981.00	\$1,539.08
			291580	Bldg Maint Matls & Supplies	558.08	0.00	558.08	
xxx296667	10/26/17	GALE/CENGAGE LEARNING	62063727	Library Acquisitions, Books	29.64	0.00	29.64	\$29.64
xxx296668	10/26/17	GARDENLAND POWER EQUIPMENT	514255	Misc Equip Maint & Repair - Materials	755.73	0.00	755.73	\$4,193.47
			520542	Misc Equip Maint & Repair - Materials	303.58	0.00	303.58	

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			520566	Hand Tools	1,131.26	0.00	1,131.26	
			520572	General Supplies	260.64	0.00	260.64	
			520572	Hand Tools	323.78	0.00	323.78	
			521047	Misc Equip Maint & Repair - Materials	1,136.11	0.00	1,136.11	
			521047	General Supplies	248.56	0.00	248.56	
			521047	Hand Tools	33.81	0.00	33.81	
xxx296669	10/26/17	GOLDEN GATE PETROLEUM	709369	Inventory Purchase	524.95	0.00	524.95	\$524.95
xxx296670	10/26/17	GOODYEAR COMMERCIAL TIRE & SERVICE CTR	189-1096312	Inventory Purchase	2,638.00	0.00	2,638.00	\$2,638.00
xxx296671	10/26/17	GORILLA METALS	191604	Materials - Land Improve	25.07	0.00	25.07	\$67.36
			191609	Materials - Land Improve	42.29	0.00	42.29	
xxx296672	10/26/17	H K AVERY CONSTRUCTION	1417	Facilities Maint & Repair - Labor	900.00	0.00	900.00	\$1,250.00
			1417	Facilities Maint & Repair - Materials	350.00	0.00	350.00	
xxx296673	10/26/17	HACH CO INC	10651024	General Supplies	209.65	0.00	209.65	\$209.65
xxx296674	10/26/17	HYDROSCIENCE ENGINEERS INC	262013035	Professional Services	7,565.00	0.00	7,565.00	\$7,565.00
xxx296676	10/26/17	IMPERIAL SPRINKLER SUPPLY	3048354-00	Materials - Land Improve	307.80	0.00	307.80	\$675.65
			3061550-00	Materials - Land Improve	94.70	0.00	94.70	
			3081997-00	Materials - Land Improve	137.23	0.00	137.23	
			3084129-00	Services Maintain Land Improv	42.51	0.00	42.51	
			3085202-00	Materials - Land Improve	93.41	0.00	93.41	
xxx296677	10/26/17	INDEPENDENT ELECTRIC SUPPLY INC	S103425913.001	Electrical Parts & Supplies	617.78	0.00	617.78	\$617.78
xxx296678	10/26/17	INFORMATION SERVICES DEPT	1800059577	Software As a Service	1,966.40	0.00	1,966.40	\$1,966.40
xxx296679	10/26/17	INTEGRATED ARCHIVE SYSTEMS INC	0086440-IN	Hardware Maintenance	1,312.24	0.00	1,312.24	\$1,312.24
xxx296680	10/26/17	INTERNATIONAL MANAGEMENT SYSTEMS	7900	Professional Services	3,301.11	0.00	3,301.11	\$3,301.11
xxx296681	10/26/17	KELLY PAPER CO	8789123	General Supplies	515.08	0.00	515.08	\$515.08
xxx296682	10/26/17	KOHLWEISS AUTO PARTS INC	01PL5665	Inventory Purchase	860.44	17.20	843.24	\$843.24
xxx296683	10/26/17	L N CURTIS & SONS INC	INV134659	Inventory Purchase	147.48	0.00	147.48	\$147.48
xxx296684	10/26/17	LAWSON PRODUCTS INC	9305314915	Miscellaneous Equipment Parts & Supplies	493.79	0.00	493.79	\$493.79
xxx296685	10/26/17	LOMBARDO DIAMOND CORE DRILLING CO INC	12561	Equipment Maintenance & Repair Labor	1,399.00	0.00	1,399.00	\$1,399.00
xxx296686	10/26/17	M-GROUP	3647	Professional Services	23,827.42	0.00	23,827.42	\$31,804.17

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			3691	Professional Services	7,976.75	0.00	7,976.75	
xxx296687	10/26/17	MACIAS GINI AND OCONNELL LLP	244426	Financial Services	1,077.15	0.00	1,077.15	\$1,077.15
xxx296688	10/26/17	MALLORY SAFETY & SUPPLY LLC	4346364	Inventory Purchase	92.65	0.00	92.65	\$92.65
xxx296689	10/26/17	MCMaster CARR SUPPLY CO	47972546	Miscellaneous Equipment Parts & Supplies	141.09	0.00	141.09	\$1,443.28
			48265460	Hand Tools	406.06	0.00	406.06	
			48265461	Miscellaneous Equipment Parts & Supplies	141.16	0.00	141.16	
			48643393	Miscellaneous Equipment Parts & Supplies	754.97	0.00	754.97	
xxx296690	10/26/17	MIDWEST TAPE	95460588	Library Acquis, Audio/Visual	1,747.15	0.00	1,747.15	\$7,808.69
			95460651	Library Acquis, Audio/Visual	395.14	0.00	395.14	
			95461560	Library Acquis, Audio/Visual	1,608.07	0.00	1,608.07	
			95481903	Library Acquis, Audio/Visual	2,040.20	0.00	2,040.20	
			95481905	Library Acquis, Audio/Visual	798.62	0.00	798.62	
			95481906	Library Acquis, Audio/Visual	1,219.51	0.00	1,219.51	
xxx296691	10/26/17	MOTT MACDONALD LLC	304781-46	Engineering Services	1,848.00	0.00	1,848.00	\$1,848.00
xxx296692	10/26/17	NATIONAL RESEARCH CENTER INC	6437	Professional Services	4,465.00	0.00	4,465.00	\$4,465.00
xxx296693	10/26/17	OMEGA PACIFIC ELECTRICAL SUPPLY INC	03-31560	Inventory Purchase	9,927.72	0.00	9,927.72	\$12,409.65
			03-31563	Inventory Purchase	2,481.93	0.00	2,481.93	
xxx296694	10/26/17	PRN ERGONOMIC SERVICES	17100041	Occupational Health and Safety Services - Other	205.00	0.00	205.00	\$1,660.00
			17100146	Occupational Health and Safety Services - Other	1,455.00	0.00	1,455.00	
xxx296695	10/26/17	PACIFIC COAST TRANE CONTROLS	S86892	Facilities Maint & Repair - Labor	1,885.15	0.00	1,885.15	\$4,435.36
			S86892	Facilities Maint & Repair - Materials	1,008.71	0.00	1,008.71	
			S86987	Facilities Maintenance & Repair Labor	1,541.50	0.00	1,541.50	
xxx296696	10/26/17	PACIFIC JANITORIAL SUPPLY CO	30044739	Inventory Purchase	362.32	0.00	362.32	\$783.50
			30044739-1	Inventory Purchase	91.56	0.00	91.56	
			30044783	Inventory Purchase	329.62	0.00	329.62	
xxx296697	10/26/17	PACIFIC TELEMAGEMENT SERVICES	947713	Utilities - Telephone	75.00	0.00	75.00	\$75.00
xxx296698	10/26/17	PETERSON TRUCKS	95034P	Parts, Vehicles & Motor Equip	1,502.09	0.00	1,502.09	\$1,502.09
xxx296699	10/26/17	RAYVERN LIGHTING SUPPLY CO INC	53376-0	Inventory Purchase	3,046.01	0.00	3,046.01	\$3,046.01
xxx296700	10/26/17	REFRIGERATION SUPPLIES DISTRIBUTOR	38375841-00	Bldg Maint Matls & Supplies	178.56	0.00	178.56	\$178.56
xxx296701	10/26/17	ROTORK CONTROLS INC	100538/17	Miscellaneous Equipment Parts & Supplies	85.25	0.00	85.25	\$85.25

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xxx296702	10/26/17	ROYAL COACH TOURS INC	11293	Travel Related Services	1,141.44	0.00	1,141.44	\$2,460.79
			11309	Travel Related Services	1,319.35	0.00	1,319.35	
xxx296703	10/26/17	SCS ENGINEERS	0306101	Engineering Services	257.50	0.00	257.50	\$515.00
			0308273	Engineering Services	257.50	0.00	257.50	
xxx296704	10/26/17	SSA LANDSCAPE ARCHITECTS INC	5885	Engineering Services	2,310.00	0.00	2,310.00	\$2,310.00
xxx296705	10/26/17	STC INC	2035963	Construction Services	30,600.00	0.00	30,600.00	\$55,197.11
			2035979	Construction Services	19,800.00	0.00	19,800.00	
			2036137	Construction Services	4,797.11	0.00	4,797.11	
xxx296706	10/26/17	SAFEWAY INC	728433-101217	General Supplies	66.57	0.00	66.57	\$223.35
			800482-101817	General Supplies	14.99	0.00	14.99	
			801369-101917	Food Products	36.28	0.00	36.28	
			809293-101617	General Supplies	93.51	0.00	93.51	
			809926-101717	Food Products	12.00	0.00	12.00	
xxx296707	10/26/17	SAGE DESIGNS INC	1710464	Electrical Parts & Supplies	3,839.43	0.00	3,839.43	\$3,839.43
xxx296708	10/26/17	SAN FRANCISCO BAY BIRD OBSERVATORY	1135	Water Lab Services	1,646.45	0.00	1,646.45	\$1,646.45
xxx296709	10/26/17	SAN JOSE BMW	4282313	Auto Maint & Repair - Labor	218.75	0.00	218.75	\$744.22
			4282313	Auto Maint & Repair - Materials	525.47	0.00	525.47	
xxx296710	10/26/17	SAN JOSE CONSERVATION CORPS	6822	Recycling Services	4,166.67	0.00	4,166.67	\$4,166.67
xxx296711	10/26/17	SANTA CLARA VLY TRANSPORTATION AUTHORITY	0000018184	DED Services/Training - Transportation	140.00	0.00	140.00	\$140.00
xxx296712	10/26/17	SANTA CLARA VLY TRANSPORTATION AUTHORITY	1800023257	Congestion Management Agency Dues	261,040.00	0.00	261,040.00	\$261,040.00
xxx296713	10/26/17	SECURITY ALERT SYSTEMS OF CALIFORNIA INC	070637	Facilities Maintenance & Repair Labor	225.00	0.00	225.00	\$225.00
xxx296714	10/26/17	SHRED-IT USA	8123241114	Records Related Services	53.90	0.00	53.90	\$53.90
xxx296715	10/26/17	SIERRA CHEMICAL CO	SLS10052661	Chemicals	2,955.26	0.00	2,955.26	\$3,065.29
			SLS10052662	Chemicals	110.03	0.00	110.03	
xxx296716	10/26/17	SIERRA PACIFIC TURF SUPPLY INC	0513255-IN	Materials - Land Improve	58.97	0.00	58.97	\$58.97
xxx296717	10/26/17	SIGN WIZ	11705	Special Events	131.76	0.00	131.76	\$296.50
			11706	General Supplies	164.74	0.00	164.74	
xxx296718	10/26/17	SITEONE LANDSCAPE SUPPLY LLC	82914785	Inventory Purchase	2,665.00	0.00	2,665.00	\$2,665.00

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xxx296719	10/26/17	SMART & FINAL INC	045223-101217	Food Products	322.19	0.00	322.19	\$417.64
			045223-101217	General Supplies	7.60	0.00	7.60	
			053997-092017	General Supplies	87.85	0.00	87.85	
xxx296720	10/26/17	SOUTH BAY REGIONAL PUBLIC SAFETY	218130	Personnel Testing Services	675.00	0.00	675.00	\$675.00
xxx296721	10/26/17	SPORTS TURF MANAGEMENT	98452	Professional Services	400.00	0.00	400.00	\$400.00
xxx296722	10/26/17	STATCOMM INC	122883	Facilities Maintenance & Repair Labor	345.00	0.00	345.00	\$345.00
xxx296723	10/26/17	STELLA MASHKEVITCH	CK REQ 18-072	DED Services/Training - Books	35.69	0.00	35.69	\$35.69
xxx296724	10/26/17	STEVENS CREEK CHRYSLER JEEP DODGE	347183	Parts, Vehicles & Motor Equip	571.34	0.00	571.34	\$571.34
xxx296725	10/26/17	STIFEL NICOLAUS & CO INC	100517-0026	Financial Services	2,342.09	0.00	2,342.09	\$2,342.09
xxx296726	10/26/17	STUDIO SCOTT	271	Consultants	3,825.00	0.00	3,825.00	\$3,825.00
xxx296727	10/26/17	STUDIO EM GRAPHIC DESIGN	16818	Graphics Services	327.00	0.00	327.00	\$1,199.00
			16819	Graphics Services	463.25	0.00	463.25	
			16820	Graphics Services	327.00	0.00	327.00	
			16835	Graphics Services	81.75	0.00	81.75	
xxx296728	10/26/17	SUNBELT RENTALS INC	71623970-0002	Equipment Rental/Lease	5,079.24	0.00	5,079.24	\$5,441.95
			71623970-0003	Misc Equip Maint & Repair - Labor	362.71	0.00	362.71	
xxx296729	10/26/17	SUNNYVALE FORD	107386	Parts, Vehicles & Motor Equip	57.65	0.00	57.65	\$640.11
			107522	Parts, Vehicles & Motor Equip	16.27	0.00	16.27	
			107547	Parts, Vehicles & Motor Equip	12.25	0.00	12.25	
			108031	Parts, Vehicles & Motor Equip	150.73	0.00	150.73	
			108044	Parts, Vehicles & Motor Equip	175.46	0.00	175.46	
			108051	Parts, Vehicles & Motor Equip	32.18	0.00	32.18	
			108247	Parts, Vehicles & Motor Equip	55.62	0.00	55.62	
			FOCS762966	Auto Maint & Repair - Labor	139.95	0.00	139.95	
xxx296730	10/26/17	SUPERIOR AUTOMATIC SPRINKLER CO INC	37505	Facilities Maintenance & Repair Labor	798.00	0.00	798.00	\$798.00
xxx296731	10/26/17	SUPPLYWORKS	415865484	Inventory Purchase	53.37	0.00	53.37	\$53.37
xxx296732	10/26/17	SUZANNE LUFT	109	Rec Instructors/Officials	225.00	0.00	225.00	\$225.00
xxx296733	10/26/17	SYNAGRO-WWT INC	03-103042	Advertising Services	158,840.00	0.00	158,840.00	\$158,840.00
xxx296734	10/26/17	TJKM	0046530	Engineering Services	9,791.25	0.00	9,791.25	\$9,791.25
xxx296735	10/26/17	TMT ENTERPRISES INC	92148	Materials - Land Improve	1,560.11	0.00	1,560.11	\$4,139.57

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			92149	Materials - Land Improve	1,204.26	0.00	1,204.26	
			92236	Materials - Land Improve	1,375.20	0.00	1,375.20	
xxx296736	10/26/17	TALTY COURT REPORTERS INC	172791	Professional Services	1,171.50	0.00	1,171.50	\$1,171.50
xxx296737	10/26/17	TAYLORMADE GOLF CO	32881967	Inventory Purchase	76.62	0.00	76.62	\$713.51
			32894421	Inventory Purchase	649.73	12.84	636.89	
xxx296738	10/26/17	THOMAS PLUMBING INC	94970	Facilities Maint & Repair - Labor	2,336.00	0.00	2,336.00	\$2,836.00
			94970	Facilities Maint & Repair - Materials	500.00	0.00	500.00	
xxx296739	10/26/17	TINT OF CLASS	1710161	Facilities Maint & Repair - Labor	250.00	0.00	250.00	\$756.79
			1710161	Facilities Maint & Repair - Materials	98.10	0.00	98.10	
			1710162	Facilities Maint & Repair - Labor	180.00	0.00	180.00	
			1710162	Facilities Maint & Repair - Materials	55.59	0.00	55.59	
			1710163	Facilities Maint & Repair - Labor	75.00	0.00	75.00	
			1710163	Facilities Maint & Repair - Materials	98.10	0.00	98.10	
xxx296740	10/26/17	TOGOS EATERY	581579	Food Products	78.13	0.00	78.13	\$78.13
xxx296741	10/26/17	TRENDTEC INC	267650	Salaries - Contract Personnel	3,265.64	0.00	3,265.64	\$6,485.75
			267717	Salaries - Contract Personnel	3,220.11	0.00	3,220.11	
xxx296742	10/26/17	TRICOR AMERICA INC	M645447	Contracts/Service Agreements	770.00	0.00	770.00	\$770.00
xxx296743	10/26/17	TURF STAR INC	6988118-00	Parts, Vehicles & Motor Equip	330.76	0.00	330.76	\$3,483.64
			6988791-00	Parts, Vehicles & Motor Equip	145.96	0.00	145.96	
			6989778-00	Parts, Vehicles & Motor Equip	349.59	0.00	349.59	
			6989780-00	Parts, Vehicles & Motor Equip	354.10	0.00	354.10	
			6989783-00	Parts, Vehicles & Motor Equip	1,378.27	0.00	1,378.27	
			6990051-00	Parts, Vehicles & Motor Equip	146.72	0.00	146.72	
			6990384-00	Parts, Vehicles & Motor Equip	147.32	0.00	147.32	
			6990446-00	Parts, Vehicles & Motor Equip	282.86	0.00	282.86	
			6990473-00	Parts, Vehicles & Motor Equip	272.37	0.00	272.37	
			6990474-00	Parts, Vehicles & Motor Equip	75.69	0.00	75.69	
			6990684-00	Parts, Vehicles & Motor Equip	0.00	0.00	0.00	
xxx296744	10/26/17	UNITED RENTALS	137185550-020	Equipment Rental/Lease	2,857.41	0.00	2,857.41	\$3,257.42
			139838537-016	Equipment Rental/Lease	400.01	0.00	400.01	
xxx296745	10/26/17	UNITED ROTARY BRUSH CORP	CI208771	Inventory Purchase	1,857.00	0.00	1,857.00	\$1,857.00

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xxx296746	10/26/17	UNIVAR USA INC	SJ841604	Chemicals	4,532.34	0.00	4,532.34	\$4,532.34
xxx296747	10/26/17	V & A CONSULTING ENGINEERS	17107	Engineering Services	20,859.00	0.00	20,859.00	\$20,859.00
xxx296748	10/26/17	VWR INTERNATIONAL LLC	8080070648	General Supplies	440.58	0.00	440.58	\$715.85
			8080107919	General Supplies	63.55	0.00	63.55	
			8080112590	Chemicals	211.72	0.00	211.72	
xxx296749	10/26/17	VALI COOPER & ASSOC INC	170018000104	Engineering Services	61,551.98	0.00	61,551.98	\$61,551.98
xxx296750	10/26/17	VIASYN	26402	Utilities - Electric	2,825.00	0.00	2,825.00	\$2,825.00
xxx296751	10/26/17	VISTA ANALYTICAL LABORATORY INC	41876	Water Lab Services	975.00	0.00	975.00	\$975.00
xxx296752	10/26/17	WATER ONE INDUSTRIES INC	101013	Facilities Maintenance & Repair Labor	1,200.00	0.00	1,200.00	\$1,200.00
xxx296753	10/26/17	WAYPOINT ANALYTICAL	067954	Water Lab Services	252.00	0.00	252.00	\$252.00
xxx296754	10/26/17	WECO INDUSTRIES LLC	0039675-IN	Miscellaneous Allocations - Public Safety	220.00	0.00	220.00	\$253.46
			0039675-IN	Miscellaneous Allocations - Utility Fixed Assets	33.46	0.00	33.46	
xxx296755	10/26/17	WESTERN STATES TOOL & SUPPLY CORP	112794	Inventory Purchase	234.35	0.00	234.35	\$914.24
			113405	Inventory Purchase	679.89	0.00	679.89	
xxx296756	10/26/17	WINSUPPLY OF SILICON VALLEY	676977 00	Miscellaneous Equipment Parts & Supplies	451.45	0.00	451.45	\$718.22
			677266 00	Bldg Maint Matls & Supplies	86.00	0.00	86.00	
			677788 00	Bldg Maint Matls & Supplies	125.35	0.00	125.35	
			680077 01	Miscellaneous Equipment Parts & Supplies	55.42	0.00	55.42	
xxx296757	10/26/17	WITMER TYSON IMPORTS INC	T12227	Canine Program Expenditures	650.00	0.00	650.00	\$650.00
xxx296758	10/26/17	ZALCO LABORATORIES	1710058	Miscellaneous Services	375.00	0.00	375.00	\$375.00
xxx296759	10/26/17	WAITER.COM INC	H1003514561	Food Products	147.53	0.00	147.53	\$301.10
			H1017543981	Food Products	153.57	0.00	153.57	
xxx296760	10/26/17	ALBERT J SCOTT	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	128.13	0.00	128.13	\$128.13
xxx296761	10/26/17	CALIFORNIA LIBRARY ASSOCIATION	NOV/02-04/2017	Training and Conferences	350.00	0.00	350.00	\$350.00
xxx296762	10/26/17	CALIFORNIA LIBRARY ASSOCIATION	NOV/02-04/2017	Training and Conferences	350.00	0.00	350.00	\$350.00
xxx296763	10/26/17	CHARLES S EANEFF JR	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,068.91	0.00	1,068.91	\$1,068.91
xxx296764	10/26/17	DEAN S RUSSELL	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,438.62	0.00	1,438.62	\$1,438.62
xxx296765	10/26/17	GAIL SWEGLES						\$117.73

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			NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	117.73	0.00	117.73	
xxx296766	10/26/17	HORACE LESTER GADSON	CLAIM#1718-023	Liability Claims Paid	3,000.00	0.00	3,000.00	\$3,000.00
xxx296767	10/26/17	JEFFREY S PLECQUE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,080.13	0.00	1,080.13	\$1,080.13
xxx296768	10/26/17	MARK ROGGE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	228.98	0.00	228.98	\$228.98
xxx296769	10/26/17	NANCY BOLGARD STEWARD	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,068.91	0.00	1,068.91	\$1,068.91
xxx296770	10/26/17	PACIFIC GAS & ELECTRIC CO	05225890200917	Utilities - Gas	21.20	0.00	21.20	\$105,801.73
			05225892760917	Utilities - Electric	1,908.41	0.00	1,908.41	
			05225894560917	Utilities - Electric	1,312.06	0.00	1,312.06	
			12847684120917	Utilities - Electric	10.27	0.00	10.27	
			22868920920917	Utilities - Electric	61.63	0.00	61.63	
			24528699500917	Utilities - Electric	10.18	0.00	10.18	
			25900730020917	Utilities - Electric	68.26	0.00	68.26	
			32709321910917	Utilities - Electric	73.94	0.00	73.94	
			32725920040917	Utilities - Electric	39.66	0.00	39.66	
			32725920070917	Utilities - Electric	13.24	0.00	13.24	
			32725920140917	Utilities - Electric	35.05	0.00	35.05	
			32725920350917	Utilities - Gas	8.11	0.00	8.11	
			32725921110917	Utilities - Electric	19.34	0.00	19.34	
			32725921170917	Utilities - Electric	91.84	0.00	91.84	
			32725921260917	Utilities - Electric	10.87	0.00	10.87	
			32725921320917	Utilities - Electric	123.39	0.00	123.39	
			32725921430917	Utilities - Electric	3.51	0.00	3.51	
			32725921470917	Utilities - Electric	325.61	0.00	325.61	
			32725921480917	Utilities - Electric	187.70	0.00	187.70	
			32725921490917	Utilities - Electric	11.77	0.00	11.77	
			32725921610917	Utilities - Electric	53.47	0.00	53.47	
			32725921710917	Utilities - Electric	130.99	0.00	130.99	

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			32725921790917	Utilities - Electric	1.58	0.00	1.58	
			32725921800917	Utilities - Electric	16.66	0.00	16.66	
			32725921980917	Utilities - Electric	631.54	0.00	631.54	
			32725922050917	Utilities - Electric	47.43	0.00	47.43	
			32725922090917	Utilities - Electric	1,708.32	0.00	1,708.32	
			32725922410917	Utilities - Electric	884.26	0.00	884.26	
			32725922520917	Utilities - Electric	278.22	0.00	278.22	
			32725922580917	Utilities - Electric	134.99	0.00	134.99	
			32725922850917	Utilities - Electric	4.28	0.00	4.28	
			32725923120917	Utilities - Electric	110.98	0.00	110.98	
			32725923350917	Utilities - Electric	125.20	0.00	125.20	
			32725923370917	Utilities - Electric	6.57	0.00	6.57	
			32725923400917	Utilities - Electric	18.47	0.00	18.47	
			32725923710917	Utilities - Electric	11.94	0.00	11.94	
			32725923770917	Utilities - Electric	298.23	0.00	298.23	
			32725923850917	Utilities - Electric	26.13	0.00	26.13	
			32725924030917	Utilities - Electric	344.04	0.00	344.04	
			32725924040917	Utilities - Electric	145.69	0.00	145.69	
			32725924170917	Utilities - Electric	79.52	0.00	79.52	
			32725924960917	Utilities - Electric	837.48	0.00	837.48	
			32725924970917	Utilities - Electric	12.37	0.00	12.37	
			32725925000917	Utilities - Electric	241.99	0.00	241.99	
			32725925010917	Utilities - Electric	52.41	0.00	52.41	
			32725925200917	Utilities - Electric	254.54	0.00	254.54	
			32725925210917	Utilities - Electric	94.82	0.00	94.82	
			32725925230917	Utilities - Electric	190.34	0.00	190.34	
			32725925370917	Utilities - Electric	167.66	0.00	167.66	
			32725925630917	Utilities - Electric	1,555.90	0.00	1,555.90	
			32725925690917	Utilities - Electric	33.01	0.00	33.01	
			32725925890917	Utilities - Electric	619.79	0.00	619.79	
			32725926210917	Utilities - Electric	309.79	0.00	309.79	

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			32725926440917	Utilities - Electric	932.70	0.00	932.70	
			32725926470917	Utilities - Electric	705.47	0.00	705.47	
			32725926830917	Utilities - Electric	415.94	0.00	415.94	
			32725926850917	Utilities - Electric	351.86	0.00	351.86	
			32725926870917	Utilities - Electric	0.87	0.00	0.87	
			32725926940917	Utilities - Electric	346.15	0.00	346.15	
			32725926950917	Utilities - Electric	22.55	0.00	22.55	
			32725927040917	Utilities - Electric	11.86	0.00	11.86	
			32725927250917	Utilities - Electric	212.53	0.00	212.53	
			32725927290917	Utilities - Electric	3.80	0.00	3.80	
			32725927340917	Utilities - Electric	447.77	0.00	447.77	
			32725927360917	Utilities - Gas	250.44	0.00	250.44	
			32725927380917	Utilities - Electric	94.58	0.00	94.58	
			32725927400917	Utilities - Electric	54.45	0.00	54.45	
			32725927510917	Utilities - Electric	442.28	0.00	442.28	
			32725927630917	Utilities - Electric	822.50	0.00	822.50	
			32725927680917	Utilities - Electric	0.90	0.00	0.90	
			32725928000917	Utilities - Electric	197.95	0.00	197.95	
			32725928250917	Utilities - Electric	17.92	0.00	17.92	
			32725929100917	Utilities - Electric	1.17	0.00	1.17	
			32725929140917	Utilities - Electric	38.94	0.00	38.94	
			32725929220917	Utilities - Electric	514.50	0.00	514.50	
			32725929250917	Utilities - Electric	0.81	0.00	0.81	
			32725929280917	Utilities - Electric	33.85	0.00	33.85	
			32725929390917	Utilities - Electric	69.21	0.00	69.21	
			32725929440917	Utilities - Electric	431.34	0.00	431.34	
			32725929750917	Utilities - Electric	95.88	0.00	95.88	
			32730750560917	Utilities - Electric	426.53	0.00	426.53	
			32753650070917	Utilities - Electric	168.49	0.00	168.49	
			32799419320917	Utilities - Gas	8.55	0.00	8.55	
			36207652980917	Utilities - Electric	77.75	0.00	77.75	

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			43142590150917	Utilities - Gas	8.12	0.00	8.12	
			43142590250917	Utilities - Gas	573.03	0.00	573.03	
			43142590300817	Utilities - Gas	319.99	0.00	319.99	
			43142590300917	Utilities - Gas	445.99	0.00	445.99	
			43142591280917	Utilities - Electric	674.47	0.00	674.47	
			43142597200917	Utilities - Electric	802.09	0.00	802.09	
			43142597640917	Utilities - Electric	1,307.68	0.00	1,307.68	
			43142599650917	Utilities - Electric	841.98	0.00	841.98	
			43357992720917	Utilities - Electric	11.75	0.00	11.75	
			45039216730917	Utilities - Electric	11.73	0.00	11.73	
			52896844240917	Utilities - Gas	69.27	0.00	69.27	
			52896847890917	Utilities - Electric	641.67	0.00	641.67	
			56825387840917	Utilities - Electric	0.29	0.00	0.29	
			56891435920917	Utilities - Electric	0.89	0.00	0.89	
			56892570110917	Utilities - Electric	0.87	0.00	0.87	
			56892570120917	Utilities - Electric	13.62	0.00	13.62	
			56892570160917	Utilities - Electric	0.82	0.00	0.82	
			56892570470917	Utilities - Electric	11.70	0.00	11.70	
			56892570610917	Utilities - Electric	13.03	0.00	13.03	
			56892570850917	Utilities - Electric	11.22	0.00	11.22	
			56892571070917	Utilities - Electric	0.63	0.00	0.63	
			56892571110917	Utilities - Electric	28.73	0.00	28.73	
			56892571230917	Utilities - Electric	0.85	0.00	0.85	
			56892571500917	Utilities - Electric	10.32	0.00	10.32	
			56892571930917	Utilities - Electric	0.96	0.00	0.96	
			56892572230917	Utilities - Electric	10.18	0.00	10.18	
			56892572310917	Utilities - Electric	1.00	0.00	1.00	
			56892572410917	Utilities - Electric	0.79	0.00	0.79	
			56892572990917	Utilities - Electric	0.84	0.00	0.84	
			56892573010917	Utilities - Electric	1.49	0.00	1.49	
			56892573210917	Utilities - Electric	12.03	0.00	12.03	

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			56892573280917	Utilities - Electric	10.18	0.00	10.18	
			56892573340917	Utilities - Electric	11.50	0.00	11.50	
			56892573450917	Utilities - Electric	10.18	0.00	10.18	
			56892573610917	Utilities - Electric	1.80	0.00	1.80	
			56892573790917	Utilities - Electric	0.96	0.00	0.96	
			56892573860917	Utilities - Electric	0.79	0.00	0.79	
			56892574540917	Utilities - Electric	11.80	0.00	11.80	
			56892574610917	Utilities - Electric	12.01	0.00	12.01	
			56892574640917	Utilities - Electric	1.24	0.00	1.24	
			56892574690917	Utilities - Electric	11.84	0.00	11.84	
			56892574720917	Utilities - Electric	11.70	0.00	11.70	
			56892574750917	Utilities - Electric	0.96	0.00	0.96	
			56892574930917	Utilities - Electric	11.59	0.00	11.59	
			56892574970917	Utilities - Electric	0.09	0.00	0.09	
			56892574980917	Utilities - Electric	0.74	0.00	0.74	
			56892575010917	Utilities - Electric	13.92	0.00	13.92	
			56892575240917	Utilities - Electric	11.74	0.00	11.74	
			56892575250917	Utilities - Electric	11.99	0.00	11.99	
			56892575560917	Utilities - Electric	12.04	0.00	12.04	
			56892575840917	Utilities - Electric	13.09	0.00	13.09	
			56892576280917	Utilities - Electric	11.37	0.00	11.37	
			56892576480917	Utilities - Electric	12.55	0.00	12.55	
			56892576590917	Utilities - Electric	11.78	0.00	11.78	
			56892576670917	Utilities - Electric	11.91	0.00	11.91	
			56892576690917	Utilities - Electric	11.93	0.00	11.93	
			56892576720917	Utilities - Electric	0.77	0.00	0.77	
			56892577190917	Utilities - Electric	0.83	0.00	0.83	
			56892577220917	Utilities - Electric	11.69	0.00	11.69	
			56892577390917	Utilities - Electric	12.07	0.00	12.07	
			56892577590917	Utilities - Electric	0.71	0.00	0.71	
			56892578070917	Utilities - Electric	0.96	0.00	0.96	

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			56892578180917	Utilities - Electric	10.30	0.00	10.30	
			56892578260917	Utilities - Electric	0.79	0.00	0.79	
			56892578540917	Utilities - Electric	2.19	0.00	2.19	
			56892578610917	Utilities - Electric	0.85	0.00	0.85	
			56892578660917	Utilities - Electric	0.91	0.00	0.91	
			56892578670917	Utilities - Electric	11.63	0.00	11.63	
			56892578890917	Utilities - Electric	11.79	0.00	11.79	
			56892578980917	Utilities - Electric	12.02	0.00	12.02	
			56892579010917	Utilities - Electric	10.18	0.00	10.18	
			56892579190917	Utilities - Electric	0.81	0.00	0.81	
			56892579380917	Utilities - Electric	0.69	0.00	0.69	
			56892579430917	Utilities - Electric	1.52	0.00	1.52	
			56892579640917	Utilities - Electric	11.81	0.00	11.81	
			56892579760917	Utilities - Electric	0.84	0.00	0.84	
			56892579810917	Utilities - Electric	11.77	0.00	11.77	
			56892579830917	Utilities - Electric	0.76	0.00	0.76	
			56892579860917	Utilities - Electric	0.69	0.00	0.69	
			60225900040917	Utilities - Electric	27,518.72	0.00	27,518.72	
			60225900080917	Utilities - Electric	7,269.65	0.00	7,269.65	
			60225900140917	Utilities - Electric	33.99	0.00	33.99	
			60225900150917	Utilities - Electric	20.42	0.00	20.42	
			60225900160917	Utilities - Electric	11.57	0.00	11.57	
			60225900170917	Utilities - Electric	9.03	0.00	9.03	
			60225900220917	Utilities - Electric	707.76	0.00	707.76	
			60225900260917	Utilities - Electric	44.47	0.00	44.47	
			60225900450917	Utilities - Electric	173.00	0.00	173.00	
			60225901980917	Utilities - Electric	41.09	0.00	41.09	
			60225902640917	Utilities - Electric	44.16	0.00	44.16	
			60225902900917	Utilities - Electric	185.10	0.00	185.10	
			60225904170917	Utilities - Electric	6.86	0.00	6.86	
			60225904580917	Utilities - Electric	52.90	0.00	52.90	

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			60225905100917	Utilities - Electric	2.54	0.00	2.54	
			60225905570917	Utilities - Electric	76.55	0.00	76.55	
			60225905580917	Utilities - Electric	11.65	0.00	11.65	
			60225905590917	Utilities - Electric	11.65	0.00	11.65	
			60225905600917	Utilities - Electric	3,688.45	0.00	3,688.45	
			60225906210917	Utilities - Electric	2.54	0.00	2.54	
			60225906600917	Utilities - Electric	85.37	0.00	85.37	
			60225908580917	Utilities - Electric	62.83	0.00	62.83	
			60225909050917	Utilities - Electric	7.77	0.00	7.77	
			60225909410917	Utilities - Electric	68.14	0.00	68.14	
			60225909830917	Utilities - Electric	51.35	0.00	51.35	
			81004444430917	Utilities - Electric	6.65	0.00	6.65	
			81008620210917	Utilities - Electric	0.91	0.00	0.91	
			81008621120917	Utilities - Electric	6.99	0.00	6.99	
			81008622290917	Utilities - Electric	6.77	0.00	6.77	
			81008622550917	Utilities - Electric	45.78	0.00	45.78	
			81008623480917	Utilities - Electric	10.38	0.00	10.38	
			81008623720917	Utilities - Electric	0.75	0.00	0.75	
			81008624270917	Utilities - Electric	107.75	0.00	107.75	
			81008624310917	Utilities - Electric	32.15	0.00	32.15	
			81008624650917	Utilities - Electric	10.38	0.00	10.38	
			81008624800917	Utilities - Electric	27.37	0.00	27.37	
			81008625370917	Utilities - Electric	116.88	0.00	116.88	
			81008626650917	Utilities - Electric	7.58	0.00	7.58	
			81008628100917	Utilities - Electric	0.75	0.00	0.75	
			81008628260917	Utilities - Electric	2.39	0.00	2.39	
			81008628350917	Utilities - Electric	0.75	0.00	0.75	
			81008629370917	Utilities - Electric	2.39	0.00	2.39	
			81008629450917	Utilities - Electric	2.44	0.00	2.44	
			81009280180917	Utilities - Electric	732.17	0.00	732.17	
			81011846090917	Utilities - Electric	14.07	0.00	14.07	

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			81015536310917	Utilities - Electric	3,748.05	0.00	3,748.05	
			81020785620917	Utilities - Electric	7.50	0.00	7.50	
			81024370710917	Utilities - Electric	189.26	0.00	189.26	
			81029727040917	Utilities - Electric	6.65	0.00	6.65	
			81033823480917	Utilities - Electric	53.15	0.00	53.15	
			81035854770917	Utilities - Electric	20.55	0.00	20.55	
			81049144670917	Utilities - Electric	41.78	0.00	41.78	
			81052655700917	Utilities - Electric	13.56	0.00	13.56	
			81063868990917	Utilities - Electric	28,030.59	0.00	28,030.59	
			81074135340917	Utilities - Electric	82.71	0.00	82.71	
			81080547220917	Utilities - Electric	52.22	0.00	52.22	
			81081601140917	Utilities - Electric	62.66	0.00	62.66	
			81703231610917	Utilities - Electric	14.71	0.00	14.71	
			91475900360917	Utilities - Electric	156.58	0.00	156.58	
			91475900450917	Utilities - Gas	18.75	0.00	18.75	
			91475901220917	Utilities - Electric	33.25	0.00	33.25	
			91475903190917	Utilities - Electric	84.19	0.00	84.19	
			91475903550917	Utilities - Electric	325.59	0.00	325.59	
			91475904100917	Utilities - Electric	556.55	0.00	556.55	
			91475904310917	Utilities - Electric	316.83	0.00	316.83	
			91475904900917	Utilities - Electric	64.80	0.00	64.80	
			91475906250917	Utilities - Electric	160.81	0.00	160.81	
			91475906620917	Utilities - Electric	287.16	0.00	287.16	
			91475907050917	Utilities - Electric	151.27	0.00	151.27	
			91475907470917	Utilities - Electric	524.72	0.00	524.72	
			91475907600917	Utilities - Electric	355.55	0.00	355.55	
			91475907800917	Utilities - Electric	329.98	0.00	329.98	
			91475908690917	Utilities - Electric	330.24	0.00	330.24	
			91475909640917	Utilities - Electric	637.63	0.00	637.63	
			91475909790917	Utilities - Electric	653.76	0.00	653.76	
			94639783770917	Utilities - Electric	39.32	0.00	39.32	

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xxx296789	10/26/17	ROBERT VAN HEUSEN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	651.43	0.00	651.43	\$651.43
xxx296790	10/26/17	SANTA CRUZ CAPITAL LLC	2013-9294	Deposits Payable - Miscellaneous > \$10K	166,000.00	0.00	166,000.00	\$166,000.00
xxx296791	10/26/17	STEPHEN QUICK	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,362.91	0.00	1,362.91	\$1,362.91
xxx296792	10/26/17	MANSI PATEL	364893	Refund Recreation Fees	80.00	0.00	80.00	\$80.00
xxx296793	10/26/17	MINHAO ZENG	BL070244-2018	Business License Tax	37.15	0.00	37.15	\$37.15
xxx296794	10/26/17	VAI	2016-7818	Minor Permit Application Fees - Other	1,073.50	0.00	1,073.50	\$1,253.00
			2016-7818	Administrative Request Fees	179.50	0.00	179.50	
xxx100695	10/26/17	SPECIALTY SOLID WASTE & RECYCLING INC	SEP2017	Franchise - Specialty Garbage	-163,825.70	0.00	-163,825.70	\$1,441,196.90
			SEP2017	Refuse Serv Fees - Specialty	-148,478.99	0.00	-148,478.99	
			SEP2017	Pymt to Franch Garb Collector	1,753,501.59	0.00	1,753,501.59	
Grand Total Payment Amount								<u>\$3,162,446.03</u>

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xxx8443	10/30/17	ABEL A VARGAS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	670.91	0.00	670.91	\$670.91
xxx8444	10/30/17	AIMEE FOSBENNER	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	228.98	0.00	228.98	\$228.98
xxx8445	10/30/17	ALI FATAPOUR	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,868.74	0.00	1,868.74	\$1,868.74
xxx8446	10/30/17	ANNABEL YURUTUCU	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	526.28	0.00	526.28	\$526.28
xxx8447	10/30/17	BYRON K PIPKIN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	845.13	0.00	845.13	\$845.13
xxx8448	10/30/17	CATHY E MERRILL	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	228.98	0.00	228.98	\$228.98
xxx8449	10/30/17	CATHY HAYNES	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,362.91	0.00	1,362.91	\$1,362.91
xxx8450	10/30/17	CHRIS CARRION	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	670.91	0.00	670.91	\$670.91
xxx8451	10/30/17	CORYN CAMPBELL	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	352.58	0.00	352.58	\$352.58
xxx8452	10/30/17	DAN HAMMONS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,253.83	0.00	1,253.83	\$1,253.83
xxx8453	10/30/17	DAVID A LEWIS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,068.91	0.00	1,068.91	\$1,068.91
xxx8454	10/30/17	DAVID KAHN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	960.72	0.00	960.72	\$960.72
xxx8455	10/30/17	DAVID L VERBRUGGE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,868.74	0.00	1,868.74	\$1,868.74
xxx8456	10/30/17	DAVID M GOTT	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	352.58	0.00	352.58	\$352.58
xxx8457	10/30/17	DAVID PITTS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	671.13	0.00	671.13	\$671.13
xxx8458	10/30/17	DEE SCHABOT						\$590.60

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			NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	590.60	0.00	590.60	
xxx8459	10/30/17	DON JOHNSON	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	555.35	0.00	555.35	\$555.35
xxx8460	10/30/17	DOUGLAS MORETTO	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,110.94	0.00	1,110.94	\$1,110.94
xxx8461	10/30/17	ENCARNACION HERNANDEZ	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	233.37	0.00	233.37	\$233.37
xxx8462	10/30/17	ERWIN YOUNG	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,176.72	0.00	1,176.72	\$1,176.72
xxx8463	10/30/17	ESTRELLA AGRAVIADOR KAWCZYNSKI	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	172.48	0.00	172.48	\$172.48
xxx8464	10/30/17	EUGENE J WADDELL	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	590.60	0.00	590.60	\$590.60
xxx8465	10/30/17	FRANK CURTIS BLACK	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	463.23	0.00	463.23	\$463.23
xxx8466	10/30/17	FRANK J GRGURINA	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	555.47	0.00	555.47	\$555.47
xxx8467	10/30/17	GARY K CARLS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	388.06	0.00	388.06	\$388.06
xxx8468	10/30/17	GARY LUEBBERS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	365.88	0.00	365.88	\$365.88
xxx8469	10/30/17	GLENN FORTIN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	671.13	0.00	671.13	\$671.13
xxx8470	10/30/17	GREGORY E KEVIN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	671.13	0.00	671.13	\$671.13
xxx8471	10/30/17	JAMES BOUZIANE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	721.51	0.00	721.51	\$721.51
xxx8472	10/30/17	JAMES WEBB JR	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	238.00	0.00	238.00	\$238.00
xxx8473	10/30/17	JEROME P AMMERMAN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	670.91	0.00	670.91	\$670.91
xxx8474	10/30/17	JOHN DEBATTISTA						\$670.91

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			NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	670.91	0.00	670.91	
xxx8475	10/30/17	JOHN HOWE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	526.28	0.00	526.28	\$526.28
xxx8476	10/30/17	JOHN S WITTHAUS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,868.74	0.00	1,868.74	\$1,868.74
xxx8477	10/30/17	KAREN WOBLESKY	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,068.91	0.00	1,068.91	\$1,068.91
xxx8478	10/30/17	KATHRYN BERRY	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	590.60	0.00	590.60	\$590.60
xxx8479	10/30/17	KELLY FITZGERALD	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	671.13	0.00	671.13	\$671.13
xxx8480	10/30/17	KELLY MENEHAN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	136.52	0.00	136.52	\$136.52
xxx8481	10/30/17	KLAUS DAEHNE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	752.30	0.00	752.30	\$752.30
xxx8482	10/30/17	MARK G PETERSEN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,628.34	0.00	1,628.34	\$1,628.34
xxx8483	10/30/17	MARK STIVERS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,080.13	0.00	1,080.13	\$1,080.13
xxx8484	10/30/17	MARVIN A ROSE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	536.39	0.00	536.39	\$536.39
xxx8485	10/30/17	MICHAEL A CHAN	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,868.74	0.00	1,868.74	\$1,868.74
xxx8486	10/30/17	MYRIAM CASTANEDA	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	526.28	0.00	526.28	\$526.28
xxx8487	10/30/17	RICHARD C GURNEY	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	526.28	0.00	526.28	\$526.28
xxx8488	10/30/17	ROBERT PATERNOSTER	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	309.77	0.00	309.77	\$309.77
xxx8489	10/30/17	ROBERT WALKER	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,599.35	0.00	1,599.35	\$1,599.35
xxx8490	10/30/17	RONALD DALBA						\$671.13

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			NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	671.13	0.00	671.13	
xxx8491	10/30/17	SCOTT MORTON	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,110.94	0.00	1,110.94	\$1,110.94
xxx8492	10/30/17	SILVIA MARTINS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,253.83	0.00	1,253.83	\$1,253.83
xxx8493	10/30/17	SIMON C LEMUS	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,628.34	0.00	1,628.34	\$1,628.34
xxx8494	10/30/17	STEVEN D PIGOTT	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	543.08	0.00	543.08	\$543.08
xxx8495	10/30/17	TAMMY PARKHURST	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	352.58	0.00	352.58	\$352.58
xxx8496	10/30/17	THERESE BALBO	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,228.10	0.00	1,228.10	\$1,228.10
xxx8497	10/30/17	TIM CARLYLE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	671.13	0.00	671.13	\$671.13
xxx8498	10/30/17	TIM JOHNSON	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	671.13	0.00	671.13	\$671.13
xxx8499	10/30/17	TONY J PEREZ	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	590.60	0.00	590.60	\$590.60
xxx8500	10/30/17	VINCENT CHETCUTI	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	1,868.74	0.00	1,868.74	\$1,868.74
xxx8501	10/30/17	WILLIAM BIELINSKI	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	555.35	0.00	555.35	\$555.35
xxx8502	10/30/17	WILLIAM L DISQUE	NOVEMBER 2017	Insurances - Retiree Medical - Retiree Reimbursement	515.13	0.00	515.13	\$515.13
xxx296802	10/31/17	AD CLUB	284238	Advertising Services	115.00	0.00	115.00	\$115.00
xxx296803	10/31/17	ALLSTATE INSURANCE CO	CLAIM#1617-079	Liability Claims Paid	4,847.47	0.00	4,847.47	\$4,847.47
xxx296804	10/31/17	AMFASOFT CORP	ALCWALD-02	DED Services/Training - Training	437.50	0.00	437.50	\$6,185.00
			ALEX-02	DED Services/Training - Training	437.50	0.00	437.50	
			AREDIZ-01	DED Services/Training - Training	5,310.00	0.00	5,310.00	
xxx296805	10/31/17	ANDERSON PACIFIC ENGINEERING	1638-03	Misc Equip Maint & Repair - Labor	88,325.00	0.00	88,325.00	\$88,325.00

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xxx296806	10/31/17	BADGER METER INC	1189986	Water Meters	9,400.32	0.00	9,400.32	\$20,189.22
			1197098	Inventory Purchase	10,788.90	0.00	10,788.90	
xxx296807	10/31/17	BAKER & TAYLOR	4012034227	Library Acquisitions, Books	171.85	0.00	171.85	\$176.97
			4012034227	Library Materials Preprocessing	5.12	0.00	5.12	
xxx296808	10/31/17	BAUER COMPRESSORS INC	0000230460	Safety Equipment Maintenance & Repair	7,020.67	0.00	7,020.67	\$8,652.97
			0000231093	Clothing, Uniforms & Access	282.05	0.00	282.05	
			0000231156	Clothing, Uniforms & Access	1,350.25	0.00	1,350.25	
xxx296809	10/31/17	BAY AREA NEWS GROUP DIGITAL FIRST MEDIA	0006027019	Advertising Services	166.00	0.00	166.00	\$166.00
xxx296810	10/31/17	BOUND TREE MEDICAL LLC	82662273	Inventory Purchase	3,992.67	0.00	3,992.67	\$3,992.67
xxx296811	10/31/17	C OVERAA & CO	PRMRYTRTMT 2#02	Construction Services	656,925.00	0.00	656,925.00	\$656,925.00
xxx296812	10/31/17	CSG CONSULTANTS INC	14404	Engineering Services	18,062.50	0.00	18,062.50	\$18,062.50
xxx296813	10/31/17	CALCON SYSTEMS INC	41070	Contracts/Service Agreements	2,711.41	0.00	2,711.41	\$2,711.41
xxx296814	10/31/17	CAREER DEVELOPMENT SOLUTIONS LLC	382720-J6V4W6	DED Services/Training - Training	600.00	0.00	600.00	\$8,155.50
			4009218-X0P3T9	DED Services/Training - Training	3,055.50	0.00	3,055.50	
			4009953-L8D3H9	DED Services/Training - Training	4,500.00	0.00	4,500.00	
xxx296815	10/31/17	CORIX WATER PRODUCTS (US) INC	17713031321	Water Meters	3,632.04	0.00	3,632.04	\$3,632.04
xxx296816	10/31/17	DANCE FORCE LLC	1128	Rec Instructors/Officials	6,717.60	0.00	6,717.60	\$6,717.60
xxx296817	10/31/17	DEPARTMENT OF JUSTICE	258578	Contracts/Service Agreements	1,070.00	0.00	1,070.00	\$1,070.00
xxx296818	10/31/17	DISCOUNT SCHOOL SUPPLY	W29540340101	General Supplies	55.87	0.00	55.87	\$342.84
			W29578640101	General Supplies	286.97	0.00	286.97	
xxx296819	10/31/17	DOWNEY BRAND LLP	515884	Legal Services	467.50	0.00	467.50	\$467.50
xxx296821	10/31/17	EMPIRE SAFETY & SUPPLY	0090264-IN	Inventory Purchase	1,620.74	0.00	1,620.74	\$1,620.74
xxx296822	10/31/17	F&M BANK	PRMRYTRTMT 2#02	Construction Project Contract Retainage	34,575.00	0.00	34,575.00	\$34,575.00
xxx296823	10/31/17	FERGUSON ENTERPRISES INC 1423	1295891-1	Construction Services	114.48	0.00	114.48	\$284.58
			1317692	Water Meters	75.60	0.00	75.60	
			1317696	Water Meters	75.60	0.00	75.60	
			1317697	Water Meters	18.90	0.00	18.90	
xxx296824	10/31/17	FITGUARD INC	0000135299	Misc Equip Maint & Repair - Labor	175.00	0.00	175.00	\$175.00
xxx296825	10/31/17	GOLDFARB LIPMAN ATTORNEYS	124768	Legal Services	295.00	0.00	295.00	\$295.00

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xxx296826	10/31/17	HACH CO INC	10666503	General Supplies	456.96	0.00	456.96	\$456.96
xxx296827	10/31/17	HYDROSCIENCE ENGINEERS INC	262001081	Professional Services	1,875.00	0.00	1,875.00	\$5,550.00
			262013038	Professional Services	3,675.00	0.00	3,675.00	
xxx296830	10/31/17	INTERACTIVE DATA PRICING	59970016841PR D	Financial Services	126.87	0.00	126.87	\$126.87
xxx296831	10/31/17	JAVELCO EQUIPMENT SERVICE INC	52837	Misc Equip Maint & Repair - Labor	190.00	0.00	190.00	\$334.57
			52837	Misc Equip Maint & Repair - Materials	144.57	0.00	144.57	
xxx296832	10/31/17	KELLY MOORE PAINT CO INC	820-338326	General Supplies	19.62	0.00	19.62	\$19.62
xxx296833	10/31/17	KELLY PAPER CO	8820679	General Supplies	428.92	0.00	428.92	\$428.92
xxx296834	10/31/17	KIMLEY HORN & ASSOC INC	10092148	Consultants	72,127.65	0.00	72,127.65	\$72,127.65
xxx296835	10/31/17	L N CURTIS & SONS INC	INV134169	Inventory Purchase	450.17	0.00	450.17	\$1,703.67
			INV136542	Inventory Purchase	1,253.50	0.00	1,253.50	
xxx296836	10/31/17	LANDCARE USA LLC	83480	Services Maintain Land Improv	485.00	0.00	485.00	\$1,455.00
			89043	Services Maintain Land Improv	485.00	0.00	485.00	
			95997	Services Maintain Land Improv	485.00	0.00	485.00	
xxx296837	10/31/17	LIEBERT CASSIDY WHITMORE	1448488	Legal Services	7,267.50	0.00	7,267.50	\$7,267.50
xxx296838	10/31/17	MALLORY SAFETY & SUPPLY LLC	4319147	Inventory Purchase	197.38	0.00	197.38	\$197.38
xxx296839	10/31/17	MESSING ADAM AND JASMINE LLP	MEINHARDT CASE	Liability Claims Paid	58,400.00	0.00	58,400.00	\$58,400.00
xxx296840	10/31/17	MISSION LINEN SUPPLY	505867389	Laundry & Cleaning Services	54.30	0.00	54.30	\$1,073.36
			505867390	Laundry & Cleaning Services	76.54	0.00	76.54	
			505867393	Laundry & Cleaning Services	76.54	0.00	76.54	
			505867394	Laundry & Cleaning Services	60.96	0.00	60.96	
			505912675	Laundry & Cleaning Services	54.30	0.00	54.30	
			505912676	Laundry & Cleaning Services	76.54	0.00	76.54	
			505912679	Laundry & Cleaning Services	76.54	0.00	76.54	
			505912680	Laundry & Cleaning Services	60.96	0.00	60.96	
			505961161	Laundry & Cleaning Services	54.30	0.00	54.30	
			505961162	Laundry & Cleaning Services	76.54	0.00	76.54	
			505961165	Laundry & Cleaning Services	76.54	0.00	76.54	
			505961166	Laundry & Cleaning Services	60.96	0.00	60.96	

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			506007911	Laundry & Cleaning Services	54.30	0.00	54.30	
			506007912	Laundry & Cleaning Services	76.54	0.00	76.54	
			506007915	Laundry & Cleaning Services	76.54	0.00	76.54	
			506007916	Laundry & Cleaning Services	60.96	0.00	60.96	
xxx296842	10/31/17	MONARCH TRUCK CENTER	243393P	Parts, Vehicles & Motor Equip	763.91	0.00	763.91	\$653.91
			CM242533P	Parts, Vehicles & Motor Equip	-110.00	0.00	-110.00	
xxx296843	10/31/17	NAPA AUTO PARTS	5983-350149	Parts, Vehicles & Motor Equip	29.83	0.00	29.83	\$818.99
			5983-350386	Parts, Vehicles & Motor Equip	368.63	0.00	368.63	
			5983-350397	Parts, Vehicles & Motor Equip	86.48	0.00	86.48	
			5983-350425	Parts, Vehicles & Motor Equip	77.11	0.00	77.11	
			5983-350438	Parts, Vehicles & Motor Equip	43.86	0.00	43.86	
			5983-350473	Parts, Vehicles & Motor Equip	9.08	0.00	9.08	
			5983-350540	Parts, Vehicles & Motor Equip	121.82	0.00	121.82	
			5983-350836	Parts, Vehicles & Motor Equip	5.80	0.00	5.80	
			5983-351143	Parts, Vehicles & Motor Equip	24.34	0.00	24.34	
			5983-351161	Parts, Vehicles & Motor Equip	52.04	0.00	52.04	
xxx296844	10/31/17	NIELSEN MERKSAMER PARRINELLO GROSS &	173164	Legal Services	1,270.50	0.00	1,270.50	\$1,270.50
xxx296845	10/31/17	OSC COMPUTER TRAINING	4490	DED Services/Training - Training	551.49	0.00	551.49	\$551.49
xxx296846	10/31/17	OTIS ELEVATOR COMPANY	SJ17610001	Facilities Maintenance & Repair Labor	4,032.00	0.00	4,032.00	\$4,032.00
xxx296848	10/31/17	PACIFIC CRANE INSPECTIONS	1240	Auto Maint & Repair - Labor	2,850.00	0.00	2,850.00	\$2,850.00
xxx296849	10/31/17	PACIFIC PLUMBING & UNDERGROUND	41745SR	Facilities Maintenance & Repair Labor	730.00	0.00	730.00	\$730.00
xxx296850	10/31/17	PATSONS MEDIA GROUP	204962	Printing & Related Services	631.11	0.00	631.11	\$3,891.30
			205033	Printing & Related Services	1,086.73	0.00	1,086.73	
			205034	Printing & Related Services	1,086.73	0.00	1,086.73	
			205035	Printing & Related Services	1,086.73	0.00	1,086.73	
xxx296851	10/31/17	PECKHAM & MCKENNEY	2	Professional Services	10,000.00	0.00	10,000.00	\$10,000.00
xxx296852	10/31/17	PERMACARD	140127	General Supplies	6,046.19	0.00	6,046.19	\$6,046.19
xxx296853	10/31/17	PINE CONE LUMBER CO INC	719862	Bldg Maint Matls & Supplies	33.90	0.00	33.90	\$33.90
xxx296854	10/31/17	QED ENVIRONMENTAL SYSTEMS INC	0000243816	Misc Equip Maint & Repair - Labor	654.00	0.00	654.00	\$1,471.51
			0000245078	Misc Equip Maint & Repair - Materials	817.51	0.00	817.51	
xxx296855	10/31/17	R & R PRODUCTS INC						\$86.10

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			CD2170625	Materials - Land Improve	86.10	0.00	86.10	
xxx296856	10/31/17	R E P NUT N BOLT GUY	28453	Inventory Purchase	129.10	0.00	129.10	\$129.10
xxx296857	10/31/17	READYREFRESH BY NESTLE	17G5740142004	General Supplies	65.36	0.00	65.36	\$391.30
			17J0023249071	General Supplies	6.81	0.00	6.81	
			17J0023360647	General Supplies	6.53	0.00	6.53	
			17J0028805083	General Supplies	31.72	0.00	31.72	
			17J5715636006	General Supplies	61.42	0.00	61.42	
			17J5727863010	General Supplies	41.70	0.00	41.70	
			17J5736476002	General Supplies	36.71	0.00	36.71	
			17J5740142004	General Supplies	76.35	0.00	76.35	
			17J5740153001	General Supplies	36.43	0.00	36.43	
			17J5740154009	General Supplies	21.46	0.00	21.46	
			17J5740156004	General Supplies	6.81	0.00	6.81	
xxx296859	10/31/17	RENNE SLOAN HOLTZMAN SAKAI LLP	36181	Legal Services	1,027.00	0.00	1,027.00	\$1,027.00
xxx296860	10/31/17	S & L FENCE CO	03766	Misc Equip Maint & Repair - Labor	385.00	0.00	385.00	\$385.00
xxx296861	10/31/17	SC FUELS	3440301	Inventory Purchase	19,486.15	0.00	19,486.15	\$19,486.15
xxx296862	10/31/17	SAFEWAY INC	723479-100417	Food Products	32.18	0.00	32.18	\$136.80
			724152-100517	Food Products	38.11	0.00	38.11	
			725039-102517	Food Products	15.55	0.00	15.55	
			800085-101717	Food Products	12.00	0.00	12.00	
			801924-100517	Food Products	5.00	0.00	5.00	
			807167-101117	Food Products	6.00	0.00	6.00	
			808435-092817	Special Events	27.96	0.00	27.96	
xxx296863	10/31/17	SHRED-IT USA	8123240805	Records Related Services	54.45	0.00	54.45	\$54.45
xxx296864	10/31/17	SILICON VALLEY LEADERSHIP	17-14	Training and Conferences	800.00	0.00	800.00	\$800.00
xxx296865	10/31/17	SILICON VALLEY POLYTECHNIC INSTITUTE	08232017-492	DED Services/Training - Training	300.00	0.00	300.00	\$10,055.00
			10172017-503	DED Services/Training - Training	300.00	0.00	300.00	
			10192017-504	DED Services/Training - Training	300.00	0.00	300.00	
			10192017-505	DED Services/Training - Training	285.00	0.00	285.00	
			10192017-508	DED Services/Training - Training	300.00	0.00	300.00	
			10192017-509	DED Services/Training - Training	300.00	0.00	300.00	

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			10192017-510	DED Services/Training - Training	300.00	0.00	300.00	
			10192017-511	DED Services/Training - Training	285.00	0.00	285.00	
			10192017-512	DED Services/Training - Training	285.00	0.00	285.00	
			10202017-514	DED Services/Training - Training	2,700.00	0.00	2,700.00	
			10202017-515	DED Services/Training - Training	2,700.00	0.00	2,700.00	
			10222017-517	DED Services/Training - Training	2,000.00	0.00	2,000.00	
xxx296866	10/31/17	SITEONE LANDSCAPE SUPPLY LLC	83223680	Inventory Purchase	356.01	0.00	356.01	\$677.75
			83223919	Inventory Purchase	321.74	0.00	321.74	
xxx296867	10/31/17	SMART & FINAL INC	054578-101717	Food Products	106.86	0.00	106.86	\$106.86
xxx296868	10/31/17	SOFTCHOICE CORP	4656320A	Computer Software	227,700.00	0.00	227,700.00	\$227,700.00
xxx296869	10/31/17	STATCOMM INC	123046	Facilities Maintenance & Repair Labor	3,797.00	0.00	3,797.00	\$3,797.00
xxx296870	10/31/17	STATE WATER RESOURCES CONTROL BOARD	OP#15339 D2	Membership Fees	80.00	0.00	80.00	\$160.00
			VREBAC G2	Membership Fees	80.00	0.00	80.00	
			CERT					
xxx296871	10/31/17	SUNNYVALE BUILDING MAINTENANCE	99217	Professional Services	1,616.00	0.00	1,616.00	\$36,229.64
			99218-2017	Professional Services	708.24	0.00	708.24	
			99219-2017	Professional Services	535.26	0.00	535.26	
			99856	Professional Services	198.00	0.00	198.00	
			99875	Professional Services	9,334.70	0.00	9,334.70	
			99876	Professional Services	23,837.44	0.00	23,837.44	
xxx296872	10/31/17	SUNNYVALE FORD	FOCS760355	Auto Maint & Repair - Labor	3,600.00	0.00	3,600.00	\$7,279.28
			FOCS760355	Auto Maint & Repair - Materials	3,679.28	0.00	3,679.28	
xxx296873	10/31/17	SUPERIOR PRESS	3662404	Printing & Related Services	71.54	0.00	71.54	\$71.54
xxx296874	10/31/17	THE CULTURAL PLANNING GROUP	PAYMENT#2	Professional Services	19,000.00	0.00	19,000.00	\$19,000.00
xxx296875	10/31/17	TINT OF CLASS	171020	Facilities Maint & Repair - Labor	265.00	0.00	265.00	\$595.27
			171020	Facilities Maint & Repair - Materials	330.27	0.00	330.27	
xxx296876	10/31/17	TURF & INDUSTRIAL EQUIPMENT CO	IV23399	Inventory Purchase	449.63	0.00	449.63	\$449.63
xxx296877	10/31/17	USA BLUEBOOK	396441	Electrical Parts & Supplies	4,798.21	0.00	4,798.21	\$4,798.21
xxx296878	10/31/17	UNITED PARCEL SERVICE	0000966608407	Mailing & Delivery Services	325.84	0.00	325.84	\$325.84
xxx296879	10/31/17	UNITED RENTALS	141691843-014	Equipment Rental/Lease	1,567.92	0.00	1,567.92	\$1,666.02
			180931564-001	Equipment Rental/Lease	98.10	0.00	98.10	

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xxx296881	10/31/17	UNIVERSITY OF CALIFORNIA SANTA CRUZ	57180	DED Services/Training - Training	487.00	0.00	487.00	\$25,289.50
			57193	DED Services/Training - Training	636.00	0.00	636.00	
			57225	DED Services/Training - Training	474.00	0.00	474.00	
			57354	DED Services/Training - Training	476.00	0.00	476.00	
			57399	DED Services/Training - Training	570.00	0.00	570.00	
			57423	DED Services/Training - Training	363.00	0.00	363.00	
			57429	DED Services/Training - Training	600.00	0.00	600.00	
			57432	DED Services/Training - Training	497.00	0.00	497.00	
			57460	DED Services/Training - Training	729.00	0.00	729.00	
			57503	DED Services/Training - Training	492.00	0.00	492.00	
			57513	DED Services/Training - Training	606.50	0.00	606.50	
			57900	DED Services/Training - Training	1,440.00	0.00	1,440.00	
			57902	DED Services/Training - Training	4,662.00	0.00	4,662.00	
			57904	DED Services/Training - Training	3,240.00	0.00	3,240.00	
			57906	DED Services/Training - Training	4,914.00	0.00	4,914.00	
			57908	DED Services/Training - Training	5,103.00	0.00	5,103.00	
xxx296883	10/31/17	V & W CULTURE CO	S09032017CHIL D	Library Acquisitions, Books	469.18	0.00	469.18	\$1,610.37
			S09182017FB	Library Acquisitions, Books	1,141.19	0.00	1,141.19	
xxx296884	10/31/17	VESTRA RESOURCES INC	21498	Professional Services	5,245.25	0.00	5,245.25	\$5,245.25
xxx296885	10/31/17	VWR INTERNATIONAL LLC	8080227557	General Supplies	128.66	0.00	128.66	\$535.52
			8080242594	Water Lab Services	189.20	0.00	189.20	
			8080257141	General Supplies	217.66	0.00	217.66	
xxx296886	10/31/17	W G FRITZ CONSTRUCTION INC	3819	Facilities Maint & Repair - Labor	2,763.00	0.00	2,763.00	\$6,834.00
			3819	Facilities Maint & Repair - Materials	1,842.30	0.00	1,842.30	
			3826	Facilities Maint & Repair - Materials	1,220.00	0.00	1,220.00	
			3826	General Supplies	1,008.70	0.00	1,008.70	
xxx296887	10/31/17	WHCI PLUMBING SUPPLY	S2255550.001	Bldg Maint Matls & Supplies	1,162.23	0.00	1,162.23	\$1,162.23
xxx296888	10/31/17	WOWZY CREATION CORP	88381	Customized Products	109.33	0.00	109.33	\$233.40
			89039	Customized Products	124.07	0.00	124.07	
xxx296889	10/31/17	WECK LABORATORIES INC	W7J1014	Water Lab Services	350.30	0.00	350.30	\$350.30

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xxx296890	10/31/17	WILSEY HAM	21689	Consultants	6,640.00	0.00	6,640.00	\$6,640.00
xxx296891	10/31/17	WINSUPPLY OF SILICON VALLEY	676977 02	Miscellaneous Equipment Parts & Supplies	244.32	0.00	244.32	\$6,591.60
			678754 03	Miscellaneous Equipment Parts & Supplies	5,352.34	0.00	5,352.34	
			680499 00	Electrical Parts & Supplies	994.94	0.00	994.94	
xxx296892	10/31/17	WAITER.COM INC	H1012532062	Food Products	96.31	0.00	96.31	\$96.31
xxx296893	10/31/17	CHERRY CHASE NEIGHBORHOOD ASSN	2016-2017RE	Community Services Grant - Neighborhood Grants	1,000.00	0.00	1,000.00	\$1,000.00
xxx296894	10/31/17	G&K SERVICES	6083147057	Laundry & Cleaning Services	77.13	0.00	77.13	\$8,301.50
			6083147058	Laundry & Cleaning Services	157.67	0.00	157.67	
			6083147059	Laundry & Cleaning Services	309.39	0.00	309.39	
			6083147060	Laundry & Cleaning Services	172.52	0.00	172.52	
			6083147063	Laundry & Cleaning Services	64.32	0.00	64.32	
			6083147064	Laundry & Cleaning Services	19.25	0.00	19.25	
			6083147065	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083147067	Laundry & Cleaning Services	198.76	0.00	198.76	
			6083147068	Laundry & Cleaning Services	13.34	0.00	13.34	
			6083147069	Laundry & Cleaning Services	0.90	0.00	0.90	
			6083147070	Laundry & Cleaning Services	83.77	0.00	83.77	
			6083147071	Laundry & Cleaning Services	214.32	0.00	214.32	
			6083147072	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083147073	Laundry & Cleaning Services	54.78	0.00	54.78	
			6083147074	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083147075	Laundry & Cleaning Services	42.48	0.00	42.48	
			6083147076	Laundry & Cleaning Services	45.28	0.00	45.28	
			6083147077	Laundry & Cleaning Services	20.88	0.00	20.88	
			6083147078	Laundry & Cleaning Services	58.62	0.00	58.62	
			6083147079	Laundry & Cleaning Services	53.46	0.00	53.46	
			6083147082	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083147083	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083147084	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083149647	Laundry & Cleaning Services	77.13	0.00	77.13	

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			6083149648	Laundry & Cleaning Services	157.67	0.00	157.67	
			6083149649	Laundry & Cleaning Services	309.39	0.00	309.39	
			6083149650	Laundry & Cleaning Services	172.52	0.00	172.52	
			6083149653	Laundry & Cleaning Services	64.32	0.00	64.32	
			6083149654	Laundry & Cleaning Services	19.25	0.00	19.25	
			6083149655	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083149657	Laundry & Cleaning Services	189.58	0.00	189.58	
			6083149658	Laundry & Cleaning Services	13.34	0.00	13.34	
			6083149659	Laundry & Cleaning Services	0.90	0.00	0.90	
			6083149660	Laundry & Cleaning Services	83.77	0.00	83.77	
			6083149661	Laundry & Cleaning Services	214.32	0.00	214.32	
			6083149662	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083149663	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083149664	Laundry & Cleaning Services	45.28	0.00	45.28	
			6083149667	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083149668	Laundry & Cleaning Services	8.40	0.00	8.40	
			6083149669	Laundry & Cleaning Services	14.34	0.00	14.34	
			6083149670	Laundry & Cleaning Services	48.06	0.00	48.06	
			6083149671	Laundry & Cleaning Services	22.02	0.00	22.02	
			6083149672	Laundry & Cleaning Services	20.58	0.00	20.58	
			6083149673	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083149674	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083152260	Laundry & Cleaning Services	77.13	0.00	77.13	
			6083152261	Laundry & Cleaning Services	172.51	0.00	172.51	
			6083152262	Laundry & Cleaning Services	309.39	0.00	309.39	
			6083152263	Laundry & Cleaning Services	159.10	0.00	159.10	
			6083152266	Laundry & Cleaning Services	68.28	0.00	68.28	
			6083152267	Laundry & Cleaning Services	19.25	0.00	19.25	
			6083152268	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083152270	Laundry & Cleaning Services	189.58	0.00	189.58	
			6083152271	Laundry & Cleaning Services	13.34	0.00	13.34	

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			6083152272	Laundry & Cleaning Services	0.90	0.00	0.90	
			6083152273	Laundry & Cleaning Services	83.77	0.00	83.77	
			6083152274	Laundry & Cleaning Services	214.32	0.00	214.32	
			6083152275	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083152276	Laundry & Cleaning Services	54.78	0.00	54.78	
			6083152277	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083152278	Laundry & Cleaning Services	42.48	0.00	42.48	
			6083152279	Laundry & Cleaning Services	45.28	0.00	45.28	
			6083152280	Laundry & Cleaning Services	20.88	0.00	20.88	
			6083152281	Laundry & Cleaning Services	58.62	0.00	58.62	
			6083152282	Laundry & Cleaning Services	53.46	0.00	53.46	
			6083152285	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083152286	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083152287	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083154850	Laundry & Cleaning Services	77.13	0.00	77.13	
			6083154851	Laundry & Cleaning Services	172.51	0.00	172.51	
			6083154852	Laundry & Cleaning Services	309.39	0.00	309.39	
			6083154853	Laundry & Cleaning Services	159.10	0.00	159.10	
			6083154856	Laundry & Cleaning Services	68.28	0.00	68.28	
			6083154857	Laundry & Cleaning Services	19.25	0.00	19.25	
			6083154858	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083154860	Laundry & Cleaning Services	195.56	0.00	195.56	
			6083154861	Laundry & Cleaning Services	13.34	0.00	13.34	
			6083154862	Laundry & Cleaning Services	0.90	0.00	0.90	
			6083154863	Laundry & Cleaning Services	83.77	0.00	83.77	
			6083154864	Laundry & Cleaning Services	214.32	0.00	214.32	
			6083154865	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083154866	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083154867	Laundry & Cleaning Services	45.28	0.00	45.28	
			6083154870	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083154871	Laundry & Cleaning Services	8.40	0.00	8.40	

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			6083154872	Laundry & Cleaning Services	14.34	0.00	14.34	
			6083154873	Laundry & Cleaning Services	48.06	0.00	48.06	
			6083154874	Laundry & Cleaning Services	22.02	0.00	22.02	
			6083154875	Laundry & Cleaning Services	20.58	0.00	20.58	
			6083154876	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083154877	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083157463	Laundry & Cleaning Services	77.13	0.00	77.13	
			6083157464	Laundry & Cleaning Services	181.37	0.00	181.37	
			6083157465	Laundry & Cleaning Services	376.63	0.00	376.63	
			6083157466	Laundry & Cleaning Services	159.10	0.00	159.10	
			6083157469	Laundry & Cleaning Services	68.28	0.00	68.28	
			6083157470	Laundry & Cleaning Services	19.25	0.00	19.25	
			6083157471	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083157473	Laundry & Cleaning Services	193.22	0.00	193.22	
			6083157474	Laundry & Cleaning Services	13.34	0.00	13.34	
			6083157475	Laundry & Cleaning Services	0.90	0.00	0.90	
			6083157476	Laundry & Cleaning Services	113.82	0.00	113.82	
			6083157477	Laundry & Cleaning Services	214.32	0.00	214.32	
			6083157478	Laundry & Cleaning Services	18.72	0.00	18.72	
			6083157479	Laundry & Cleaning Services	54.78	0.00	54.78	
			6083157480	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083157481	Laundry & Cleaning Services	42.48	0.00	42.48	
			6083157482	Laundry & Cleaning Services	45.28	0.00	45.28	
			6083157483	Laundry & Cleaning Services	20.88	0.00	20.88	
			6083157484	Laundry & Cleaning Services	58.62	0.00	58.62	
			6083157485	Laundry & Cleaning Services	53.46	0.00	53.46	
			6083157488	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083157489	Laundry & Cleaning Services	15.92	0.00	15.92	
			6083157490	Laundry & Cleaning Services	15.92	0.00	15.92	
xxx296904	10/31/17	GRAINGER	9545701675	Miscellaneous Equipment Parts & Supplies	93.11	0.00	93.11	\$10,232.28
			9549157965	Clothing, Uniforms & Access	31.81	0.00	31.81	

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			9549850619	Bldg Maint Matls & Supplies	146.44	0.00	146.44	
			9550269857	Miscellaneous Equipment Parts & Supplies	98.14	0.00	98.14	
			9551123392	Miscellaneous Equipment Parts & Supplies	31.78	0.00	31.78	
			9551195739	Miscellaneous Equipment Parts & Supplies	192.28	0.00	192.28	
			9551195747	Chemicals	354.03	0.00	354.03	
			9551195754	Miscellaneous Equipment Parts & Supplies	531.92	0.00	531.92	
			9551273528	Bldg Maint Matls & Supplies	565.18	0.00	565.18	
			9552653967	Parts, Vehicles & Motor Equip	157.75	0.00	157.75	
			9552728892	Bldg Maint Matls & Supplies	63.02	0.00	63.02	
			9553149247	Electrical Parts & Supplies	216.48	0.00	216.48	
			9553584088	Miscellaneous Equipment Parts & Supplies	55.69	0.00	55.69	
			9553584096	Miscellaneous Equipment Parts & Supplies	258.79	0.00	258.79	
			9554435538	Miscellaneous Equipment Parts & Supplies	15.07	0.00	15.07	
			9556137462	Miscellaneous Equipment Parts & Supplies	575.60	0.00	575.60	
			9556137470	Miscellaneous Equipment Parts & Supplies	117.11	0.00	117.11	
			9557722353	Parts, Vehicles & Motor Equip	235.74	0.00	235.74	
			9558470853	Clothing, Uniforms & Access	29.84	0.00	29.84	
			9559667598	Bldg Maint Matls & Supplies	553.25	0.00	553.25	
			9559739058	Miscellaneous Equipment Parts & Supplies	351.94	0.00	351.94	
			9560082506	Bldg Maint Matls & Supplies	44.67	0.00	44.67	
			9560177173	Bldg Maint Matls & Supplies	32.77	0.00	32.77	
			9560499577	Clothing, Uniforms & Access	284.79	0.00	284.79	
			9561993438	Miscellaneous Equipment Parts & Supplies	227.92	0.00	227.92	
			9562540667	Miscellaneous Equipment Parts & Supplies	82.07	0.00	82.07	
			9562540675	Miscellaneous Equipment Parts & Supplies	107.36	0.00	107.36	
			9563000455	Miscellaneous Equipment Parts & Supplies	317.90	0.00	317.90	
			9563619072	Miscellaneous Equipment Parts & Supplies	77.73	0.00	77.73	
			9563619080	Electrical Parts & Supplies	521.58	0.00	521.58	
			9563800979	General Supplies	157.99	0.00	157.99	
			9563800987	Miscellaneous Equipment Parts & Supplies	306.42	0.00	306.42	
			9564436096	Bldg Maint Matls & Supplies	80.13	0.00	80.13	

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			9564589803	Miscellaneous Equipment Parts & Supplies	82.69	0.00	82.69	
			9564843424	Hand Tools	397.30	0.00	397.30	
			9564843432	Miscellaneous Equipment Parts & Supplies	38.16	0.00	38.16	
			9565462042	Bldg Maint Matls & Supplies	151.29	0.00	151.29	
			9565714590	Electrical Parts & Supplies	396.66	0.00	396.66	
			9566962628	Electrical Parts & Supplies	154.84	0.00	154.84	
			9566962636	Electrical Parts & Supplies	63.46	0.00	63.46	
			9566962644	Supplies, Safety	380.74	0.00	380.74	
			9567793006	Supplies, Safety	532.71	0.00	532.71	
			9567793014	Supplies, Safety	357.31	0.00	357.31	
			9567946596	Supplies, Safety	87.07	0.00	87.07	
			9567946604	Supplies, Safety	88.17	0.00	88.17	
			9568442744	Miscellaneous Equipment Parts & Supplies	208.75	0.00	208.75	
			9570436726	Supplies, Safety	185.73	0.00	185.73	
			9570436734	Hand Tools	191.10	0.00	191.10	
xxx296908	10/31/17	KIRBY CANYON RECYCLING & DISPOSAL FAC	SEP2017	Landfill Fees to be Allocated	772,594.86	0.00	772,594.86	\$772,594.86
xxx296909	10/31/17	OFFICE DEPOT INC	967035190001	Supplies, Office 1	24.29	0.00	24.29	\$14,180.06
			967537211001	Supplies, Office 1	54.49	0.00	54.49	
			967546046001	Supplies, Office 1	7.54	0.00	7.54	
			967546728001	Supplies, Office 1	26.18	0.00	26.18	
			967546729001	Supplies, Office 1	35.05	0.00	35.05	
			967546730001	Supplies, Office 1	13.37	0.00	13.37	
			967546731001	Supplies, Office 1	270.04	0.00	270.04	
			967791569001	Supplies, Office 1	-187.45	0.00	-187.45	
			967871012001	Supplies, Office 1	291.01	0.00	291.01	
			967888659001	Supplies, Office 1	242.45	0.00	242.45	
			967910691001	Supplies, Office 1	29.12	0.00	29.12	
			967913642001	Supplies, Office 1	216.80	0.00	216.80	
			968435711001	Supplies, Office 1	29.81	0.00	29.81	
			968473303001	Supplies, Office 1	142.74	0.00	142.74	

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Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			968473842001	Supplies, Office 1	537.77	0.00	537.77	
			968485413001	Supplies, Office 1	35.69	0.00	35.69	
			968512444001	Supplies, Office 1	175.48	0.00	175.48	
			968572325001	Supplies, Office 1	116.58	0.00	116.58	
			968572735001	Supplies, Office 1	6.09	0.00	6.09	
			968651901001	Supplies, Office 1	102.71	0.00	102.71	
			968651987001	Supplies, Office 1	22.12	0.00	22.12	
			968651988001	Supplies, Office 1	59.23	0.00	59.23	
			968676801001	Supplies, Office 1	19.61	0.00	19.61	
			968678923001	Supplies, Office 1	1,038.65	0.00	1,038.65	
			968679043001	Supplies, Office 1	67.13	0.00	67.13	
			968730533001	Supplies, Office 1	530.06	0.00	530.06	
			968730581001	Supplies, Office 1	91.29	0.00	91.29	
			968814839001	Supplies, Office 1	73.95	0.00	73.95	
			968824260001	Supplies, Office 1	62.97	0.00	62.97	
			968865025001	Supplies, Office 1	97.90	0.00	97.90	
			968873555001	Supplies, Office 1	19.83	0.00	19.83	
			968873720001	Supplies, Office 1	13.22	0.00	13.22	
			968873721001	Supplies, Office 1	87.41	0.00	87.41	
			968976951001	Supplies, Office 1	239.96	0.00	239.96	
			968982037001	Supplies, Office 1	183.23	0.00	183.23	
			969003800001	Supplies, Office 1	149.05	0.00	149.05	
			969004890001	Supplies, Office 1	17.90	0.00	17.90	
			969094816001	Supplies, Office 1	483.94	0.00	483.94	
			969095498001	Supplies, Office 1	308.46	0.00	308.46	
			969095499001	Supplies, Office 1	308.46	0.00	308.46	
			969097344001	Supplies, Office 1	53.40	0.00	53.40	
			969162540001	Inventory Purchase	291.34	0.00	291.34	
			969246702001	Supplies, Office 1	65.40	0.00	65.40	
			969264785001	Supplies, Office 1	173.14	0.00	173.14	
			969289496001	Supplies, Office 1	44.76	0.00	44.76	

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			969321684001	Supplies, Office 1	-13.37	0.00	-13.37	
			969451684001	Supplies, Office 1	132.13	0.00	132.13	
			969464309001	Supplies, Office 1	-80.27	0.00	-80.27	
			969477667001	Supplies, Office 1	200.39	0.00	200.39	
			969477928001	Supplies, Office 1	56.70	0.00	56.70	
			969492852001	Supplies, Office 1	74.94	0.00	74.94	
			969697433001	Supplies, Office 1	198.53	0.00	198.53	
			969851700001	Supplies, Office 1	201.76	0.00	201.76	
			970076044001	Supplies, Office 1	-46.64	0.00	-46.64	
			970085480001	Supplies, Office 1	792.34	0.00	792.34	
			970095552001	Supplies, Office 1	16.36	0.00	16.36	
			970114366001	Supplies, Office 1	131.88	0.00	131.88	
			970114526001	Supplies, Office 1	22.86	0.00	22.86	
			970124479001	Supplies, Office 1	6.09	0.00	6.09	
			970124708001	Supplies, Office 1	21.09	0.00	21.09	
			970150833001	Supplies, Office 1	804.59	0.00	804.59	
			970203601001	Supplies, Office 1	126.04	0.00	126.04	
			970261979001	Supplies, Office 1	14.27	0.00	14.27	
			970262052001	Supplies, Office 1	160.12	0.00	160.12	
			970300624001	Supplies, Office 1	-103.26	0.00	-103.26	
			970300625001	Supplies, Office 1	-139.19	0.00	-139.19	
			970301049001	Supplies, Office 1	-151.82	0.00	-151.82	
			970301050001	Supplies, Office 1	-139.19	0.00	-139.19	
			970302684001	Supplies, Office 1	758.24	0.00	758.24	
			970410912001	Supplies, Office 1	50.88	0.00	50.88	
			970413174001	Supplies, Office 1	5.44	0.00	5.44	
			970461563001	Inventory Purchase	3,041.50	0.00	3,041.50	
			970520528001	Supplies, Office 1	82.63	0.00	82.63	
			970527649001	Supplies, Office 1	230.91	0.00	230.91	
			970629962001	Supplies, Office 1	4.35	0.00	4.35	
			970733312001	Supplies, Office 1	38.59	0.00	38.59	

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xxx296916	10/31/17	PACIFIC GAS & ELECTRIC CO	970837383001	Supplies, Office 1	154.80	0.00	154.80	\$9,730.91
			970860473001	Supplies, Office 1	96.54	0.00	96.54	
			970869405001	Supplies, Office 1	67.57	0.00	67.57	
			971004786001	Supplies, Office 1	94.11	0.00	94.11	
			971075186001	Supplies, Office 1	24.97	0.00	24.97	
			971150631001	Supplies, Office 1	310.67	0.00	310.67	
			971188634001	Supplies, Office 1	229.47	0.00	229.47	
			971188773001	Supplies, Office 1	30.87	0.00	30.87	
			11059228290917	Utilities - Electric	55.40	0.00	55.40	
			11059229930917	Utilities - Electric	68.13	0.00	68.13	
			35600081570917	Utilities - Electric	31.85	0.00	31.85	
			35602171200917	Utilities - Electric	24.26	0.00	24.26	
			35604437160917	Utilities - Electric	25.61	0.00	25.61	
			35606224450917	Utilities - Electric	17.53	0.00	17.53	
			35607191900917	Utilities - Electric	39.43	0.00	39.43	
			35608567660917	Utilities - Electric	36.78	0.00	36.78	
			35610567280917	Utilities - Electric	22.54	0.00	22.54	
			35611839590917	Utilities - Electric	0.15	0.00	0.15	
			35612262510917	Utilities - Electric	29.84	0.00	29.84	
			35613458020917	Utilities - Electric	18.39	0.00	18.39	
			35615386140917	Utilities - Electric	14.17	0.00	14.17	
			35616646260917	Utilities - Electric	27.62	0.00	27.62	
			35617117850917	Utilities - Electric	19.61	0.00	19.61	
			35619832010917	Utilities - Electric	8.23	0.00	8.23	
			35620251620917	Utilities - Electric	15.10	0.00	15.10	
			35621388650917	Utilities - Electric	17.89	0.00	17.89	
			35622378290917	Utilities - Electric	25.40	0.00	25.40	
			35622803790917	Utilities - Electric	34.50	0.00	34.50	
			35623203290917	Utilities - Electric	32.13	0.00	32.13	
			35623495080917	Utilities - Electric	27.19	0.00	27.19	
			35624668430917	Utilities - Electric	30.99	0.00	30.99	

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			35625361150917	Utilities - Electric	18.24	0.00	18.24	
			35629588410917	Utilities - Electric	25.90	0.00	25.90	
			35630250570917	Utilities - Electric	19.25	0.00	19.25	
			35630370110917	Utilities - Electric	33.27	0.00	33.27	
			35630869420917	Utilities - Electric	21.47	0.00	21.47	
			35631755360917	Utilities - Electric	26.05	0.00	26.05	
			35632810380917	Utilities - Electric	19.61	0.00	19.61	
			35634101590917	Utilities - Electric	42.58	0.00	42.58	
			35635840130917	Utilities - Electric	27.83	0.00	27.83	
			35635878160917	Utilities - Electric	20.18	0.00	20.18	
			35638635000917	Utilities - Electric	29.49	0.00	29.49	
			35639668520917	Utilities - Electric	17.53	0.00	17.53	
			35641783140917	Utilities - Electric	27.27	0.00	27.27	
			35642309020917	Utilities - Electric	21.11	0.00	21.11	
			35642590020917	Utilities - Electric	24.19	0.00	24.19	
			35642590100917	Utilities - Electric	54.39	0.00	54.39	
			35642590150917	Utilities - Electric	45.90	0.00	45.90	
			35642590200917	Utilities - Electric	46.38	0.00	46.38	
			35642590250917	Utilities - Electric	59.70	0.00	59.70	
			35642590300917	Utilities - Electric	76.37	0.00	76.37	
			35642590350917	Utilities - Electric	51.03	0.00	51.03	
			35642590400917	Utilities - Electric	81.63	0.00	81.63	
			35642590450917	Utilities - Electric	55.21	0.00	55.21	
			35642590460917	Utilities - Electric	10.66	0.00	10.66	
			35642590500917	Utilities - Electric	46.85	0.00	46.85	
			35642590650917	Utilities - Electric	46.20	0.00	46.20	
			35642590700917	Utilities - Electric	63.95	0.00	63.95	
			35642590750917	Utilities - Electric	77.09	0.00	77.09	
			35642590800917	Utilities - Electric	62.58	0.00	62.58	
			35642590850917	Utilities - Electric	42.02	0.00	42.02	
			35642590950917	Utilities - Electric	15.72	0.00	15.72	

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Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			35642591000917	Utilities - Electric	88.27	0.00	88.27	
			35642591050917	Utilities - Electric	45.13	0.00	45.13	
			35642591100917	Utilities - Electric	39.76	0.00	39.76	
			35642591150917	Utilities - Electric	53.37	0.00	53.37	
			35642591210917	Utilities - Electric	32.20	0.00	32.20	
			35642591250917	Utilities - Electric	66.11	0.00	66.11	
			35642591300917	Utilities - Electric	33.52	0.00	33.52	
			35642591310917	Utilities - Electric	10.66	0.00	10.66	
			35642591350917	Utilities - Electric	71.30	0.00	71.30	
			35642591400917	Utilities - Electric	55.29	0.00	55.29	
			35642591430917	Utilities - Electric	25.55	0.00	25.55	
			35642591450917	Utilities - Electric	45.25	0.00	45.25	
			35642591500917	Utilities - Electric	35.08	0.00	35.08	
			35642591550917	Utilities - Electric	39.16	0.00	39.16	
			35642591600917	Utilities - Electric	48.04	0.00	48.04	
			35642591650917	Utilities - Electric	64.37	0.00	64.37	
			35642591700917	Utilities - Electric	55.04	0.00	55.04	
			35642591750917	Utilities - Electric	52.65	0.00	52.65	
			35642591800917	Utilities - Electric	42.62	0.00	42.62	
			35642591850917	Utilities - Electric	46.68	0.00	46.68	
			35642591900917	Utilities - Electric	39.49	0.00	39.49	
			35642591930917	Utilities - Electric	33.06	0.00	33.06	
			35642591940917	Utilities - Electric	23.83	0.00	23.83	
			35642591950917	Utilities - Electric	51.58	0.00	51.58	
			35642592000917	Utilities - Electric	61.63	0.00	61.63	
			35642592050917	Utilities - Electric	59.10	0.00	59.10	
			35642592070917	Utilities - Electric	26.33	0.00	26.33	
			35642592100917	Utilities - Electric	52.31	0.00	52.31	
			35642592130917	Utilities - Electric	17.53	0.00	17.53	
			35642592150917	Utilities - Electric	57.35	0.00	57.35	
			35642592190917	Utilities - Electric	42.79	0.00	42.79	

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			35642592200917	Utilities - Electric	50.02	0.00	50.02	
			35642592250917	Utilities - Electric	23.60	0.00	23.60	
			35642592300917	Utilities - Electric	42.62	0.00	42.62	
			35642592350917	Utilities - Electric	10.10	0.00	10.10	
			35642592400917	Utilities - Electric	74.16	0.00	74.16	
			35642592450917	Utilities - Electric	40.82	0.00	40.82	
			35642592500917	Utilities - Electric	46.72	0.00	46.72	
			35642592550917	Utilities - Electric	63.71	0.00	63.71	
			35642592600917	Utilities - Electric	55.69	0.00	55.69	
			35642592650917	Utilities - Electric	68.25	0.00	68.25	
			35642592700917	Utilities - Electric	56.65	0.00	56.65	
			35642592750917	Utilities - Electric	48.77	0.00	48.77	
			35642592800917	Utilities - Electric	79.25	0.00	79.25	
			35642592850917	Utilities - Electric	51.16	0.00	51.16	
			35642592900917	Utilities - Electric	51.03	0.00	51.03	
			35642592950917	Utilities - Electric	63.53	0.00	63.53	
			35642593000917	Utilities - Electric	64.18	0.00	64.18	
			35642593050917	Utilities - Electric	70.29	0.00	70.29	
			35642593100917	Utilities - Electric	62.28	0.00	62.28	
			35642593200917	Utilities - Electric	57.01	0.00	57.01	
			35642593210917	Utilities - Electric	33.85	0.00	33.85	
			35642593250917	Utilities - Electric	12.13	0.00	12.13	
			35642593260917	Utilities - Electric	26.69	0.00	26.69	
			35642593300917	Utilities - Electric	57.92	0.00	57.92	
			35642593350917	Utilities - Electric	53.77	0.00	53.77	
			35642593400917	Utilities - Electric	65.62	0.00	65.62	
			35642593410917	Utilities - Electric	15.81	0.00	15.81	
			35642593450917	Utilities - Electric	47.52	0.00	47.52	
			35642593480917	Utilities - Electric	17.53	0.00	17.53	
			35642593500917	Utilities - Electric	60.72	0.00	60.72	
			35642593550917	Utilities - Electric	48.17	0.00	48.17	

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Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			35642593600917	Utilities - Electric	69.32	0.00	69.32	
			35642593650917	Utilities - Electric	67.16	0.00	67.16	
			35642593700917	Utilities - Electric	57.74	0.00	57.74	
			35642593750917	Utilities - Electric	39.81	0.00	39.81	
			35642593800917	Utilities - Electric	46.12	0.00	46.12	
			35642593830917	Utilities - Electric	19.68	0.00	19.68	
			35642593850917	Utilities - Electric	10.51	0.00	10.51	
			35642593900917	Utilities - Electric	43.74	0.00	43.74	
			35642593950917	Utilities - Electric	41.59	0.00	41.59	
			35642593960917	Utilities - Electric	22.61	0.00	22.61	
			35642594000917	Utilities - Electric	50.91	0.00	50.91	
			35642594030917	Utilities - Electric	19.61	0.00	19.61	
			35642594050917	Utilities - Electric	28.33	0.00	28.33	
			35642594100917	Utilities - Electric	28.33	0.00	28.33	
			35642594150917	Utilities - Electric	45.54	0.00	45.54	
			35642594250917	Utilities - Electric	81.98	0.00	81.98	
			35642594260917	Utilities - Electric	20.60	0.00	20.60	
			35642594300917	Utilities - Electric	52.11	0.00	52.11	
			35642594310917	Utilities - Electric	23.55	0.00	23.55	
			35642594350917	Utilities - Electric	48.40	0.00	48.40	
			35642594400917	Utilities - Electric	48.29	0.00	48.29	
			35642594450917	Utilities - Electric	54.50	0.00	54.50	
			35642594500917	Utilities - Electric	36.92	0.00	36.92	
			35642594550917	Utilities - Electric	68.25	0.00	68.25	
			35642594600917	Utilities - Electric	67.05	0.00	67.05	
			35642594650917	Utilities - Electric	66.57	0.00	66.57	
			35642594700917	Utilities - Electric	64.31	0.00	64.31	
			35642594750917	Utilities - Electric	55.45	0.00	55.45	
			35642594800917	Utilities - Electric	63.46	0.00	63.46	
			35642594850917	Utilities - Electric	38.83	0.00	38.83	
			35642594900917	Utilities - Electric	46.35	0.00	46.35	

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Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			35642594950917	Utilities - Electric	64.76	0.00	64.76	
			35642595000917	Utilities - Electric	49.35	0.00	49.35	
			35642595050917	Utilities - Electric	52.20	0.00	52.20	
			35642595100917	Utilities - Electric	52.69	0.00	52.69	
			35642595150917	Utilities - Electric	42.41	0.00	42.41	
			35642595180917	Utilities - Electric	17.53	0.00	17.53	
			35642595200917	Utilities - Electric	49.35	0.00	49.35	
			35642595250917	Utilities - Electric	44.22	0.00	44.22	
			35642595260917	Utilities - Electric	35.21	0.00	35.21	
			35642595270917	Utilities - Electric	25.55	0.00	25.55	
			35642595300917	Utilities - Electric	49.36	0.00	49.36	
			35642595350917	Utilities - Electric	44.09	0.00	44.09	
			35642595400917	Utilities - Electric	44.68	0.00	44.68	
			35642595450917	Utilities - Electric	78.60	0.00	78.60	
			35642595500917	Utilities - Electric	36.55	0.00	36.55	
			35642595550917	Utilities - Electric	40.58	0.00	40.58	
			35642595600917	Utilities - Electric	37.63	0.00	37.63	
			35642595650917	Utilities - Electric	47.33	0.00	47.33	
			35642595700917	Utilities - Electric	47.06	0.00	47.06	
			35642595750917	Utilities - Electric	47.89	0.00	47.89	
			35642595800917	Utilities - Electric	41.79	0.00	41.79	
			35642595840917	Utilities - Electric	26.91	0.00	26.91	
			35642595850917	Utilities - Electric	68.34	0.00	68.34	
			35642595900917	Utilities - Electric	38.68	0.00	38.68	
			35642595950917	Utilities - Electric	79.06	0.00	79.06	
			35642596000917	Utilities - Electric	63.50	0.00	63.50	
			35642596050917	Utilities - Electric	54.78	0.00	54.78	
			35642596100917	Utilities - Electric	52.85	0.00	52.85	
			35642596150917	Utilities - Electric	44.59	0.00	44.59	
			35642596180917	Utilities - Electric	20.96	0.00	20.96	
			35642596200917	Utilities - Electric	53.57	0.00	53.57	

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Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			35642596250917	Utilities - Electric	42.94	0.00	42.94	
			35642596300917	Utilities - Electric	49.51	0.00	49.51	
			35642596310917	Utilities - Electric	17.46	0.00	17.46	
			35642596350917	Utilities - Electric	39.48	0.00	39.48	
			35642596380917	Utilities - Electric	33.56	0.00	33.56	
			35642596390917	Utilities - Electric	22.97	0.00	22.97	
			35642596400917	Utilities - Electric	40.99	0.00	40.99	
			35642596450917	Utilities - Electric	73.50	0.00	73.50	
			35642596500917	Utilities - Electric	39.16	0.00	39.16	
			35642596510917	Utilities - Electric	19.89	0.00	19.89	
			35642596700917	Utilities - Electric	22.04	0.00	22.04	
			35642596890917	Utilities - Electric	21.04	0.00	21.04	
			35642597310917	Utilities - Electric	24.90	0.00	24.90	
			35642597410917	Utilities - Electric	31.70	0.00	31.70	
			35642597560917	Utilities - Electric	16.18	0.00	16.18	
			35642597580917	Utilities - Electric	37.71	0.00	37.71	
			35642597780917	Utilities - Electric	22.47	0.00	22.47	
			35642598090917	Utilities - Electric	34.56	0.00	34.56	
			35642598240917	Utilities - Electric	10.18	0.00	10.18	
			35642598320917	Utilities - Electric	25.83	0.00	25.83	
			35642598500917	Utilities - Electric	16.82	0.00	16.82	
			35642598680917	Utilities - Electric	22.69	0.00	22.69	
			35642598820917	Utilities - Electric	21.32	0.00	21.32	
			35642599030917	Utilities - Electric	23.83	0.00	23.83	
			35642599140917	Utilities - Electric	19.32	0.00	19.32	
			35642599220917	Utilities - Electric	31.92	0.00	31.92	
			35642599230917	Utilities - Electric	18.61	0.00	18.61	
			35642599630917	Utilities - Electric	41.36	0.00	41.36	
			35642599650917	Utilities - Electric	20.68	0.00	20.68	
			35642657100917	Utilities - Electric	26.76	0.00	26.76	
			35644680670917	Utilities - Electric	24.33	0.00	24.33	

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Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			35646567580917	Utilities - Electric	3.50	0.00	3.50	
			35647525510917	Utilities - Electric	24.05	0.00	24.05	
			35647587030917	Utilities - Electric	41.15	0.00	41.15	
			35650040160917	Utilities - Electric	28.26	0.00	28.26	
			35650072020917	Utilities - Electric	21.19	0.00	21.19	
			35650295620917	Utilities - Electric	46.95	0.00	46.95	
			35650736240917	Utilities - Electric	22.90	0.00	22.90	
			35651995910917	Utilities - Electric	28.05	0.00	28.05	
			35652446010917	Utilities - Electric	32.13	0.00	32.13	
			35652837430917	Utilities - Electric	18.54	0.00	18.54	
			35653850930917	Utilities - Electric	32.99	0.00	32.99	
			35654460380917	Utilities - Electric	21.75	0.00	21.75	
			35655027900917	Utilities - Electric	35.21	0.00	35.21	
			35656758090917	Utilities - Electric	21.19	0.00	21.19	
			35658641990917	Utilities - Electric	21.68	0.00	21.68	
			35659521990917	Utilities - Electric	25.76	0.00	25.76	
			35659719430917	Utilities - Electric	38.50	0.00	38.50	
			35661606410917	Utilities - Electric	22.47	0.00	22.47	
			35662710140917	Utilities - Electric	22.54	0.00	22.54	
			35663598020917	Utilities - Electric	31.56	0.00	31.56	
			35664661630917	Utilities - Electric	30.05	0.00	30.05	
			35666020590917	Utilities - Electric	22.04	0.00	22.04	
			35666267910917	Utilities - Electric	39.86	0.00	39.86	
			35669864390917	Utilities - Electric	23.40	0.00	23.40	
			35671931870917	Utilities - Electric	22.04	0.00	22.04	
			35674252920917	Utilities - Electric	33.92	0.00	33.92	
			35674989850917	Utilities - Electric	21.75	0.00	21.75	
			35675679620917	Utilities - Electric	24.97	0.00	24.97	
			35676150740917	Utilities - Electric	31.99	0.00	31.99	
			35677237450917	Utilities - Electric	34.56	0.00	34.56	
			35677904120917	Utilities - Electric	28.77	0.00	28.77	

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			35679500460917	Utilities - Electric	30.99	0.00	30.99	
			35679745900917	Utilities - Electric	32.63	0.00	32.63	
			35680001590917	Utilities - Electric	27.05	0.00	27.05	
			35681394250917	Utilities - Electric	17.74	0.00	17.74	
			35685267030917	Utilities - Electric	41.43	0.00	41.43	
			35690738200917	Utilities - Electric	26.27	0.00	26.27	
			35692937870917	Utilities - Electric	35.79	0.00	35.79	
			35693522670917	Utilities - Electric	23.25	0.00	23.25	
			35695460940917	Utilities - Electric	24.26	0.00	24.26	
			35695887370917	Utilities - Electric	27.05	0.00	27.05	
			35699206580917	Utilities - Electric	1.36	0.00	1.36	
			74408230820917	Utilities - Electric	48.96	0.00	48.96	
xxx296937	11/2/17	AARON'S INDUSTRIAL PUMPING	9/5/2017	Professional Services	170.00	0.00	170.00	\$170.00
xxx296938	11/2/17	AIRGAS USA LLC	9068205434	Hand Tools	382.59	0.00	382.59	\$611.81
			9948437890	General Supplies	229.22	0.00	229.22	
xxx296939	11/2/17	ALL CITY MANAGEMENT SERVICES INC	49987	Contracts/Service Agreements	28,165.33	0.00	28,165.33	\$85,837.48
			50207	Contracts/Service Agreements	28,524.66	0.00	28,524.66	
			50463	Contracts/Service Agreements	29,147.49	0.00	29,147.49	
xxx296940	11/2/17	ALL STAR GLASS	ISJ052873	Auto Maint & Repair - Labor	181.50	0.00	181.50	\$530.09
			ISJ052873	Auto Maint & Repair - Materials	348.59	0.00	348.59	
xxx296941	11/2/17	ALPINE AWARDS INC	5519880	Clothing, Uniforms & Access	670.62	0.00	670.62	\$2,783.09
			5521630	Customized Products	2,112.47	0.00	2,112.47	
xxx296943	11/2/17	APPLEONE EMPLOYMENT SERVICES	01-4656998	Contracts/Service Agreements	1,541.60	0.00	1,541.60	\$10,808.84
			01-4656999	Contracts/Service Agreements	9,267.24	0.00	9,267.24	
xxx296945	11/2/17	BAY-VALLEY PEST CONTROL INC	0230577	Facilities Maintenance & Repair Labor	65.00	0.00	65.00	\$150.00
			0232293	Facilities Maintenance & Repair Labor	85.00	0.00	85.00	
xxx296946	11/2/17	BLASTCO INC	MRY-CRSNTNK #07	Construction Services	49,026.66	0.00	49,026.66	\$49,026.66
xxx296947	11/2/17	CDM SMITH	90026884	Consultants	135,271.65	0.00	135,271.65	\$135,271.65
xxx296948	11/2/17	CALCON SYSTEMS INC	41127	Contracts/Service Agreements	665.00	0.00	665.00	\$665.00
xxx296949	11/2/17	CALL JIMMY HANDYMAN SERVICES	1580	Facilities Maint & Repair - Labor	4,450.00	0.00	4,450.00	\$14,977.50

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			1580	Facilities Maint & Repair - Materials	10,527.50	0.00	10,527.50	
xxx296950	11/2/17	CALTEST ANALYTICAL LABORATORY	577641	Water Lab Services	1,707.48	0.00	1,707.48	\$2,131.89
			577852	Water Lab Services	250.92	0.00	250.92	
			578008	Water Lab Services	173.49	0.00	173.49	
xxx296951	11/2/17	CARBOLINE CO	21487678	Chemicals	151.49	0.00	151.49	\$477.01
			21502755	Chemicals	325.52	0.00	325.52	
xxx296952	11/2/17	CLEAN VENT INC	38094	Facilities Maintenance & Repair Labor	705.00	0.00	705.00	\$705.00
xxx296953	11/2/17	CONSOLIDATED PARTS INC	5042293	Electrical Parts & Supplies	1,024.60	0.00	1,024.60	\$1,755.47
			5042347	Electrical Parts & Supplies	310.65	0.00	310.65	
			5042421	Electrical Parts & Supplies	420.22	0.00	420.22	
xxx296954	11/2/17	CUNNINGHAM ELECTRIC INC	8863	Facilities Maint & Repair - Labor	500.00	0.00	500.00	\$3,530.00
			8863	Facilities Maint & Repair - Materials	180.00	0.00	180.00	
			8935	Facilities Maintenance & Repair Labor	2,850.00	0.00	2,850.00	
xxx296955	11/2/17	D & M TRAFFIC SERVICES INC	54625	Miscellaneous Equipment Parts & Supplies	190.75	0.00	190.75	\$2,043.75
			54746	Inventory Purchase	1,853.00	0.00	1,853.00	
xxx296956	11/2/17	DELTA DENTAL INSURANCE CO	BE002490219	Insurances - Dental	1,648.82	0.00	1,648.82	\$1,648.82
xxx296957	11/2/17	DOWNEY BRAND LLP	515883	Legal Services	510.00	0.00	510.00	\$510.00
xxx296958	11/2/17	EMPIRE SAFETY & SUPPLY	0090337-IN	Inventory Purchase	204.77	0.00	204.77	\$204.77
xxx296959	11/2/17	FARMLoad DISTRIBUTORS INC	1170907179	Materials - Land Improve	1,157.23	0.00	1,157.23	\$1,157.23
xxx296960	11/2/17	FEDEX	5-952-14464	Mailing & Delivery Services	33.50	0.00	33.50	\$52.63
			5-960-49171	Mailing & Delivery Services	6.79	0.00	6.79	
			5-966-99212	Mailing & Delivery Services	6.18	0.00	6.18	
			5-967-99607	Mailing & Delivery Services	6.16	0.00	6.16	
xxx296961	11/2/17	FRANK A OLSEN CO INC	238804	Miscellaneous Equipment Parts & Supplies	4,726.03	0.00	4,726.03	\$4,726.03
xxx296962	11/2/17	FREMONT UNION HIGH SCHOOL DISTRICT	V073017	DED Services/Training - Training	72.00	0.00	72.00	\$72.00
xxx296963	11/2/17	GARDA	20254828	Financial Services	12.60	0.00	12.60	\$12.60
xxx296964	11/2/17	GOLDEN GATE MECHANICAL INC	32561	Facilities Maintenance & Repair Labor	1,786.80	0.00	1,786.80	\$1,786.80
xxx296965	11/2/17	GRANITE CONSTRUCTION CO	1241052	Materials - Land Improve	233.48	0.00	233.48	\$350.98
			1241633	Materials - Land Improve	117.50	0.00	117.50	
xxx296966	11/2/17	GRAYBAR ELECTRIC CO INC	9300603797	Comm Equip Maintain & Repair - Materials 2	80.58	0.00	80.58	\$80.58

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xxx296967	11/2/17	GREENESPORT ASSN	COL102417SB	Rec Instructors/Officials	220.00	0.00	220.00	\$2,930.00
			COL102717	Rec Instructors/Officials	1,140.00	0.00	1,140.00	
			SUN102417	Rec Instructors/Officials	1,240.00	0.00	1,240.00	
			SUN102417SB	Rec Instructors/Officials	330.00	0.00	330.00	
xxx296968	11/2/17	HDR ENGINEERING INC	1200080426	Engineering Services	3,879.33	0.00	3,879.33	\$3,879.33
xxx296969	11/2/17	IMPERIAL HEADWEAR	150439RE2	Inventory Purchase	448.77	0.00	448.77	\$1,296.14
			150949RE2	Inventory Purchase	847.37	0.00	847.37	
xxx296970	11/2/17	KAREN L PIKE	KLP600-001	Medical Services	4,000.00	0.00	4,000.00	\$4,000.00
xxx296971	11/2/17	KOHLWEISS AUTO PARTS INC	01PL7616	Inventory Purchase	1,145.75	22.92	1,122.83	\$1,122.83
xxx296972	11/2/17	L N CURTIS & SONS INC	INV136227	Inventory Purchase	392.40	0.00	392.40	\$392.40
xxx296973	11/2/17	LAAFMA	KILPATRICK2017	Membership Fees	15.00	0.00	15.00	\$15.00
xxx296974	11/2/17	LTI ELECTRIC INC	2436	Facilities Maint & Repair - Labor	780.00	0.00	780.00	\$950.00
			2436	Facilities Maint & Repair - Materials	170.00	0.00	170.00	
xxx296975	11/2/17	LIEBERT CASSIDY WHITMORE	1448859	City Training Program	10,153.20	0.00	10,153.20	\$10,153.20
xxx296976	11/2/17	LIEBERT CASSIDY WHITMORE	1448489	Legal Services	7,647.44	0.00	7,647.44	\$7,647.44
xxx296977	11/2/17	MANUEL MARTULL	BAWSA REBATE	Miscellaneous Equipment Parts & Supplies	100.00	0.00	100.00	\$100.00
xxx296978	11/2/17	MALLORY SAFETY & SUPPLY LLC	4347741	Inventory Purchase	1,222.98	0.00	1,222.98	\$1,222.98
xxx296979	11/2/17	MID COAST ENGINEERS	2452	Services Maintain Land Improv	5,465.00	0.00	5,465.00	\$5,465.00
xxx296980	11/2/17	MUNICIPAL MAINTENANCE EQUIPMENT INC	0120818-CM	Parts, Vehicles & Motor Equip	-575.00	0.00	-575.00	\$555.52
			0121134-CM	Parts, Vehicles & Motor Equip	-412.31	0.00	-412.31	
			0122396-IN	Parts, Vehicles & Motor Equip	439.33	0.00	439.33	
			012286-IN	Parts, Vehicles & Motor Equip	1,103.50	0.00	1,103.50	
xxx296981	11/2/17	NAPA AUTO PARTS	5983-336520	Parts, Vehicles & Motor Equip	-54.62	0.00	-54.62	\$4,717.25
			5983-336682	Parts, Vehicles & Motor Equip	-12.06	0.00	-12.06	
			5983-337618	Parts, Vehicles & Motor Equip	-1,068.70	0.00	-1,068.70	
			5983-338605	Parts, Vehicles & Motor Equip	-21.84	0.00	-21.84	
			5983-351226	Parts, Vehicles & Motor Equip	190.13	0.00	190.13	
			5983-351429	Parts, Vehicles & Motor Equip	10.11	0.00	10.11	
			5983-351482	Parts, Vehicles & Motor Equip	86.99	0.00	86.99	

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			5983-351781	Parts, Vehicles & Motor Equip	17.12	0.00	17.12	
			5983-351785	Parts, Vehicles & Motor Equip	21.34	0.00	21.34	
			5983-352026	Parts, Vehicles & Motor Equip	42.18	0.00	42.18	
			5983-352034	Parts, Vehicles & Motor Equip	96.98	0.00	96.98	
			5983-352169	Parts, Vehicles & Motor Equip	14.52	0.00	14.52	
			5983-352170	Parts, Vehicles & Motor Equip	4.85	0.00	4.85	
			5983-352178	Parts, Vehicles & Motor Equip	5.02	0.00	5.02	
			5983-352179	Parts, Vehicles & Motor Equip	75.04	0.00	75.04	
			5983-352334	Parts, Vehicles & Motor Equip	52.30	0.00	52.30	
			5983-352682	Parts, Vehicles & Motor Equip	43.25	0.00	43.25	
			5983-352711	Parts, Vehicles & Motor Equip	6.08	0.00	6.08	
			5983-352724	Parts, Vehicles & Motor Equip	101.47	0.00	101.47	
			5983-352734	Parts, Vehicles & Motor Equip	1,773.21	0.00	1,773.21	
			5983-352851	Parts, Vehicles & Motor Equip	1,410.94	0.00	1,410.94	
			5983-353266	Parts, Vehicles & Motor Equip	81.68	0.00	81.68	
			5983-353352	Parts, Vehicles & Motor Equip	121.68	0.00	121.68	
			5983-353494	Parts, Vehicles & Motor Equip	1,306.88	0.00	1,306.88	
			5983-353559	Parts, Vehicles & Motor Equip	92.17	0.00	92.17	
			5983-353715	Parts, Vehicles & Motor Equip	75.92	0.00	75.92	
			5983-353716	Parts, Vehicles & Motor Equip	234.75	0.00	234.75	
			5983-353717	Parts, Vehicles & Motor Equip	9.86	0.00	9.86	
			5983-381781	Parts, Vehicles & Motor Equip	0.00	0.00	0.00	
			5983-381785	Parts, Vehicles & Motor Equip	0.00	0.00	0.00	
xxx296984	11/2/17	NI GOVERNMENT SERVICES INC	7081171721	Miscellaneous Services	78.77	0.00	78.77	\$157.54
			7091177647	Miscellaneous Services	78.77	0.00	78.77	
xxx296985	11/2/17	OVERDRIVE INC	910CO17057416	Library Periodicals/Databases	7,274.45	0.00	7,274.45	\$8,705.65
			910CO17057463	Library Periodicals/Databases	457.28	0.00	457.28	
			910CO17057584	Library Periodicals/Databases	236.43	0.00	236.43	
			910DA17060393	Library Periodicals/Databases	426.99	0.00	426.99	
			MR-0023227	Library Periodicals/Databases	310.50	0.00	310.50	
xxx296986	11/2/17	PACIFIC JANITORIAL SUPPLY CO	30045028	Inventory Purchase	726.14	0.00	726.14	\$726.14

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xxx296987	11/2/17	PACIFIC WEST SECURITY INC	1065187	Alarm Services	79.00	0.00	79.00	\$169.00
			1065470	Alarm Services	90.00	0.00	90.00	
xxx296988	11/2/17	PENINSULA BATTERY INC	123133	Inventory Purchase	67.82	0.00	67.82	\$67.82
xxx296989	11/2/17	PINE CONE LUMBER CO INC	727162	Materials - Land Improve	192.55	0.00	192.55	\$602.01
			727699	Inventory Purchase	413.60	4.14	409.46	
xxx296990	11/2/17	POLYDYNE INC	1180222	Chemicals	30,511.80	0.00	30,511.80	\$30,511.80
xxx296991	11/2/17	PRECISION ENGINEERING INC	SNTYSWRPHS2 #06	Construction Services	13,540.99	0.00	13,540.99	\$13,540.99
xxx296992	11/2/17	PUBLIC SAFETY CONSULTANTS NORTHWEST LLC	EMO 8-17	Consultants	731.50	0.00	731.50	\$731.50
xxx296993	11/2/17	REED & GRAHAM INC	901883	Materials - Land Improve	0.30	0.00	0.30	\$12,281.02
			902957	Materials - Land Improve	408.63	0.00	408.63	
			903333	Materials - Land Improve	2,315.24	0.00	2,315.24	
			903467	Materials - Land Improve	4,570.86	0.00	4,570.86	
			903599	Materials - Land Improve	2,853.91	0.00	2,853.91	
			903851	Materials - Land Improve	2,132.08	0.00	2,132.08	
xxx296994	11/2/17	SAFEWAY INC	724774-102517	Food Products	28.29	0.00	28.29	\$95.02
			729925-101617	General Supplies	15.00	0.00	15.00	
			800424-102117	Food Products	35.78	0.00	35.78	
			802170-102517	Food Products	15.95	0.00	15.95	
xxx296995	11/2/17	SANTA CLARA VALLEY HEALTH & HOSPITAL SYS	H6214991400	Medical Services	1,494.00	0.00	1,494.00	\$1,494.00
xxx296996	11/2/17	SECURITY ALERT SYSTEMS OF CALIFORNIA INC	070668	Facilities Maintenance & Repair Labor	225.00	0.00	225.00	\$225.00
xxx296997	11/2/17	SHRED-IT USA	8123242133	Records Related Services	135.52	0.00	135.52	\$135.52
xxx296998	11/2/17	SILICON VALLEY POLYTECHNIC INSTITUTE	10222017-516	DED Services/Training - Training	2,000.00	0.00	2,000.00	\$2,000.00
xxx296999	11/2/17	SMART & FINAL INC	031136-101617	General Supplies	129.74	0.00	129.74	\$268.15
			046538-102017	Food Products	138.41	0.00	138.41	
xxx297000	11/2/17	SMITHGROUPJJR	0126640	Professional Services	179,375.75	0.00	179,375.75	\$179,375.75
xxx297001	11/2/17	STATE BOARD OF EQUALIZATION	JUL-SEP2017	Taxes & Licenses - Misc	1,277.64	0.00	1,277.64	\$1,277.64
xxx297002	11/2/17	STATE WATER RESOURCES CONTROL BOARD	OP#34427 D2	Membership Fees	80.00	0.00	80.00	\$80.00

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xxx297003	11/2/17	STATE WATER RESOURCES CONTROL BOARD	E EVANS D2CERT OP#15038 D2	Membership Fees	80.00	0.00	80.00	\$160.00
xxx297004	11/2/17	SUPPLYWORKS	417655248	Inventory Purchase	395.02	3.62	391.40	\$391.40
xxx297005	11/2/17	SUZANNE LUFT	110 111	Rec Instructors/Officials Rec Instructors/Officials	225.00 795.00	0.00 0.00	225.00 795.00	\$1,020.00
xxx297006	11/2/17	SYNAGRO-WWT INC	03-103028	Miscellaneous Services	22,273.73	0.00	22,273.73	\$22,273.73
xxx297007	11/2/17	THOMSON REUTERS WEST	836719087 836719088 836831361	Books & Publications Books & Publications Books & Publications	499.64 0.24 323.55	0.00 0.00 0.00	499.64 0.24 323.55	\$823.43
xxx297008	11/2/17	USA BLUEBOOK	406205	Electrical Parts & Supplies	136.25	0.00	136.25	\$136.25
xxx297009	11/2/17	USDA-APHIS GENERAL	3002529135	Services Maintain Land Improv	295.95	0.00	295.95	\$295.95
xxx297010	11/2/17	VALBRIDGE PROPERTY ADVISORS	16610	Professional Services	4,000.00	0.00	4,000.00	\$4,000.00
xxx297011	11/2/17	VERIZON WIRELESS	9788934005 9790678898 9792427062 9794189608	Utilities - Mobile Phones - City Mobile Phones Utilities - Mobile Phones - City Mobile Phones Utilities - Mobile Phones - City Mobile Phones Utilities - Mobile Phones - City Mobile Phones	199.14 239.90 187.20 205.37	0.00 0.00 0.00 0.00	199.14 239.90 187.20 205.37	\$831.61
xxx297012	11/2/17	W G FRITZ CONSTRUCTION INC	3833 3833	Facilities Maint & Repair - Labor Facilities Maint & Repair - Materials	3,000.00 1,925.00	0.00 0.00	3,000.00 1,925.00	\$4,925.00
xxx297013	11/2/17	YOGA @ CINDYS INC	103020171	City Wellness Program	1,200.00	0.00	1,200.00	\$1,200.00
xxx297014	11/2/17	GRAINGER	9549795780 9561504953 9562202995 9565349017	Miscellaneous Equipment Parts & Supplies Supplies, Safety Hand Tools Supplies, Safety	28.04 30.63 202.90 3,515.49	0.00 0.00 0.00 0.00	28.04 30.63 202.90 3,515.49	\$3,777.06
xxx297015	11/2/17	MEDINAS CATERING	770	Employee Recognition Expenses	1,279.90	0.00	1,279.90	\$1,279.90
xxx297016	11/2/17	PACIFIC GAS & ELECTRIC CO	03142830051017 03153947311017 11008300871017	Utilities - Electric Utilities - Electric Utilities - Electric	20,567.88 621.52 478.46	0.00 0.00 0.00	20,567.88 621.52 478.46	\$170,509.21

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			11054204051017	Utilities - Electric	9,431.51	0.00	9,431.51	
			11059220091017	Utilities - Electric	3,254.85	0.00	3,254.85	
			11059220251017	Utilities - Gas	733.51	0.00	733.51	
			11059220401017	Utilities - Gas	80.38	0.00	80.38	
			11059220451017	Utilities - Gas	246.02	0.00	246.02	
			11059220501017	Utilities - Gas	15.63	0.00	15.63	
			11059220551017	Utilities - Electric	750.23	0.00	750.23	
			11059220601017	Utilities - Gas	2,339.06	0.00	2,339.06	
			11059220641017	Utilities - Electric	1,438.03	0.00	1,438.03	
			11059220751017	Utilities - Gas	194.93	0.00	194.93	
			11059220811017	Utilities - Electric	291.76	0.00	291.76	
			11059220901017	Utilities - Gas	67.50	0.00	67.50	
			11059220931017	Utilities - Electric	336.53	0.00	336.53	
			11059221021017	Utilities - Electric	431.64	0.00	431.64	
			11059221051017	Utilities - Gas	46.55	0.00	46.55	
			11059221061017	Utilities - Electric	640.30	0.00	640.30	
			11059221081017	Utilities - Electric	519.39	0.00	519.39	
			11059221151017	Utilities - Gas	65.54	0.00	65.54	
			11059221181017	Utilities - Electric	7,327.48	0.00	7,327.48	
			11059221281017	Utilities - Electric	1,213.53	0.00	1,213.53	
			11059221351017	Utilities - Gas	60.46	0.00	60.46	
			11059221401017	Utilities - Gas	155.50	0.00	155.50	
			11059221601017	Utilities - Gas	49.61	0.00	49.61	
			11059221681017	Utilities - Electric	233.19	0.00	233.19	
			11059221701017	Utilities - Gas	50.64	0.00	50.64	
			11059221731017	Utilities - Electric	1,523.98	0.00	1,523.98	
			11059221931017	Utilities - Electric	8,493.79	0.00	8,493.79	
			11059222631017	Utilities - Electric	2,415.61	0.00	2,415.61	
			11059222721017	Utilities - Electric	640.90	0.00	640.90	
			11059224061017	Utilities - Electric	9,256.88	0.00	9,256.88	
			11059224271017	Utilities - Electric	9.53	0.00	9.53	

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			11059224731017	Utilities - Electric	232.86	0.00	232.86	
			11059225101017	Utilities - Gas	87.64	0.00	87.64	
			11059225291017	Utilities - Electric	559.06	0.00	559.06	
			11059225321017	Utilities - Electric	152.49	0.00	152.49	
			11059225551017	Utilities - Electric	2,632.80	0.00	2,632.80	
			11059225651017	Utilities - Gas	811.88	0.00	811.88	
			11059226381017	Utilities - Electric	5,952.18	0.00	5,952.18	
			11059226471017	Utilities - Electric	327.97	0.00	327.97	
			11059226811017	Utilities - Electric	7,982.76	0.00	7,982.76	
			11059227031017	Utilities - Electric	439.78	0.00	439.78	
			11059227061017	Utilities - Electric	2,082.12	0.00	2,082.12	
			11059227231017	Utilities - Electric	6,240.77	0.00	6,240.77	
			11059227651017	Utilities - Electric	294.68	0.00	294.68	
			11059227851017	Utilities - Electric	4,946.63	0.00	4,946.63	
			11059228051017	Utilities - Electric	5,522.88	0.00	5,522.88	
			11059228581017	Utilities - Electric	9,703.85	0.00	9,703.85	
			11059228671017	Utilities - Electric	274.40	0.00	274.40	
			11059229251017	Utilities - Electric	5,370.60	0.00	5,370.60	
			11059229471017	Utilities - Electric	6,823.40	0.00	6,823.40	
			11059229911017	Utilities - Electric	8,538.28	0.00	8,538.28	
			11059229991017	Utilities - Electric	4,598.52	0.00	4,598.52	
			35922924580917	Utilities - Electric	22.36	0.00	22.36	
			60209026830917	Utilities - Electric	8.13	0.00	8.13	
			60211953740917	Utilities - Electric	3.15	0.00	3.15	
			60225901000917	Utilities - Electric	9.86	0.00	9.86	
			60225901010917	Utilities - Electric	420.68	0.00	420.68	
			60225901310917	Utilities - Electric	12.72	0.00	12.72	
			60225901820917	Utilities - Electric	173.78	0.00	173.78	
			60225902010917	Utilities - Electric	165.66	0.00	165.66	
			60225902290917	Utilities - Electric	25.52	0.00	25.52	
			60225902530917	Utilities - Electric	715.05	0.00	715.05	

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			60225902660917	Utilities - Electric	511.81	0.00	511.81	
			60225902810917	Utilities - Electric	276.56	0.00	276.56	
			60225902950917	Utilities - Electric	20.74	0.00	20.74	
			60225903300917	Utilities - Electric	57.87	0.00	57.87	
			60225903370917	Utilities - Electric	2.28	0.00	2.28	
			60225903550917	Utilities - Electric	116.29	0.00	116.29	
			60225904200917	Utilities - Electric	387.85	0.00	387.85	
			60225904270917	Utilities - Electric	3.51	0.00	3.51	
			60225904460917	Utilities - Electric	1.34	0.00	1.34	
			60225904500917	Utilities - Electric	0.23	0.00	0.23	
			60225905410917	Utilities - Electric	27.04	0.00	27.04	
			60225906090917	Utilities - Electric	6,986.91	0.00	6,986.91	
			60225906400917	Utilities - Electric	4.45	0.00	4.45	
			60225906510917	Utilities - Electric	999.30	0.00	999.30	
			60225906590917	Utilities - Electric	364.34	0.00	364.34	
			60225906650917	Utilities - Electric	66.17	0.00	66.17	
			60225906780917	Utilities - Electric	2,862.17	0.00	2,862.17	
			60225906940917	Utilities - Electric	3,932.92	0.00	3,932.92	
			60225906980917	Utilities - Electric	268.94	0.00	268.94	
			60225907190917	Utilities - Electric	562.86	0.00	562.86	
			60225907630917	Utilities - Electric	2.68	0.00	2.68	
			60225907690917	Utilities - Electric	125.10	0.00	125.10	
			60225907730917	Utilities - Electric	24.87	0.00	24.87	
			60225907760917	Utilities - Electric	10.93	0.00	10.93	
			60225908160917	Utilities - Electric	1,167.84	0.00	1,167.84	
			60225908170917	Utilities - Electric	24.76	0.00	24.76	
			60225908610917	Utilities - Electric	28.93	0.00	28.93	
			60225908940917	Utilities - Electric	35.04	0.00	35.04	
			60243005770917	Utilities - Electric	1.32	0.00	1.32	
			61266000051017	Utilities - Gas	1,185.13	0.00	1,185.13	
			65170651530917	Utilities - Electric	1,023.83	0.00	1,023.83	

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			72891152060917	Utilities - Electric	10.06	0.00	10.06	
			96226800430917	Utilities - Electric	93.14	0.00	93.14	
			96226804090917	Utilities - Electric	195.18	0.00	195.18	
			97331850980917	Utilities - Electric	12.04	0.00	12.04	
xxx297024	11/2/17	RESERVE ACCOUNT	11927647-1017	Inventory Purchase	10,000.00	0.00	10,000.00	\$10,000.00
xxx297025	11/2/17	CHITOSE GRUNDLER	365882	Refund Recreation Fees	106.00	0.00	106.00	\$106.00
xxx297026	11/2/17	KAROLYN HIGHSMITH	365801	Refund Recreation Fees	59.00	0.00	59.00	\$59.00
xxx297027	11/2/17	MARTIN GOMEZ	365799	Refund Recreation Fees	350.00	0.00	350.00	\$350.00
xxx100696	10/30/17	STATE BOARD OF EQUAL DIRECT DEPOSIT	1843188	Use Tax Payable	9,045.78	0.00	9,045.78	\$9,045.78
xxx100697	10/31/17	BAY COUNTIES WASTE SERVICES	SEPT2017	Curbside Revenues - Sunnyvale Portion	-58,349.88	0.00	-58,349.88	\$1,044,086.41
			SEPT2017	Host Fees - SMaRT Station - Public Haul Fees	-7,145.46	0.00	-7,145.46	
			SEPT2017	MRF Revenues - SMaRT	12,405.09	0.00	12,405.09	
			SEPT2017	Kirby Canyon SMaRT Operator	-96,983.54	0.00	-96,983.54	
			SEPT2017	Yardwaste - Mountain View	503.68	0.00	503.68	
			SEPT2017	Yardwaste - Palo Alto	1,107.76	0.00	1,107.76	
			SEPT2017	Yardwaste - Sunnyvale	15,817.28	0.00	15,817.28	
			SEPT2017	Consultants	844.87	0.00	844.87	
			SEPT2017	Misc Equip Maint & Repair - Labor	650.00	0.00	650.00	
			SEPT2017	Facilities Equipment	35,085.16	0.00	35,085.16	
			SEPT2017	General Supplies	1,687.72	0.00	1,687.72	
			SEPT2017	HazMat Disposal - Hazardous Waste Disposal	5,586.30	0.00	5,586.30	
			SEPT2017	SMaRT Contractor Payment	1,132,877.43	0.00	1,132,877.43	
xxx906276	10/31/17	ACCLAMATION INSURANCE MANAGEMENT		Workers' Compensation - Claims	98,486.82	0.00	98,486.82	\$98,486.82
Grand Total Payment Amount								<u>\$4,296,066.66</u>

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xxx297028	11/7/17	ABBY BROWN	0044-0715-0596	DED Services/Training - Books	599.00	0.00	599.00	\$599.00
xxx297029	11/7/17	ADOXIO BUSINESS SOLUTIONS USA LTD	ABSUSA160	Computer Software	-28,600.00	0.00	-28,600.00	\$1,937.50
			ABSUSA168	Computer Software	30,537.50	0.00	30,537.50	
xxx297030	11/7/17	ALL CITY MANAGEMENT SERVICES INC	50728	Contracts/Service Agreements	31,079.86	0.00	31,079.86	\$31,079.86
xxx297032	11/7/17	BKF ENGINEERS	17100171	Consultants	49,112.37	0.00	49,112.37	\$49,112.37
xxx297033	11/7/17	BAY AREA WATER SUPPLY & CONSERVATION ACY	6709	Membership Fees	231.75	0.00	231.75	\$231.75
xxx297034	11/7/17	BLASTCO INC	MRY-CRSNTNK #09	Construction Services	8,227.00	0.00	8,227.00	\$8,227.00
xxx297035	11/7/17	BUCKLES-SMITH ELECTRIC CO	3043727-00	Electrical Parts & Supplies	9,623.36	0.00	9,623.36	\$9,623.36
xxx297036	11/7/17	CPS HR CONSULTING	INV357544	City Training Program	3,600.00	0.00	3,600.00	\$3,600.00
xxx297037	11/7/17	CALIFORNIA DEPT OF GENERAL SERVICES	1412832	Utilities - Gas	33,968.77	0.00	33,968.77	\$33,968.77
xxx297038	11/7/17	CITY OF SAN JOSE - WORK2FUTURE	JUL-AUG2017	Contracts/Service Agreements	9,651.18	0.00	9,651.18	\$9,651.18
xxx297039	11/7/17	COLD CRAFT INC	202034	Facilities Maintenance & Repair Labor	198.00	0.00	198.00	\$198.00
xxx297040	11/7/17	CORIX WATER PRODUCTS (US) INC	17713033140	Materials - Land Improve	127.01	0.00	127.01	\$127.01
xxx297041	11/7/17	DAHLIN GROUP	1708-211	Consultants	5,890.80	0.00	5,890.80	\$11,781.60
			1709-223	Consultants	5,890.80	0.00	5,890.80	
xxx297042	11/7/17	DAVID ROSE	17-102	Contracts/Service Agreements	9,960.00	0.00	9,960.00	\$9,960.00
xxx297043	11/7/17	ECONOMIC ADVANCEMENT RESEARCH INSTITUTE	OCT2017	Contracts/Service Agreements	4,522.41	0.00	4,522.41	\$4,522.41
xxx297044	11/7/17	EVOLIBRI CONSULTING	3915	Contracts/Service Agreements	2,787.50	0.00	2,787.50	\$2,787.50
xxx297045	11/7/17	EXPANDABILITY	153445	Contracts/Service Agreements	3,960.59	0.00	3,960.59	\$3,960.59
xxx297046	11/7/17	FLATIRON WEST INC	OMVCLBZBRD G#04	Construction Services	873,973.40	0.00	873,973.40	\$873,973.40
xxx297047	11/7/17	GALE/CENGAGE LEARNING	62118536	Library Acquisitions, Books	26.97	0.00	26.97	\$26.97
xxx297048	11/7/17	GOLDEN GATE PETROLEUM	709764	Inventory Purchase	2,249.37	0.00	2,249.37	\$2,249.37
xxx297049	11/7/17	GOODYEAR COMMERCIAL TIRE & SERVICE CTR	189-1095093	Parts, Vehicles & Motor Equip	-30.00	0.00	-30.00	\$2,824.10
			189-1095285	Parts, Vehicles & Motor Equip	-80.00	0.00	-80.00	
			189-1095568	Parts, Vehicles & Motor Equip	-105.00	0.00	-105.00	

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			189-1095880	Parts, Vehicles & Motor Equip	-250.00	0.00	-250.00	
			189-1096484	Parts, Vehicles & Motor Equip	-165.00	0.00	-165.00	
			189-1096564	Inventory Purchase	3,454.10	0.00	3,454.10	
xxx297050	11/7/17	H K AVERY CONSTRUCTION	1517	Miscellaneous Services	4,760.00	0.00	4,760.00	\$8,005.00
			1617	Miscellaneous Services	3,245.00	0.00	3,245.00	
xxx297051	11/7/17	HILLARD HEINTZE LLC	HH17-1488	Consultants	23,747.50	0.00	23,747.50	\$23,747.50
xxx297052	11/7/17	HUMANE SOCIETY SILICON VALLEY	125391	Contracts/Service Agreements	38,842.58	0.00	38,842.58	\$38,842.58
xxx297053	11/7/17	INGRAM LIBRARY SERVICES INC	30949671	Library Acquisitions, Books	-57.51	0.00	-57.51	\$35,287.93
			31164438	Library Acquisitions, Books	818.27	0.00	818.27	
			31164438	Library Materials Preprocessing	748.33	0.00	748.33	
			31164439	Library Acquisitions, Books	603.39	0.00	603.39	
			31164439	Library Materials Preprocessing	361.51	0.00	361.51	
			31164440	Library Acquisitions, Books	7,664.11	0.00	7,664.11	
			31164440	Library Materials Preprocessing	441.91	0.00	441.91	
			31164441	Library Acquisitions, Books	4,509.95	0.00	4,509.95	
			31164441	Library Materials Preprocessing	286.94	0.00	286.94	
			31164442	Library Acquisitions, Books	8,500.74	0.00	8,500.74	
			31164442	Library Materials Preprocessing	1,531.10	0.00	1,531.10	
			31164443	Library Acquisitions, Books	8,574.21	0.00	8,574.21	
			31164443	Library Materials Preprocessing	1,304.98	0.00	1,304.98	
xxx297054	11/7/17	INTERNATIONAL MANAGEMENT SYSTEMS	7939	Professional Services	5,665.00	0.00	5,665.00	\$7,490.50
			7940	Professional Services	1,825.50	0.00	1,825.50	
xxx297055	11/7/17	KOHLWEISS AUTO PARTS INC	01PL9174	Inventory Purchase	313.66	6.27	307.39	\$939.31
			01PL9476	Inventory Purchase	644.82	12.90	631.92	
xxx297056	11/7/17	L N CURTIS & SONS INC	INV136641	Inventory Purchase	90.94	0.00	90.94	\$90.94
xxx297057	11/7/17	LPS TACTICAL & PERSONAL SECURITY SUPPLY	7693A	Clothing, Uniforms & Access	526.05	0.00	526.05	\$526.05
xxx297058	11/7/17	LANCE WEISSER	Y1-RE	Graphics Services	1,125.00	0.00	1,125.00	\$1,125.00
xxx297059	11/7/17	LAWRENCE FREDRICK GATT	17-1101	Contracts/Service Agreements	7,680.00	0.00	7,680.00	\$7,680.00
xxx297060	11/7/17	MALLORY SAFETY & SUPPLY LLC	4349575	Inventory Purchase	71.95	0.00	71.95	\$71.95
xxx297061	11/7/17	MALWEAR	17-1031	General Supplies	49.05	0.00	49.05	\$49.05
xxx297062	11/7/17	MICHAEL BERNICK						\$1,500.00

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			SEPT2017	Contracts/Service Agreements	1,500.00	0.00	1,500.00	
xxx297063	11/7/17	MIDWEST TAPE	95500844	Library Acquis, Audio/Visual	1,503.43	0.00	1,503.43	\$2,800.64
			95500846	Library Acquis, Audio/Visual	321.51	0.00	321.51	
			95500849	Library Acquis, Audio/Visual	975.70	0.00	975.70	
xxx297064	11/7/17	NANCY OLSSON	766550-1053803	DED Services/Training - Books	100.20	0.00	100.20	\$100.20
xxx297065	11/7/17	OPENACCESS LLC	OCT2017	Contracts/Service Agreements	35,700.00	0.00	35,700.00	\$35,700.00
xxx297066	11/7/17	PAN ASIAN PUBLICATIONS INC	U-15392	Library Acquisitions, Books	1,492.32	0.00	1,492.32	\$1,895.72
			U-15397	Library Acquisitions, Books	403.40	0.00	403.40	
xxx297067	11/7/17	PAVITHRA RAMESH JAYARAMAN	PR2017SO	Rec Instructors/Officials	810.00	0.00	810.00	\$810.00
xxx297068	11/7/17	PETERSON TRUCKS	89223P	Parts, Vehicles & Motor Equip	117.28	0.00	117.28	\$490.66
			89554P	Parts, Vehicles & Motor Equip	373.38	0.00	373.38	
xxx297069	11/7/17	QUESTICA INC	209109-3	Computer Software	39,590.00	0.00	39,590.00	\$39,590.00
xxx297070	11/7/17	R E P NUT N BOLT GUY	28456	Inventory Purchase	68.28	0.00	68.28	\$68.28
xxx297071	11/7/17	RACY MING ASSOC LLC	10/31/2017	Contracts/Service Agreements	5,400.00	0.00	5,400.00	\$5,400.00
xxx297072	11/7/17	RAYVERN LIGHTING SUPPLY CO INC	53756-0	Inventory Purchase	2,498.21	0.00	2,498.21	\$2,498.21
xxx297073	11/7/17	REED & GRAHAM INC	903135	Materials - Land Improve	788.33	0.00	788.33	\$1,425.63
			903136	Materials - Land Improve	637.30	0.00	637.30	
xxx297074	11/7/17	SCUSD TRANSPORTATION	18-1	Travel Related Services	2,667.27	0.00	2,667.27	\$6,879.59
			18-12	Travel Related Services	2,394.96	0.00	2,394.96	
			18-33	Travel Related Services	1,817.36	0.00	1,817.36	
xxx297075	11/7/17	SAFEWAY INC	805208-102617	Food Products	8.21	0.00	8.21	\$8.21
xxx297076	11/7/17	SANTA CLARA VALLEY HEALTH & HOSPITAL SYS	H6268849300	Medical Services	1,494.00	0.00	1,494.00	\$2,915.00
			H6270563600	Medical Services	1,421.00	0.00	1,421.00	
xxx297077	11/7/17	SANTA CLARA VLY TRANSPORTATION AGENCY	1800023434	Contracts/Service Agreements	6,182.22	0.00	6,182.22	\$6,182.22
xxx297078	11/7/17	SARAH GRAVES	SG2017SO	Rec Instructors/Officials	1,505.70	0.00	1,505.70	\$1,505.70
xxx297079	11/7/17	SILICON VALLEY APPRENTICESHIP	EESPINOZA-01	DED Services/Training - Training	5,399.00	0.00	5,399.00	\$10,798.00
			TNPHAM-01	DED Services/Training - Training	5,399.00	0.00	5,399.00	
xxx297080	11/7/17	SILICON VALLEY LEADERSHIP	AUG2017	Contracts/Service Agreements	1,374.77	0.00	1,374.77	\$2,819.84
			SEPT2017	Contracts/Service Agreements	1,445.07	0.00	1,445.07	
xxx297081	11/7/17	SPARTAN TOOL LLC	559256	Inventory Purchase	1,473.14	0.00	1,473.14	\$1,473.14
xxx297082	11/7/17	STUDIO EM GRAPHIC DESIGN						\$337.90

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			16848	Graphics Services	163.50	0.00	163.50	
			16850	Graphics Services	174.40	0.00	174.40	
xxx297084	11/7/17	SUPPLYWORKS	417505559	Inventory Purchase	1,123.33	0.00	1,123.33	\$617.02
			417663788	Inventory Purchase	-506.31	0.00	-506.31	
xxx297085	11/7/17	TJKM	0046549	Engineering Services	8,575.75	0.00	8,575.75	\$8,575.75
xxx297086	11/7/17	THE CONSULTING TEAM LLC	775	City Training Program	2,000.00	0.00	2,000.00	\$2,000.00
xxx297087	11/7/17	USA BLUEBOOK	386659	Electrical Parts & Supplies	7,664.37	0.00	7,664.37	\$35.46
			400237	Electrical Parts & Supplies	-7,628.91	0.00	-7,628.91	
xxx297088	11/7/17	VALBRIDGE PROPERTY ADVISORS	16318	Professional Services	6,500.00	0.00	6,500.00	\$6,500.00
xxx297089	11/7/17	VERIZON WIRELESS	9794833022	Communication Equipment	1,410.38	0.00	1,410.38	\$13,236.82
			9794833022	Utilities - Mobile Phones - City Mobile Phones	11,826.44	0.00	11,826.44	
xxx297092	11/7/17	VERIZON WIRELESS	9794833023	Communication Equipment	445.95	0.00	445.95	\$1,091.88
			9794833023	Utilities - Mobile Phones - City Mobile Phones	645.93	0.00	645.93	
xxx297093	11/7/17	VERIZON WIRELESS	9794833024	Communication Equipment	315.04	0.00	315.04	\$762.08
			9794833024	Utilities - Mobile Phones - City Mobile Phones	447.04	0.00	447.04	
xxx297094	11/7/17	VIRGIL INC	OCT2017	Contracts/Service Agreements	3,318.78	0.00	3,318.78	\$3,318.78
xxx297095	11/7/17	WRA	22204-2-30781	Consultants	1,363.49	0.00	1,363.49	\$1,363.49
xxx297096	11/7/17	WESTERN SYSTEMS	0000032070	Electrical Parts & Supplies	597.65	0.00	597.65	\$597.65
xxx297097	11/7/17	ABERLE CONCRETE EXCAVATING & GRADING INC	072469	Business License Tax	184.98	0.00	184.98	\$184.98
xxx297098	11/7/17	SARADHI MUKKA	693270	Lib - Lost & Damaged Circulation	22.95	0.00	22.95	\$22.95
xxx297099	11/9/17	ALLIES	ELL-05	Contracts/Service Agreements	20,648.92	0.00	20,648.92	\$20,648.92
xxx297100	11/9/17	AV CONSULTING	10/26-27/2017	General Supplies	1,200.00	0.00	1,200.00	\$1,200.00
xxx297101	11/9/17	AARON'S INDUSTRIAL PUMPING	10/16/2017	Professional Services	395.00	0.00	395.00	\$395.00
xxx297102	11/9/17	AIRGAS USA LLC	9068693755	Inventory Purchase	140.78	0.00	140.78	\$1,507.16
			9948402697	Equipment Rental/Lease	676.17	0.00	676.17	
			9949119046	Equipment Rental/Lease	690.21	0.00	690.21	
xxx297103	11/9/17	ALLSTAR FIRE EQUIPMENT INC	202099	Clothing, Uniforms & Access	354.25	0.00	354.25	\$354.25

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xxx297104	11/9/17	AMERICAN FIDELITY ADMINISTRATIVE SVCS	25576	Professional Services	664.95	0.00	664.95	\$664.95
xxx297105	11/9/17	AMFASOFT CORP	ESTHER-01	DED Services/Training - Training	5,310.00	0.00	5,310.00	\$8,910.00
			MDARMOND-01	DED Services/Training - Training	3,600.00	0.00	3,600.00	
xxx297106	11/9/17	ANDERSON PACIFIC ENGINEERING	PRMRYTRTON E#14	Construction Services	166,883.54	0.00	166,883.54	\$248,813.21
			WPCPCHLRINE #27	Construction Services	81,929.67	0.00	81,929.67	
xxx297107	11/9/17	APEX LIFE SCIENCES LLC	LAB550371868	Salaries - Contract Personnel	1,185.00	0.00	1,185.00	\$3,502.50
			LAB550371869	Salaries - Contract Personnel	1,200.00	0.00	1,200.00	
			LAB550374136	Salaries - Contract Personnel	1,117.50	0.00	1,117.50	
xxx297108	11/9/17	BMI IMAGING SYSTEMS	307373	Records Related Services	11,998.45	0.00	11,998.45	\$13,394.97
			307374	Records Related Services	1,396.52	0.00	1,396.52	
xxx297109	11/9/17	BAY AREA NEWS GROUP DIGITAL FIRST MEDIA	0006007211	Advertising Services	299.50	0.00	299.50	\$570.50
			0006018582	Advertising Services	271.00	0.00	271.00	
xxx297110	11/9/17	BAY-VALLEY PEST CONTROL INC	0229901	Services Maintain Land Improv	58.00	0.00	58.00	\$446.00
			0230566	Facilities Maintenance & Repair Labor	64.00	0.00	64.00	
			0230578	Facilities Maintenance & Repair Labor	65.00	0.00	65.00	
			0230579	Facilities Maintenance & Repair Labor	65.00	0.00	65.00	
			0230582	Facilities Maintenance & Repair Labor	68.00	0.00	68.00	
			0230604	Services Maintain Land Improv	58.00	0.00	58.00	
			0230611	Services Maintain Land Improv	68.00	0.00	68.00	
xxx297111	11/9/17	BERTRAND FOX ELLIOT OSMAN & WENZEL	27635	Legal Services	2,033.96	0.00	2,033.96	\$9,050.69
			27636	Legal Services	7,016.73	0.00	7,016.73	
xxx297112	11/9/17	BIBLIOTHECA ITG LLC	SI0033592-US	Library Periodicals/Databases	6,035.32	0.00	6,035.32	\$6,035.32
xxx297113	11/9/17	BLASTCO INC	MRY-CRSNTNK #10	Construction Services	113,050.00	0.00	113,050.00	\$113,050.00
xxx297114	11/9/17	C CRUZ SUB-SURFACE LOCATORS INC	23054	Services Maintain Land Improv	300.00	0.00	300.00	\$300.00
xxx297115	11/9/17	CSG CONSULTANTS INC	14425	Engineering Services	37,135.00	0.00	37,135.00	\$37,135.00
xxx297116	11/9/17	CALIFORNIA WORKFORCE ASSN	BOOT1718	Meetings	2,770.00	0.00	2,770.00	\$2,770.00
xxx297117	11/9/17	CALTRONICS BUSINESS SYSTEMS	2376101	Misc Equip Maint & Repair - Labor	357.77	0.00	357.77	\$357.77

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xxx297118	11/9/17	CENTURY GRAPHICS	47805	Clothing, Uniforms & Access	16.35	0.00	16.35	\$16.35
xxx297119	11/9/17	CLAY PLANET	218918	General Supplies	173.30	0.00	173.30	\$173.30
xxx297120	11/9/17	CONTRACTOR COMPLIANCE & MONITORING INC	9196	Consultants	2,000.00	0.00	2,000.00	\$2,000.00
xxx297121	11/9/17	CORIX WATER PRODUCTS (US) INC	17713033264	Inventory Purchase	6,357.31	58.32	6,298.99	\$6,298.99
xxx297122	11/9/17	DA LUBRICANT CO INC	2017-92580-00	Fuel, Oil & Lubricants	1,899.21	0.00	1,899.21	\$1,899.21
xxx297123	11/9/17	DELL MARKETING LP	10199314596	Computer Hardware	809.87	0.00	809.87	\$907.95
			10199327621	General Supplies	98.08	0.00	98.08	
xxx297124	11/9/17	DEREK OXFORD	9442	DED Services/Training - Books	13.08	0.00	13.08	\$13.08
xxx297125	11/9/17	ETMS LLC	11217	Consultants	4,965.00	0.00	4,965.00	\$4,965.00
xxx297127	11/9/17	EDGES ELECTRICAL GROUP LLC	S4204158.001	Bldg Maint Matls & Supplies	200.42	0.00	200.42	\$200.42
xxx297128	11/9/17	ELIZABETH J STRAIN	ES2017SO	Rec Instructors/Officials	520.30	0.00	520.30	\$520.30
xxx297129	11/9/17	ESPINOZA TREE SERVICE	1880	Professional Services	700.00	0.00	700.00	\$700.00
xxx297130	11/9/17	FEDEX	5-944-86679	Mailing & Delivery Services	19.40	0.00	19.40	\$199.78
			5-952-47953	Postage	7.37	0.00	7.37	
			5-959-71562	Mailing & Delivery Services	10.97	0.00	10.97	
			5-967-09075	Mailing & Delivery Services	7.82	0.00	7.82	
			5-982-09540	Mailing & Delivery Services	154.22	0.00	154.22	
xxx297131	11/9/17	FEHR & PEERS	117737	Professional Services	18,216.76	0.00	18,216.76	\$18,216.76
xxx297132	11/9/17	FERMIN PURECO-ORTEGA	393476-9487413	DED Services/Training - Books	77.28	0.00	77.28	\$77.28
xxx297133	11/9/17	FISHER SCIENTIFIC CO LLC	5515787	General Supplies	83.14	0.00	83.14	\$1,035.50
			5694518	General Supplies	952.36	0.00	952.36	
xxx297134	11/9/17	FOSTER BROS SECURITY SYSTEMS INC	293713	Bldg Maint Matls & Supplies	312.81	0.00	312.81	\$312.81
xxx297135	11/9/17	FRANK A OLSEN CO INC	238816	Miscellaneous Equipment Parts & Supplies	3,091.93	0.00	3,091.93	\$3,091.93
xxx297136	11/9/17	GE APPLIANCES	25-175636	Facilities Maint & Repair - Labor	319.93	0.00	319.93	\$339.22
			25-175636	Facilities Maint & Repair - Materials	19.29	0.00	19.29	
xxx297137	11/9/17	GERBER SCIENTIFIC PRODUCTS INC	13206-2017	Misc Equip Maint & Repair - Labor	965.00	0.00	965.00	\$965.00
xxx297138	11/9/17	GLOBAL ACCESS INC	15880	Software As a Service	236.00	0.00	236.00	\$236.00
xxx297139	11/9/17	GOODYEAR COMMERCIAL TIRE & SERVICE CTR	189-1096634	Inventory Purchase	2,316.53	0.00	2,316.53	\$2,316.53
xxx297140	11/9/17	GRAYBAR ELECTRIC CO INC	9300759530	Comm Equip Maintain & Repair - Materials 2	87.30	0.00	87.30	\$87.30

List of All Claims and Bills Approved for Payment

For Payments Dated 11/5/2017 through 11/11/2017

Sorted by Payment Number

Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
xxx297141	11/9/17	H K AVERY CONSTRUCTION	1817	Facilities Maint & Repair - Labor	475.00	0.00	475.00	\$800.00
			1817	Facilities Maint & Repair - Materials	325.00	0.00	325.00	
xxx297142	11/9/17	HACH CO INC	10679677	General Supplies	450.09	0.00	450.09	\$5,885.49
			10679714	General Supplies	743.43	0.00	743.43	
			10680257	General Supplies	4,259.69	0.00	4,259.69	
			10685520	General Supplies	432.28	0.00	432.28	
xxx297144	11/9/17	INDEPENDENT ELECTRIC SUPPLY INC	S103477389.001	Electrical Parts & Supplies	175.91	0.00	175.91	\$433.97
			S103477389.002	Electrical Parts & Supplies	258.06	0.00	258.06	
xxx297145	11/9/17	INDUSTRIAL SAFETY SUPPLY CORP	1052756	Hand Tools	1,782.17	0.00	1,782.17	\$1,782.17
xxx297146	11/9/17	INFOSEND INC	124716	Mailing & Delivery Services	1,200.85	0.00	1,200.85	\$8,838.03
			126472	Mailing & Delivery Services	757.73	0.00	757.73	
			126473	Postage	1,846.00	0.00	1,846.00	
			126899	Financial Services	1,186.35	0.00	1,186.35	
			127274	Mailing & Delivery Services	1,153.63	0.00	1,153.63	
			127275	Postage	2,693.47	0.00	2,693.47	
xxx297148	11/9/17	INTERNATIONAL MANAGEMENT SYSTEMS	7936	Professional Services	17,600.00	0.00	17,600.00	\$17,600.00
xxx297149	11/9/17	INTERSTATE SALES	16458	Materials - Land Improve	221.55	0.00	221.55	\$221.55
xxx297150	11/9/17	JJR CONSTRUCTION INC	CRBSSDWLK17 #06	Construction Services	56,068.43	0.00	56,068.43	\$56,068.43
xxx297152	11/9/17	JUMBO SHRIMP VOLLEYBALL LLC	TV2017SO	Rec Instructors/Officials	1,641.60	0.00	1,641.60	\$1,641.60
xxx297153	11/9/17	KIMLEY HORN & ASSOC INC	10135173	Consultants	18,017.78	0.00	18,017.78	\$18,017.78
xxx297154	11/9/17	LANGUAGE SELECT LLC	50874	Miscellaneous Services	636.20	0.00	636.20	\$636.20
xxx297155	11/9/17	LARRY WERTMAN	476	Rec Instructors/Officials	1,417.80	0.00	1,417.80	\$1,417.80
xxx297156	11/9/17	LAW FOUNDATION OF SILICON VALLEY	FH2017/18-1	Contracts/Service Agreements	3,286.19	0.00	3,286.19	\$3,286.19
xxx297157	11/9/17	MICHELLE LIU	742202-7353861	DED Services/Training - Books	21.88	0.00	21.88	\$21.88
xxx297158	11/9/17	MIDWEST TAPE	95533229	Library Periodicals/Databases	2,582.08	0.00	2,582.08	\$2,582.08
xxx297159	11/9/17	MISSION LINEN SUPPLY	505850177	Laundry & Cleaning Services	53.39	0.00	53.39	\$528.34
			505858128	Laundry & Cleaning Services	54.30	0.00	54.30	
			505895824	Laundry & Cleaning Services	53.39	0.00	53.39	
			505903253	Laundry & Cleaning Services	54.30	0.00	54.30	
			505949320	Laundry & Cleaning Services	54.40	0.00	54.40	

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For Payments Dated 11/5/2017 through 11/11/2017

Sorted by Payment Number

Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			505953980	Laundry & Cleaning Services	54.30	0.00	54.30	
			505989259	Laundry & Cleaning Services	53.39	0.00	53.39	
			505999002	Laundry & Cleaning Services	54.30	0.00	54.30	
			506052389	Laundry & Cleaning Services	53.39	0.00	53.39	
			506053993	Laundry & Cleaning Services	43.18	0.00	43.18	
xxx297160	11/9/17	NICHOLS CONSULTING ENGINEERS	218185514	Consultants	5,006.25	0.00	5,006.25	\$5,006.25
xxx297161	11/9/17	NORTH STATE ENVIRONMENTAL	049441	HazMat Disposal - Hazardous Waste Disposal	4,008.61	0.00	4,008.61	\$4,008.61
xxx297163	11/9/17	RECOLLECT SYSTEMS INC	1609	Software As a Service	3,000.00	0.00	3,000.00	\$3,000.00
xxx297164	11/9/17	READYREFRESH BY NESTLE	17J5727863002	General Supplies	46.69	0.00	46.69	\$46.69
xxx297165	11/9/17	RENNE SLOAN HOLTZMAN SAKAI LLP	36185	Legal Services	276.90	0.00	276.90	\$276.90
xxx297166	11/9/17	ROBIN PICKEL	RP2017SO	Rec Instructors/Officials	3,536.65	0.00	3,536.65	\$3,536.65
xxx297167	11/9/17	SSA LANDSCAPE ARCHITECTS INC	5919	Engineering Services	1,794.00	0.00	1,794.00	\$1,794.00
xxx297168	11/9/17	SANTA CLARA ADULT EDUCATION	13428	DED Services/Training - Training	4,820.70	0.00	4,820.70	\$4,820.70
xxx297169	11/9/17	SPORTZANIA INC DBA SKYHAWKS SPORTS	SKY2017SO	Rec Instructors/Officials	13,665.40	0.00	13,665.40	\$13,665.40
xxx297170	11/9/17	STUDIO EM GRAPHIC DESIGN	16815	Advertising Services	81.75	0.00	81.75	\$463.25
			16816	Advertising Services	163.50	0.00	163.50	
			16817	Advertising Services	81.75	0.00	81.75	
			16849	Advertising Services	136.25	0.00	136.25	
xxx297171	11/9/17	SUBURBAN PROPANE	2288304	Fuel, Oil & Lubricants	22.29	0.00	22.29	\$22.29
xxx297172	11/9/17	SUNNYVALE BUILDING MAINTENANCE	99895	Professional Services	160.00	0.00	160.00	\$556.00
			99896	Professional Services	198.00	0.00	198.00	
			99898	Professional Services	198.00	0.00	198.00	
xxx297173	11/9/17	TRAFFIC DATA SERVICE	17132	Consultants	330.00	0.00	330.00	\$330.00
xxx297175	11/9/17	UNIVAR USA INC	SJ847003	Chemicals	2,306.36	0.00	2,306.36	\$2,306.36
xxx297176	11/9/17	UNIVERSITY OF CALIFORNIA SANTA CRUZ	57270	DED Services/Training - Training	542.00	0.00	542.00	\$15,788.00
			57299	DED Services/Training - Training	798.00	0.00	798.00	
			57352	DED Services/Training - Training	548.50	0.00	548.50	
			57362	DED Services/Training - Training	392.00	0.00	392.00	
			57401	DED Services/Training - Training	534.00	0.00	534.00	
			57912	DED Services/Training - Training	4,752.00	0.00	4,752.00	

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Sorted by Payment Number

Payment No.	Payment Date	Vendor Name	Invoice No.	Description	Invoice Amount	Discount Taken	Amount Paid	Payment Total
			57914	DED Services/Training - Training	4,918.50	0.00	4,918.50	
			57916	DED Services/Training - Training	3,303.00	0.00	3,303.00	
xxx297177	11/9/17	VWR INTERNATIONAL LLC	8080277881	General Supplies	141.55	0.00	141.55	\$357.65
			8080277882	Water Meter Boxes, Vaults, and Lids	175.06	0.00	175.06	
			8080288290	General Supplies	41.04	0.00	41.04	
xxx297178	11/9/17	WECO INDUSTRIES LLC	0039727-IN	Misc Equip Maint & Repair - Labor	334.98	0.00	334.98	\$404.27
			0039727-IN	Misc Equip Maint & Repair - Materials	69.29	0.00	69.29	
xxx297179	11/9/17	DOUGLAS MCCONNELL	11-14-SV	Excursions	1,000.00	0.00	1,000.00	\$1,000.00
xxx297180	11/9/17	ED SOLIS	NOV/10/2017	Employee Recognition Expenses	500.00	0.00	500.00	\$500.00
xxx297182	11/9/17	ARS RESCUE ROOTER	2017-4477	Permit - Plumbing & Gas	72.80	0.00	72.80	\$72.80
xxx297183	11/9/17	CHRISTINA GANDEZA	367423	Refund Recreation Fees	350.00	0.00	350.00	\$350.00
xxx297184	11/9/17	DAVID AVERY	366678	Refund Recreation Fees	99.00	0.00	99.00	\$99.00
xxx297185	11/9/17	HIGHLAND PARTNERS GROUP INC	367746	Refund Recreation Fees	350.00	0.00	350.00	\$350.00
Grand Total Payment Amount								<u>\$2,039,998.63</u>



City of Sunnyvale

Agenda Item

17-0955

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Award of Bid No. PW 18-04 for the Fuel System Upgrade Project located at the Sunnyvale Golf Course, Finding of California Environmental Quality Act (CEQA) Categorical Exemption and Approval of Budget Modification No. 25

REPORT IN BRIEF

Approval is requested to award a construction contract in the amount of \$285,895 to ConstructiCON Corp, of Mountain View, for the replacement of two existing underground fuel tanks with one new, aboveground fuel tank at the Sunnyvale Golf Course. Approval is also requested for a 10% construction contingency in the amount of \$28,589 and Budget Modification No. 25 in the amount of \$43,632

EXISTING POLICY

Section 1309 of the City Charter requires construction contracts to be awarded to the lowest responsive and responsible bidder. Pursuant to Chapter 2.09 of the Sunnyvale Municipal Code, City Council approval is required for construction contracts exceeding \$100,000.

Pursuant to Sunnyvale Charter Section 1305, at any meeting after the adoption of the budget, the City Council may amend or supplement the budget by motion adopted by affirmative votes of at least four members so as to authorize the transfer of unused balances appropriated for one purpose to another, or to appropriate available revenue not included in the budget.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) determination for the proposed project is categorically exempt from further environmental review pursuant to CEQA Guidelines Section 15301 because the project involves the maintenance or repair of existing facilities involving negligible or no expansion of use beyond that presently existing.

BACKGROUND AND DISCUSSION

This project includes demolition, excavation and removal of two existing underground fuel storage tanks (diesel and gasoline), to be replaced with a new single dual-compartment aboveground storage tank system consisting of 1,000 gallons for gasoline and 1,000 gallons for diesel, located at Sunnyvale Municipal Golf Course, 605 Macara Avenue. The existing underground fuel tanks were identified for replacement based on age and other criteria including a conditional assessment report.

The new aboveground fuel system is less expensive when compared to an underground installation, offers easier access when performing system maintenance, and results in a lower annual permit cost.

Staff issued an Invitation for Bids No. PW18-04 on August 18, 2017. Three (3) responsive and

responsible bids were received as shown on Attachment 1, Bid Summary. ConstructiCON Corp, submitted the lowest bid at \$285,894.85, Balch Petroleum Contractors submitted a bid for \$303,720 and GEMS Environmental Management submitted a bid for \$315,167.28.

FISCAL IMPACT

Funding for the Upgrading of Fuel Stations project is budgeted in the General Services Fund/Fleet Management Sub-Fund. As an internal service fund, the Fleet Management Sub-Fund collects rental rate revenue from department budgets throughout the City that utilize Fleet resources. While located at the golf course, this fueling station is part of the city-wide fueling solution and available for all departments to use.

The original project budget was established based on the engineer's estimate. Current available project funding totals \$281,632 (\$103,132 carryover from FY 2016/17 and \$178,500 new FY 2017/18 funding). Of this amount, \$10,780 is allocated for remaining design activities and invoices, leaving \$270,852 available for construction award. An additional \$43,632 is recommended to be funded by the General Fund Budget Stabilization Fund in order to fully fund the construction contract and contingency (\$314,484).

Budget Modification No. 25 FY 2017/18

	Current	Increase/ (Decrease)	Revised
General Fund			
<u>Reserves</u>			
Budget Stabilization Fund	\$33,945,795	(\$43,632)	\$33,902,163
<u>Transfers Out</u>			
Transfer To General Services Fund / Fleet Sub-Fund	\$21,532	\$43,632	\$65,164
General Services Fund / Fleet Sub-Fund			
<u>Transfers In</u>			
Transfer From General Fund	\$21,532	\$43,632	\$65,164
<u>Expenditures</u>			
824780 - Upgrading of Fuel Stations	\$281,632	\$43,632	\$325,264

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

RECOMMENDATION

1) Make a finding of a California Environmental Quality Act (CEQA) categorical exemption pursuant

to CEQA Guidelines Section 15301, 2) Award a contract in substantially the same form as Attachment 2 to the report in the amount of \$285,895 to ConstructiCON Corp for Fuel System Upgrade Project (PW16-03) and authorize the City Manager to execute the contract when all necessary conditions have been met; 3) Approve a 10% construction contingency in the amount of \$28,589; and 4) Approve Budget Modification No. 25 in the amount of \$43,632.

Prepared by: Gregory Card, Purchasing Officer

Reviewed by: Timothy J. Kirby, Director of Finance

Reviewed by: Craig Mobeck, Interim Director of Public Works

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. Bid Summary
2. Draft Contract

Invitation for Bids No.F18-04
Fuel System Upgrade

Bidder:	ConstructlCON Corp dba CIC 987 Linda Vista Ave Mountain View, CA 94043 Lee Pham	Balch Petroleum Contractors and Builders, Inc. 930 Ames Avenue Milpitas, CA 95035 Tom Balch	GEMS Enviromental Management Services, Inc. 1120 Willow Pass Court Concord, CA 94520 Richard E. Camacho
Address 1:			
Address 2:			
Contact:			

Line Item	Description	Qty	Unit	Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total Cost
1	Demolition, tank and piping removal. Stockpile soils.	1	LS	\$ 65,531.94	\$ 65,531.94	\$ -	\$ 75,000.00	\$ 55,480.00	\$ 55,480.00
2	Soil sampling and Tank Closure Report	1	LS	\$ 10,309.49	\$ 10,309.49	\$ -	\$ 12,000.00	\$ 6,570.00	\$ 6,570.00
3	Backfill Excavation and Compaction Testing	1	LS	\$ 19,288.03	\$ 19,288.03	\$ -	\$ 20,000.00	\$ 14,600.00	\$ 14,600.00
4	Tank subgrade, Tank Slab and Asphalt and Concrete Paving	1	LS	\$ 39,507.73	\$ 39,507.73	\$ -	\$ 35,000.00	\$ 36,500.00	\$ 36,500.00
5	Furnish and Install Aboveground Tank & Equipment	1	LS	\$ 82,682.17	\$ 82,682.17	\$ -	\$ 95,000.00	\$ 112,420.00	\$ 112,420.00
6	Furnish and Install Monitoring System & Electrical work	1	LS	\$ 38,377.02	\$ 38,377.02	\$ -	\$ 51,000.00	\$ 70,080.00	\$ 70,080.00
7	System Startup & Testing	1	LS	\$ 8,910.19	\$ 8,910.19	\$ -	\$ 10,000.00	\$ 3,650.00	\$ 3,650.00
8	Contaminated Soil Excavation (REVOCABLE)	52	Ton	\$ 409.39	\$ 21,288.28	\$ -	\$ 5,720.00	\$ 305.14	\$ 15,867.28
Total Base Bid Amount					<u>\$ 285,894.85</u>		<u>\$ 303,720.00</u>		<u>\$ 315,167.28</u>

License Primary Classification			A & B	A/B/C-10/Haz	A
State License No.			938362	396575	864458
Bid Bond			10%	\$33,000	10%
Subcontractor List			TEC Accutite	Industrial Electric Contracting	N/A

DRAFT GENERAL CONSTRUCTION CONTRACT

THIS CONTRACT dated _____ is by and between the CITY OF SUNNYVALE, a municipal corporation of the State of California ("Owner") and Constructicon Corp, a California Corporation ("Contractor").

RECITALS:

The parties to this Contract have mutually covenanted and agreed, as follows:

1. The Contract Documents. The complete Contract consists of the following documents: Notice Inviting Bids; Instructions to Bidders; Performance Bond and Payment Bond; Guaranty; City of Sunnyvale Standard Specifications for Public Works Construction, 2006 Edition; City of Sunnyvale Standard Details for Public Works Construction, 2006 Edition; Plans and Specifications, "Fuel System Upgrade, Project No. ST-16-03, Invitation for Bids No.PW18-04", including OSHA, and other standards and codes as outlined in the Specifications. These documents are all incorporated by reference. The documents comprising the complete contract are collectively referred to as the Contract Documents.

Any and all obligations of the Owner and the Contractor are fully set forth and described therein.

All of the above documents are intended to work together so that any work called for in one and not mentioned in the other or vice versa is to be executed the same as if mentioned in all documents.

2. The Work. Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, transportation, and material necessary to perform and complete the project in a good and workmanlike manner. The work consists of removing two (2) existing underground tanks, and associated piping and equipment, and installing a new aboveground, two (2) compartment storage tank with associated piping and equipment, as called for, and in the manner designated in, and in strict conformity with, the Plans and Specifications prepared by Gettler-Ryan Inc., and adopted by the Owner. These Plans and Specifications are entitled respectively, Fuel System Upgrade, Project No. ST-16-03.

It is understood and agreed that the work will be performed and completed as required in the Plans and Specifications under the sole direction and control of the Contractor, and subject to inspection and approval of the Owner, or its representatives. The Owner hereby designates as its representative for the purpose of this contract the Senior Civil Engineer for Construction or an employee of the Owner who will be designated in writing by the Director of Public Works.

3. Contract Price. The Owner agrees to pay and the Contractor agrees to accept, in full payment for the work above agreed to be done, the sum of Two Hundred Eighty Five Thousand Eight Hundred Ninety Four Dollars and 85/100 Cents (\$285,894.85) subject to final determination of the work performed and materials furnished at unit prices per "Exhibit A" attached hereto and incorporated by this reference, and subject to additions and deductions in accordance, as provided in the Documents and in accordance with Contract Documents. The sum includes base bid and no Additive Alternate(s).

4. Permits; Compliance with Law. Contractor shall, at its expense, obtain all necessary permits and licenses, easements, etc., for the construction of the project, give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public health and safety.

5. Inspection by Owner. Contractor shall at all times maintain proper facilities and provide safe access for inspection by the Owner to all parts of the work, and to the shops wherein the work is in preparation. Where the Specifications require work to be specially tested or approved, it shall not be tested or covered up without timely notice to the Owner of its readiness for inspection and without the approval thereof or consent thereto by the latter. Should any such work be covered up without such notice, approval, or consent, it must, if required by Owner, be uncovered for examination at the Contractor's expense.

6. Extra or Additional Work and Changes. Should Owner at any time during the progress of the work request any alterations, deviations, additions or omissions from the Specifications or Plans or other Contract Documents it shall be at liberty to do so, and the same shall in no way affect or make void the contract, but will be added to or deducted from the amount of the contract price, as the case may be, by a fair and reasonable valuation, agreed to in writing between the parties hereto. No extra work shall be performed or change be made unless in pursuance of a written order from the Director of Public Works or authorized representative, stating that the extra work or change is authorized and no claim for an addition to the contract sum shall be valid unless so ordered.

7. Time for Completion. All work under this contract shall be completed before the expiration one hundred twenty (120) working days from the date specified in the Notice to Proceed.

If Contractor shall be delayed in the work by the acts or neglect of Owner, or its employees or those under it by contract or otherwise, or by changes ordered in the work, or by strikes, lockouts by others, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the Contractor's control, or by delay authorized by the Owner, or by any cause which the Owner shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Owner may decide.

This provision does not exclude the recovery of damages for delay by either party under other provisions.

8. Inspection and Testing of Materials. Contractor shall notify Owner a sufficient time in advance of the manufacture or production of materials, to be supplied under this contract, in order that the Owner may arrange for mill or factory inspection and testing of same, if Owner requests such notice from Contractor.

9. Termination. If Contractor should file a bankruptcy petition and/or be judged bankrupt, or if Contractor should make a general assignment for the benefit of creditors, or if a receiver should be appointed on account of insolvency, or if Contractor or any subcontractors should violate any of the provisions of the Contract, Owner may serve written notice upon Contractor and its surety of Owner's intention to terminate the Contract. The notice shall contain the reasons for such intention to terminate the Contract, and, unless within ten days after serving such notice, such violation shall cease and satisfactory arrangements for correction thereof be made, upon the expiration of the ten days, the Contract shall cease and terminate. In the event of any such termination, Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the Contract; provided, however that, if the surety within fifteen days after the serving upon it of notice of termination does not give Owner written notice of its intention to take over and perform the Contract or does not commence performance thereof within thirty days from the date of the serving of such notice, Owner may take over the work and prosecute the same to completion by contract or by any other method it may deem advisable, for the account and at the expense of Contractor, and Contractor and its surety shall be liable to Owner for any excess cost occasioned Owner thereby, and in such event Owner may without liability for so doing take possession of and utilize in completing the work, such materials, appliances, plant and other property belonging to Contractor as may be on the site of the work and necessary therefor.

10. Owner's Right to Withhold Certain Amounts and Make Application Thereof. In addition to the amount which Owner may retain under Paragraph 21 until the final completion and acceptance of all work covered by the Contract, Owner may withhold from payment to Contractor such amount or amounts as in its judgment may be necessary to pay just claims against Contractor or any subcontractors for labor and services rendered and materials furnished in and about the work. Owner may apply such withheld amount or amounts to the payment of such claims in its discretion. In so doing Owner shall be deemed the agent of Contractor and any payment so made by Owner shall be considered as a payment made under the Contract by Owner to the Contractor and Owner shall not be liable to Contractor for any such payment made in good faith. Such payment may be made without prior judicial determination of the

claim or claims.

11. Notice and Service Thereof. All notices required pursuant to this Contract shall be communicated in writing, and shall be delivered in person, by commercial courier or by first class or priority mail delivered by the United States Postal Service. Nothing in this provision shall be construed to prohibit communication by more expedient means, such as by email or fax, to accomplish timely communication. Each party may change the address by written notice in accordance with this paragraph. Notices delivered personally shall be deemed communicated as of actual receipt; mailed notices shall be deemed communicated as of three business days after mailing. All notices sent pursuant to this Contract shall be addressed as follows:

Owner: City of Sunnyvale
Department of Public Works
Construction Contract Administrator
P. O. Box 3707
Sunnyvale, CA 94088-3707

Contractor: ConstructiCON Corp
Attn: Lee Pham
987 Linda Vista Ave
Mountain View, CA 94043

12. Assignment of Contract. Neither the Contract, nor any part thereof, nor moneys due or to become due thereunder may be assigned by Contractor without the prior written approval of Owner.

13. Compliance with Specifications of Materials. Whenever in the Specifications, any material or process is indicated or specified by patent or proprietary name, or by name of manufacturer, such Specifications must be met by Contractor, unless Owner agrees in writing to some other material, process or article offered by Contractor which is equal in all respects to the one specified.

14. Contract Security. Contractor shall furnish a surety bond in an amount at least equal to 100 percent of the contract price as security for the faithful performance of this Contract. Contractor shall also furnish a separate surety bond in an amount at least equal to 100 percent of the contract price as security for the payment of all persons for furnishing materials, provisions, provender, or other supplies, or teams, used in, upon, for or about the performance of the work contracted to be done, or for performing any work or labor thereon of any kind, and for the payment of amounts due under the Unemployment Insurance Code with respect to such work or labor in connection with this Contract, and for the payment of a reasonable attorney's fee to be fixed by the court in case suit is brought upon the bond. Bonds shall be issued by an admitted surety insurer authorized to operate in the state of California.

15. Insurance. Contractor shall not commence work under this Contract until all insurance required under this paragraph has been obtained and such insurance has been approved by the Owner, nor shall Contractor allow any subcontractor to commence work on a subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Contractor shall furnish the Owner with satisfactory proof of the carriage of insurance required, and there shall be a specific contractual liability endorsement extending the Contractor's coverage to include the contractual liability assumed by the Contractor pursuant to this Contract and particularly Paragraph 16 hereof. Any policy of insurance required of the Contractor under this Contract shall also contain an endorsement providing that thirty (30) days' notice must be given in writing to the Owner of any pending change in the limits of liability or of any cancellation or modification of the policy. Insurance carrier shall be California-admitted.

(a) Compensation Insurance and Employer's Liability Insurance. Contractor shall take out and maintain during the life of this Contract Workers' Compensation Insurance and Employer's Liability Insurance for all of employees employed at the site of the project and, in case any work is sublet, Contractor shall require the subcontractor similarly to provide Workers' Compensation Insurance and Employer's Liability Insurance for all of the latter's employees unless such employees are covered by the protection afforded by Contractor.

In signing this Contract, Contractor makes the following certification, required by Section 1861 of the Labor Code:

"I am aware of the provision of Section 3700 of the Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

(b) General and Automobile Liability Insurance. Contractor, at its own cost and expense, shall maintain personal injury liability and property damage insurance for the period covered by the Contract in the amount of Two Million Dollars (\$2,000,000.00) per occurrence and \$4,000,000 annual aggregate combined single limit coverage. Such coverage shall include, but shall not be limited to, protection against claims arising therefrom, and damage to property resulting from activities contemplated under this Contract, use of owned automobiles, products and completed operations, including U, C and X. Such insurance shall be with insurers and under forms of policies satisfactory in all respects to the Owner and shall provide that notice must be given to Owner at least thirty (30) days prior to cancellation or material change. The following endorsements shall be attached to the policy:

Policy shall cover on an "occurrence" basis. Policy must cover personal injuries as well as bodily injuries. Exclusion of contractual liability must be eliminated from personal injury endorsement. Broad form property damage endorsement must be attached. Owner is to be named as an additional insured on any contracts of insurance under this paragraph (b). Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the Civil Code. The policies of insurance shall be considered primary insurance before any policies of insurance maintained by Owner.

16. Indemnification and Hold Harmless. Contractor agrees to defend, save, indemnify and hold harmless Owner and all its officers, employees, and agents, against any and all liability, claims, judgments, or demands, including demands arising from injuries or death of persons (Contractor's employees included) and damage to property, arising directly or indirectly out of the obligations herein undertaken or out of the operations conducted by Contractor, save and except claims or litigation arising through the active negligence or willful misconduct of Owner, or of Owner's officials, agents, employees, servants, or independent contractors who are directly responsible to Owner. Contractor shall make good and reimburse Owner for any expenditures, including reasonable attorneys' fees, Owner may make by reason of such claim or litigation, and, if requested by Owner, Contractor shall defend any such suits at the sole cost and expense of Contractor.

17. Hours of Work. Eight hours of labor during any one calendar day and forty hours of labor during any one calendar week shall constitute the maximum hours of service upon all work done hereunder, and it is expressly stipulated that no laborer, worker, or mechanic employed at any time by the Contractor or by any subcontractor or subcontractors under this Contract, upon the work or upon any part of the work contemplated by this Contract, shall be required or permitted to work thereon more than eight hours during any one calendar day and forty hours during any one calendar week, except, as provided by Section 1815 of the Labor Code of the State of California, work performed by employees of contractors in excess of eight hours per day and forty hours during any one week shall be permitted upon public work upon compensation for all hours worked in excess of eight hours per day at not less than one and one-

half times the basic rate of pay. It is further expressly stipulated that for each and every violation of Sections 1811-1815, inclusive, of the Labor Code of the State of California, all the provisions whereof are deemed to be incorporated herein, Contractor shall forfeit, as a penalty to Owner, twenty-five dollars (\$25.00) for each laborer, worker, or mechanic employed in the execution of this Contract by Contractor, or by any subcontractor under this Contract, for each calendar day during which the laborer, worker, or mechanic is required or permitted to work more than eight hours in any one calendar day and forty hours in any one calendar week in violation of the provisions of the Sections of the Labor Code.

Contractor, and each subcontractor, shall, in accordance with California Labor Code Section 1776 or as the same may be later amended, keep accurate payroll records showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with work under this agreement. Each payroll record shall contain or be verified by a written declaration under penalty of perjury, in accordance with Labor Code Section 1776(a). Such payroll records shall be made available at all reasonable times at the Contractor's principal office to the persons authorized to inspect such records pursuant to Labor Code Section 1776. A certified copy of all payroll records shall be made available for inspection or furnished upon request to a representative of the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations, as well as to the Owner's representative. In the event the Contractor or a Subcontractor fails to comply in a timely manner within ten days to a written notice requesting the records, such contractor or subcontractor shall forfeit one hundred dollars (\$100.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated, in accordance with Labor Code Section 1776(h).

18. Wage Rates. Pursuant to the Labor Code of the State of California, or any applicable local law, Owner has ascertained the general prevailing rate per diem wages and rates for holidays, and overtime work in the city, for each craft, classification or type of laborer, worker, or mechanic needed to execute this Contract. Owner has adopted, by reference, the general prevailing rate of wages applicable to the work to be done under the Contract, as adopted and published by the Division of Labor Standards Enforcement and Labor Statistics and Research of the State of California, Department of Industrial Relations, to which reference is hereby made for a full and detailed description. A copy of the prevailing wage rates may be reviewed in the office of the Director of Public Works, City of Sunnyvale, 456 West Olive Avenue, Sunnyvale, California. Wage rates can also be obtained through the California Department of Industrial Relations website at: <http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>

Neither the notice inviting bids nor this Contract shall constitute a representation of fact as to the prevailing wage rates upon which the Contractor or any subcontractor may base any claim against Owner.

It shall be mandatory upon Contractor and upon any subcontractor to pay not less than the specified rates to all laborers, workers, and mechanics employed in the execution of the Contract. It is further expressly stipulated that Contractor shall, as a penalty to Owner, forfeit two hundred dollars (\$200.00) for each calendar day, or portion thereof, for each laborer, worker, or mechanic paid less than the stipulated prevailing rates for any work done under this Contract by Contractor or by any subcontractor; and Contractor agrees to comply with all provisions of Section 1775 of the Labor Code.

In case it becomes necessary for Contractor or any subcontractor to employ on the project under this Contract any person in a trade or occupation (except executives, supervisory, administrative, clerical, or other non-manual workers as such) for which no minimum wage rate is herein specified, Contractor shall immediately notify Owner who will promptly thereafter determine the prevailing rate for such additional trade or occupation and shall furnish Contractor with the minimum rate based thereon. The minimum rate thus furnished shall be applicable as a minimum for such trade or occupation from the time of the initial employment of the person affected and during the continuance of such employment.

19. Accident Prevention. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment, and other hazards shall be guarded or

eliminated in accordance with the safety provisions of the Construction Safety Orders issued by the Industrial Accident Commission of the State of California.

20. Contractor's Guarantee. Owner shall not, in any way or manner, be answerable or suffer loss, damage, expense or liability for any loss or damage that may happen to the building, work, or equipment or any part thereof, or in, on, or about the same during its construction and before acceptance. Contractor unqualifiedly guarantees the first-class quality of all workmanship and of all materials, apparatus, and equipment used or installed by Contractor or by any subcontractor or supplier in the project which is the subject of this Contract, unless a lesser quality is expressly authorized in the Plans and Specifications, in which event Contractor unqualifiedly guarantees such lesser quality; and that the work as performed by Contractor will conform with the Plans and Specifications or any written authorized deviations therefrom. In case of any defect in work, materials, apparatus or equipment, whether latent or patent, revealed to Owner within one year of the date of acceptance of completion of this Contract by Owner, Contractor will forthwith remedy such defect or defects without cost to Owner.

21. Liquidated Damages. Time shall be the essence of this Contract. If Contractor fails to complete, within the time fixed for such completion, the entire work mentioned and described and contracted to be done and performed, Contractor shall become liable to Owner for liquidated damages in the sum of five hundred and no/100 (\$500.00), for each and every calendar day during which work shall remain uncompleted beyond such time fixed for completion or any lawful extension thereof. The amount specified as liquidated damages is presumed to be the amount of damage sustained by Owner since it would be impracticable or extremely difficult to fix the actual damage; and the amount of liquidated damages may be deducted by Owner from moneys due Contractor hereunder, or its assigns and successors at the time of completion, and Contractor, or its assigns and successors at the time of completion, and its sureties shall be liable to Owner for any excess.

22. Governing Law, Jurisdiction and Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of California, without regard to conflict of law or choice of law principles. Proper venue for legal actions will be exclusively vested in a state court in the County of Santa Clara. The parties agree that subject matter and personal jurisdiction are proper in state court in the County of Santa Clara, and waive all venue objections.

23. Severability Clause. In case any one or more of the provisions contained herein shall, for any reason, be held invalid, illegal or unenforceable in any respect, it shall not affect the validity of the other provisions which shall remain in full force and effect.

24. Entire Agreement; Amendment. This writing constitutes the entire agreement between the parties relating to the services to be performed or materials to be furnished hereunder. No modification of this Agreement shall be effective unless and until such modification is evidenced by writing signed by all parties.

25. Execution and Counterparts. This Agreement may be executed in multiple counterparts and/or with the signatures of the Parties set forth on different signature sheets and all such counterparts, when taken together, shall be deemed one original.

IN WITNESS WHEREOF, two identical counterparts of this contract, each of which shall for all purposed be deemed an original thereof, have been duly executed by the parties.

CITY OF SUNNYVALE
a Municipal Corporation, Owner

ConstructiCON Corporation
Contractor

License No. 938362

By _____ / /
City Manager Date

Attest:
City Clerk

By _____ / /
City Clerk Date

(SEAL)

By _____

_____ / /
Title Date

By _____

_____ / /
Title Date

APPROVED AS TO FORM:

_____ / /
City Attorney Date

EXHIBIT A

No.	Description	QTY	Unit	Unit Cost
1	Demolition, tank and piping removal. Stockpile soils.	1	LS	\$65,531.94
2	Soil sampling and Tank Closure Report	1	LS	\$10,309.49
3	Backfill Excavation and Compaction Testing	1	LS	\$19,288.03
4	Tank subgrade, Tank Slab and Asphalt and Concrete Paving	1	LS	\$39,507.73
5	Furnish and Install Aboveground Tank & Equipment	1	LS	\$82,682.17
6	Furnish and Install Monitoring System & Electrical work	1	LS	\$38,377.02
7	System Startup & Testing	1	LS	\$8,910.19
8	Contaminated Soil Excavation (REVOCABLE)	52	TON	\$21,288.28

EXHIBIT B

Utilization of Local Workforce in Construction Projects – The Sunnyvale City Council has adopted a policy which encourages utilization of local workforces, including State-certified apprentices, as a means of supporting economic opportunities for all members of the community. Local workforce is defined as workers residing in Santa Clara County. The lowest responsive and responsible bidder must provide a projection of locally-hired workers utilized for this contract.

Contractor	Projected Number of Locally Hired Workers_____
Subcontractor(s)	Projected Percent of Locally Hired Workers_____%
	Projected Number of Locally Hired Workers_____
	Projected Percent of Locally Hired Workers_____%



City of Sunnyvale

Agenda Item

17-0685

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Award of Contract for SMaRT Station Flooring Replacement (F18-147)

REPORT IN BRIEF

Approval is requested to award a contract in the amount of \$527,977 to American Restore of Huntington Beach, California to install a replacement floor at the SMaRT station. Approval is also requested for a 10% project contingency in the amount of \$52,798.

EXISTING POLICY

Pursuant to Chapter 2.08 of the Sunnyvale Municipal Code, City Council approval is required for contracts exceeding \$100,000. Consistent with the provision of Sunnyvale Municipal Code Section 2.08.070(b)(4), contracts for the procurement of sole source goods or services may be exempted from the competitive bidding process.

ENVIRONMENTAL REVIEW

The project is categorically exempt under the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines Section 15301(c) and (d) for the maintenance and repair of existing public facilities involving negligible or no expansion of an existing use.

BACKGROUND AND DISCUSSION

Capital Project 811250 (SMaRT Station Equipment Replacement) is for the maintenance and replacement of City-owned equipment and facilities at the Sunnyvale Materials Recovery and Transfer Station (SMaRT Station).

At the SMaRT Station, the area where the incoming refuse trucks empty to start the refuse transfer and recycling process is called the "tipping floor." The tipping floor area is approximately 50,000 square feet. The existing floor consists of rebar-reinforced concrete which is covered by a layer of iron-reinforced epoxy concrete that provides additional strength. The combination of a continuous flow of heavy trucks and loading equipment, and the corrosive liquid that drains from the garbage causes damage to the tipping floor. This requires periodic replacement of damaged sections. Previously, repairs have occurred in 2001, 2003, 2007, and 2011. This project will repair approximately 9,000 square feet of the tipping floor.

The SMaRT Station facility is in full operation Monday through Friday; therefore, the repair project must be completed over the weekend when the facility is less busy. If repairs are incomplete by the start of business on the Monday after the work begins, the materials recovery facility and the residue compactor that loads the landfill-bound trucks will be unusable and a major portion of the rest of the floor will be occupied by contractor equipment and supplies. Remaining space for unloading garbage trucks from the three cities would soon be full. At this point, the collection trucks would need to haul

directly to the Kirby Canyon Landfill to unload, a 54-mile roundtrip that would add approximately 1.5 hours of “off route” time for each truckload. Garbage collections for homes and businesses in Mountain View, Palo Alto and Sunnyvale would be delayed by up to a day, and it would likely take the remainder of that week to catch up on collections.

Due to the limited time available to complete the repairs and ensure the floor is back in operational condition by Monday, conventional concrete replacement cannot be employed. The recommended solution is to pour an additional layer of iron-reinforced cement over the existing flooring material so that the material can be installed over the weekend and ready for weekday operations. This iron-particle reinforced cement will bond with the existing floor material without the demolition, floor preparation time, and cost required with conventional concrete replacement. Staff is recommending award of this contract to American Restore, Inc. under a competitive bidding exemption as the company uses a proprietary topping material, Eucofloor 404, manufactured exclusively for them by the Euclid Chemical Company. This material is designed specifically for transfer station tipping floors and, in addition to being able to be applied over a weekend, offers greater abrasion resistance.

Prior contract awards approved by Council over the last ten years utilizing this method/vendor occurred in 2007 (RTC No. 07-271) and 2011 (RTC No. 11-030), for 2,800 and 5,000 square feet respectively.

FISCAL IMPACT

Budgeted funding for this repair is available in Capital Project 811250.

Funding Source

This project is funded by the SMaRT Station Equipment Replacement Fund. The cities of Mountain View, Palo Alto and Sunnyvale contribute to this fund based on the “capital cost” shares specified in the SMaRT Station Memorandum of Understanding:

- Mountain View 23.45%
- Palo Alto 21.27%
- Sunnyvale 55.28%

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

RECOMMENDATION

1) Award a contract in substantially the same form as Attachment 1 to the report and in the amount of \$527,977 to American Restore and authorize the City Manager to execute the contract when all the necessary conditions have been met; and 2) approve a 10% project contingency in the amount of \$52,798.

Prepared by: Gregory S. Card, Purchasing Officer

Reviewed by: Timothy J. Kirby, Director of Finance

Reviewed by: Mark A. Bowers, Solid Waste Programs Division Manager

Reviewed by: Melody Tovar, Interim Director of Environmental Services

Reviewed by: Teri Silva, Interim Assistant City Manager
Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. Draft Maintenance and Repair Contract

DRAFT MAINTENANCE AND REPAIR CONTRACT

THIS CONTRACT dated _____ is by and between the CITY OF SUNNYVALE, a municipal corporation of the State of California ("Owner") and AMERICAN RESTORE, INC., a California corporation ("Contractor").

RECITALS:

The parties to this Contract have mutually covenanted and agreed, as follows:

1. **The Contract Documents.** The complete Contract consists of the following documents: Proposal dated 8/21/17, Performance Bond and Payment Bond; Guaranty; City of Sunnyvale Standard Specifications, City of Sunnyvale Standard Details for Public Works Construction, 2006 Edition; Plans and Specifications, "SMaRT Station Flooring Replacement Project, Request for Quotation"; OSHA, and other standards and codes as outlined in the Specifications. These documents are all incorporated by reference. The documents comprising the complete contract are collectively referred to as the Contract Documents.

Any and all obligations of the Owner and the Contractor are fully set forth and described therein.

All of the above documents are intended to work together so that any work called for in one and not mentioned in the other or vice versa is to be executed the same as if mentioned in all documents.

2. **The Work.** Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, transportation, and material necessary to perform and complete the project in a good and workmanlike manner. The work consist(s) of installation services and materials necessary for the SMaRT Station flooring replacement as called for, and in the manner designated in, and in strict conformity with, the Plans and Specifications prepared by City Staff.

It is understood and agreed that the work will be performed and completed as required in the Plans and Specifications under the sole direction and control of the Contractor, and subject to inspection and approval of the Owner, or its representatives. The Owner hereby designates as its representative for the purpose of this contract the Senior Civil Engineer for Construction or an employee of the Owner who will be designated in writing by the Director of Public Works.

3. **Contract Price.** The Owner agrees to pay and the Contractor agrees to accept, in full payment for the work above agreed to be done, the sum of Five Hundred Twenty Seven Thousand Nine Hundred Seventy Seven and No/100 Dollars (\$527,977.00) subject to final determination of the work performed and materials furnished at unit prices per "Exhibit A" attached hereto and incorporated by this reference, and subject to additions and deductions in accordance, as provided in the Documents and in accordance with Contract Documents. The sum includes base bid and accepted Additive Alternate(s) No. Number(s).

All other Additive Alternate(s) are rejected by Owner, and are not included in this contract.

CONTRACTOR shall submit invoices to CITY no more frequently than monthly for services provided to date. All invoices, including detailed backup, shall be sent to City of Sunnyvale, attention Accounts Payable, P.O. Box 3707, Sunnyvale, CA 94088-3707. Payment shall be made within thirty (30) days upon receipt of an accurate, itemized invoice by CITY's Accounts Payable Unit.

4. Permits; Compliance with Law. Contractor shall, at its expense, obtain all necessary permits and licenses, easements, etc., for the construction of the project, give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public health and safety.

5. Inspection by Owner. Contractor shall at all times maintain proper facilities and provide safe access for inspection by the Owner to all parts of the work, and to the shops wherein the work is in preparation. Where the Specifications require work to be specially tested or approved, it shall not be tested or covered up without timely notice to the Owner of its readiness for inspection and without the approval thereof or consent thereto by the latter. Should any such work be covered up without such notice, approval, or consent, it must, if required by Owner, be uncovered for examination at the Contractor's expense.

6. Extra or Additional Work and Changes. Should Owner at any time during the progress of the work request any alterations, deviations, additions or omissions from the Specifications or Plans or other Contract Documents it shall be at liberty to do so, and the same shall in no way affect or make void the contract, but will be added to or deducted from the amount of the contract price, as the case may be, by a fair and reasonable valuation, agreed to in writing between the parties hereto. No extra work shall be performed or change be made unless in pursuance of a written order from the Director of Public Works or authorized representative, stating that the extra work or change is authorized and no claim for an addition to the contract sum shall be valid unless so ordered.

7. Time for Completion. All work under this contract shall be completed in one weekend that will be specific by the Project Manager in the Notice to Proceed.

If Contractor shall be delayed in the work by the acts or neglect of Owner, or its employees or those under it by contract or otherwise, or by changes ordered in the work, or by strikes, lockouts by others, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the Contractor's control, or by delay authorized by the Owner, or by any cause which the Owner shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Owner may decide.

This provision does not exclude the recovery of damages for delay by either party under other provisions.

8. Inspection and Testing of Materials. Contractor shall notify Owner a sufficient time in advance of the manufacture or production of materials, to be supplied under this contract, in order that the Owner may arrange for mill or factory inspection and testing of same, if Owner requests such notice from Contractor.

9. Termination. If Contractor should file a bankruptcy petition and/or be judged bankrupt, or if Contractor should make a general assignment for the benefit of creditors, or if a receiver should be appointed on account of insolvency, or if Contractor or any subcontractors should violate any of the provisions of the Contract, Owner may serve written notice upon Contractor and its surety of Owner's intention to terminate the Contract. The notice shall contain the reasons for such intention to terminate the Contract, and, unless within ten days after serving such notice, such violation shall cease and satisfactory arrangements for correction thereof be made, upon the expiration of the ten days, the Contract shall cease and terminate. In the event of any such termination, Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the Contract; provided, however that, if the surety within fifteen days after the serving upon it of notice of termination does not give Owner written notice of its intention to take over and perform the Contract or does not commence performance thereof within thirty days from the date of the serving of such notice, Owner may take over the work and prosecute the same to completion by contract or by any other method it may deem advisable, for the account and at the expense of Contractor, and Contractor and its surety shall be liable to Owner for any excess cost occasioned Owner thereby, and in such event Owner may without liability for so doing take possession of and utilize in completing the work, such materials, appliances, plant and other property belonging to Contractor as may be on the site of the work and necessary therefor.

10. Owner's Right to Withhold Certain Amounts and Make Application Thereof. In addition to the amount which Owner may retain under Paragraph 21 until the final completion and acceptance of all work covered by the Contract, Owner may withhold from payment to Contractor such amount or amounts as in its judgment may be necessary to pay just claims against Contractor or any subcontractors for labor and services rendered and materials furnished in and about the work. Owner may apply such withheld amount or amounts to the payment of such claims in its discretion. In so doing Owner shall be deemed the agent of Contractor and any payment so made by Owner shall be considered as a payment made under the Contract by Owner to the Contractor and Owner shall not be liable to Contractor for any such payment made in good faith. Such payment may be made without prior judicial determination of the claim or claims.

11. Notice and Service Thereof. All notices required pursuant to this Contract shall be communicated in writing, and shall be delivered in person, by commercial courier or by first class or priority mail delivered by the United States Postal Service. Nothing in this provision shall be construed to prohibit communication by more expedient means, such as by email or fax, to accomplish timely communication. Each party may change the address by written notice in accordance with this paragraph. Notices delivered

personally shall be deemed communicated as of actual receipt; mailed notices shall be deemed communicated as of three business days after mailing. All notices sent pursuant to this Contract shall be addressed as follows:

Owner: City of Sunnyvale
Department of Public Works
Construction Contract Administrator
P. O. Box 3707
Sunnyvale, CA 94088-3707

Contractor: American Restore
Attn: Jim Andrews, President
15552 Commerce Lane
Huntington Beach, CA 92649

12. Assignment of Contract. Neither the Contract, nor any part thereof, nor moneys due or to become due thereunder may be assigned by Contractor without the prior written approval of Owner.

13. Compliance with Specifications of Materials. Whenever in the Specifications, any material or process is indicated or specified by patent or proprietary name, or by name of manufacturer, such Specifications must be met by Contractor, unless Owner agrees in writing to some other material, process or article offered by Contractor which is equal in all respects to the one specified.

14. Contract Security. Contractor shall furnish a surety bond in an amount at least equal to 100 percent of the contract price as security for the faithful performance of this Contract. Contractor shall also furnish a separate surety bond in an amount at least equal to 100 percent of the contract price as security for the payment of all persons for furnishing materials, provisions, provender, or other supplies, or teams, used in, upon, for or about the performance of the work contracted to be done, or for performing any work or labor thereon of any kind, and for the payment of amounts due under the Unemployment Insurance Code with respect to such work or labor in connection with this Contract, and for the payment of a reasonable attorney's fee to be fixed by the court in case suit is brought upon the bond. Bonds shall be issued by an admitted surety insurer authorized to operate in the state of California.

15. Insurance. Contractor shall not commence work under this Contract until all insurance required under this paragraph has been obtained and such insurance has been approved by the Owner, nor shall Contractor allow any subcontractor to commence work on a subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Contractor shall furnish the Owner with satisfactory proof of the carriage of insurance required, and there shall be a specific contractual liability endorsement extending the Contractor's coverage to include the contractual liability assumed by the Contractor pursuant to this Contract and particularly Paragraph 16 hereof. Any policy of insurance required of the Contractor under this Contract shall also

contain an endorsement providing that thirty (30) days' notice must be given in writing to the Owner of any pending change in the limits of liability or of any cancellation or modification of the policy. Insurance carrier shall be California-admitted.

(a) Workers Compensation Insurance and Employer's Liability Insurance. Contractor shall take out and maintain during the life of this Contract Workers' Compensation Insurance and Employer's Liability Insurance for all of employees employed at the site of the project and, in case any work is sublet, Contractor shall require the subcontractor similarly to provide Workers' Compensation Insurance and Employer's Liability Insurance for all of the latter's employees unless such employees are covered by the protection afforded by Contractor.

In signing this Contract, Contractor makes the following certification, required by Section 1861 of the Labor Code:

"I am aware of the provision of Section 3700 of the Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

(b) General and Automobile Liability Insurance. Contractor, at its own cost and expense, shall maintain personal injury liability and property damage insurance for the period covered by the Contract in the amount of Two Million Dollars (\$2,000,000.00) per occurrence and \$4,000,000 annual aggregate combined single limit coverage. Such coverage shall include, but shall not be limited to, protection against claims arising therefrom, and damage to property resulting from activities contemplated under this Contract, use of owned automobiles, products and completed operations, including U, C and X. Such insurance shall be with insurers and under forms of policies satisfactory in all respects to the Owner and shall provide that notice must be given to Owner at least thirty (30) days prior to cancellation or material change. The following endorsements shall be attached to the policy:

Policy shall cover on an "occurrence" basis. Policy must cover personal injuries as well as bodily injuries. Exclusion of contractual liability must be eliminated from personal injury endorsement. Broad form property damage endorsement must be attached. Owner is to be named as an additional insured on any contracts of insurance under this paragraph (b). Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the Civil Code. The policies of insurance shall be considered primary insurance before any policies of insurance maintained by Owner.

16. Indemnification and Hold Harmless. Contractor agrees to defend, save,

indemnify and hold harmless Owner and all its officers, employees, and agents, against any and all liability, claims, judgments, or demands, including demands arising from injuries or death of persons (Contractor's employees included) and damage to property, arising directly or indirectly out of the obligations herein undertaken or out of the operations conducted by Contractor, save and except claims or litigation arising through the active negligence or willful misconduct of Owner, or of Owner's officials, agents, employees, servants, or independent contractors who are directly responsible to Owner. Contractor shall make good and reimburse Owner for any expenditures, including reasonable attorneys' fees, Owner may make by reason of such claim or litigation, and, if requested by Owner, Contractor shall defend any such suits at the sole cost and expense of Contractor.

17. Hours of Work. Eight hours of labor during any one calendar day and forty hours of labor during any one calendar week shall constitute the maximum hours of service upon all work done hereunder, and it is expressly stipulated that no laborer, worker, or mechanic employed at any time by the Contractor or by any subcontractor or subcontractors under this Contract, upon the work or upon any part of the work contemplated by this Contract, shall be required or permitted to work thereon more than eight hours during any one calendar day and forty hours during any one calendar week, except, as provided by Section 1815 of the Labor Code of the State of California, work performed by employees of contractors in excess of eight hours per day and forty hours during any one week shall be permitted upon public work upon compensation for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. It is further expressly stipulated that for each and every violation of Sections 1811-1815, inclusive, of the Labor Code of the State of California, all the provisions whereof are deemed to be incorporated herein, Contractor shall forfeit, as a penalty to Owner, twenty-five dollars (\$25.00) for each laborer, worker, or mechanic employed in the execution of this Contract by Contractor, or by any subcontractor under this Contract, for each calendar day during which the laborer, worker, or mechanic is required or permitted to work more than eight hours in any one calendar day and forty hours in any one calendar week in violation of the provisions of the Sections of the Labor Code.

Contractor, and each subcontractor, shall, in accordance with California Labor Code Section 1776 or as the same may be later amended, keep accurate payroll records showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with work under this agreement. Each payroll record shall contain or be verified by a written declaration under penalty of perjury, in accordance with Labor Code Section 1776(a). Such payroll records shall be made available at all reasonable times at the Contractor's principal office to the persons authorized to inspect such records pursuant to Labor Code Section 1776. A certified copy of all payroll records shall be made available for inspection or furnished upon request to a representative of the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations, as well as to the Owner's representative. In the event the Contractor or a Subcontractor fails to comply in a timely manner within ten days to a written notice requesting the records, such contractor or

subcontractor shall forfeit one hundred dollars (\$100.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated, in accordance with Labor Code Section 1776(h).

18. Wage Rates. Pursuant to the Labor Code of the State of California, or any applicable local law, Owner has ascertained the general prevailing rate per diem wages and rates for holidays, and overtime work in the city, for each craft, classification or type of laborer, worker, or mechanic needed to execute this Contract. Owner has adopted, by reference, the general prevailing rate of wages applicable to the work to be done under the Contract, as adopted and published by the Division of Labor Standards Enforcement and Labor Statistics and Research of the State of California, Department of Industrial Relations, to which reference is hereby made for a full and detailed description. A copy of the prevailing wage rates may be reviewed in the office of the Director of Public Works, City of Sunnyvale, 456 West Olive Avenue, Sunnyvale, California. Wage rates can also be obtained through the California Department of Industrial Relations website at: <http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>

Neither the notice inviting bids nor this Contract shall constitute a representation of fact as to the prevailing wage rates upon which the Contractor or any subcontractor may base any claim against Owner.

It shall be mandatory upon Contractor and upon any subcontractor to pay not less than the specified rates to all laborers, workers, and mechanics employed in the execution of the Contract. It is further expressly stipulated that Contractor shall, as a penalty to Owner, forfeit two hundred dollars (\$200.00) for each calendar day, or portion thereof, for each laborer, worker, or mechanic paid less than the stipulated prevailing rates for any work done under this Contract by Contractor or by any subcontractor; and Contractor agrees to comply with all provisions of Section 1775 of the Labor Code.

In case it becomes necessary for Contractor or any subcontractor to employ on the project under this Contract any person in a trade or occupation (except executives, supervisory, administrative, clerical, or other non-manual workers as such) for which no minimum wage rate is herein specified, Contractor shall immediately notify Owner who will promptly thereafter determine the prevailing rate for such additional trade or occupation and shall furnish Contractor with the minimum rate based thereon. The minimum rate thus furnished shall be applicable as a minimum for such trade or occupation from the time of the initial employment of the person affected and during the continuance of such employment.

19. Accident Prevention. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment, and other hazards shall be guarded or eliminated in accordance with the safety provisions of the Construction Safety Orders issued by the Industrial Accident

Commission of the State of California.

20. Contractor's Guarantee. Owner shall not, in any way or manner, be answerable or suffer loss, damage, expense or liability for any loss or damage that may happen to the building, work, or equipment or any part thereof, or in, on, or about the same during its construction and before acceptance. Contractor unqualifiedly guarantees the first-class quality of all workmanship and of all materials, apparatus, and equipment used or installed by Contractor or by any subcontractor or supplier in the project which is the subject of this Contract, unless a lesser quality is expressly authorized in the Plans and Specifications, in which event Contractor unqualifiedly guarantees such lesser quality; and that the work as performed by Contractor will conform with the Plans and Specifications or any written authorized deviations therefrom. In case of any defect in work, materials, apparatus or equipment, whether latent or patent, revealed to Owner within one year of the date of acceptance of completion of this Contract by Owner, Contractor will forthwith remedy such defect or defects without cost to Owner.

21. Liquidated Damages. Time shall be the essence of this Contract. If Contractor fails to complete, within the time fixed for such completion, the entire work mentioned and described and contracted to be done and performed, Contractor shall become liable to Owner for liquidated damages in the sum of Amount in Words (Amount in Numbers) for each and every calendar day during which work shall remain uncompleted beyond such time fixed for completion or any lawful extension thereof. The amount specified as liquidated damages is presumed to be the amount of damage sustained by Owner since it would be impracticable or extremely difficult to fix the actual damage; and the amount of liquidated damages may be deducted by Owner from moneys due Contractor hereunder, or its assigns and successors at the time of completion, and Contractor, or its assigns and successors at the time of completion, and its sureties shall be liable to Owner for any excess.

22. Governing Law, Jurisdiction and Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of California, without regard to conflict of law or choice of law principles. Proper venue for legal actions will be exclusively vested in a state court in the County of Santa Clara. The parties agree that subject matter and personal jurisdiction are proper in state court in the County of Santa Clara, and waive all venue objections.

23. Severability Clause. In case any one or more of the provisions contained herein shall, for any reason, be held invalid, illegal or unenforceable in any respect, it shall not affect the validity of the other provisions which shall remain in full force and effect.

24. Entire Agreement; Amendment. This writing constitutes the entire agreement between the parties relating to the services to be performed or materials to be furnished hereunder. No modification of this Agreement shall be effective unless and until such modification is evidenced by writing signed by all parties.

25. Execution and Counterparts. This Agreement may be executed in multiple counterparts and/or with the signatures of the Parties set forth on different

signature sheets and all such counterparts, when taken together, shall be deemed one original.

IN WITNESS WHEREOF, two identical counterparts of this contract, each of which shall for all purposes be deemed an original thereof, have been duly executed by the parties.

CITY OF SUNNYVALE
a Municipal Corporation, Owner

AMERICAN RESTORE, INC.
Contractor

License No. 976449

By _____ / /
City Manager

By _____
_____/ /
Title Date

Attest:
City Clerk

By _____
_____/ /
Title Date

By _____ / /
City Clerk Date

(SEAL)

APPROVED AS TO FORM:

_____/ /
City Attorney Date

EXHIBIT A

Line Item	Description	Qty	UOM	Unit Price
1.	Replacement of SMaRT Station Floor	1	Lump sum	\$527,977.00

EXHIBIT B

Utilization of Local Workforce in Construction Projects - The Sunnyvale City Council has adopted a policy which encourages utilization of local workforces, including State-certified apprentices, as a means of supporting economic opportunities for all members of the community. Local workforce is defined as workers residing in Santa Clara County. The lowest responsive and responsible bidder must provide a projection of locally-hired workers utilized for this contract.

Contractor	Projected Number of Locally Hired Workers_____ Projected Percent of Locally Hired Workers_____ %
Subcontractor(s)	Projected Number of Locally Hired Workers_____ Projected Percent of Locally Hired Workers_____ %

PERFORMANCE BOND

F18-147 SMaRT Station Floor Replacement

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the City of Sunnyvale ("City") has awarded to AMERICAN RESTORE, INC. as principal ("Contractor"), a contract for the public work described as follows:

The project entitled "SMaRT Station Floor Replacement" pursuant to the award made to said Principal by the Council of the City of Sunnyvale to do and perform the following work, to wit: furnish all tools, equipment, apparatus, facilities, labor, transportation, and material necessary to perform and complete in a good and workmanlike manner, the work of installation services and materials necessary for the SMaRT Station Floor Replacement as called for, and in the manner designated in, and in strict conformity with, the Plans and Specifications (the "work").

It is acknowledged that the contract provides for a one-year warranty period during which time this Bond remains in full force and effect. The contract and all of its terms and conditions are incorporated into this Bond by reference.

AND WHEREAS, the Contractor is required to furnish a bond in connection with the contract guaranteeing its faithful performance.

AND THEREFORE, we the undersigned Contractor as principal and _____ a _____, admitted and duly authorized to transact business under the laws of the State of California as surety, are held and firmly bound unto the City as obligee in the sum of Five Hundred Twenty Seven Thousand Nine Hundred Seventy Seven and No/100 (\$527,977.00) (which amount is not less than 100% of the contract price) to be paid to the City or its successors and assigns; and for which

payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION of the obligation is such:

That if the Contractor, (or the Contractor's heirs, executors, administrators, successors or assigns) shall in all respects abide by, and well and truly keep and perform all of the covenants, conditions and agreements in the contract (and any alteration made as provided in the contract) at the time and in the manner specified and in all respects according to their true intent and meaning; and if the contractor shall indemnify and save harmless the City, its officers, employees and agents, as stipulated in the contract, then this obligation shall become and be null and void; otherwise this obligation shall be and remain in full force and effect.

As a condition precedent to the satisfactory completion of the contract, the obligation of the Contractor and surety under this Bond shall remain in effect for a period of one (1) year after the completion and acceptance of the work. During that time, if the Contractor (or the Contractor's heirs, executors, administrators, successors or assigns) fails to make full, complete and satisfactory repair and replacement or totally protect the City from any loss or damage made evident during that year which results from or is caused by either defective materials or faulty workmanship in the prosecution of the work, then the obligation shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligation of the Surety shall continue so long as any obligation of the Contractor remains.

No prepayment or delay in payments, and no change, extension, addition or alteration of any provision of the contract or in the specifications agreed to between the Contractor and the City, or any forbearance on the part of the City shall operate to relieve the surety. The surety hereby waives the provisions of Section 2819 of the California Civil Code. The surety waives all rights of subrogation against the City or any person employed by the City. If the contract price increases by the issuance of change orders, the amount specified in this bond shall increase by the same amount.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 20__.

SURETY {Name}:

{Address of Principal Place of Business}

Telephone No.: _____

Facsimile No. _____

By: _____

Attorney in Fact

CONTRACTOR:

AMERICAN RESTORE, INCE.

15552 Commerce Lane

Huntington Beach, CA 92649

By: _____

(Name: print or type)

Title: _____

By: _____

(Name: print or type)

Title: _____

(Notice: The signatures of the Surety and Contractor on this bond must be acknowledged before a notary.)

**Attachment C
PAYMENT BOND**

**F18-147
SMaRT Station Floor Replacement**

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the City of Sunnyvale ("City") has awarded to AMERICAN RESTORE, INC. as principal ("Contractor"), a contract for the work described as follows:

The project entitled "SMaRT Station Floor Replacement" pursuant to the award made to said Principal by the Council of the City of Sunnyvale to do and perform the following work, to wit: furnish all tools, equipment, apparatus, facilities, labor, transportation, and material necessary to perform and complete in a good and workmanlike manner, the work of installation services and materials necessary for the SMaRT Station Floor Replacement as called for, and in the manner designated in, and in strict conformity with, the Plans and Specifications (the "work").

It is acknowledged that the contract provides for a one-year warranty period during which time this Bond remains in full force and effect. The contract and all of its terms and conditions are incorporated into this Bond by reference.

AND WHEREAS, the Contractor is required to furnish a bond in connection with the contract guaranteeing payment of persons who provide labor and material;

AND THEREFORE, we the undersigned Contractor as principal and _____, a _____, admitted and duly authorized to transact business under the laws of the State of California, as surety, are held and firmly bound unto the City or its successors and assigns as obligee in the sum of _Five Hundred Twenty Seven Thousand Nine Hundred Seventy Seven and No/100 (\$527,977.00) ; (which amount is not less than 100% of the contract price) and for which payment, well

and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION of the obligation is such:

That if the Contractor, (or the Contractor's subcontractors, heirs, executors, administrators, successors or assigns) fails to pay any of the persons named in Section 3181 of the Civil Code of the State of California, or the amounts due under the Unemployment Insurance Code of the State of California with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code of the State of California, with respect to such work and labor, that the surety will pay for the same, in an amount not exceeding the sum specified in this bond, and also, in case suit is brought upon the bond, shall pay reasonable attorney's fees, to be fixed by the Court.

This bond shall inure to the benefit of any and all persons, companies, and corporations named in Section 3181 of the Civil Code of the State of California, so as to give a right of action to them or their assigns in any suit brought upon this bond.

No prepayment or delay in payments, and no change, extension, addition or alteration of any provision of the contract or in the specifications agreed to between the Contractor and the City, or any forbearance on the part of the City shall operate to relieve the surety. The surety hereby waives the provisions of Section 2819 of the California Civil Code. The surety waives all rights of subrogation against the City or any person

employed by the City. If the contract price increases by the issuance of change orders, the amount specified in this bond shall increase by the same amount.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 20__.

SURETY (Name):

(Address of Principal Place of Business)

Telephone No.: _____

Facsimile No. _____

By: _____
Attorney in Fact

CONTRACTOR:

AMERICAN RESTORE, INC.

(Address)

15552 Commerce Lane

Huntington Beach, CA 92649

By: _____

(Name: print or type)

Title: _____

By: _____

(Name: print or type)

Title: _____

(Notice: The signatures of the Surety and Contractor on this bond must be acknowledged before a notary public.)



City of Sunnyvale

Agenda Item

17-1014

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Modify an Existing Contract with Kimley-Horn Associates, Inc. for Temporary Personnel Services to Provide Professional Engineering Support for the Intelligent Transportation System and Authorize the City Manager to Extend the Term of the Contract

REPORT IN BRIEF

Staff is recommending that Council authorize the City Manager to execute a First Amendment to the contract with Kimley-Horn Associates, Inc., of Pleasanton, California, increasing the contract amount from \$95,000 to \$245,000 for Temporary Personnel Services to provide professional engineering services for the Public Works Transportation & Traffic Division. These additional funds allow staff to keep pace with the elevated activity generated related to the land development review process, and in support of grant funded capital improvement projects.

EXISTING POLICY

Pursuant to 2.08 of the Sunnyvale Municipal Code, City Council approval is required for contracts exceeding \$100,000.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a "project" within the meaning of California Environmental Quality Act ("CEQA") guidelines section 15378(a) as it has no potential for resulting in either a direct physical change in the environment, or a reasonably indirect physical change in the environment.

BACKGROUND AND DISCUSSION

The Department of Public Works, Division of Transportation and Traffic has been experiencing a high volume of demand for professional development services related to the upturn in the economy and increased professional engineering support necessary for a number of grants that the City has been successfully awarded in recent years.

Development and Capital Improvement Project activities in Sunnyvale have been trending up for the past few years and are expected to continue at a high level for the next several years. This growth is represented by both new development as well as investments to modernize existing older buildings and structures.

To address the need initially, in March, 2017, the City entered into a Temporary Personnel Services Agreement, in the amount of \$95,000, with Kimley-Horn to provide temporary staffing services and to augment staff resources in delivering the Division of Transportation and Traffic's services in a timely and efficient manner. Kimley-Horn and Associates, Inc. was selected on a non-competitive basis due to their high level of expertise in providing professional design development and due to their status as

a qualified consultant as part of a Request for Qualifications for "On-Call" Transportation Consultants (F15-100), awarded in November 2015.

Currently, there is an increased backlog of time sensitive work that needs to be delivered by the Division of Transportation and Traffic, which necessitates additional support from Kimley-Horn and Associates. Additional professional staff is also needed to help meet the delivery deadlines associated with the grant-funded projects so as to not risk losing those funds. This is a professional service that requires work experience associated with transportation impact analysis preparation, traffic control plan review and approval, design of plans, cost estimates, and technical specifications for Intelligent Transportation Systems elements, which Kimley-Horn has demonstrated satisfactory performance.

To meet these needs, staff is recommending that Council authorize the City Manager to execute a First Amendment to the contract with Kimley-Horn Associates, increasing the contract amount from \$95,000 to \$245,000.

FISCAL IMPACT

Funding for this contract is available from multiple sources. First, for work related to land development projects, funding is available in Project 830901-Transportation and Traffic Services Staff Augmentation which is funded in the Development Enterprise Fund through development related fees. For work related to grant funded projects, work is directly allocated to each project as appropriate.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

RECOMMENDATION

1) Authorize the City Manager to execute a First Amendment to the contract with Kimley-Horn Associates, Inc., in substantially the same form as Attachment 1 to the report, increasing the not-to-exceed contract amount from \$95,000 to \$245,000, for Temporary Personnel Services and professional engineering services for the Transportation and Traffic Division, when all necessary conditions have been met.

Prepared by: Gregory Card, Purchasing Officer
Reviewed by: Timothy J. Kirby, Director of Finance
Reviewed by: Craig Mobeck, Interim Director of Public Works
Reviewed by: Teri Silva, Interim Assistant City Manager
Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. First Amendment to Temporary Personnel Services Agreement Between the City of Sunnyvale and Kimley-Horn and Associates, Inc.
2. Temporary Personnel Services Agreement Between the City of Sunnyvale and Kimley-Horn and Associates, Inc.

ORIGINAL

**AMENDMENT TO TEMPORARY PERSONNEL SERVICES
AGREEMENT BETWEEN THE CITY OF SUNNYVALE
AND KIMLEY-HORN AND ASSOCIATES, INC.**

THIS FIRST AMENDMENT TO TEMPORARY PERSONNEL SERVICES AGREEMENT dated _____ is by and between the CITY OF SUNNYVALE, a municipal corporation ("CITY"), and KIMLEY-HORN AND ASSOCIATES, INC. ("AGENCY").

WHEREAS, on March 31, 2017, CITY and AGENCY entered into an agreement for specialized services in relation to temporary staffing to support City staff in review and design of traffic signal design and modification plans, signing and striping plans, and off-site improvement plans, and provide general assistance with other various traffic engineering and design projects as assigned.; and

WHEREAS, the parties now agree that a First Amendment to said Agreement is advisable;

NOW, THEREFORE, THE PARTIES ENTER INTO THIS FIRST AGREEMENT.

1. Services by AGENCY

Replace the second sentence with the following:

Each individual performing the required services under this Agreement shall be approved by CITY in advance and shall adhere to the additional requirements set forth in Exhibit "D".

4. Compensation

Replace the first paragraph with the following:

CITY agrees to pay AGENCY at the rates set forth in the compensation schedule (Exhibit "B"), attached and incorporated by reference. Total compensation shall not exceed Two Hundred Forty-Five Thousand and No/100 Dollars (\$245,000)

All other terms and conditions remain unchanged.

IN WITNESS WHEREOF, the parties have executed this Agreement.

ATTEST:

CITY OF SUNNYVALE ("CITY")

By _____
City Clerk

By _____
Interim City Manager

APPROVED AS TO FORM:

Kimley-Horn and Associates, Inc.
("AGENCY")

By _____
City Attorney

Name

Title

Name

Title

Exhibit "B"

COMPENSATION SCHEDULE
(Rates remain unchanged)

KIMLEY-HORN AND ASSOCIATES, INC. 2017 RATE SHEET

Staff Hourly Rate:

Technical Support \$105 - \$125
Senior Technical Support \$120 - \$180
Support Staff \$85 - \$105
Professional \$115 - \$165
Senior Professional \$180 - \$325

Rates may be adjusted on July 1 of each year, subject to agreement of the parties.

Expenses:

Direct Expense Mark-Up - Billed at Cost
Sub-consultant Mark-Up - Up to 5% Mark-Up
Office Expenses - Billed at Cost

Exhibit "D"
Additional Requirements

1. Criminal Background Checks. Temporary employees that are placed with the City are required to undergo criminal background checks conducted by the agency. Any applicant who receives other than a "clear" or "no record" result shall have their results reviewed by the agency for an appropriate job nexus consistent with current state and federal guidelines. The agency shall verify in writing, as outlined in Appendix A, with the City that the background check has been performed for each employee placed with the City.

2. Limitation of Hours. It is City policy that no temporary employee shall be assigned to the City more than 900 hours per fiscal year. The agency shall maintain a record of the total hours each temporary employee has been on all assignments at the City during the fiscal year and shall inform the appropriate City supervisor, in writing with a copy to the Director of Human Resources or designee, whenever the length of an employee's assignment reaches 800 hours in a fiscal year; such notice shall be made within two weeks of the employee reaching 800 hours. Under no circumstances shall the agency allow a temporary employee's assignment to extend beyond these time limits. In addition, the agency will provide the City the number of hours worked for each temporary employee every two weeks.

3. Conflicts of Interest and CalPERS Requirements. The agency shall obtain the following information from any temporary employee being considered for assignment to the City:

- Does the individual have a family relationship with any City employee and/or official? If the answer is "yes", the agency shall obtain approval from the Director of Human Resources or his or her designee prior to making the assignment.
- Is the individual a member of the California Public Employment Retirement System (CalPERS)? If the answer is "yes", this person will not be assigned to the City of Sunnyvale.
- Is the individual a retiree of the California Public Employment Retirement System (CalPERS)? If the answer is "yes", this person must have been retired for a minimum of 180 days. In addition, the compensation paid to a CalPERS retiree cannot be less than the minimum or exceed the maximum paid to a regular City of Sunnyvale employee performing equivalent or comparable work. CalPERS retirees cannot receive any benefit, incentive, compensation in-lieu of benefits, or any other form of compensation in addition to their hourly pay rate.
- No officer or employee of CITY shall have any interest, direct or indirect, in this Agreement or in the proceeds thereof. During the term of this Agreement AGENCY shall not accept employment or an obligation which is inconsistent or incompatible with agency's obligations under this Agreement.

Appendix "A"

City of Sunnyvale
Affirmation of Criminal Background Check Completion
Contract/PO Ref. # _____

This form acknowledges that the temporary employee, _____, from West Valley Staffing Group ("Agency"), has completed a criminal background check as required and detailed within Exhibit "B" of this Fourth Amendment to the Temporary Personnel Services Agreement between the City of Sunnyvale and said Agency.

Agency Representative Signature

Agency Representative Name

Date

DUPLICATE ORIGINAL

**TEMPORARY PERSONNEL SERVICES AGREEMENT
BETWEEN THE CITY OF SUNNYVALE
AND KIMLEY-HORN AND ASSOCIATES, INC.**

THIS AGREEMENT dated March 31, 2017 is by and between the CITY OF SUNNYVALE, a municipal corporation ("CITY"), and KIMLEY-HORN AND ASSOCIATES, INC. ("AGENCY").

WHEREAS, CITY is in need of specialized services in relation to temporary staffing to support City staff in review and design of traffic signal design and modification plans, signing and striping plans, and off-site improvement plans, and provide general assistance with other various traffic engineering and design projects as assigned.; and

WHEREAS, AGENCY possesses the skill and expertise to provide the required services;

NOW, THEREFORE, THE PARTIES ENTER INTO THIS AGREEMENT.

1. Services by AGENCY

AGENCY shall provide qualified individuals for technical and professional services, in accordance with the Scope of Service outlined in Exhibit "A". Each individual performing the required services under this Agreement shall be approved by CITY in advance.

2. Time for Performance

The term of this Agreement shall for a one year period beginning on the date of Agreement execution, unless otherwise terminated. Agreement may be extended for additional periods of time, subject to available funding.

3. Duties of CITY

CITY shall supply any documents or information available to City required by AGENCY for performance of its duties. Any materials provided shall be returned to CITY upon completion of the work.

CITY shall also provide a work space; access to standard office equipment, including telephones; and materials and supplies, as required, while working at a CITY facility.

4. Compensation

CITY agrees to pay AGENCY at the rates set forth in the compensation schedule (Exhibit "B"), attached and incorporated by reference. Total compensation shall not exceed Ninety-Five Thousand and no/100 Dollars (\$95,000.00)

AGENCY shall submit invoices to CITY no more frequently than monthly for services provided to date. AGENCY shall submit bi-weekly time cards to City Staff for approval. Payment shall be made within thirty (30) days upon receipt of an accurate, itemized invoice by CITY's Accounts Payable Unit.

5. Ownership of Documents

CITY shall have full and complete access to AGENCY's working papers, drawings and other documents during progress of the work. All documents of any description prepared by AGENCY shall become the property of the CITY at the completion of the project and upon payment in full to the AGENCY. AGENCY may retain a copy of all materials produced pursuant to this Agreement.

6. Conflict of Interest

No officer or employee of CITY shall have any interest, direct or indirect, in this Agreement or in the proceeds thereof. During the term of this Agreement AGENCY shall not accept employment or an obligation which is inconsistent or incompatible with AGENCY's obligations under this Agreement.

Pursuant to CITY's Standard Conflict of Interest Code CITY has determined that any individual performing services under this Agreement is required to file a Statement of Economic Interest (Form 700) which can be found at www.fppc.ca.gov.

7. Confidential Information

AGENCY shall maintain in confidence and at no time use, except to the extent required to perform its obligations hereunder, any and all proprietary or confidential information of CITY of which AGENCY may become aware in the performance of its services.

8. Compliance with Laws

- (a) AGENCY shall not discriminate against, or engage in the harassment of, any City employee or volunteer or any employee of AGENCY or applicant for employment because of an individual's race, religion, color, sex, gender identity, sexual orientation (including heterosexuality, homosexuality and bisexuality), ethnic or national origin, ancestry, citizenship status, uniformed service member status, marital status, family relationship, pregnancy, age, cancer or HIV/AIDS-related medical condition, genetic characteristics, and physical or mental disability (whether perceived or actual). This prohibition shall apply to all of AGENCY's employment practices and to all of AGENCY's activities as a provider of services to the City.
- (b) AGENCY shall comply with all federal, state and city laws, statutes, ordinances, rules and regulations and the orders and decrees of any courts or administrative bodies or tribunals in any manner affecting the performance of the Agreement.

- (c) AGENCY acknowledges that it is responsible for compliance with all requirements of the Patient Protection and Affordable Care Act. Further, AGENCY acknowledges that it will offer compliant health insurance coverage to any of its employees assigned to the CITY who meet the eligibility criteria of the Patient Protection and Affordable Care Act.
- (d) AGENCY understands that City is a public agency member of the California Public Employees Retirement System ("CalPERS") and is required to comply with CalPERS rules and state law related to membership and administration, and that CalPERS maintains and implements, from time to time, certain rules related to CalPERS members or annuitants. Such rules may be applicable to CalPERS members and annuitants hired by Agency and performing work through Agency for the City of Sunnyvale. Agency agrees to cooperate with City in complying with any requirements established by the CalPERS and/or assist the City in complying with CalPERS requirements to the fullest extent possible with respect to Agency's employees. Such requirements may include, but are not limited to requiring employees to complete the CalPERS notice of exclusion form, complying with CalPERS rules requiring payment of members and annuitants consistent with rates in published City salary schedules for City positions performing similar work, disclosing their employees' actual pay rates, and assisting the City in collecting employee contributions.

9. Independent AGENCY

AGENCY is acting as an independent AGENCY in furnishing the services or materials and performing the work required by this Agreement and is not an agent, servant or employee of CITY. Nothing in this Agreement shall be interpreted or construed as creating or establishing the relationship of employer and employee between CITY and AGENCY. AGENCY is responsible for paying all required state and federal taxes.

10. Indemnity

AGENCY shall indemnify, defend, and hold harmless the CITY, its officers, officials, employees and volunteers from and against all claims, damages, losses and expenses, including attorney fees, arising out of the performance of the services, caused to the extent caused by any negligent act or omission of AGENCY, any subagency, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, except where caused by the active negligence, sole negligence or willful misconduct of the CITY.

11. Insurance

AGENCY shall take out and maintain during the life of this Agreement policies of insurance as specified in Exhibit "C" attached and incorporated by reference, and shall provide all certificates and endorsements as specified in Exhibit "C" Insurance Requirements.

12. City Representative

Mr. Shahid Abbas, Transportation and Traffic Manager Mr. Shahid Abbas, Transportation and Traffic Manager as the City Manager's authorized representative, shall represent CITY in all matters pertaining to the services to be rendered under this Agreement. All requirements of CITY pertaining to the services and materials to be rendered under this Agreement shall be coordinated through the CITY representative.

13. AGENCY Representative

Michael C. Mowery, P.E., Vice President, shall represent AGENCY in all matters pertaining to the services and materials to be rendered under this Agreement; all requirements of AGENCY pertaining to the services or materials to be rendered under this Agreement shall be coordinated through the AGENCY representative.

14. Payroll Hours Reporting

AGENCY is responsible for submitting a bi-weekly hours report to CITY which identifies temporary personnel and hours worked for each pay period as well as a cumulative total. The report shall be based on the CITY'S fiscal year, which is July 1-June 30. AGENCY is responsible for retaining timecards for temporary personnel and shall provide timecard detail to CITY upon request. The hours report shall be submitted to:

Vienne Choi
City of Sunnyvale
Human Resources Manager
505 W. Olive Avenue, Suite 200
Sunnyvale, CA 94086
Phone: (408) 730-2705
Email: vchoi@sunnyvale.ca.gov

15. Notices

All notices required by this Agreement, other than invoices for payment which shall be sent directly to Accounts Payable, shall be in writing, and shall be personally delivered, sent by first class with postage prepaid, or by sent by commercial courier, addressed as follows:

To CITY: Mr. Shahid Abbas, Transportation and Traffic Manager
Public Works Traffic Division
CITY OF SUNNYVALE
P. O. Box 3707

Sunnyvale, CA 94088-3707

To AGENCY: Michael C. Mowery, P.E., Vice President
Kimley-Horn and Associates, Inc.
4637 Chabot Rd.
Suite 300
Pleasanton, CA 94588

Nothing in this provision shall be construed to prohibit communication by more expedient means, such as by telephone or facsimile transmission, to accomplish timely communication. However, to constitute effective notice, written confirmation of a telephone conversation or an original of a facsimile transmission must be sent by first class mail or commercial carrier, or hand delivered. Each party may change the address by written notice in accordance with this paragraph. Notices delivered personally shall be deemed communicated as of actual receipt; mailed notices shall be deemed communicated as of two days after mailing, unless such date is a date on which there is no mail service. In that event communication is deemed to occur on the next mail service day.

16. Assignment

Neither party shall assign or sublet any portion of this Agreement without the prior written consent of the other party.

17. Termination

- A. If AGENCY defaults in the performance of this Agreement, or materially breaches any of its provisions, CITY at its option may terminate this Agreement by giving written notice to AGENCY. In the event of such termination, AGENCY shall be compensated in proportion to the percentage of satisfactory services performed or materials furnished (in relation to the total which would have been performed or furnished) through the date of receipt of notification from CITY to terminate. AGENCY shall present CITY with any work product completed at that point in time.
- B. Without limitation to such rights or remedies as CITY shall otherwise have by law, CITY also shall have the right to terminate this Agreement for any reason upon ten (10) days' written notice to AGENCY. In the event of such termination, AGENCY shall be compensated in proportion to the percentage of services performed or materials furnished (in relation to the total which would have been performed or furnished) through the date of receipt of notification from CITY to terminate. AGENCY shall present CITY with any work product completed at that point in time.
- C. If CITY fails to pay AGENCY, AGENCY at its option may terminate this Agreement if the failure is not remedied by CITY within (30) days after written notification of failure to pay.

18. Entire Agreement; Amendment

This writing constitutes the entire agreement between the parties relating to the services to be performed or materials to be furnished hereunder. No modification of this Agreement shall be effective unless and until such modification is evidenced in writing signed by all parties.

19. Governing Law, Jurisdiction and Venue

This Agreement shall be governed by and construed in accordance with the laws of the State of California, excluding its conflict of law principles. Proper venue for legal actions will be exclusively vested in a state court in the County of Santa Clara. The parties agree that subject matter and personal jurisdiction are proper in state court in the County of Santa Clara, and waive all venue objections.

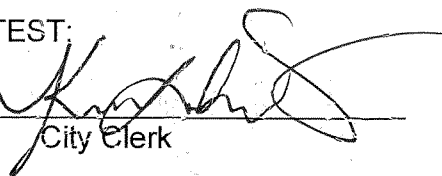
20. Miscellaneous

Time shall be of the essence in this Agreement. Failure on the part of either party to enforce any provision of this Agreement shall not be construed as a waiver of the right to compel enforcement of such provision or any other provision. This Agreement shall be governed and construed in accordance with the laws of the State of California.

IN WITNESS WHEREOF, the parties have executed this Agreement.

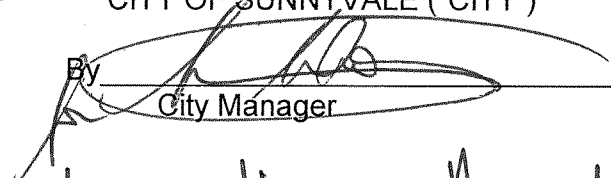
ATTEST:

By


City Clerk

CITY OF SUNNYVALE ("CITY")

By


City Manager

APPROVED AS TO FORM:

By


City Attorney

KINLEY-HORN AND ASSOC., INC.
("AGENCY")

Michael C. Mowry, 3-22-17
Name

VICE PRESIDENT C66353

Title

Name

John Pulliam, Assistant Secretary
Title

KHACA
03

Exhibit "A"

SCOPE OF WORK

Kimley-Horn and Associates, Inc. will demonstrate a high level of professionalism and will deliver quality work at all times. Duties and Responsibilities include, but are not limited to, the following:

- Prepares specifications, plans, engineering cost estimates and reports pertaining to the construction, maintenance, and operation of traffic signals facilities and street lighting systems for Capital Improvement Projects and other Grant funded projects.
- Prepare and review various signing/stripping plans, traffic signal and construction plans, and Temporary Traffic Control plans.
- Assists staff with existing traffic signal operations analysis to optimize traffic signal timing and provides recommendations for field implementation.
- Conducts traffic studies and prepares reports for speed studies, traffic control devices warrants, parking studies, and performs collision analysis.
- Assist staff with Transportation Planning and Land Development related assignments as related to Transportation and Traffic such as neighborhood traffic studies, and review of off-site improvement plans.
- Assist Principal Transportation Engineer with the review of TIAs, EIRs, etc. as needed.
- Conduct studies on specialized and complex planning issues and make recommendations to Principal Transportation Engineer or Transportation & Traffic Manager as needed.
- Assist staff to prepare documentation as required to apply for, securing, and managing outside transportation grant revenue.
- Perform other duties, as assigned.

Exhibit "B"

COMPENSATION SCHEDULE

KIMLEY-HORN AND ASSOCIATES, INC. 2017 RATE SHEET

Staff Hourly Rate

Technical Support \$105 - \$125
Senior Technical Support \$120 - \$180
Support Staff \$85 - \$105
Professional \$115 - \$165
Senior Professional \$180 - \$325

Rates may be adjusted on July 1 of each year, subject to agreement of the parties.

Expenses

Direct Expense Mark-Up - Billed at Cost
Sub-consultant Mark-Up - Up to 5% Mark-Up
Office Expenses - Billed at Cost

EXHIBIT "C"

INSURANCE REQUIREMENTS

Agency shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work by the Agency, his agents, representatives, or employees.

Minimum Scope and Limits of Insurance Agency shall maintain limits no less than:

1. **Commercial General Liability**: \$1,000,000 per occurrence and \$2,000,000 aggregate for bodily injury, personal injury and property damage. ISO Occurrence Form CG 0001 or equivalent is required.
2. **Automobile Liability**: \$1,000,000 per accident for bodily injury and property damage. ISO Form CA 0001 or equivalent is required.
3. **Workers' Compensation** Statutory Limits and **Employer's Liability**: \$1,000,000 per accident for bodily injury or disease.

Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared and approved by the City of Sunnyvale. The Agency shall guarantee payment of any losses and related investigations, claim administration and defense expenses within the deductible or self-insured retention.

Other Insurance Provisions

The **general liability** policy shall contain, or be endorsed to contain, the following provisions:

1. The City of Sunnyvale, its officials, employees, agents and volunteers are to be covered as additional insureds with respects to liability arising out of activities performed by or on behalf of the Agency; products and completed operations of the Agency; premises owned, occupied or used by the Agency; or automobiles owned, leased, hired or borrowed by the Agency. The coverage shall contain no special limitations on the scope of protection afforded to the City of Sunnyvale, its officers, employees, agents or volunteers.
2. For any claims related to this project, the Agency's insurance shall be primary. Any insurance or self-insurance maintained by the City of Sunnyvale, its officers, officials, employees, agents and volunteers shall be excess of the Agency's insurance and shall not contribute with it.
3. Any failure to comply with reporting or other provisions of the policies including

breaches of warranties shall not affect coverage provided to the City of Sunnyvale, its officers, officials, employees, agents or volunteers.

4. The Agency's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
5. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City of Sunnyvale.

Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best's rating of not less than A:VII, unless otherwise acceptable to the City of Sunnyvale.

Verification of Coverage

Agency shall furnish the City of Sunnyvale with original a Certificate of Insurance effecting the coverage required. The certificates are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates are to be received and approved by the City of Sunnyvale prior to commencement of work.



City of Sunnyvale

Agenda Item

17-1013

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Approve Budget Modification No. 21 to Appropriate \$17,700 of County of Santa Clara Emergency Management Performance Grant (EMPG) Funds for a New Project, FY 2017/18 EMPG.

BACKGROUND

The California Office of Emergency Services (Cal OES) awarded the County of Santa Clara, on behalf of the Santa Clara County Emergency Operational Area, Emergency Management Performance Grant (EMPG) funding in the amount of \$518,921 on November 1, 2017. The purpose of the award is to sustain and improve emergency management programs.

On October 6, 2017, the City received a Memorandum of Understanding (MOU) from the County of Santa Clara (Attachment 1, Memorandum of Understanding) that will allocate \$17,700 of state EMPG funds to the Department of Public Safety for Fiscal Year 2017/18. EMPG funds will be used for Emergency Management Professional Development courses and for the purchase of seven (7) laptop computers for the Department of Public Safety Emergency Operations Center (Attachment 2, Spending Plan). The MOU was fully executed on November 9, 2017.

The Division of Special Operations in the Department of Public Safety will be responsible for the management of the grant.

Granting Agency

Funding is made from Santa Clara County Office of Emergency Services (OES), a sub-recipient of funds from the California Office of Emergency Services (Cal OES) using funds awarded by the United States Department of Homeland Security.

EXISTING POLICY

City Goal SN-2: Effective Disaster Preparedness: Ensure that the City, its community members, business, faith-based organizations, community organizations and special needs populations are prepared to effectively respond and recover from major disasters and emergencies.

Council Policy 7.1.5 Donations, Contributions and Sponsorships:

The city manager may accept or reject donations, contributions and sponsorships, both solicited and unsolicited, of money, equipment and in-kind contributions to City Departments or the City in general up to \$100,000, so long as they do not require a local match or obligate the City to ongoing expenses not already planned in the City's Resource Allocation Plan. Donated funds will be expended for the specific purpose as agreed upon with the donor or for general purposes, as onetime supplements to the department's operating budget. Donations of equipment will be considered based on program outcomes, department goals and needs, maintenance costs and replacement costs. The donor must be informed in writing if the equipment is not to be replaced.

The city manager may apply for grants of any dollar amount, but shall notify the Council when grants are being pursued pursuant to Council Policy 7.1.1 (Fiscal -Long Range Goals and Financial Policies), B.4. (Grants and Intergovernmental Assistance). The city manager may accept and appropriate grant funds up to \$100,000 that do not require a local match or obligate the City to any ongoing expenses, through an administrative budget modification. Any grants of \$100,000 or more, or that require a local match or obligate the City to ongoing expenses, shall require Council approval of a budget modification before funds can be expended by staff. The budget modification shall include the use to which the grant will be placed; the objectives or goals of the City that will be achieved through use of the grant; the local match required, if any, plus the source of the local match; any increased cost to be locally funded upon termination of the grant; and the ability of the City to administer the grant.

Grant funds from County of Santa Clara Office of Emergency Services have external reporting requirements and fall under the federal single audit guidelines.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a “project” with the meaning of the California Environmental Quality Act (“CEQA”) pursuant to CEQA Guidelines section 15378 (b) (4) in that it is a fiscal activity that does not involve any commitment to any specific project which may result in a potential significant impact on the environment.

DISCUSSION

The Emergency Operations Center (EOC) is a critical component of the City of Sunnyvale’s Emergency Plan. The EOC is activated in the event of emergency situations associated with natural disasters and other large-scale incidents that pose major threats to life and property and can affect the well-being of many people.

This grant will provide necessary additions to existing technology that is essential to the successful operation of the EOC, and required continuing education and credentialing training for the EOC Coordinator (Attachment 2, Spending Plan). The allocation of funds from County OES is based on the attached Spending Plan, which was developed by the Sunnyvale Department of Public Safety EOC Coordinator with support from County OES.

Budget Modification No. 21 has been prepared to appropriate Santa Clara County Emergency Management Performance (EMPG) funds in the amount of \$17,700, for Emergency Management Professional Development courses and for the purchase of seven (7) laptop computers for the DPS Emergency Operations Center, to a new project, FY 2017/18 EMPG.

Budget Modification No. 21 FY 2017/18

	Current	Increase/ (Decrease)	Revised
General Fund			
<u>Expenditures</u>			
New Project-FY 2017/18 \$ 0		\$17,700	\$17,700
EMPG			

Revenues

Santa Clara County OES \$ 0	\$17,700	\$17,700
- EMPG funding		

FISCAL IMPACTRequired Local Match

The City is required to pay 10% of the cost of Emergency Professional Manager Development Courses, excluding meals. There are an anticipated four courses funded by this grant, estimated to cost \$1,200 each. The City's match will be approximately 4 x \$120, or \$480.

Funding Source

The required local match of \$480 will be absorbed in the Department of Public Safety operating budget for FY 2017/18. The Department of Public Safety is funded by the General Fund.

Increased Cost to City Upon Grant Termination

Annual costs for ongoing maintenance of seven (7) laptop computers are estimated to be \$ 770: replacement costs will be approximately \$12,000 when the laptops reach the end of their useful life.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

RECOMMENDATION

Approve Budget Modification No. 21 to appropriate Santa Clara County Emergency Management Performance (EMPG) funds in the amount of \$17,700 to a new project, FY 2017/18 EMPG.

Prepared by: Elaine Ketell, Management Analyst
Reviewed by: Phan S. Ngo, Director of Public Safety
Reviewed by: Timothy J. Kirby, Director of Finance
Reviewed by: Teri Silva, Interim Assistant City Manager
Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. Memorandum of Understanding
2. Spending Plan

**AGREEMENT BETWEEN THE COUNTY OF SANTA CLARA AND
THE CITY OF SUNNYVALE GRANTING PROGRAM FUNDS FOR THE
2017 EMERGENCY MANAGEMENT PERFORMANCE GRANT (EMPG)**

THIS AGREEMENT is made effective July 1, 2017, by and between the County of Santa Clara ("County") and the City of Sunnyvale ("City") for the allocation and distribution of 2017 Emergency Management Performance Grant ("EMPG") funds.

RECITALS

WHEREAS, the Cities of Campbell, Cupertino, Gilroy, Los Altos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, Sunnyvale, the Towns of Los Gatos, Los Altos Hills, and the County of Santa Clara, are parties to the 1994 Operational Area Interim Agreement; and

WHEREAS, the Santa Clara County Emergency Operational Area Council ("OAC") is the advisory body of the Santa Clara Operational Area in matters affecting disaster preparedness throughout the Operational Area. OAC membership includes 5 city council members representing cities in the Operational Area as well as Santa Clara Valley Water District, County Executive, County Board of Supervisors, City Managers' Association, Police Chiefs' Association, Fire Chiefs' Association, County Public Health Department, Valley Transportation Authority and emergency management representatives; and

WHEREAS, the County Civil Protection and Emergency Services Ordinance establishes the OAC and endows the OAC with governing body authority to enhance planning and preparedness for large-scale emergencies in the Santa Clara Operational Area, including by making funding allocation decisions for EMPG funding awarded by the United States Department of Homeland Security to the California Office of Emergency Services ("Cal OES"), and subsequently sub-awarded to County; and

WHEREAS, Cal OES is expected to award County 2017 EMPG funding in the amount of \$518,921 by November 1, 2017 for the purpose of sustaining and improving comprehensive emergency management programs;

NOW, THEREFORE, this AGREEMENT is to allocate the sum of **\$17,700** from County to City, so that City may implement the "CESA Annual Training and Conference", "EOC Computers", and the "Emergency Manager Training & Professional Development" projects as provided under this Agreement and specified in the EMPG Grant Certifications and Assurances, Exhibit B. The performance period for County for this grant expires on June, 30, 2018. The performance period for City for the subgrant expires on March 31, 2018.

County and City agree as follows:

THE AGREEMENT

Article I. Definitions

1. Specific Terms

- (a) **"Burdened Labor Rate"** shall mean the labor rate including benefits, taxes and other deductions from an employee's paycheck. This rate does not include vacation benefits. The

hourly burdened labor rate is used to calculate City's match obligation.

- (b) **"City"** shall mean the City of [Sunnyvale], its officers, board members, employees, and agents.
- (c) **"County"** shall mean the County of Santa Clara, its officers, board members, employees, and agents.
- (d) **"EMPG funds"** or **"EMPG funding"** shall mean the funding City receives under this Agreement.
- (e) **"Federal Program Guidance"** shall mean guidance documents issued by the Federal Emergency Management Agency, including the EMPG Program Funding Opportunity Announcement, for Fiscal Year 2017.
- (f) **"Grant Certifications and Assurances"** shall mean the FY17 EMPG Agreement Articles, Assurances, Certifications, Terms, and Conditions
- (g) **"Highly Compensated Individual"** shall mean an individual whose income is \$300,000 or more per year.
- (h) **"Prime Recipient"** shall refer to County.
- (i) **"Project Manager"** shall refer to the City employee identified as "Requestor" on an EMPG Project Proposal form.
- (j) **"Spend Plan"** shall mean a written document that explains the project on which City intends to spend 2017 EMPG funding, including project deliverables and milestone dates by which any funds allocated to City must be spent.
- (k) **"State Guidance"** shall mean the California Supplement to the Federal Program Funding Opportunity Announcement, issued by Cal OES for Fiscal Year 2017.
- (l) **"Subgrant"** shall mean funds awarded to the City under this Agreement.
- (m) **"Sub-Recipient"** shall refer to City.

2. References to This Agreement

Any reference to this Agreement shall include: (a) the Agreement; (b) all exhibits, appendices, schedules, and attachments to this Agreement; (c) all statutes, ordinances, regulations, rules, or other documents incorporated by reference into this Agreement; (d) all amendments, modifications, or supplements to this Agreement.

Article II. Allocation and Spend Plans

1. Allocation.

The 2017 EMPG funds shall be disbursed pursuant to the County's FY 2017 EMPG Grant application for each City. County shall reimburse to City funds that City expends under the 2017 EMPG program

for eligible expenditures. The amount for City shall not exceed \$17,700, unless additional funds become available under the 2017 EMPG program following the execution of this Agreement. If additional funds are allocated, an amendment to this Agreement shall follow.

City acknowledges and agrees that County shall have no obligation to disburse EMPG funds to City until County and City have fully and finally executed this Agreement.

City acknowledges and agrees that County shall have no obligation to disburse EMPG funds to City unless and until the State of California has awarded County \$518,921 in FY 2017 EMPG funding.

2. Spend Plans

Upon execution of this agreement, City shall provide County with Spend Plans for review by County's Office of Emergency Services ("OES") Director or designee. All Spend Plans must be approved by County's OES Director or designee based on projects County has submitted to the State for the 2017 EMPG program. If County's OES Director does not approve City's Spend Plan, County OES shall notify City, and City shall have 10 days from the date of the notice to submit a revised Spend Plan to County OES for approval or risk reallocation of funds. City's Spend Plans are a required part of this MOU.

Article III. Requests for Reimbursement and Reimbursements

1. Required Documentation for Reimbursement

The EMPG is a reimbursement grant under which Cal OES disburses reimbursement funds to County, and County disburses reimbursement funds to City. No cash advances are permitted under the EMPG program.

The EMPG is a matching funds grant that requires City to provide a dollar-for-dollar match for any EMPG funds it receives. All invoices/ requests for reimbursement from City must include appropriate documentation such as receipts or payment records as well as other documentation required under Federal or State grant program requirements (see Article III).

(a) Requests for Equipment

City is solely responsible for procuring any equipment under this Agreement in accordance with Federal requirements for procuring grant funded equipment; and, if more restrictive, applicable City procurement policies and requirements.

Prior to purchasing any equipment under this Agreement, when required, City must submit an Environmental and Historic Preservation (EHP) Screening form and receive written approval from FEMA.

The following documentation must be provided along with any reimbursement requests for equipment:

- Quote or solicitation documents
- Summary of pricing and chosen vendor
- Documentation that vendor is not on the excluded parties list (<https://www.epls.gov/>) (a print-out of the search result page will suffice)

- Purchase order and/or contract
- Receiving documentation/packing slip
- Invoice
- Proof of payment

All equipment must be indicated in the Spend Plan City submits to County, and must be authorized per the web-based Authorized Equipment List published by FEMA and available via: <https://www.fema.gov/authorized-equipment-list>.

(b) Subcontracts

Subcontracts totaling \$25,000 or more require preapproval from the County. If City is allowed to award subcontracts totaling \$25,000 or more, it must report on any such subcontracts and on Highly Compensated Individuals on the Financial Disclosure Form, Exhibit E, within 30 days of the award. The following information must be included in City's report on any sub-award exceeding \$25,000:

- Name of entity receiving award;
- Amount of award;
- Funding agency;
- Catalog of Federal Domestic Assistance program number;
- Award title (descriptive of the purpose of the funding action);
- Location of the receiving entity and primary location of performance including city, state, and federal Congressional district;
- Dun & Bradstreet (D&B) DUNS Number of the receiving entity, and of its parent if applicable; and
- Total compensation and names of receiving entity's five most highly compensated executives if:
 - In the preceding fiscal year, the subcontractor received 80 percent or more, and \$25,000,000 or more, of its gross annual revenue from federal procurement contracts or subcontracts or from federal financial assistance subject to the Transparency Act, as defined at 2 C.F.R. § 170.230; and
 - The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934, 15 U.S.C. § 78m(a), 78o(d), or under section 6104 of the Internal Revenue Code of 1986.
 - City must report subcontractor executive compensation by the end of the month following the month in which it makes the subaward. For example, if the subaward is obligated in any date in April 2017, City must report any required compensation information by May 31, 2017.

Classified information that, in the interest of national security, requires protection against unauthorized disclosure (i.e., information deemed Top Secret, Secret, or Confidential under Executive Order 12958) is exempt from the Prime and Sub-Recipient reporting requirements, as are contracts with individuals.

(c) Sole Source Contracts

Sole source contracts of \$150,000 or more are not allowable under the EMPG program unless

first approved by Cal OES. City must obtain sole source request documentation and submit it to the Grants Manager of County's OES. Upon City's completion and submission of the required sole source documentation, County's Grants Manager shall forward all sole source documents to the appropriate Cal OES contact for review and approval. Only after Cal OES approval is given can a sole source procurement be completed and expenditures reimbursed using EMPG allocated funds. All sole source procurements must follow Federal procurement requirements for grants and, if more restrictive, the City's own procurement policies.

(d) Grant Funded Personnel

EMPG grant-funded personnel are any personnel paid at any percentage with EMPG funding. This includes M&A staff funded by EMPG Program funds. All EMPG Program funded personnel shall complete the training requirements in Article IV, Section 2 (c) by December 31, 2017.

Recorded proof of completion, such as all certificates of completion, must be submitted by the City to County (OES) before any reimbursements to the City will be made. In any case, proof of completion must be provided by December 31, 2017.

Documentation of participation in exercises is also required by the grant and progress towards meeting this requirement must be reported to the grant manager at least quarterly.

Time reporting requirements: To receive payments for personnel costs, City must submit time and payroll documentation that meets Federal Grant, State Grant (CalOES) and County reporting requirements.

(e) Other Requests

The following documentation is required for all reimbursement requests for contractors:

- Quote or solicitation documents
- Executive summary of how contractor was chosen
- Documentation that vendor is not on the excluded parties list (<https://www.sam.gov/>) (a print-out of the search result page will suffice)
- Purchase order and/or contract
- Invoice showing deliverables and milestones completed
- Proof of payment
- Financial Disclosure Form (Exhibit E) if awarded contract exceeds \$25,000

2. Submission of Requests for Reimbursement

- (a) City shall submit reimbursement requests to County's OES (see Article V.1 below) on at least a quarterly basis, as detailed in the chart below. Unless pre-approved by County's OES Director or designee, all reimbursement requests shall be due fifteen calendar days after the end of the quarter, with the exception of the final expenditure and/or invoice, as indicated below. Any expenditure during the final period identified in the chart below shall be made by March 15, 2018, and any related invoice shall be submitted by March 31, 2018, unless otherwise pre-approved by County's OES Director or designee, in order to meet 2017 EMPG deadlines. Reimbursement requests shall be due for expenditures during specified periods

as follows:

For Expenditures During the Period:	Due Dates for Reimbursement Requests:
July 1, 2017 through December 31, 2017	February 28, 2018
January 1, 2018 through March 15, 2018	March 31, 2018

- (b) During the term of this Agreement, County is not obligated to honor any request for reimbursement that is submitted after the due dates for reimbursement requests for expenditures within a given quarter as specified above in Article II, Section 2(a).
- (c) All grant funds not claimed by City via a proper reimbursement request, which includes all required documentation, by March 31, 2018 will be forfeited. County may then determine how to spend those funds in accordance with grant requirements.

Article IV. Use of Funds

1. Master Grant Obligations

- (a) City shall comply with the EMPG Federal Program Guidance, the State Guidance, and the Grant Certifications and Assurances, attached as Exhibit B. City shall require any subgrantee, contractor, or other entity receiving EMPG funds through or from City to execute a copy of the Grant Certifications and Assurances, and shall be responsible for ensuring that subgrantee, contractor, or other entity complies with the Grant Certifications and Assurances.
- (b) City shall ensure its Project Manager attends a grant kickoff meeting with County OES staff. Additionally, City shall ensure its Project Manager is available to meet with County OES staff upon request during the period of this agreement to report on progress on each project funded under this Agreement.
- (c) City shall comply with all other applicable statutes, regulations, executive orders, requirements, policies, guides, guidelines, information bulletins, Cal OES grant management memos, and instructions; the terms and conditions of the grant award; the approved Spend Plans; and any other conditions imposed by Cal OES or by this Agreement, provided that if any provisions of this Agreement conflict with any State requirements, the State requirements will control. City shall ensure that any subgrantee, contractor, or other entity receiving EMPG funds through or from City complies with all applicable statutes, regulations, executive orders, requirements, policies, guides, guidelines, information bulletins, Cal OES grant management memos, and instructions; the terms and conditions of the grant award; the approved Spend Plans; and any other conditions imposed by Cal OES or by this Agreement.
- (d) By executing this Agreement, City certifies that it is not debarred, suspended, or otherwise ineligible to receive EMPG funds. In addition, City shall ensure and independently verify that any subgrantee, contractor, or other entity receiving EMPG funds through or from City is not debarred, suspended, or otherwise excluded from participation in the EMPG program. City shall maintain documentary proof of this verification in its files.

2. Scope of Services

- (a) City shall use the funds granted under this Agreement only for the purpose of implementing

applicable initiatives under the 2017 EMPG program, as indicated in Exhibit C, Program Narrative. City shall not use the funds granted under this Agreement for any other purpose. County shall not be required to disburse funds to or otherwise pay City for services, materials, equipment, or supplies provided by City that are beyond the scope of the services, materials, equipment, or supplies agreed upon in this Agreement or a lawfully executed written amendment.

Indirect costs are allowable under the FY17 EMPG grant. Allowability of Indirect costs does not increase the total amount of the State, Operational Area or other sub-recipient (i.e. jurisdictions) grant awards. Claims for indirect costs therefore necessarily decrease the federal funds available to pay for direct project costs. Subawards are based on the direct cost of approved projects. Sub-recipients wishing to claim indirect costs must use an indirect cost rate in compliance with applicable Federal guidance and regulations including 2 C.F.R. § 200.68 and Subpart E.

- (b) All EMPG grant-funded personnel (e.g. an Emergency Preparedness Planner employed by the City under this grant) shall participate in no less than three exercises in a 12-month period. EMPG grant-funded personnel are any personnel paid at any percentage with EMPG funding. This includes contracted personnel, as well as M&A staff funded by EMPG grant funds. There is no specific requirement for level of “participation” in the exercises – i.e., observation and attendance satisfies the objective. The exercises can be of any type (e.g., Drills, Tabletop Exercises, or Functional) within the performance period (see <https://hseep.dhs.gov>). Participation in exercises by grant funded staff must be reported quarterly to ensure adequate progress is being made toward meeting this requirement.
- (c) To ensure the development of a professional emergency management workforce, all EMPG grant-funded personnel shall complete the following 11 training requirements and shall record proof of completion:
 - National Incident Management System (NIMS) Training:
 - i. IS 100 Introduction to Incident Command System
 - ii. IS 200 ICS for Single Resources and Initial Action Incident
 - iii. IS 700 National Incident Management System, An Introduction
 - iv. IS 800 National Response Framework, An Introduction
 - FEMA Professional Development Series:
 - v. IS 120 Introduction to Exercises
 - vi. IS 230 Fundamentals of Emergency Management
 - vii. IS 235 Emergency Planning
 - viii. IS 240 Leadership and Influence
 - ix. IS 241 Decision Making and Problem Solving
 - x. IS 242 Effective Communication
 - xi. IS 244 Developing and Managing Volunteers

The aforementioned courses are all available for free on-line at the following links:
<http://training.fema.gov/IS/NIMS.aspx> & <http://training.fema.gov/emiweb/PDS/>

Note: The “G” course series and classroom-based equivalents can be used as an alternate to satisfy these training requirements. Past completion of the above courses (or qualifying equivalent) is considered acceptable in meeting this requirement.

Article V. Term and Termination

1. Term of Agreement

This Agreement is effective from July 1, 2017 through June 30, 2018—the FY 2017 EMPG performance period established by the State for the County.

2. Availability of Funds

- (a) The parties acknowledge and agree that this Agreement is dependent upon the availability of County, regional, State and/or federal funding.
- (b) Budgetary Contingency: This Agreement is contingent upon the appropriation of sufficient funding by County for the products and services covered by this Agreement. If funding is reduced or eliminated by County for the products or services covered by this Agreement, County has the option to either terminate this Agreement with no liability occurring to County or to offer an amendment to this Agreement indicating the reduced amount.
- (c) The obligations of County to make payments in accordance with the provisions of this Agreement may be delayed, reduced or terminated as a result of any delay, reduction, or change in allocation or allotment in funding to County from federal, State or other regional funding sources.

3. Termination

- (a) Termination for Convenience. County shall have the option, in its sole discretion, to terminate this Agreement at any time without cause upon written notice to City. The written notice shall specify the date on which termination shall become effective, which shall be no less than seven (7) days from the date of the notice.
- (b) Termination for Cause. Either party may terminate this Agreement for cause upon written notice to the other party. The written notice shall specify the date on which termination shall become effective, which shall be no less than thirty (30) days from the date of the notice. Termination for cause includes, but is not limited to, a material breach of this Agreement, a violation of any applicable laws, or failure to comply with applicable EMPG guidelines.
- (c) Opportunity to Cure. In the event of termination for material breach of this Agreement, the non-breaching party shall give written notice of the breach to the breaching party, specifying the breach/cause. The breaching party shall not be deemed in default and the non-breaching party shall not institute proceedings or exercise any remedies against the breaching party unless the breach has not been cured, corrected or remedied within thirty (30) days after the breaching party's receipt of the notice of breach, or within such longer period as may be reasonably required to cure, correct or remedy the breach, provided the breaching party has commenced its cure, correction or remedy within the thirty (30) day period and diligently and continuously pursues that cure, correction or remedy.
- (d) If this Agreement is terminated, City shall return EMPG funding in accordance with EMPG

program guidelines.

Article VI. Indemnification and Liabilities

1. Indemnification by City

In lieu of and notwithstanding the pro rata risk allocation that might otherwise be imposed between the parties under Government Code section 895.6, County and City agree instead that under Government Code section 895.4, City shall fully indemnify and hold County, its officers, board members, employees, and agents, harmless from any claim, expense or cost, damage or liability imposed for injury (as defined by Government Code section 810.8) occurring by reason of the negligent acts or omissions or willful misconduct of City, its officers, board members, employees or agents, under or in connection with or arising out of any work, authority or jurisdiction delegated to City under this Agreement. This indemnity shall include, without limitation, reasonable attorneys' fees, consultants and experts and related costs, and County's cost of investigating any claim.

2. Duty to Defend

City acknowledges and agrees that its obligation to defend County under Article V.1: (a) is an immediate obligation, independent of its other obligations under this Agreement; and (b) applies to any claim, expense, cost, damage, or liability falling within the scope of Article V.1, regardless of whether the allegations made in connection with that claim, expense, cost, damage, or liability may be groundless, false, or fraudulent. County shall provide City with prompt notice of any claim, expense, cost, damage, or liability under Article V.1 and City shall have the right to defend, settle, or compromise that claim, expense, cost, damage, or liability, provided, however, that County shall have the right to retain its own counsel at City's expense if representation of County by counsel retained by City would result in a conflict of interest, and that City shall obtain County's prior written consent to settle or compromise if City contends that County shares in any liability. County's failure to notify City promptly of any claim, expense, cost, damage, or liability shall not relieve City of liability to County under Article V.1 unless that failure materially impairs City's ability to defend against the claim, expense, cost, damage, or liability.

3. Limitation on Liability

County, its officers, board members, employees, and agents shall not be responsible for any damage or liability occurring by reason of the negligent acts or omissions or willful misconduct of City, its officers, board members, employees, or agents, under or in connection with or arising out of any work, authority or jurisdiction delegated to City under this Agreement.

County's obligations under this Agreement shall be limited to the aggregate amount of EMPG funds actually disbursed. Notwithstanding any other provision in this Agreement or any other document or communication between County and City relating to this Agreement, in no event shall County be liable for any damages arising out of or in connection with this Agreement, the EMPG funds, City's Spend Plan, or any activities performed in connection with this Agreement.

Article VII. Miscellaneous

1. Notice

All notices required by this Agreement shall be deemed given when provided in writing and delivered personally or deposited in the United States mail, postage prepaid, return receipt requested, addressed to the other party at the address set forth below or at such other address as the party may designate in writing:

To City:

Lt. Ryan Yin
Office of Emergency Services
Sunnyvale Department of Public Safety
700 All America Way
Sunnyvale, CA 94088

To County:

Ivan Williams
EMPG Grant Manager
County of Santa Clara Office of Emergency Services
55 W. Younger Ave., Suite 450
San Jose, CA 95110

2. Compliance and Nondiscrimination

The parties shall comply with all applicable federal, State, and local laws and regulations. Such laws include but are not limited to the following: Title VII of the Civil Rights Act of 1964 as amended, the Americans with Disabilities Act of 1990, the Rehabilitation Act of 1973 (Sections 503 and 504), the California Fair Employment and Housing Act (Government Code sections 12900 *et seq.*), and California Labor Code sections 1101 and 1102. The parties shall not discriminate against any subcontractor, employee, or applicant for employment because of age, race, color, national origin, ancestry, religion, sex/gender, sexual orientation, mental disability, physical disability, medical condition, political beliefs, organizational affiliations, or marital status in the recruitment, selection for training including apprenticeship, hiring, employment, utilization, promotion, layoff, rates of pay or other forms of compensation. Nor shall the parties discriminate in the provision of services provided under this Agreement because of age, race, color, national origin, ancestry, religion, sex/gender, sexual orientation, mental disability, physical disability, medical condition, political beliefs, organizational affiliations, or marital status.

3. County No-Smoking Policy

City and its employees, agents and subcontractors shall comply with County's No Smoking Policy, as set forth in the Board of Supervisors Policy Manual section 3.47 (as amended from time to time), which prohibits smoking: (1) at the Santa Clara Valley Medical Center Campus and all County-owned and operated health facilities, (2) within 30 feet surrounding County-owned buildings and leased buildings where County is the sole occupant, and (3) in all County vehicles.

4. Food and Beverage Standards

Except in the event of an emergency or medical necessity, the following nutritional standards shall

apply to any foods and/or beverages purchased by City with County funds for County-sponsored meetings or events.

If food is to be provided, healthier food options shall be offered. "Healthier food options" include (1) fruits, vegetables, whole grains, and low-fat and low-calorie foods; (2) minimally processed foods without added sugar and with low sodium; (3) foods prepared using healthy cooking techniques; and (4) foods with less than 0.5 grams of trans fat per serving. Whenever possible, City shall (1) offer seasonal and local produce; (2) serve fruit instead of sugary, high-calorie desserts; (3) attempt to accommodate special dietary and cultural needs; and (4) post nutritional information and/or a list of ingredients for items served. If meals are to be provided, a vegetarian option shall be provided, and the City should consider providing a vegan option. If pre-packaged snack foods are provided, the items shall contain: (1) no more than 35% of calories from fat, unless the snack food items consist solely of nuts or seeds; (2) no more than 10% of calories from saturated fat; (3) zero trans fat; (4) no more than 35% of total weight from sugar and caloric sweeteners, except for fruits and vegetables with no added sweeteners or fats; and (5) no more than 360 mg of sodium per serving.

If beverages are to be provided, beverages that meet the County's nutritional criteria are: (1) water with no caloric sweeteners; (2) unsweetened coffee or tea, for which sugar and sugar substitutes may be provided as condiments; (3) unsweetened, unflavored nonfat or 1% low-fat dairy milk; (4) plant-derived milk (e.g., soy milk, rice milk, and almond milk) with no more than 130 calories per 8-ounce serving; (5) 100% fruit or vegetable juice (limited to a maximum of 8 ounces per container); and (6) other low-calorie beverages (including tea and/or diet soda) that do not exceed 40 calories per 8-ounce serving. Sugar-sweetened beverages shall not be provided.

5. Governing Law

This Agreement has been executed and delivered in, and shall be construed and enforced in accordance with, the laws of the State of California.

6. Assignment

The parties may not assign this Agreement or the rights and obligations hereunder without the specific written consent of the other.

7. Entire Agreement

This document represents the entire Agreement between the parties with respect to the subject matter hereof. All prior negotiations and written and/or oral agreements between the parties with respect to the subject matter of this Agreement are merged into this Agreement.

8. Amendments

This Agreement may only be amended by an instrument signed by the parties.

9. Counterparts

This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

10. Contract Execution

Unless otherwise prohibited by law or County policy, the parties agree that an electronic copy of a signed contract, or an electronically signed contract, has the same force and legal effect as a contract executed with an original ink signature. The term “electronic copy of a signed contract” refers to a transmission by facsimile, electronic mail, or other electronic means of a copy of an original signed contract in a portable document format. The term “electronically signed contract” means a contract that is executed by applying an electronic signature using technology approved by the County.

11. Severability

If any provision of this Agreement is found by a court of competent jurisdiction to be void, invalid or unenforceable, the same shall either be reformed to comply with applicable law or stricken if not so conformable, so as not to affect the validity or enforceability of this Agreement.

12. Waiver

No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance. Any waiver granted by a party must be in writing, and shall apply to the specific instance expressly stated.

13. Conflict of Interest

In accepting this Agreement, City covenants that is presently has no interest and shall not acquire any interest, direct or indirect, financial or otherwise, which would conflict in any manner or degree with the performance of services under this Agreement. City is responsible for assuring compliance of its subcontractors, if any, with the requirements of this provision.

14. Wage Theft Prevention

(1) Compliance with Wage and Hour Laws: City, and any contractor or subcontractor it employs to complete work under this Agreement, must comply with all applicable federal, state, and local wage and hour laws. Applicable laws may include, but are not limited to, the Federal Fair Labor Standards Act, the California Labor Code, and any local Minimum Wage Ordinance or Living Wage Ordinance. (2) Final Judgments, Decisions, and Orders: For purposes of this Section, a “final judgment, decision, or order” refers to one for which all appeals have been exhausted. Relevant investigatory government agencies include: the federal Department of Labor, the California Division of Labor Standards Enforcement, a local enforcement agency, or any other government entity tasked with the investigation and enforcement of wage and hour laws. (3) Prior Judgments against City, Contractor and/or its Subcontractors: BY SIGNING THIS AGREEMENT, CITY AFFIRMS THAT IT HAS DISCLOSED ANY FINAL JUDGMENTS, DECISIONS, OR ORDERS FROM A COURT OR INVESTIGATORY GOVERNMENT AGENCY FINDING—IN THE FIVE YEARS PRIOR TO EXECUTING THIS AGREEMENT—THAT CITY, ITS CONTRACTOR(S) OR SUBCONTRACTOR(S) HAS VIOLATED ANY APPLICABLE WAGE AND HOUR LAWS. CITY FURTHER AFFIRMS THAT IT, ITS CONTRACTOR(S), OR SUBCONTRACTOR(S) HAS SATISFIED AND COMPLIED WITH—OR HAS REACHED AGREEMENT WITH THE COUNTY REGARDING THE MANNER IN WHICH IT WILL SATISFY—ANY SUCH JUDGMENTS, DECISIONS, OR ORDERS. (4) Judgments During Term of Contract: If at any time during the term of this Agreement, a court or investigatory government agency issues a final judgment, decision, or order finding that City, a contractor or any subcontractor City employs to perform work under this Agreement has violated any

applicable wage and hour law, or City learns of such a judgment, decision, or order that was not previously disclosed, City must inform the Office of the County Executive-Office of Countywide Contracting Management (OCCM), no more than 15 days after the judgment, decision, or order becomes final or of learning of the final judgment, decision, or order. City and its contractor(s) and its subcontractors shall promptly satisfy and comply with any such judgment, decision, or order, and shall provide the Office of the County Executive-OCCM with documentary evidence of compliance with the final judgment, decision, or order within 5 days of satisfying the final judgment, decision, or order. The County reserves the right to require City to enter into an agreement with the County regarding the manner in which any such final judgment, decision, or order will be satisfied. (5) County's Right to Withhold Payment: Where City or any contractor or subcontractor City employs to perform work under this Agreement has been found in violation of any applicable wage and hour law by a final judgment, decision, or order of a court or government agency, the County reserves the right to withhold payment to City until such judgment, decision, or order has been satisfied in full. (6) Material Breach: Failure to comply with any part of this Section constitutes a material breach of this Agreement. Such breach may serve as a basis for termination of this Agreement and/or any other remedies available under this Agreement and/or law. (7) Notice to County Related to Wage Theft Prevention: Notice provided to the Office of the County Executive as required under this Section shall be addressed to: Office of the County Executive—OCCM; 70 West Hedding Street; East Wing, 11th Floor; San José, CA 95110. The Notice provisions of this Section are separate from any other notice provisions in this Agreement and, accordingly, only notice provided to the above address satisfies the notice requirements in this Section.

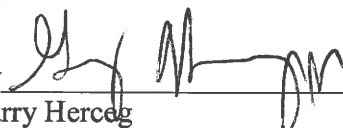
15. Certified Resolution of Signature Authority


Upon request of County, City shall deliver to County a copy of the resolution(s) authorizing execution, delivery and performance of this Agreement, certified as true, accurate and complete by the appropriate authorized representative of City.

Signed:

COUNTY OF SANTA CLARA


CITY OF SUNNYVALE

By  11/9/17
Garry Hecceg Date
Deputy County Executive

By  11/19/17
Date
for City Manager or designee

Approved as to Form and Legality:

Approved as to Form and Legality:

 11/03/2017
Kavita Narayan Date
Lead Deputy County Counsel

 10-18-17
for City Attorney Date

Enclosures

- Exhibit A Santa Clara County EMPG Notification of Application Approval (once received from the State)
- Exhibit B Grant Certifications and Assurances

Exhibit C	Project Narratives
Exhibit D	Functional Timesheet Template
Exhibit E	Financial Disclosure Form

Exhibit B



Standard Assurances For All Cal OES Federal Grant Programs

As the duly authorized representative of the Applicant, I hereby certify that the Applicant has the legal authority to apply for federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay any non-federal share of project cost) to ensure proper planning, management, and completion of the project described in this application, within prescribed timelines.

I further acknowledge that the Applicant is responsible for reviewing and adhering to all requirements within the:

- (a) Applicable Federal Regulations (see below);
- (b) Federal Program Notice of Funding Opportunity (NOFO);
- (c) California Supplement to the NOFO; and
- (d) Federal and State Grant Program Guidelines.

Federal Regulations

Government cost principles, uniform administrative requirements, and audit requirements for federal grant programs are set forth in Title 2, Part 200 of the Code of Federal Regulations (C.F.R.). Updates are issued by the Office of Management and Budget (OMB) and can be found at <http://www.whitehouse.gov/omb/>.

Significant state and federal grant award requirements (some of which appear in the documents listed above) are set forth below. The Applicant hereby agrees to comply with the following:

1. Proof of Authority

The Applicant will obtain written authorization from the city council, governing board, or authorized body in support of this project. This written authorization must specify that the Applicant and the city council, governing board, or authorized body agree:

- (a) To provide all matching funds required for the grant project and that any cash match will be appropriated as required;
- (b) Any liability arising out of the performance of this agreement shall be the responsibility of the Applicant and the city council, governing board, or authorized body;
- (c) Grant funds shall not be used to supplant expenditures controlled by the city council, governing board, or authorized body, and
- (d) The official executing this agreement is, in fact, authorized to do so.

This Proof of Authority must be maintained on file and readily available upon request.

2. Period of Performance

The Applicant will initiate work after approval of the award and complete all work within the period of performance specified in the grant.

3. Lobbying and Political Activities

As required by Section 1352, Title 31 of the United States Code (U.S.C.), for persons entering into a contract, grant, loan, or cooperative agreement from an agency or requests or receives from an agency a commitment providing for the United States to insure or guarantee a loan, the Applicant certifies that:

- (a) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
- (b) If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.
- (c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

The Applicant will also comply with provisions of the Hatch Act (5 U.S.C. §§ 1501-1508 and §§ 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with federal funds.

Finally, the Applicant agrees that federal funds will not be used, directly or indirectly, to support the enactment, repeal, modification or adoption of any law, regulation or policy without the express written approval from the California Governor's Office of Emergency Services (Cal OES) or the federal awarding agency.

4. Debarment and Suspension

As required by Executive Orders 12549 and 12689, and 2 C.F.R. § 200.212 and codified in 2 C.F.R. Part 180, Debarment and Suspension, the Applicant will provide protection against waste, fraud, and abuse by debarring or suspending those persons deemed irresponsible in their dealings with the federal government. The Applicant certifies that it and its principals, subgrantees, recipients or subrecipients:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;
- (b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (2)(b) of this certification; and
- (d) Have not within a three-year period preceding this application had one or more public transaction (federal, state, or local) terminated for cause or default.

Where the Applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

5. Non-Discrimination and Equal Employment Opportunity

The Applicant will comply with all federal statutes relating to non-discrimination. These include, but are not limited to, the following:

- (a) Title VI of the Civil Rights Act of 1964 (Public Law (P.L.) 88-352 and 42 U.S.C. § 2000d et. seq.) which prohibits discrimination on the basis of race, color, or national origin and requires that recipients of federal financial assistance take reasonable steps to provide meaningful access to persons with limited English proficiency (LEP) to their programs and services;
- (b) Title IX of the Education Amendments of 1972, (20 U.S.C. §§ 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex in any federally funded educational program or activity;
- (c) Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794), which prohibits discrimination against those with disabilities or access and functional needs;
- (d) Americans with Disabilities Act (ADA) of 1990, which prohibits discrimination on the basis of disability and requires buildings and structures be accessible to those with disabilities and access and functional needs (42 U.S.C. §§ 12101-12213);
- (e) Age Discrimination Act of 1975, (42 U.S.C. §§ 6101-6107), which prohibits discrimination on the basis of age;
- (f) Public Health Service Act of 1912 (42 U.S.C. §§ 290 dd—2), relating to confidentiality of patient records regarding substance abuse treatment;
- (g) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. § 3601 et seq.), relating to nondiscrimination in the sale, rental or financing of housing as implemented by the Department of Housing and Urban Development at 24 C.F.R. Part 100. The prohibition on disability discrimination includes the requirement that new multifamily housing with four or more dwelling units—i.e., the public and common use areas and individual apartment units

- (all units in buildings with elevators and ground-floor units in buildings without elevators)—be designed and constructed with certain accessible features (See 24 C.F.R. § 100.201);
- (h) Executive Order 11246, which prohibits federal contractors and federally assisted construction contractors and subcontractors, who do over \$10,000 in Government business in one year from discriminating in employment decisions on the basis of race, color, religion, sex, sexual orientation, gender identification or national origin;
 - (i) Executive Order 11375, which bans discrimination on the basis of race, color, religion, sex, sexual orientation, gender identification, or national origin in hiring and employment in both the United States federal workforce and on the part of government contractors;
 - (j) California Public Contract Code § 10295.3, which prohibits discrimination based on domestic partnerships and those in same sex marriages;
 - (k) DHS policy to ensure the equal treatment of faith-based organizations, under which all applicants and recipients must comply with equal treatment policies and requirements contained in 6 C.F.R. Part 19;
 - (l) Any other nondiscrimination provisions in the specific statute(s) under which application for federal assistance is being made; and
 - (m) The requirements of any other nondiscrimination statute(s) which may apply to the application.

In addition to the items listed in (a) through (m), the Applicant will comply with California's Fair Employment and Housing Act (FEHA). FEHA prohibits harassment and discrimination in employment because of ancestry, familial status, race, color, religious creed (including religious dress and grooming practices), sex (which includes pregnancy, childbirth, breastfeeding and medical conditions related to pregnancy, childbirth or breastfeeding), gender, gender identity, gender expression, sexual orientation, marital status, national origin, ancestry, mental and physical disability, genetic information, medical condition, age, pregnancy, denial of medical and family care leave, or pregnancy disability leave (California Government Code §§12940, 12945, 12945.2), military and veteran status, and/or retaliation for protesting illegal discrimination related to one of these categories, or for reporting patient abuse in tax supported institutions.

6. Drug-Free Workplace

As required by the Drug-Free Workplace Act of 1988 (41 U.S.C. § 701 et seq.), the Applicant certifies that it will maintain a drug-free workplace and a drug-free awareness program as outlined in the Act.

7. Environmental Standards

The Applicant will comply with state and federal environmental standards, which may be prescribed pursuant to the following, as applicable:

- (a) California Environmental Quality Act (CEQA) (California Public Resources Code §§ 21000-21177), to include coordination with the city or county planning agency;
- (b) CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, §§ 15000-15387);

- (c) Federal Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.), which establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters;
- (d) Federal Clean Air Act of 1955 (42 U.S.C. § 7401) which regulates air emissions from stationary and mobile sources;
- (e) Institution of environmental quality control measures under the National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190); the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA; and Executive Order 12898 which focuses on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities;
- (f) Evaluation of flood hazards in floodplains in accordance with Executive Order 11988;
- (g) Executive Order 11514 which sets forth national environmental standards;
- (h) Executive Order 11738 instituted to assure that each federal agency empowered to enter into contracts for the procurement of goods, materials, or services and each federal agency empowered to extend federal assistance by way of grant, loan, or contract shall undertake such procurement and assistance activities in a manner that will result in effective enforcement of the Clean Air Act and the Federal Water Pollution Control Act Executive Order 11990 which requires preservation of wetlands;
- (i) The Safe Drinking Water Act of 1974, (P.L. 93-523);
- (j) The Endangered Species Act of 1973, (P.L. 93-205);
- (k) Assurance of project consistency with the approved state management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.);
- (l) Conformity of Federal Actions to State (Clear Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.);
- (m) Wild and Scenic Rivers Act of 1968 (16 U.S.C. § 1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

The Applicant shall not be: 1) in violation of any order or resolution promulgated by the State Air Resources Board or an air pollution district; 2) subject to a cease and desist order pursuant to § 13301 of the California Water Code for violation of waste discharge requirements or discharge prohibitions; or 3) determined to be in violation of federal law relating to air or water pollution.

8. Audits

For subrecipients expending \$750,000 or more in federal grant funds annually, the Applicant will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and Title 2 of the Code of Federal Regulations, Part 200, Subpart F Audit Requirements.

9. Access to Records

In accordance with 2 C.F.R. § 200.336, the Applicant will give the awarding agency, the Comptroller General of the United States and, if appropriate, the state, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award.

The Applicant will require any subrecipients, contractors, successors, transferees and assignees to acknowledge and agree to comply with this provision.

10. Conflict of Interest

The Applicant will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

11. Financial Management

False Claims for Payment

The Applicant will comply with 31 U.S.C §§ 3729-3733 which sets forth that no subgrantee, recipient, or subrecipient shall submit a false claim for payment, reimbursement or advance.

12. Reporting - Accountability

The Applicant agrees to comply with applicable provisions of the Federal Funding Accountability and Transparency Act (FFATA) (P.L. 109-282), specifically (a) the reporting of subawards obligating \$25,000 or more in federal funds and (b) executive compensation data for first-tier subawards. This includes the provisions of FFATA, which includes requirements for executive compensation, and also requirements implementing the Act for the non-federal entity at 2 C.F.R. Part 25 Financial Assistance Use of Universal Identifier and Central Contractor Registration and 2 C.F.R. Part 170 Reporting Subaward and Executive Compensation Information.

13. Whistleblower Protections

The Applicant also must comply with statutory requirements for whistleblower protections at 10 U.S.C. § 2409, 41 U.S.C. § 4712, and 10 U.S.C. § 2324, 41 U.S.C. § 4304 and § 4310.

14. Human Trafficking

The Applicant will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act of 2000, as amended (22 U.S.C. § 7104) which prohibits grant award recipients or a subrecipient from: (1) engaging in trafficking in persons during the period of time that the award is in effect; (2) procuring a commercial sex act during the period of time that the award is in effect; or (3) using forced labor in the performance of the award or subawards under the award.

15. Labor Standards

The Applicant will comply with the following federal labor standards:

- (a) The Davis-Bacon Act (40 U.S.C. §§ 276a to 276a-7), as applicable, and the Copeland Act (40 U.S.C. § 3145 and 18 U.S.C. § 874) and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 327-333), regarding labor standards for federally-assisted construction contracts or subcontracts, and
- (b) The Federal Fair Labor Standards Act (29 U.S.C. § 201 et al.) as they apply to employees of institutes of higher learning (IHE), hospitals and other non-profit organizations.

16. Worker's Compensation

The Applicant must comply with provisions which require every employer to be insured to protect workers who may be injured on the job at all times during the performance of the work of this Agreement, as per the workers compensation laws set forth in California Labor Code §§ 3700 et seq.

17. Property-Related

If applicable to the type of project funded by this federal award, the Applicant will:

- (a) Comply with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of federal participation in purchase;
- (b) Comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires subrecipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more;
- (c) Assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. § 470), Executive Order 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §469a-1 et seq.); and
- (d) Comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. § 4831 and 24 CFR Part 35) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

18. Certifications Applicable Only to Federally-Funded Construction Projects

For all construction projects, the Applicant will:

- (a) Not dispose of, modify the use of, or change the terms of the real property title or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with federal assistance funds to assure nondiscrimination during the useful life of the project;
- (b) Comply with the requirements of the awarding agency with regard to the drafting, review and approval of construction plans and specifications; and
- (c) Provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progressive reports and such other information as may be required by the assistance awarding agency or State.

19. Use of Cellular Device While Driving is Prohibited

Applicants are required to comply with California Vehicle Code sections 23123 and 23123.5. These laws prohibit driving motor vehicle while using an electronic wireless communications device to

write, send, or read a text-based communication. Drivers are also prohibited from the use of a wireless telephone without hands-free listening and talking, unless to make an emergency call to 911, law enforcement, or similar services.

20. California Public Records Act and Freedom of Information Act

The Applicant acknowledges that all information submitted in the course of applying for funding under this program, or provided in the course of an entity's grant management activities that are under Federal control, is subject to the Freedom of Information Act (FOIA), 5 U.S.C. § 552, and the California Public Records Act, California Government Code section 6250 et seq. The Applicant should consider these laws and consult its own State and local laws and regulations regarding the release of information when reporting sensitive matters in the grant application, needs assessment, and strategic planning process.

EMERGENCY MANAGEMENT PERFORMANCE GRANT PROGRAM - PROGRAM SPECIFIC ASSURANCES / CERTIFICATIONS

21. Reporting Accusations and Findings of Discrimination

If during the past three years the recipient has been accused of discrimination on any basis the recipient must provide a list of all such proceedings, pending or completed, including outcome and copies of settlement agreements to the DHS Financial Assistance Office and the DHS Office for Civil Rights and Civil Liberties (CRCL) by e-mail at CRCL@hq.dhs.gov or by mail at U.S. Department of Homeland Security, Office for Civil Rights and Civil Liberties, Building 410, Mail Stop #0190, Washington, D.C. 20528.

In the courts or administrative agencies make a finding of discrimination on grounds of race, color, national origin (including LEP), sex, age, disability, religion, or familial status against the recipient, or the recipients settle a case or matter alleging such discrimination, recipients must forward a copy of the complaint and findings to the DHS Financial Assistance Office and the CRCL by e-mail or mail at the addresses listed above.

The United States has the right to seek judicial enforcement of these obligations.

22. Acknowledgment of Federal Funding from DHS

All recipients must acknowledge their use of federal funding when issuing statements, press releases, requests for proposals, bid invitations, and other documents describing projects or programs funded in whole or in part with federal funds.

23. Activities Conducted Abroad

All recipients must ensure that project activities carried on outside the United States are coordinated as necessary with appropriate government authorities and that appropriate licenses, permits, or approvals are obtained.

24. Best Practices for Collection and Use of Personally Identifiable Information (PII)

DHS defines personally identifiable information (PII) as any information that permits the identity of an individual to be directly or indirectly inferred, including any information that is linked or linkable to that individual. All recipients who collect PII are required to have a publically-available privacy policy that describes standards on the usage and maintenance of PII they collect. Recipients may also find the DHS Privacy Impact Assessments: Privacy Guidance and Privacy template a useful resource respectively.

25. Buy American and Hire American

All recipients are required to comply with any applicable provisions of the Buy American Act (41 U.S.C. §§ 8301 – 8305), and any other applicable statutes, regulations, or rules that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States.

26. Copyright

All recipients must affix the applicable copyright notices of 17 U.S.C. §§ 401 or 402 and an acknowledgement of U.S. Government sponsorship (including the award number) to any work first produced under federal financial assistance awards.

27. Duplication of Benefits

Any cost allocable to a particular federal financial assistance award provided for in 2 C.F.R. Part 200, Subpart E may not be charged to other federal financial assistance awards to overcome fund deficiencies, to avoid restrictions imposed by federal statutes, regulations, or federal financial assistance award terms and conditions, or for other reasons. However, these prohibitions would not preclude recipients from shifting costs that are allowable under two or more awards in accordance with existing federal statutes, regulations, or the federal financial assistance award terms and conditions.

28. Energy Policy and Conservation Act

All recipients must comply with the requirements of 42 U.S.C. § 6201 which contain policies relating to energy efficiency that are defined in the state energy conservation plan issued in compliance with this Act.

29. Federal Debt Status

All recipients are required to be non-delinquent in their repayment of any federal debt. Examples of relevant debt include delinquent payroll and other taxes, audit disallowances, and benefit overpayments. See OMB Circular A-129.

30. Fly America Act of 1974

All recipients must comply with Preference for U.S. Flag Air Carriers: (air carriers holding certificates under 49 U.S.C. § 41102) for international air transportation of people and property to the extent that such service is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. § 40118) and the interpretative guidelines issued by the Comptroller General of the United States in the March 31, 1981, amendment to Comptroller General Decision B-138942.

31. Hotel and Motel Fire Safety Act of 1990

In accordance with Section 6 of the Hotel and Motel Fire Safety Act of 1990, all Applicants must ensure that all conference, meeting, convention, or training space funded in whole or in part with federal funds complies with the fire prevention and control guidelines of the Federal Fire Prevention and Control Act of 1974, as amended, 15 U.S.C. § 2225a.

32. Non-supplanting Requirement

All recipients who receive federal financial assistance awards made under programs that prohibit supplanting by law must ensure that federal funds do not replace (supplant) funds that have been budgeted for the same purpose through non-federal sources.

33. Patents and Intellectual Property Rights

Unless otherwise provided by law, recipients are subject to the Bayh-Dole Act, Pub. L. No. 96-517, as amended, and codified in 35 U.S.C. § 200 et seq. All recipients are subject to the specific requirements governing the development, reporting, and disposition of rights to inventions and patents resulting from financial assistance awards located at 37 C.F.R. Part 401 and the standard patent rights clause located at 37 C.F.R. § 401.14.

34. SAFECOM

All recipients who receive federal financial assistance awards made under programs that provide emergency communication equipment and its related activities must comply with the SAFECOM Guidance for Emergency Communication Grants, including provisions on technical standards that ensure and enhance interoperable communications.

35. Terrorist Financing

All recipients must comply with Executive Order 13224 and U.S. law that prohibit transactions with, and the provisions of resources and support to, individuals and organizations associated with terrorism. Recipients are legally responsible to ensure compliance with the Order and laws.

36. Reporting of Matters Related to Recipient Integrity and Performance

If the total value of the recipient's currently active grants, cooperative agreements, and procurement contracts from all federal assistance offices exceeds \$10,000,000 for any period of time during the period of performance of this federal financial assistance award, you must comply with the requirements set forth in the government-wide Award Term and Condition for Recipient Integrity and Performance Matters located at 2 C.F.R. Part 200, Appendix XII, the full text of which is incorporated here by reference in the award terms and conditions.

37. USA Patriot Act of 2001

All recipients must comply with requirements of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act (USA PATRIOT Act), which amends 18 U.S.C. §§ 175–175c.

38. Use of DHS Seal, Logo, and Flags

All recipients must obtain permission from their DHS Financial Assistance Office, prior to using the DHS seal(s), logos, crests or reproductions of flags or likenesses of DHS agency officials, including use of the United States Coast Guard seal, logo, crests or reproductions of flags or likenesses of Coast Guard officials.

IMPORTANT

The purpose of the assurance is to obtain federal and state financial assistance, including any and all federal and state grants, loans, reimbursement, contracts, etc. The Applicant recognizes and agrees that state financial assistance will be extended based on the representations made in this assurance. This assurance is binding on the Applicant, its successors, transferees, assignees, etc. Failure to comply with any of the above assurances may result in suspension, termination, or reduction of grant funds.

All appropriate documentation, as outlined above, must be maintained on file by the Applicant and available for Cal OES or public scrutiny upon request. Failure to comply with these requirements may result in suspension of payments under the grant or termination of the grant or both and the subrecipient may be ineligible for award of any future grants if the Cal OES determines that any of the following has occurred: (1) the recipient has made false certification, or (2) violates the certification by failing to carry out the requirements as noted above.

All of the language contained within this document must be included in the award documents for all subawards at all tiers. All recipients are bound by the Department of Homeland Security Standard Terms and Conditions 2017, Version 7.1, hereby incorporated by reference, which can be found at: <https://www.dhs.gov/publication/fy15-dhs-standard-terms-and-conditions>.

The undersigned represents that he/she is authorized to enter into this agreement for and on behalf of the Applicant.

Subrecipient: City of Sunnyvale

Signature of Authorized Agent: Kent Steffens

Printed Name of Authorized Agent: Kent Steffens

Title: City Manager Date: 10/19/17

EXHIBIT C

2017 EMPG Project Proposal Request Timeline and Template



I. Background Information

I	A.	Requestor Contact Information
	Agency	Santa Clara County Operational Area
	Name	Ivan Williams
	Position/Title	OAC Liaison/Senior Management Analyst
	Phone	408-808-7835
	Mobile Number	
	Agency Address	Office of Emergency Services 55 West Younger Avenue, Suite 450 San Jose, CA 95110
	Email	ivan.williams@oes.sccgov.org

I	B.	Project Name
		2017 CESA Annual Training & Conference

TOTAL PROJECT COST (Insert the total from Funding section)	\$12,000
--	-----------------

I	C.	Project Type Use the checkbox to indicate corresponding project
	<input type="checkbox"/>	This project is a new Project.
	<input checked="" type="checkbox"/>	This project is part of an ongoing Project.
	<input type="checkbox"/>	This project is for sustainment of a previously funded Project.

I	D.	Mission Areas (Solution Area) - Use the checkbox to indicate the corresponding mission area for your project
	<input type="checkbox"/> Planning	<input type="checkbox"/> Organization
	<input type="checkbox"/> Equipment	<input checked="" type="checkbox"/> Training
	<input type="checkbox"/> Exercises	

<p style="text-align: center;">Choose ONLY one Sub Area (Sub Category) for Mission Areas above</p>				
<input type="checkbox"/> Community Outreach	<input type="checkbox"/> Staffing	<input type="checkbox"/> Information Technology	<input type="checkbox"/> Staff Expenses	<input type="checkbox"/> Design/Develop
<input type="checkbox"/> Conference	<input type="checkbox"/> Day to Day Activities/operations that support emergency management	<input type="checkbox"/> Cyber Security Enhancement Equipment	<input type="checkbox"/> Course Development	<input type="checkbox"/> Conduct / Attend / Evaluate
<input type="checkbox"/> Develop and Enhance Plans, Protocols and Systems		<input type="checkbox"/> Interoperable Communications Equipment	<input type="checkbox"/> Course Delivery and Evaluation	<input type="checkbox"/> Supplies / Materials / Production Costs
		<input type="checkbox"/> Other Authorized Equipment	<input checked="" type="checkbox"/> Staff Expenses	
			<input type="checkbox"/> Certification / Recertification of instructors	

I	E.	Project Description
		<ul style="list-style-type: none"> Briefly describe exactly what the project entails, what purchases and/or personnel will be necessary for the project <p>2016 CESA Annual Training and Conference--This project allows up to 9 Emergency Managers from across the Operational Area to attend the California Emergency Services Association (CESA) 2017 Annual Training Conference. Specific topics from past conferences include public information, plan writing, terrorism, California's Emergency Management Mutual Aid (EMMA) process, whole community planning, how C-PODs work, situational awareness and so on.</p>

I	F.	Does this project require a sole source?
		<input type="checkbox"/> Yes If "Yes", please explain <input checked="" type="checkbox"/> No N/A

I	G.	Installation
		<ul style="list-style-type: none"> Does this project require installation, new construction or renovation, retrofitting, or modification of existing structures?
		<input type="checkbox"/> Yes, If "Yes", please: <input checked="" type="checkbox"/> No
		1. Provide an explanation AND 2. Attach a completed <u>Environmental and Historic Preservation</u> screening form (EHP) available from http://www.fema.gov/media-library/assets/documents/90195

II. ALIGNMENT WITH NATIONAL PREPAREDNESS GOALS by Core Capability and Mission Area

II	A.	Goals and Objectives
		- Use the checkbox to indicate which Core Capability will be developed or sustained.
1	<input checked="" type="checkbox"/>	Planning. Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.
2	<input checked="" type="checkbox"/>	Public Information and Warning. Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.
3	<input checked="" type="checkbox"/>	Operational Coordination. Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.
4	<input checked="" type="checkbox"/>	Mitigation. Core Capabilities: Community Resilience; Long-term Vulnerability Reduction; Risk and Disaster Resilience Assessment; and Threats and Hazards Identification
5	<input checked="" type="checkbox"/>	Response. Core Capabilities: Infrastructure Systems; Critical Transportation; Environmental Response/Health and Safety; Fatality Management Services; Fire Management and Suppression; Logistics and Supply Chain Management; Mass Care Services; Mass Search and Rescue Operations; On-scene Security, Protection and Law Enforcement; Operational Communications; Public Health, Healthcare, and Emergency Medical Services; and Situational Assessment
6	<input checked="" type="checkbox"/>	Recovery. Core Capabilities: Infrastructure Systems; Economic Recovery; Health and Social Services; Housing; Natural and Cultural Resources

III. FUNDING

III	A.	Proposed funding amount
		- Provide the proposed funding amount to be obligated from this Project towards Planning and Equipment elements. (Please check the appropriate box(es) on the left side for all that apply).
		- Also, for each funding area selected, provide a brief narrative below describing the items or services being funded.
ELEMENT		PROPOSED FUNDING
<input type="checkbox"/>	Planning	\$
<input type="checkbox"/>	Equipment	\$
<input type="checkbox"/>	Management & Administration	\$
<input checked="" type="checkbox"/>	Training	\$12,000
<input type="checkbox"/>	Exercise	\$
TOTAL PROJECT COSTS		\$12,000

Description of Expenditures That Will Be Used for Project Grant Match

Emergency Managers time spent on Emergency Management planning, developing training, conducting exercises, or on emergency management logistics activities.

AEL #	Equipment
	- Use this link to locate and provide the Authorized Equipment number needed for equipment approval https://www.fema.gov/media-library/assets/documents/101566
<input type="checkbox"/>	Information Technology
<input type="checkbox"/>	Cyber Security Enhancement Equipment
<input type="checkbox"/>	Interoperable Communications Equipment
<input type="checkbox"/>	Detection Equipment
<input type="checkbox"/>	CBRNE Reference Materials
<input type="checkbox"/>	CBRNE Incident Response Vehicle
<input type="checkbox"/>	Physical Security Enhancement Equipment
<input type="checkbox"/>	Power Equipment
<input type="checkbox"/>	CBRNE Logistical Support Equipment
<input type="checkbox"/>	Other Authorized Equipment: Contact grants manager prior to selected this sub-category

III	B.	Other Source(s) of funding																		
		- List other source(s) of funding that is being requested or utilized for this project (check the appropriate box(es) on the left side)																		
		<table><thead><tr><th></th><th>ELEMENT</th><th>PROPOSED FUNDING</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td>UASI</td><td>\$</td></tr><tr><td><input type="checkbox"/></td><td>SHSGP</td><td>\$</td></tr><tr><td><input type="checkbox"/></td><td>General Funds</td><td>\$</td></tr><tr><td><input type="checkbox"/></td><td>Other Grant Funds</td><td>\$</td></tr><tr><td></td><td>TOTAL OTHER FUNDING</td><td>\$</td></tr></tbody></table>		ELEMENT	PROPOSED FUNDING	<input type="checkbox"/>	UASI	\$	<input type="checkbox"/>	SHSGP	\$	<input type="checkbox"/>	General Funds	\$	<input type="checkbox"/>	Other Grant Funds	\$		TOTAL OTHER FUNDING	\$
	ELEMENT	PROPOSED FUNDING																		
<input type="checkbox"/>	UASI	\$																		
<input type="checkbox"/>	SHSGP	\$																		
<input type="checkbox"/>	General Funds	\$																		
<input type="checkbox"/>	Other Grant Funds	\$																		
	TOTAL OTHER FUNDING	\$																		

Other Funds:
- Explain how any other funds, such as general funds, UASI, etc., will be used to assist in implementation of this project.

IV. PROJECT MANAGEMENT AND IMPLEMENTATION

IV	A.	Milestones	<ul style="list-style-type: none"> - Identify up to 5 additional milestones, with start and end dates, which will be achieved within the performance period under the 2017 EMPG. - No start date should begin before July 1, 2017 and no end date should end after June 30, 2018. - These dates are subject to change based on notification of application approval. - No equipment may be purchased, contracts started or project costs incurred until notified by Grant Administrator that funds may be spent. - If unsure of exact dates, use Quarter timeframes 	
MILESTONE NUMBER	MILESTONE NAME/DESCRIPTION (1,000 CHARACTER LIMIT)		START DATE (MM/DD/YYYY)OR Q1, Q2, Q3, Q4	END DATE (MM/DD/YYYY)OR Q1, Q2, Q3, Q4
1	MOU between City/Town and County in Place		As early as July 1, 2017	December 31, 2017
2	Functional Timesheet Collection and Submission to Grant Manager for Project Grant Match		July 1, 2017	June 30, 2018
3	Environmental Historic Preservation (EHP) FEMA Review Completed (If applicable)		As early as August 1, 2017	January 31, 2018
4	City/ Town Performance Period		As early as July 1, 2017	No later than March 31, 2018
5	City/Town Service Agreement for Contracted Services		As early as July 1, 2017	No later than March 31, 2018
6	City/Town Submission of Invoices and supporting documentation for reimbursement.		As early as October 2017	No later than March 31, 2018
7				
8				
9				
10				

IV	B.	Project Outcomes <ul style="list-style-type: none">- Describe the outcomes and benefits that will be achieved as a result of this project. The outcomes should demonstrate improvement towards building capabilities.
		Emergency Management training, best practices, networking, directed to all levels of California Emergency Managers so that they may more effectively plan for, respond to and recover from disasters.

IV	C.	Project Deliverables	
		- Describe the specific deliverables that will be produced as a result of this project.	
		At least 5 Emergency Managers from the Operational Area attend the Annual CESA Conference.	

V. Project Timeline

YEAR	DATE & MEETINGS	OWNERS & TASKS
2016	November 22 2016 OAS Meeting	EMPG Grant Manager <ul style="list-style-type: none"> Initiates Op. Area EMPG FY17 Project Proposals
	November 22, 2016 to January 3, 2017	Op. Area Signatories <ul style="list-style-type: none"> Submit their Projects Proposals to EMPG Grant Manager
	December 27 OAS Meeting	Op. Area Signatories <ul style="list-style-type: none"> Discuss proposed projects Brainstorm additional project proposals Discussion of Op. Area needs may generate new ideas and opportunities for additional proposals that meet all of the EMPG funding criteria Identify all projects that will be submitted by January 3rd, 2017
2017	January 3, 2017	Op. Area Signatories <ul style="list-style-type: none"> All proposals and/or updated proposals due to EMPG Grant Manager
	January 24, 2017 OAS Meeting	<ul style="list-style-type: none"> Identify which proposals should be submitted for EMPG funding Identify which proposals are below the line, if/when additional funds become available in the future. This should include some short timeframe projects that don't require an RFP, MOU or EHP. → Voting members may make modifications to proposals during the meeting with the agreement of the original project proposers as long as these modifications are consistent with the original goals and objectives of the project → Cast votes
	February 23, 2017 OAC Quarterly Meeting	Emergency Operational Area Council <ul style="list-style-type: none"> Receive Op. Area project and "contingency project" proposals for EMPG FY 2017 with OAS recommendations Ask questions of the project requestors (Project requestors need to attend the meeting and be ready to answer questions about their project) Propose their own projects (if applicable) Review content for May 26 vote
	May 25, 2017 OAC Quarterly Meeting	Operational Area Council <ul style="list-style-type: none"> Approve specific project allocation amounts Cast their votes on both primary projects and below the line projects for EMPG FY 2017.
	July-August 2017	CalOES Announces EMPG FY17 Funding Opportunity <ul style="list-style-type: none"> EMPG FY17 Grant Application Opens
	July-September 2017	EMPG Grant Manager <ul style="list-style-type: none"> Submits EMPG FY17 Grant Application with approved Projects

2017 EMPG Project Proposal Request Timeline and Template



I. Background Information

I	A.	Requestor Contact Information
	Agency	Santa Clara County Operational Area
	Name	Ivan Williams
	Position/Title	OAC Liaison/Senior Management Analyst
	Phone	408-808-7835
	Mobile Number	
	Agency Address	Office of Emergency Services 55 West Younger Avenue, Suite 450 San Jose, CA 95110
	Email	ivan.williams@oes.sccgov.org

I	B.	Project Name
		EOC Computers

TOTAL PROJECT COST	
(Insert the total from Funding section)	\$50,000

I	C.	Project Type
		Use the checkbox to indicate corresponding project
	<input type="checkbox"/>	This project is a new Project.
	<input checked="" type="checkbox"/>	This project is part of an ongoing Project.
	<input type="checkbox"/>	This project is for sustainment of a previously funded Project.

I	D.	Mission Areas (Solution Area)
		- Use the checkbox to indicate the corresponding mission area for your project
	<input type="checkbox"/> Planning	<input type="checkbox"/> Organization <input checked="" type="checkbox"/> Equipment <input type="checkbox"/> Training <input type="checkbox"/> Exercises

Choose ONLY one Sub Area (Sub Category) for Mission Areas above				
<input type="checkbox"/> Community Outreach	<input type="checkbox"/> Staffing	<input checked="" type="checkbox"/> Information Technology	<input type="checkbox"/> Staff Expenses	<input type="checkbox"/> Design/Develop
<input type="checkbox"/> Conference	<input type="checkbox"/> Day to Day Activities/ /operations that support emergency management	<input type="checkbox"/> Cyber Security Enhancement Equipment	<input type="checkbox"/> Course Development	<input type="checkbox"/> Conduct / Attend / Evaluate
<input type="checkbox"/> Develop and Enhance Plans, Protocols and Systems		<input type="checkbox"/> Interoperable Communications Equipment	<input type="checkbox"/> Course Delivery and Evaluation	<input type="checkbox"/> Supplies / Materials / Production Costs
		<input type="checkbox"/> Other Authorized Equipment	<input type="checkbox"/> Staff Expenses	
			<input type="checkbox"/> Certification / Recertification of instructors	

I E. Project Description

- Briefly describe exactly what the project entails, what purchases and/or personnel will be necessary for the project

This project will enable Operational Area emergency managers to fully leverage data communication capabilities and sharing of critical information in their EOCs. Computers support response and mitigation during emergencies and disasters via common operating picture and resource management web based programs such as Web EOC, HSIN, COPLink, Mutualink, etc. as well as by supporting situational awareness.

Eligibility of Operational Area jurisdictions for this funding is based on the following criteria:

Equipment criteria

- Funding is primarily for laptops, not for tablets, iPads or other devices.
- Written justification must be provided if funding is requested for tablets, iPads, or any other computing devices. This written justification must identify the computing devices currently used in the City/Town EOC as well as why a non-Laptop device is required. These requests will be evaluated and approved on an individual basis.
- Funding is primarily for replacement of existing EOC laptops that are at least 4 years old.
- Written justification must be provided if funding is requested for additional laptop capacity (i.e. non-replacement laptops) in the City/Town EOC. This written justification must identify the specific EOC needs the additional laptop(s) would provide for as well as specifically how the laptop will be used in the EOC during an activation. These requests will be evaluated and approved on an individual basis.
- Funding is limited to a maximum of \$1,600 per computing device (including all peripherals, tax and shipping).
- Grant funds cannot be used to purchase warranties, maintenance/service agreements, or software that aren't bundled/included with the laptop.
- Any computing device purchased under this project must be capable of running WebEOC—e.g. able to connect to the city/town network and run the necessary browser or other software to access WebEOC.

City/Town Criteria

- The City/Town must email their intent to use EMPG funding for computing devices—along with the number and type (e.g.

laptop) of devices and any required justifications—by October 1, 2017.

- Each City/Town must enter into an MOU with the County for the computers by December 31, 2017.
- Each City/Town must procure any approved computers under an existing competitive contract OR obtain bids in accordance with local (City/Town) and Federal procurement rules (whichever is more restrictive).

Each City/Town must procure any approved computers and submit all invoices to the County Office of Emergency Services by February 15, 2018.

I	F.	Does this project require a sole source?
	<input type="checkbox"/> Yes	If "Yes", please explain
	<input checked="" type="checkbox"/> No	N/A

I	G.	Installation
	-	Does this project require installation, new construction or renovation, retrofitting, or modification of existing structures?
	<input type="checkbox"/> Yes, If "Yes", please:	<input checked="" type="checkbox"/> No
	1. Provide an explanation AND	
	2. Attach a completed <u>Environmental and Historic Preservation</u> screening form (EHP) available from http://www.fema.gov/media-library/assets/documents/90195	

1. Provide an explanation AND
2. Attach a completed Environmental and Historic Preservation screening form (EHP) available from <http://www.fema.gov/media-library/assets/documents/90195>

II. ALIGNMENT WITH NATIONAL PREPAREDNESS GOALS by Core Capability and Mission Area

II	A.	Goals and Objectives
		- Use the checkbox to indicate which Core Capability will be developed or sustained.
1	<input checked="" type="checkbox"/>	Planning. Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.
2	<input checked="" type="checkbox"/>	Public Information and Warning. Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.
3	<input checked="" type="checkbox"/>	Operational Coordination. Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.
4	<input type="checkbox"/>	Mitigation. Core Capabilities: Community Resilience; Long-term Vulnerability Reduction; Risk and Disaster Resilience Assessment; and Threats and Hazards Identification
5	<input checked="" type="checkbox"/>	Response. Core Capabilities: Infrastructure Systems; Critical Transportation; Environmental Response/Health and Safety; Fatality Management Services; Fire Management and Suppression; Logistics and Supply Chain Management; Mass Care Services; Mass Search and Rescue Operations; On-scene Security, Protection and Law Enforcement; Operational Communications; Public Health, Healthcare, and Emergency Medical Services; and Situational Assessment
6	<input checked="" type="checkbox"/>	Recovery. Core Capabilities: Infrastructure Systems; Economic Recovery; Health and Social Services; Housing; Natural and Cultural Resources

III. FUNDING

III	A.	Proposed funding amount
		- Provide the proposed funding amount to be obligated from this Project towards Planning and Equipment elements. (Please check the appropriate box(es) on the left side for all that apply).
		- Also, for each funding area selected, provide a brief narrative below describing the items or services being funded.
ELEMENT		PROPOSED FUNDING
<input type="checkbox"/>	Planning	\$
<input checked="" type="checkbox"/>	Equipment	\$50,000
<input type="checkbox"/>	Management & Administration	\$
<input type="checkbox"/>	Training	\$
<input type="checkbox"/>	Exercise	\$
TOTAL PROJECT COSTS		\$50,000

Description of Expenditures That Will Be Used for Project Grant Match

Hours/ labor of non-grant funded direct personnel costs spent on obtaining, configuring, managing, and testing EOC laptops and other EOC equipment throughout the Operational Area. Additionally, the cost of internet service and other eligible equipment for EOCs may be included in the match. The County General Fund and other local jurisdiction general funds are the source of this Cash Match.

AEL #**Equipment**

- Use this link to locate and provide the Authorized Equipment number needed for equipment approval

<https://www.fema.gov/media-library/assets/documents/101566>

- | | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | 04HW-01-INHW | Information Technology |
| <input type="checkbox"/> | | Cyber Security Enhancement Equipment |
| <input type="checkbox"/> | | Interoperable Communications Equipment |
| <input type="checkbox"/> | | Detection Equipment |
| <input type="checkbox"/> | | CBRNE Reference Materials |
| <input type="checkbox"/> | | CBRNE Incident Response Vehicle |
| <input type="checkbox"/> | | Physical Security Enhancement Equipment |
| <input type="checkbox"/> | | Power Equipment |
| <input type="checkbox"/> | | CBRNE Logistical Support Equipment |
| <input type="checkbox"/> | | Other Authorized Equipment:
Contact grants manager prior to selected this sub-category |

III B. Other Source(s) of funding

- List other source(s) of funding that is being requested or utilized for this project
(check the appropriate box(es) on the left side)

ELEMENT		PROPOSED FUNDING
<input type="checkbox"/>	UASI	\$
<input type="checkbox"/>	SHSGP	\$
<input type="checkbox"/>	General Funds	\$
<input type="checkbox"/>	Other Grant Funds	\$
TOTAL OTHER FUNDING		\$

Other Funds:

- Explain how any other funds, such as general funds, UASI, etc., will be used to assist in implementation of this project.

IV. PROJECT MANAGEMENT AND IMPLEMENTATION

IV	A.	Milestones	
		<ul style="list-style-type: none"> - Identify up to 5 additional milestones, with start and end dates, which will be achieved within the performance period under the 2017 EMPG. - No start date should begin before July 1, 2017 and no end date should end after June 30, 2018. - These dates are subject to change based on notification of application approval. - No equipment may be purchased, contracts started or project costs incurred until notified by Grant Administrator that funds may be spent. - If unsure of exact dates, use Quarter timeframes 	
MILESTONE NUMBER	MILESTONE NAME/DESCRIPTION (1,000 CHARACTER LIMIT)	START DATE (MM/DD/YYYY)OR Q1, Q2, Q3, Q4	END DATE (MM/DD/YYYY)OR Q1, Q2, Q3, Q4
1	MOU between City/Town and County in Place	As early as July 1, 2017	December 31, 2017
2	Functional Timesheet Collection and Submission to Grant Manager for Project Grant Match	July 1, 2017	June 30, 2018
3	Environmental Historic Preservation (EHP) FEMA Review Completed (If applicable)	As early as August 1, 2017	January 31, 2018
4	City/ Town Performance Period	As early as July 1, 2017	No later than March 31, 2018
5	City/Town Service Agreement for Contracted Services	As early as July 1, 2017	No later than March 31, 2018
6	City/Town Procurement of EOC Laptops (once grant award is made and MOU is signed)	As early as October 1, 2017	No later than March 31, 2018
7			
8			
9			
10			

IV	B.	Project Outcomes	
		<ul style="list-style-type: none"> - Describe the outcomes and benefits that will be achieved as a result of this project. The outcomes should demonstrate improvement towards building capabilities. 	
		EOC laptops will increase the ability for first responders and emergency managers to effectively collect and provide information and data throughout the operational area and region. In addition they enhance local emergency managers' abilities to respond to and mitigate the emergency or disaster.	

IV	C.	Project Deliverables	
		<ul style="list-style-type: none"> - Describe the specific deliverables that will be produced as a result of this project. 	
		EOC laptops for jurisdictions within the Operational Area capable of supporting WebEOC, HSIN, COPLink, and WebLink as well as the other work of an Emergency Operations Center during a disaster.	

V. Project Timeline

YEAR	DATE & MEETINGS	OWNERS & TASKS
2016	November 22 2016 OAS Meeting	EMPG Grant Manager <ul style="list-style-type: none"> Initiates Op. Area EMPG FY17 Project Proposals
	November 22, 2016 to January 3, 2017	Op. Area Signatories <ul style="list-style-type: none"> Submit their Projects Proposals to EMPG Grant Manager
	December 27 OAS Meeting	Op. Area Signatories <ul style="list-style-type: none"> Discuss proposed projects Brainstorm additional project proposals Discussion of Op. Area needs may generate new ideas and opportunities for additional proposals that meet all of the EMPG funding criteria Identify all projects that will be submitted by January 3rd, 2017
2017	January 3, 2017	Op. Area Signatories <ul style="list-style-type: none"> All proposals and/or updated proposals due to EMPG Grant Manager
	January 24, 2017 OAS Meeting	<ul style="list-style-type: none"> Identify which proposals should be submitted for EMPG funding Identify which proposals are below the line, if/when additional funds become available in the future. This should include some short timeframe projects that don't require an RFP, MOU or EHP. → Voting members may make modifications to proposals during the meeting with the agreement of the original project proposers as long as these modifications are consistent with the original goals and objectives of the project → Cast votes
	February 23, 2017 OAC Quarterly Meeting	Emergency Operational Area Council <ul style="list-style-type: none"> Receive Op. Area project and "contingency project" proposals for EMPG FY 2017 with OAS recommendations Ask questions of the project requestors (Project requestors need to attend the meeting and be ready to answer questions about their project) Propose their own projects (if applicable) Review content for May 26 vote
	May 25, 2017 OAC Quarterly Meeting	Operational Area Council <ul style="list-style-type: none"> Approve specific project allocation amounts Cast their votes on both primary projects and below the line projects for EMPG FY 2017.
	July-August 2017	CalOES Announces EMPG FY17 Funding Opportunity <ul style="list-style-type: none"> EMPG FY17 Grant Application Opens
	July-September 2017	EMPG Grant Manager <ul style="list-style-type: none"> Submits EMPG FY17 Grant Application with approved Projects

2017 EMPG Project Proposal Request Timeline and Template



I. Background Information

I	A.	Requestor Contact Information
	Agency	Santa Clara County OES on behalf of the Santa Clara County Operational Area
	Name	Ivan Williams
	Position/Title	OAC Liaison/Senior Management Analyst
	Phone	408-808-7835
	Mobile Number	
	Agency Address	Office of Emergency Services 55 West Younger Avenue, Suite 450 San Jose, CA 95110
	Email	ivan.williams@oes.sccgov.org

I	B.	Project Name
		Emergency Manager Training & Professional Development

TOTAL PROJECT COST (Insert the total from Funding section)	\$12,000
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I	C.	Project Type Use the checkbox to indicate corresponding project
	<input checked="" type="checkbox"/>	This project is a new Project.
	<input type="checkbox"/>	This project is part of an ongoing Project.
	<input type="checkbox"/>	This project is for sustainment of a previously funded Project.

I	D.	Mission Areas (Solution Area) - Use the checkbox to indicate the corresponding mission area for your project
	<input type="checkbox"/> Planning	<input type="checkbox"/> Organization
	<input type="checkbox"/> Equipment	<input checked="" type="checkbox"/> Training
	<input type="checkbox"/> Exercises	

Choose ONLY one Sub Area (Sub Category) for Mission Areas above				
<input type="checkbox"/> Community Outreach <input type="checkbox"/> Conference <input type="checkbox"/> Develop and Enhance Plans, Protocols and Systems	<input type="checkbox"/> Staffing <input type="checkbox"/> Day to Day Activities/operations that support emergency management	<input type="checkbox"/> Information Technology <input type="checkbox"/> Cyber Security Enhancement Equipment <input type="checkbox"/> Interoperable Communications Equipment <input type="checkbox"/> Other Authorized Equipment	<input checked="" type="checkbox"/> Staff Expenses <input type="checkbox"/> Course Development <input type="checkbox"/> Course Delivery and Evaluation <input type="checkbox"/> Staff Expenses <input type="checkbox"/> Certification / Recertification of instructors	<input type="checkbox"/> Design/Develop <input type="checkbox"/> Conduct / Attend / Evaluate <input type="checkbox"/> Supplies / Materials / Production Costs

I	E.	Project Description	<ul style="list-style-type: none"> Briefly describe exactly what the project entails, what purchases and/or personnel will be necessary for the project <p>This project provides support and assistance to Emergency Managers who are interested in training directed toward emergency management certification—e.g. Certified Emergency Manager (IAEM), FEMA Professional Development Series, or CSTI Emergency Manager Specialist—or emergency management continuing education/professional development. Specific qualifying courses include, but are not limited to: G-775 EOC Management and Operations; G-191 ICS/EOC Interface; G-557 (G250.7) Rapid Assessment Workshop; G-205 (G270.4 or L-205, E-210) Recovery from Disaster; The Local Role; G-393 or G-318 Mitigation for Emergency Managers; G-288 Local Volunteer and Donations Management; G-364 Multi-Hazard Emergency Planning for Schools or L-363 Multi-Hazard Planning for Higher Education; G-202 Debris Management or E-202 Debris Management Planning for State, Local and Tribal Officials; G-386 Mass Fatalities; G-361 Flood Fight Operations; G-110 Emergency Management Operations Course for Local Governments OR 1 of the following (E900, E-905, E-910, E-920, E-930, E-945 or E-947); G-108 Community Mass Care and Emergency Assistance; E-358 Evacuation and Re-entry Planning; G-290 Basic Public Information Officers or E-388 Advanced Public Information Officer; G-271 Hazardous Weather & Flood Preparedness or IS-271 Anticipating Hazardous Weather and Community Risk; G-272 Warning Coordination; E/L/G-146 Homeland Security Exercise and Evaluation Program (HSEEP); G-366 Planning for the Needs of Children in Disaster; G235 Emergency Planning; G-626 EOC Action Planning; E-4 Intro to Emergency Management: Earthquake; EOC Action Planning or Essentials EOC Action Planning; EOC Section/ Position Specific Training; Enhanced Exercise Design, Conduct & Evaluation; ICS-402 Incident Command System; Medical Health Operations Center Support Activities; SEMS Introductory Course; SEMS/NIMS Combined Course or Combined Course TTT; SEMS Executive Management Course or SEMS Executive Course</p> <p>Grant funding is only available for pre-approved qualifying course registration, related travel and lodging. Grant funding is specifically <u>not available</u> for: 1) meal reimbursement or per diem; 2) Emergency Manager regular time, overtime or backfill spent attending training; or 3) for "IS" (Independent Study) courses. Grant funding is limited to 90% of the total pre-approved qualifying course registration and related travel and lodging expenses (excluding any meal reimbursement and per diem).</p>
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I	F.	Does this project require a sole source?	<input type="checkbox"/> Yes If "Yes", please explain <input checked="" type="checkbox"/> No N/A
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I	G.	Installation	<ul style="list-style-type: none"> Does this project require installation, new construction or renovation, retrofitting, or modification of existing structures? <input type="checkbox"/> Yes, If "Yes", please: <input checked="" type="checkbox"/> No
			1. Provide an explanation AND

2. Attach a completed Environmental and Historic Preservation screening form (EHP) available from <http://www.fema.gov/media-library/assets/documents/90195>

II. ALIGNMENT WITH NATIONAL PREPAREDNESS GOALS by Core Capability and Mission Area

II	A.	Goals and Objectives
		- Use the checkbox to indicate which Core Capability will be developed or sustained.
1	<input checked="" type="checkbox"/>	Planning. Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.
2	<input checked="" type="checkbox"/>	Public Information and Warning. Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.
3	<input checked="" type="checkbox"/>	Operational Coordination. Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.
4	<input checked="" type="checkbox"/>	Mitigation. Core Capabilities: Community Resilience; Long-term Vulnerability Reduction; Risk and Disaster Resilience Assessment; and Threats and Hazards Identification
5	<input checked="" type="checkbox"/>	Response. Core Capabilities: Infrastructure Systems; Critical Transportation; Environmental Response/Health and Safety; Fatality Management Services; Fire Management and Suppression; Logistics and Supply Chain Management; Mass Care Services; Mass Search and Rescue Operations; On-scene Security, Protection and Law Enforcement; Operational Communications; Public Health, Healthcare, and Emergency Medical Services; and Situational Assessment
6	<input checked="" type="checkbox"/>	Recovery. Core Capabilities: Infrastructure Systems; Economic Recovery; Health and Social Services; Housing; Natural and Cultural Resources

III. FUNDING

III	A.	Proposed funding amount
		- Provide the proposed funding amount to be obligated from this Project towards Planning and Equipment elements. (Please check the appropriate box(es) on the left side for all that apply).
		- Also, for each funding area selected, provide a brief narrative below describing the items or services being funded.
ELEMENT		PROPOSED FUNDING
<input type="checkbox"/>	Planning	\$
<input type="checkbox"/>	Equipment	\$

<input type="checkbox"/>	Management & Administration	\$
<input checked="" type="checkbox"/>	Training	\$12,000
<input type="checkbox"/>	Exercise	\$
TOTAL PROJECT COSTS		\$12,000

Description of Expenditures That Will Be Used for Project Grant Match

Emergency Managers time spent on Emergency Management planning, developing training, conducting exercises, or on emergency management logistics activities.

AEL #	Equipment
	- Use this link to locate and provide the Authorized Equipment number needed for equipment approval https://www.fema.gov/media-library/assets/documents/101566
<input type="checkbox"/>	Information Technology
<input type="checkbox"/>	Cyber Security Enhancement Equipment
<input type="checkbox"/>	Interoperable Communications Equipment
<input type="checkbox"/>	Detection Equipment
<input type="checkbox"/>	CBRNE Reference Materials
<input type="checkbox"/>	CBRNE Incident Response Vehicle
<input type="checkbox"/>	Physical Security Enhancement Equipment
<input type="checkbox"/>	Power Equipment
<input type="checkbox"/>	CBRNE Logistical Support Equipment
<input type="checkbox"/>	Other Authorized Equipment: Contact grants manager prior to selected this sub-category

III	B. Other Source(s) of funding
	- List other source(s) of funding that is being requested or utilized for this project (check the appropriate box(es) on the left side)
ELEMENT	PROPOSED FUNDING
<input type="checkbox"/> UASI	\$
<input type="checkbox"/> SHSGP	\$
<input checked="" type="checkbox"/> General Funds	\$Unknown
<input type="checkbox"/> Other Grant Funds	\$
TOTAL OTHER FUNDING	\$Unknown

Other Funds:

- Explain how any other funds, such as general funds, UASI, etc., will be used to assist in implementation of this project.

Local funds may be used to pay for meal reimbursement, per diem, and the 10% of registration, travel, and lodging expenditures that aren't eligible for grant funding.

IV. PROJECT MANAGEMENT AND IMPLEMENTATION

IV	A.	Milestones	
		<ul style="list-style-type: none">- Identify up to 5 additional milestones, with start and end dates, which will be achieved within the performance period under the 2017 EMPG.- No start date should begin before July 1, 2017 and no end date should end after June 30, 2018.- These dates are subject to change based on notification of application approval.- No equipment may be purchased, contracts started or project costs incurred until notified by Grant Administrator that funds may be spent.- If unsure of exact dates, use Quarter timeframes	
MILESTONE NUMBER	MILESTONE NAME/DESCRIPTION (1,000 CHARACTER LIMIT)	START DATE (MM/DD/YYYY)OR Q1, Q2, Q3, Q4	END DATE (MM/DD/YYYY)OR Q1, Q2, Q3, Q4
1	MOU between City/Town and County in Place	As early as July 1, 2017	December 31, 2017
2	Functional Timesheet Collection and Submission to Grant Manager for Project Grant Match	July 1, 2017	June 30, 2018
3	City/ Town Performance Period	As early as July 1, 2017	No later than April 30, 2018
4	Conference/Training Attendance	September 2017	April 2018
5	City/Town Submission of Invoices and supporting documentation for reimbursement.	As early as September 2017	No later than April 30, 2018
6			
7			
8			
9			
10			

IV	B.	Project Outcomes	
		<ul style="list-style-type: none"> - Describe the outcomes and benefits that will be achieved as a result of this project. The outcomes should demonstrate improvement towards building capabilities. 	
		Professional growth, development and improved effectiveness of Op Area Emergency Managers via relevant training, certification, and mentoring experiences.	

IV	C.	Project Deliverables	
		<ul style="list-style-type: none"> - Describe the specific deliverables that will be produced as a result of this project. 	

Multiple Emergency Managers (4+) from across the Operational Area attend and participate in one or more qualified emergency management training sessions.

V. Project Timeline

YEAR	DATE & MEETINGS	OWNERS & TASKS
2016	November 22 2016 OAS Meeting	EMPG Grant Manager <ul style="list-style-type: none"> Initiates Op. Area EMPG FY17 Project Proposals
	November 22, 2016 to January 3, 2017	Op. Area Signatories <ul style="list-style-type: none"> Submit their Projects Proposals to EMPG Grant Manager
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	January 24, 2017 OAS Meeting	<ul style="list-style-type: none"> Identify which proposals should be submitted for EMPG funding Identify which proposals are below the line, if/when additional funds become available in the future. This should include some short timeframe projects that don't require an RFP, MOU or EHP. ➔ Voting members may make modifications to proposals during the meeting with the agreement of the original project proposers as long as these modifications are consistent with the original goals and objectives of the project ➔ Cast votes
	February 23, 2017 OAC Quarterly Meeting	Emergency Operational Area Council <ul style="list-style-type: none"> Receive Op. Area project and "contingency project" proposals for EMPG FY 2017 with OAS recommendations Ask questions of the project requestors (Project requestors need to attend the meeting and be ready to answer questions about their project) Propose their own projects (if applicable) Review content for May 26 vote
	May 25, 2017 OAC Quarterly Meeting	Operational Area Council <ul style="list-style-type: none"> Approve specific project allocation amounts Cast their votes on both primary projects and below the line projects for EMPG FY 2017.
	July-August 2017	CalOES Announces EMPG FY17 Funding Opportunity <ul style="list-style-type: none"> EMPG FY17 Grant Application Opens
	July-September 2017	EMPG Grant Manager <ul style="list-style-type: none"> Submits EMPG FY17 Grant Application with approved Projects

EXHIBIT D

LABOR DISTRIBUTION TIME SHEET		Week Ending 7/16/17	First and Last Name EXAMPLE	City/County Participating Sample City												
		WBS # 107-G107EM17														
PROJECTS		HOURS WORKED BY DAY														
		M 7/6/15	T 7/7/15	W 7/8/15	TH 7/9/15	F 7/10/15	S 7/11/15	S 7/12/15	M 7/13/15	T 7/14/15	W 7/15/15	TH 7/16/15	F 7/17/15	S 7/18/15	S 7/19/15	TOTAL HOURS
A - EMPG Grant Administration		5.0	5.0	4.0	4.0	1.0			2.0	3.0	0.0	1.0	1.0			26.0
B - OAC Liaison																
C - CSTI Training Project																
D - CESA Annual Training																
E - EOC Computers																
F - CERT Trailer(s)																
G - Emergency Manager Prof Dev																
H - EVC Exercise																
I - IAEM Annual Training																
J - Disaster Cost Recovery Workshop																
K - CADRE																
L - Shelter Trailer/ Cache																
Other Emergency Management Hours (Excluding Time Spent Receiving Training)																
Local Hazard Mitigation Planning (LHMP)																
Weather Event Recovery																
Other Federal Grant Hours		4.0	4.0	0.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0			36.0
Total Work Hours (Max = 8 a day)		8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0			80.0
Employee Signature		Supervisor's Signature														

CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES (Cal OES)

Alterations to this document may result in delayed application approval, modification requests, or reimbursement requests. Subrecipients may be asked to revise and/or re-submit any altered Financial Management Forms Workbook.

CFDA#:	EMPG 97.042
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085-00000
2017-0007

- Public Law (PL) 109-282 (Federal Funding Accountability and Transparency Act of 2006), as amended by Section 6202(a) of the Government Funding Transparency Act of 2008 (PL 110-252), which is outlined in FEMA GPD information Bulletin No. 350.
- If the Subrecipient in the preceding year received 80 percent or more of its annual gross revenues in Federal Awards, **and** \$25,000,000 or more in annual gross revenues from Federal awards, **and** the public does not have access to information about the compensation of the senior executives of the entity, then the Subrecipient is **subject to the FFATA Financial Disclosure requirements and will need to fill out this form.**
- FFATA Financial Disclosure is **in addition** to the Authorized Body of Five page.
- Cal OES enters FFATA information on behalf of the Subrecipient.

[illegible]

FMFW v1.17 - 2017

SUNNYVALE DEPARTMENT OF PUBLIC SAFETY



Budget for Sunnyvale Emergency Management Performance Grant (EMPG) MOU

7 EOC Laptops & 2 Docking Stations	\$ 12,000
CESA Annual Training & Conference	\$ 1,300
CSTI Courses** (Initially LSEMSA, G202 and G108)	
3 @ \$ 1,100 each	\$ 3,300
CSTI Course** (G110 or another course to TBD later)	\$ 1,100
<hr/>	
Grant Total:	\$ 17,700

**** Course Descriptions:**

CSTI Course G-202 Debris Management Planning for State, Tribal and Local Officials
CSTI Course G-110 Foundations Course Train the Trainer
CSTI Course G-108 Community Mass Care and Emergency Assistance
CSTI EOC All Section Positions Specific Training (LSEMSA)

Note:

For the Emergency Manager Professional Development courses, the EMPG project pays 90% of the total pre-approved qualifying course registration and related travel and lodging expenses.

"Save lives, protect property and the environment through fully integrated Public Safety services"

Police – EMS – Fire

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www.sunnyvale.ca.gov

SUNNYVALE DEPARTMENT OF PUBLIC SAFETY



Budget for Sunnyvale Emergency Management Performance Grant (EMPG) MOU

7 EOC Laptops & 2 Docking Stations	\$ 12,000
CESA Annual Training & Conference	\$ 1,300
CSTI Courses** (Initially LSEMSA, G202 and G108)	
3 @ \$ 1,100 each	\$ 3,300
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<hr/>	
Grant Total:	\$ 17,700

** Course Descriptions:

CSTI Course G-202 Debris Management Planning for State, Tribal and Local Officials
 CSTI Course G-110 Foundations Course Train the Trainer
 CSTI Course G-108 Community Mass Care and Emergency Assistance
 CSTI EOC All Section Positions Specific Training (LSEMSA)

Note:

For the Emergency Manager Professional Development courses, the EMPG project pays 90% of the total pre-approved qualifying course registration and related travel and lodging expenses.



City of Sunnyvale

Agenda Item

17-1052

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Approve Budget Modification No. 24 in the Amount of \$150,000 for Advisory Services Including Polling, and Public Education Outreach Related to the Evaluation of New Revenue Strategies to Fund New and Increasing Service Demands and/or Unfunded Capital Investments, and Find that the Action is Exempt from CEQA

BACKGROUND

Like many cities across the country, the City of Sunnyvale faces increasing costs to deliver projects as well as increased costs and demands for service. As these costs are projected to outpace revenue growth, and to find capacity to invest in projects and deliver the high-quality services expected from the community, new and existing revenue sources should be evaluated.

As part of a Council Study Issue (FIN 17-01), on October 3, 2017, staff presented revenue strategies at a City Council study session that identified ways to secure stable revenue sources to fund new and increasing service demands and/or unfunded capital investments. A wide variety of revenue sources were reviewed including Development Impact Fees, Franchise Fees, Transient Occupancy Tax (TOT), Utility Users Tax (UUT), Sales Tax, Business License Tax, and Real Property Transfer Tax. The discussion evaluated potential revenue increases, the sustainability of the different funding sources, the probability for success, and the varying level of approval for each revenue source (e.g., staff, City Council, voter). In consideration of the upcoming 2018 General Election, Council focused on several of the revenue sources that would require voter approval.

EXISTING POLICY

Council Policy, Chapter 7, *Planning and Management*, Policy B.1.1 - The City will maintain a diversified and stable revenue base, not overly dependent on any land use or external funding source.

Council Policy, Chapter 7, *Planning and Management*, Policy B.1.4 - When considering a new tax or revenue source or an increase in an existing tax or revenue source, the following criteria should be considered:

- Community/Voter acceptance
- Competitiveness with surrounding communities
- Efficiency of revenue collection and enforcement
- Effectiveness in generating sufficient revenues in the short and long-term to justify its establishment
- Enhancement of revenue diversity to promote stability and provide protection from downturns in business cycles
- Equity/Fairness in distribution of the revenue burden on various segments of the community

Pursuant to Sunnyvale Charter Section 1305, at any meeting after the adoption of the budget, the City Council may amend or supplement the budget by motion adopted by affirmative votes of at least four members to authorize the transfer of unused balances appropriated for one purpose to another, or to appropriate available revenue not included in the budget.

ENVIRONMENTAL REVIEW

This action is exempt from review under the California Environmental Act (CEQA) in that it involves fiscal and administrative activities that will not result in direct or indirect changes to the environment, and which do not commit the City to any specific project that may result in a potentially significant impact on the environment. (CEQA Guidelines, Section 15378(b)(4) and (b)(5).)

DISCUSSION

The objective of the study is to develop new revenue strategies that the City can implement, including a greater diversification of the City's revenues based on locally controlled revenue sources to address unfunded or underfunded programs and projects. As the City continues to grow and evolve, the demand for services has also increased and changed. However, the growth of traditional revenue sources has not kept pace with the resources necessary to meet the service expectations of the community and to address delayed/deferred capital projects. Identification of new and the review of existing revenue sources, particularly those which can be under the sole control of the City, is paramount in maintaining the existing service level and potentially funding changing and future service and capital investment needs.

As noted in the City Manager's FY2016/17 Recommended Budget, the City is in the process of developing and implementing many budgetary strategies to ensure the long-term fiscal health of the City. These efforts include changes to a total compensation model and assumptions to set aside limited funding to cover projected personnel cost increases, such as pensions and other post-employment benefits. In addition, efforts also include, tax and fee structure studies, enterprise fund reviews, identifying unfunded or underfunded programs and projects, establishing a pension trust, establishing community benefit programs, utilizing third-party expert investors to manage a portion of the City's investment portfolio, and making investments in key areas (e.g., technology).

Some examples of near-term unfunded services/projects that need to be addressed, as well as needed operating expenditures and infrastructure improvements over the next 20 years, include:

- Branch Library Operating and Maintenance Costs
- Transportation Strategic Plan Projects
- Downtown Specific Plan Projects
- Sidewalk Repair
- Water, Wastewater, Stormwater Infrastructure
- Civic Center Modernization
- Fire Station Replacements/Rehabilitation
- Emergency Operations Center

Next Steps

One component of the budgetary strategy, to ensure long-term fiscal sustainability, is securing stable revenue sources and further diversity of the City's revenue portfolio. Based on City Council feedback at the at the October 3, 2017 study session, Council wishes to explore moving forward with a general tax ballot measure, focusing on Real Property Transfer Tax, Transient Occupancy Tax, or Business License Tax. The November 2018 General Election is the next opportunity. In comparing the possible

revenue sources, and the revenue potential for each, voter sentiment to support a ballot measure is still untested.

Staff is recommending that polling be done to test various options. This would be helpful to understanding what voters may support. This step will be completed in early 2018. Based on the last poll conducted by staff for the Civic Center and a Utility Users Tax ballot measure, the estimated cost for polling and developing ballot language to test is \$50,000. Upon completion of the polling, staff would return to Council with the results. Based on the polling results, Council would be asked whether to proceed further with planning for the placement of a ballot measure on the November 2018 ballot.

Should Council decide to place a measure on the ballot, public education outreach could be required at an additional cost. Estimated cost of this work is \$100,000 (also based on prior experience with the Utility Users Tax measure).

Staff will also evaluate, through the budget process, fees and charges that can be changed under Council or staff authority. This will include a review of existing fees, as well as look at potential new fees as appropriate. In addition, based on polling results and the fee and charges review, staff will lay out options for potential new revenues that Council may want to consider in future years.

FISCAL IMPACT

The cost associated with this study is for consultant services including polling, and public education outreach. Staff time required to research and evaluate the options and fiscal impacts will be absorbed. Budget Modification No. 24 appropriates \$150,000 to an existing project (833620). Project 833620, Evaluation of New Revenue Strategies, was established for FY 2017/18 with a budget of \$20,000 for consultant expertise to help guide the revenue strategy.

Budget Modification No. 24 FY 2017/18

General Fund	<u>Current</u>	<u>Increase/(Decrease)</u>	<u>Revised</u>
<u>Expenditures</u>			
833620 - Evaluation of New Revenue Strategies	\$20,000	\$150,000	\$170,000
<u>Reserves</u>			
Budget Stabilization Fund Reserve	\$33,945,795	(\$150,000)	\$33,795,795

Funding Source

This project is funded by the General Fund.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

RECOMMENDATION

Find that the action is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15378 (b)(4) and (b)(5) and approve Budget Modification No. 24 in the amount of \$150,000.

As the City continues to face increased costs, demands for service, and aging infrastructure, strategic and creative approaches to ensure long-term fiscal sustainability are required.

Prepared by: Brice McQueen, Senior Management Analyst

Reviewed by: Timothy J. Kirby, Director of Finance

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager



City of Sunnyvale

Agenda Item

17-1030

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Adopt by Resolution Volume I and Sunnyvale's Annex Within Volume II of the 2017 Santa Clara County Operational Area Hazard Mitigation Plan

BACKGROUND

In July of 2016, a coalition of Santa Clara County cities and special districts embarked on a planning process to prepare for and lessen the impacts of specified natural hazards by updating the Santa Clara County Operational Area Hazard Mitigation Plan (HMP). The HMP is the blueprint for reducing the Operational Area's vulnerability to disasters and hazards. Responding to federal mandates in the Disaster Mitigation Act of 2000 (Public Law 106-390), the partnership was formed to pool resources and to create a uniform hazard mitigation strategy that can be consistently applied to the defined planning area and used to ensure eligibility for specified grant funding success.

This effort represents the third comprehensive update to the initial hazard mitigation plan, approved by the Federal Emergency Management Agency (FEMA) in November of 2005 and developed in partnership with the Association of Bay Area Governments (ABAG), as well as a return to a truly regional effort following the 2010 planning process. The 16-member coalition of partners involved in this program includes unincorporated Santa Clara County, 14 city and town governments and the Santa Clara County Fire District. The planning area for the hazard mitigation plan was defined as the Santa Clara County Operational Area. The result of the organizational effort will be a FEMA and California Office of Emergency Services (CalOES) approved multi-jurisdictional, multi-hazard mitigation plan. Climate change is incorporated as a summary assessment of current and anticipated impacts for each identified hazard of concern.

The hazard identification and profiling in the HMP addresses the following hazards of concern within Santa Clara County: dam failure, drought, earthquake, flood, landslide, severe weather, tsunami, and wildfire. Except for dam failure, this plan does not provide a full risk assessment of human-caused hazards. However, brief, qualitative discussions of the following hazards of interest are included: terrorism, cyber threats, hazardous materials release, pipeline and tank failure, and airline incidents.

The Plan presents the accumulated information in a unified framework to ensure a comprehensive and coordinated plan covering the entire Santa Clara County Operational Area planning area. Each jurisdiction has been responsible for the review and approval of their individual sections of the Plan. Additionally, the plan has been aligned with the goals, objectives and priorities of the State's multi-hazard mitigation plan.

EXISTING POLICY

The City is mandated by regulations to have an Emergency Plan, both by its own ordinance (Sunnyvale Municipal Code section 2.16.050) and Government Code section 8568.

Although not covered in City Policy, the adoption of a FEMA approved hazard mitigation plan allows jurisdictional partners to collectively and individually become eligible to apply for hazard mitigation project funding. The 2017 Santa Clara County Local Hazard Mitigation Plan has been approved by FEMA and CalOES.

DISCUSSION

The Santa Clara County HMP was created through a collaborative planning process and serves as Santa Clara County's HMP (Attachment 2) pursuant to the Disaster Mitigation Act of 2000. The goal of the HMP, along with the Sunnyvale Annex to the HMP (Attachment 3), is to learn about the hazards that can affect the community and develop strategies for long-term reduction of hazard vulnerability. An effective HMP will potentially reduce the enormous cost of disasters to property owners and all levels of government. The HMP can also protect critical community facilities, reduce exposure to liability, and minimize post-disaster community disruption.

By adopting Volume I and Sunnyvale's Annex within Volume II (Chapter 16 of Volume II) of the Santa Clara County Operational Area HMP, the City of Sunnyvale will be eligible to apply for and receive grant funding from FEMA to reduce the vulnerability of residents within the community. The following grant funding sources will become available to the City:

- Hazard Mitigation Grant Program (HMPG)
- Pre-disaster Mitigation-competitive program (PDM-C)
- Flood Mitigation Assistance Program (FMA)

The PDM competitive grant program provides funds to State, Tribal, and local governments for pre-disaster mitigation planning and projects primarily addressing natural hazards. Cost-effective pre-disaster mitigation activities reduce risk to life and property from natural hazard events before a natural disaster strikes, thus reducing overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. Funds will be awarded on a competitive basis for mitigation planning and project applications intended to make local governments more resistant to the impacts of future natural disasters (*For more details on this program see Attachment 1*).

Authorized under Section 404 of the Stafford Act, the HMGP administered by FEMA provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster (*For more details on this program see Attachment 1*).

FISCAL IMPACT

Upon adoption of Volume I and Sunnyvale's Annex within Volume II of the Santa Clara County Operational Area HMP update, the City of Sunnyvale will be eligible to apply for specified FEMA grants. These grants can be used to implement the long-term hazard mitigation measures specified within the City's annex of the HMP before and after a major disaster declaration. The HMP is considered a living document such that, as awareness of additional hazards develop and new strategies and projects are conceived to offset or prevent losses due to natural disasters, the HMP will be evaluated and revised on a continual 5-year time frame.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a “project” with the meaning of the California Environmental Quality Act (“CEQA”) pursuant to CEQA Guidelines section 15378(b)(5) in that it is a governmental organizational or administrative activity that will not result in direct or indirect changes in the environment.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

STAFF RECOMMENDATION

Adopt by resolution Volume I and Sunnyvale’s Annex within Volume II of the 2017 Santa Clara County Operational Area Hazard Mitigation Plan.

Prepared by: Ryan Yin, Lieutenant, Department of Public Safety

Reviewed by: Carl Rushmeyer, Deputy Chief, Department of Public Safety

Reviewed by: Phan S. Ngo, Director, Department of Public Safety

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM) Fact Sheet
2. Santa Clara County Operational Area Hazard Mitigation Plan
3. Santa Clara County Hazard Mitigation Plan, Vol 2, Planning Partner Annexes (Sunnyvale’s Annex is Chapter 16)
4. Resolution of the Sunnyvale City Council Adopting Volume 1 and Sunnyvale’s Annex of Volume II of the 2017 Santa Clara County Operational Area Hazard Mitigation Plan

Attachment 1
Hazard Mitigation Grant Program (HMGP)
Pre-Disaster Mitigation Grant Program (PDM)

FACT SHEET

I. HAZARD MITIGATION GRANT PROGRAM (HMGP)

What is the Hazard Mitigation Grant Program?

HMGP is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (the Stafford Act), Title 42, United States Code (U.S.C.) 5170c. The key purpose of HMGP is to provide the opportunity to take critical mitigation measures to reduce future loss of life and property during the reconstruction process following a disaster.

HMGP is available, when authorized under a Presidential major disaster declaration, in the Tribe or areas of the State requested by the Governor. The amount of HMGP funding available is based upon the estimated total Federal assistance provided by FEMA for disaster recovery under the Presidential major disaster declaration.

Who is eligible to apply?

Hazard Mitigation Grant Program funding is only available to applicants that reside within a Presidentially declared disaster area. Eligible applicants are

- State and local governments
- Indian tribes or other tribal organizations
- Certain non-profit organizations

What types of projects can be funded by the HMGP?

HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters. Projects must provide a long-term solution to a problem, for example, elevation of a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. Funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. Examples of projects include, but are not limited to:

- Acquisition of real property for willing sellers and demolition or relocation of buildings to convert the property to open space use
- Retrofitting structures and facilities to minimize damages from high winds, earthquake, flood, wildfire, or other natural hazards
- Elevation of flood prone structures
- Safe room construction
- Development and initial implementation of vegetative management programs
- Minor flood control projects that do not duplicate the flood prevention activities of other Federal agencies
- Localized flood control projects, such as certain ring levees and floodwall systems, that are designed specifically to protect critical facilities
- Post-disaster building code related activities that support building code officials during the reconstruction process

What are the minimum project criteria?

There are five issues you must consider when determining the eligibility of a proposed project.

- Does your project conform to your State's Hazard Mitigation Plan?
- Does your project provide a beneficial impact on the disaster area i.e. the State?
- Does your application meet the environmental requirements?
- Does your project solve a problem independently?
- Is your project cost-effective?

II. PRE-DISASTER MITIGATION GRANT PROGRAM (PDM)

What is the Pre-Disaster Mitigation competitive grant program?

The Pre-Disaster Mitigation (PDM) competitive grant program provides funds to State, Tribal, and local governments for pre-disaster mitigation planning and projects primarily addressing natural hazards. Cost-effective pre-disaster mitigation activities reduce risk to life and property from natural hazard events before a natural disaster strikes, thus reducing overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. Funds will be awarded on a competitive basis to successful applicants for mitigation planning and project applications intended to make local governments more resistant to the pacts of future natural disasters.

Who can apply for a PDM competitive grant?

Eligible PDM competitive grant applicants include state and territorial emergency management agencies, or a similar office of the State, District of Columbia, U.S. Virgin Islands, Commonwealth of Puerto Rico, Guam, American Samoa, Commonwealth of the Northern Mariana Islands, and Federally-recognized Indian Tribal governments.

- ✓ Eligible Sub-applicants include State agencies; Federally-recognized Indian Tribal governments; and local governments (including State recognized Indian Tribal governments and Alaska native villages).
- ✓ Applicants can apply for PDM competitive grant funds directly to FEMA, while Sub-applicants must apply for funds through an eligible Applicant.
- ✓ Private non-profit organizations are not eligible to apply for PDM but may ask the appropriate local government to submit an application for the proposed activity on their behalf.

What are eligible PDM projects?

Multi-hazard mitigation projects must primarily focus on natural hazards but also may address hazards caused by non-natural forces. **Funding is restricted to a maximum of \$3M Federal share per project.** The following are eligible mitigation projects:

- ✓ Acquisition or relocation of hazard-prone property for conversion to open space in perpetuity;
- ✓ Structural and non-structural retrofitting of existing buildings and facilities (including designs and feasibility studies when included as part of the construction project) for wildfire, seismic, wind or flood hazards (e.g., elevation, flood proofing, storm shutters, hurricane clips);
- ✓ Minor structural hazard control or protection projects that may include vegetation management, Stormwater management (e.g., culverts, floodgates, retention basins), or shoreline/landslide stabilization; and,

- ✓ Localized flood control projects, such as certain ring levees and floodwall systems, that are designed specifically to protect critical facilities and that do not constitute a section of a larger flood control system.

Mitigation Project Requirements

Projects should be technically feasible (see Section XII. Engineering Feasibility) and ready to implement. Engineering designs for projects must be included in the application to allow FEMA to assess the effectiveness and feasibility of the proposed project. The project cost estimate should complement the engineering design, including all anticipated costs. FEMA has several formats that it uses in cost estimating for projects. Additionally, other Federal agencies' approaches to project cost estimating can be used as long as the method provides for a complete and accurate estimate. FEMA can provide technical assistance on engineering documentation and cost estimation (see Section XIII.D. Engineering Feasibility).

Mitigation projects also must meet the following criteria:

1. Be cost-effective and substantially reduce the risk of future damage, hardship, loss, or suffering resulting from a major disaster, consistent with 44 CFR 206.434(c)(5) and related guidance, and have a Benefit-Cost Analysis that results in a benefit-cost ratio of 1.0 or greater (see Section X. Benefit-Cost Analysis). **Mitigation projects with a benefit-cost ratio less than 1.0 will not be considered for the PDM competitive grant program;**
2. Be in conformance with the current FEMA-approved State hazard mitigation plan;
3. Solve a problem independently or constitute a functional portion of a solution where there is assurance that the project as a whole will be completed, consistent with 44 CFR 206.434(b)(4);
4. Be in conformance with 44 CFR Part 9, Floodplain Management and Protection of Wetlands, and 44 CFR Part 10, consistent with 44 CFR 206.434(c)(3);
5. Not duplicate benefits available from another source for the same purpose, including assistance that another Federal agency or program has the primary authority to provide (see Section VII.C. Duplication of Benefits and Programs);
6. Be located in a community that is participating in the NFIP if they have been identified through the NFIP as having a Special Flood Hazard Area (a FHBM or FIRM has been issued). In addition, the community must not be on probation, suspended or withdrawn from the NFIP; and,
7. Meet the requirements of Federal, State, and local laws.

What are examples of Ineligible PDM Projects?

The following mitigation projects are **not** eligible for the PDM program:

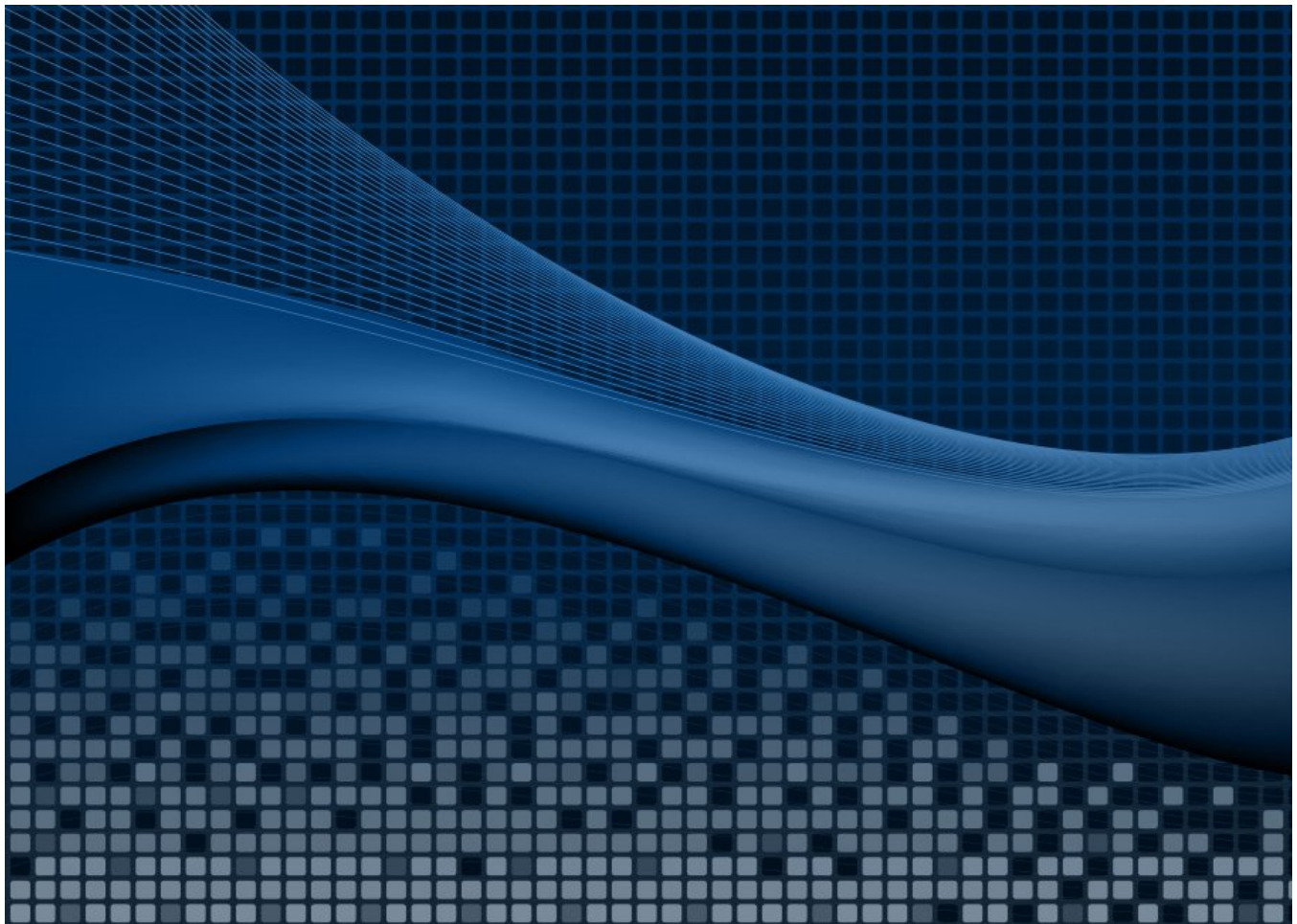
- ✓ Major flood control projects such as dikes, levees, floodwalls, seawalls, groins, jetties, dams, waterway channelization, beach nourishment or re-nourishment;
- ✓ Warning systems;
- ✓ Engineering designs that are not integral to a proposed project;
- ✓ Feasibility studies that are not integral to a proposed project;
- ✓ Drainage studies that are not integral to a proposed project;
- ✓ Generators that are not integral to a proposed project;
- ✓ Phased or partial projects;
- ✓ Flood studies or flood mapping; and,
- ✓ Response and communication equipment.



ATTACHMENT 2

Santa Clara County Operational Area Hazard Mitigation Plan

Volume 1—Operational-Area-Wide Elements



Santa Clara County Operational Area Hazard Mitigation Plan

Volume 1—Operational-Area-Wide Elements

September 19, 2017

PREPARED FOR

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EXECUTIVE SUMMARY

HAZARD MITIGATION PLANNING BACKGROUND

Hazard mitigation is the use of long-term and short-term policies, programs, projects, and other activities to alleviate the death, injury, and property damage that can result from a disaster. Santa Clara County and a partnership of local governments within the county have developed a hazard mitigation plan to reduce risks from natural disasters in the Santa Clara County Operational Area—defined as the unincorporated county and incorporated jurisdictions within the geographical boundaries of the county. The plan complies with federal and state hazard mitigation planning requirements to establish eligibility for funding under Federal Emergency Management Agency (FEMA) grant programs.

Initial Regional Planning Efforts for Hazard Mitigation

The Association of Bay Area Governments (ABAG) provides communities in the San Francisco Bay area with planning and research resources related to land use, housing, environmental and water resource protection, disaster resilience, energy efficiency, hazardous waste mitigation, risk management and financial services. In 2004, ABAG led a regional effort to address hazard mitigation planning for Bay Area jurisdictions. ABAG's regional template was used by numerous counties and cities to meet federal hazard mitigation planning requirements. The ABAG process enabled individual planning processes to meet local government needs, while pooling resources and eliminating redundant planning efforts.

In 2010, ABAG conducted its second regional planning effort. Municipalities that used the 2010 updated ABAG tools to meet federal hazard mitigation planning requirements included the County of Santa Clara and the cities of Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San José, Santa Clara, Saratoga and Sunnyvale. ABAG discontinued its full support of the regional planning concept in 2015, so jurisdictions that were covered under the regional plan must initiate individual or reformed multijurisdictional planning efforts to continue to comply with federal mitigation planning requirements.

The 2016 Santa Clara County Operational Area Planning Effort

In 2016, Santa Clara County, the Santa Clara County Fire Department, and all incorporated cities in Santa Clara County teamed together to prepare an updated multi-jurisdiction hazard mitigation plan tailored to the local needs and capabilities of the Santa Clara County Operational Area. The planning partnership developed a new plan from scratch, using lessons learned from the earlier ABAG planning efforts. The 2016 plan differs from previous plans in the following ways:

- The plan is not a subset of a larger regional effort. It focuses on the geographic region of the Santa Clara County Operational Area and on hazards of concern specific to that area.
- The plan follows the planning guidance of FEMA's Community Rating System so that it maximizes the planning benefit for the nine communities in the Operational Area participating in that program.
- Newly available data and tools provide for a more detailed and accurate risk assessment.

- The risk assessment has been formatted to provide information on risk and vulnerability that will allow a measurement of cost-effectiveness, as required under FEMA mitigation grant programs.
- The update gave the planning partners an opportunity to engage local citizens and gauge their perception of risk and support for risk reduction through mitigation.

PLAN DEVELOPMENT APPROACH

Phase 1—Organization

A core planning group consisting of a contract consultant and Santa Clara County Office of Emergency Services staff was assembled to facilitate the update of this plan. A planning partnership was formed by engaging the eligible local governments within the Operational Area and making sure they understood their expectations for compliance under the updated plan. A 19-member working group was assembled to oversee the plan update, consisting of both governmental and not-governmental stakeholders within the Operational Area. Coordination with other county, state, and federal agencies involved in hazard mitigation occurred throughout the plan update process. This phase included a review of the existing ABAG hazard mitigation plan, the California statewide hazard mitigation plan, and existing programs that may support hazard mitigation actions.

Phase 2—Risk Assessment

Risk assessment is the process of measuring the potential loss of life resulting from natural hazards, as well as personal injury, economic injury and property damage, in order to determine the vulnerability of people, buildings, and infrastructure to natural hazards. For this update, risk assessment models were enhanced with new data and technologies that have become available since 2010. The Working Group used the risk assessment to rank risk and to gauge the potential impacts of each hazard of concern in the Operational Area. The risk assessment included the following:

- Hazard identification and profiling
- Assessment of the impact of hazards on physical, social, and economic assets
- Identification of particular areas of vulnerability
- Estimates of the cost of potential damage.

Based on the risk assessment, hazards were ranked for the risk they pose to the overall Operational Area, as shown in Table ES-1.

Table ES-1. Hazard Risk Ranking		
Hazard Ranking	Hazard Event	Category
1	Earthquake	High
2	Flood	High
3	Severe Weather	High
4	Dam and Levee Failure	Medium
5	Landslide	Medium
6	Wildfire	Medium
7	Drought	Medium

Each planning partner also ranked hazards for its own area. Table ES-2 summarizes the categories of high, medium and low (relative to other rankings) based on the numerical ratings that each jurisdiction assigned each hazard.

Table ES-2. Summary of Hazard Ranking Results

	Number of Jurisdictions Assigning Ranking to Hazard			
	High	Medium	Low	Not Ranked
Dam Failure	0	4	10	3
Drought	0	1	15	1
Earthquake	17	0	0	0
Flood	0	17	0	0
Landslide	1	10	3	3
Severe weather	2	15	0	0
Wildfire	5	5	3	4

The results indicate the following general patterns:

- The earthquake hazard was most commonly ranked as high.
- The flood, landslide and severe weather hazards were most commonly ranked as medium.
- The dam failure and drought hazards were most commonly ranked as low.

Phase 3—Public Outreach

The Core Planning Group implemented a multi-media public involvement strategy utilizing the outreach capabilities of the planning partnership that was approved by the Working Group. The strategy included public meetings to introduce the planning process and present the risk assessment, a hazard mitigation survey, a project website, the utilization of social media (Facebook, Twitter and Nextdoor) and multiple media releases.

Phase 4—Goals, Objectives and Actions

The Working Group reviewed and updated the goals from the 2010 ABAG plan and developed a set of objectives. The planning partnership selected a range of appropriate mitigation actions to work toward achieving the goals set forth in this plan update. Additionally, the Working Group selected a set of county-wide mitigation actions.

Phase 5—Implementation and Maintenance Strategy

The Working Group developed a plan implementation and maintenance strategy that includes annual progress reporting, a strategy for continued public involvement, a commitment to plan integration with other relevant plans and programs, and a recommitment from the planning partnership to actively maintain the plan over the five-year performance period.

Phase 6—Plan Document Development

The Core Planning Group and Working Group assembled a document to meet federal hazard mitigation planning requirements for all partners. The updated plan contains two volumes. Volume 1 contains components that apply to all partners and the broader Operational Area. Volume 2 contains all components that are jurisdiction-specific. Each planning partner has a dedicated annex in Volume 2.

Phase 7—Adoption

Once pre-adoption approval has been granted by the California Office of Emergency Services and FEMA Region IX, the final adoption phase will begin. Each planning partner will individually adopt the updated plan.

Phase 8—Plan Implementation

Plan implementation will occur over the next five years as the planning partnership begins to implement the countywide and jurisdiction-specific actions identified in this plan.

MITIGATION GOALS AND OBJECTIVES

The following guiding principle guided the Working Group and the planning partnership in selecting the actions contained in this plan update:

Carefully plan for the maintenance and enhancement of a disaster-resistant Operational Area by reducing the current and future potential loss of life, property damage, and environmental degradation from various hazards, while accelerating economic recovery from those hazards.

Goals

The Working Group and the planning partnership established the following goals for the plan update:

1. Actively develop community awareness, understanding, and interest in hazard mitigation and empower the Operational Area to engage in the shaping of associated mitigation policies and programs.
2. Minimize potential for loss of life, injury, social impacts, and dislocation due to hazards.
3. Minimize potential for damage to property, economic impacts, and unusual public expense due to hazards.
4. Provide essential information to the whole community that promotes personal preparedness and includes advice to reduce personal vulnerability to hazards.
5. Encourage programs and projects that promote community resiliency by maintaining the functionality of critical Operational Area resources, facilities, and infrastructure.
6. Promote an adaptive and resilient Operational Area that proactively anticipates the impacts of climate change.

The effectiveness of a mitigation strategy is assessed by determining how well these goals are achieved.

Objectives

The following objectives were identified to help establish priorities for recommended mitigation actions. Each selected objective meets multiple goals, serving as a stand-alone measurement of the effectiveness of a mitigation action, rather than as a subset of a goal. The objectives are as follows:

1. Develop and provide updated information about threats, hazards, vulnerabilities, and mitigation strategies to state, regional, and local agencies, as well as private sector groups.
2. Improve understanding of the locations, potential impacts, and linkages among threats, hazards, vulnerability, and measures needed to protect life.
3. Encourage the incorporation of mitigation best management measures into plans, codes, and other regulatory standards for public, private, and non-governmental entities within the Operational Area.
4. Inform the public on the exposure to natural hazard risk and ways to increase the public's capability to prevent, prepare, respond, recover, and mitigate impacts of natural hazard events.
5. Establish and maintain partnerships in the identification and implementation of mitigation measures in the Operational Area.
6. Advance community and natural environment sustainability and resilience to future impacts through preparation and implementation of state, regional, and local projects.
7. Reduce repetitive property losses from all hazards.

8. Where feasible and cost-effective, encourage property protection measures for vulnerable structures located in hazard areas.
9. Improve systems that provide warning and emergency communications.

MITIGATION ACTION PLAN

Mitigation actions presented in this update are activities designed to reduce or eliminate losses resulting from natural hazards. The update process resulted in the identification of more than 344 mitigation actions for implementation by individual planning partners, as presented in Volume 2 of this plan. In addition, the Working Group and planning partnership identified countywide actions benefiting the whole partnership, as listed in Table ES-3.

Table ES-3. Hazard Mitigation Action Plan Matrix

Action Number and Description	Priority
Action SCOA-1—Continue to maintain a website that will house the Operational Area hazard mitigation plan, its progress reports, and all components of the plan's maintenance strategy to provide the planning partners and public ongoing access to the plan and its implementation.	High
Action SCOA-2— Continue to leverage, support and enhance ongoing, regional public education and awareness programs as a method to educate the public on risk, risk reduction and community resilience.	High
Action SCOA-3—Continue ongoing communication and coordination in the implementation of the Santa Clara County Operational Area Hazard Mitigation Plan.	High
Action SCOA-4—Continue to support the use, development and enhancement of a regional crisis communications system.	High
Action SCOA-5—Strive to capture time-sensitive, perishable data—such as high water marks, extent and location of hazard, and loss information—following hazard events to support future updates to the risk assessment.	High
Action SCOA-6—Identify new and comprehensive hazard datasets to improve and augment future updates to the risk assessment	High

IMPLEMENTATION

Full implementation of the recommendations of this plan will require time and resources. The measure of the plan's success will be its ability to adapt to changing conditions. The County of Santa Clara and its planning partners will assume responsibility for adopting the recommendations of this plan and committing resources toward implementation. The framework established by this plan commits all planning partners to pursue actions when the benefits of a project exceed its costs. The planning partnership developed this plan with extensive public input, and public support of the actions identified in this plan will help ensure the plan's success.

Santa Clara County Operational Area Hazard Mitigation Plan

PART 1—PLANNING PROCESS AND COMMUNITY PROFILE

1. INTRODUCTION TO HAZARD MITIGATION PLANNING

1.1 WHY PREPARE THIS PLAN?

1.1.1 The Big Picture

Hazard mitigation is defined as any action taken to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster. It involves long- and short-term actions implemented before, during and after disasters. Hazard mitigation activities include planning efforts, policy changes, programs, studies, improvement projects, and other steps to reduce the impacts of hazards.

For many years, federal disaster funding focused on relief and recovery after disasters occurred, with limited funding for hazard mitigation planning in advance. The Disaster Mitigation Act (DMA; Public Law 106-390), passed in 2000, shifted the federal emphasis toward planning for disasters before they occur. The DMA requires state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. Regulations developed to fulfill the DMA's requirements are included in Title 44 of the Code of Federal Regulations (44 CFR).

The responsibility for hazard mitigation lies with many, including private property owners, commercial interests, and local, state and federal governments. The DMA encourages cooperation among state and local authorities in pre-disaster planning. The enhanced planning network called for by the DMA helps local governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more cost-effective risk-reduction projects.

The DMA also promotes sustainability in hazard mitigation. To be sustainable, hazard mitigation needs to incorporate sound management of natural resources and address hazards and mitigation in the largest possible social and economic context.

1.1.2 Purposes for Planning

Fourteen jurisdictions within the Santa Clara County Operational Area (OA)—defined as the unincorporated county and incorporated jurisdictions within the geographical boundaries of Santa Clara County—participated in the regional hazard mitigation plan prepared in 2010 by Santa Clara County Office of Emergency Services with support from Dewberry Consultants and in collaboration with the Association of Bay Area Governments (ABAG). That regional plan was adopted and approved in compliance with the DMA. It called for updates on a five-year cycle. This update fulfills that requirement.

This hazard mitigation plan update identifies resources, information, and strategies for reducing risk from natural hazards. Participating jurisdictions are referred to in this plan as planning partners. Elements and strategies in the plan were selected because they meet a program requirement and because they best meet the needs of the planning partners and their citizens. One of the benefits of multi-jurisdictional planning is the ability to pool resources and eliminate redundant activities within the OA that have uniform risk exposure and vulnerabilities. The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning under its guidance for the

DMA. This plan will help guide and coordinate mitigation activities throughout the OA. It was developed to meet the following objectives:

- Meet or exceed requirements of the DMA.
- Enable all planning partners to continue using federal grant funding to reduce risk through mitigation.
- Meet the needs of each planning partner as well as state and federal requirements.
- Create a risk assessment that focuses on local hazards of concern.
- Meet the planning requirements of FEMA’s Community Rating System (CRS), allowing planning partners that participate in the CRS program to maintain or enhance their CRS classifications.
- Coordinate existing plans and programs so that high-priority projects to mitigate possible disaster impacts are funded and implemented.

1.2 WHO WILL BENEFIT FROM THIS PLAN?

The whole community of the Santa Clara County OA—including residents, visitors, and industry—is the ultimate beneficiary of this hazard mitigation plan. The plan reduces risk for those who live in, work in, and visit the OA. It provides a viable planning framework for all foreseeable natural hazards. Participation in development of the plan by key stakeholders helped ensure that outcomes will be mutually beneficial. The resources and background information in the plan are applicable across the OA, and the plan’s goals and recommendations can lay groundwork for the development and implementation of local mitigation activities and partnerships.

1.3 CONTENTS OF THIS PLAN

This plan has been set up in two volumes so that elements that are jurisdiction-specific can easily be distinguished from those that apply to the overall Santa Clara County OA:

- Volume 1—Volume 1 includes all federally required elements of a disaster mitigation plan that apply to the OA. This includes the description of the planning process, public involvement strategy, goals and objectives, hazard risk assessment, mitigation actions, and a plan maintenance strategy.
- Volume 2—Volume 2 includes all federally required jurisdiction-specific elements, in annexes for each participating jurisdiction. It includes a description of the participation requirements established for participants in this plan, as well as instructions and templates that the partners used to complete their annexes. Volume 2 also includes “linkage” procedures for eligible jurisdictions that did not participate in development of this plan but wish to adopt it in the future.

Both volumes include elements required under federal guidelines. DMA compliance requirements are cited at the beginning of subsections as appropriate to illustrate compliance.

The following appendices provided at the end of Volume 1 include information or explanations to support the main content of the plan:

- Appendix A—Public outreach information used in preparation of this update.
- Appendix B—Template for progress reports to be completed as this plan is implemented.
- Appendix C—Plan adoption resolutions from planning partners.

All planning partners will adopt Volume 1 in its entirety and at least the following parts of Volume 2: Part 1; each partner’s jurisdiction-specific annex; and the appendices.

2. PLAN UPDATE—WHAT HAS CHANGED

2.1 THE PREVIOUS PLAN

Fourteen jurisdictions in the Santa Clara County OA were covered under the 2010 Association of Bay Area Governments regional planning effort. The planning process used to develop the updated ABAG plan was as follows:

- Reevaluate the Functional Areas of the 2005 plan based on prioritizing mitigation for long-term recovery issues—this reevaluation was accomplished through a series of issue-oriented forums at meetings of its main policy standing committee, the Regional Planning Committee.
- Regional mitigation priority setting by cities, counties, and special districts with public involvement—this objective was met through a series of workshops where strategies were reviewed for relevance and clarity. Three regional workshops were held to review draft priorities, and the draft priorities were posted on line for public comment.
- Develop chapters to highlight functional areas—to make a better connection between the functional areas in the 2010 plan, chapters were developed to address mitigation strategies and how they achieved functionality.
- Raise public awareness—Public awareness was achieved through a series of campaigns, including an “op-ed” hazard mitigation piece on the anniversary of the Loma Prieta earthquake, securing an opportunity for free print ad and community service space, and public meetings focusing on specific aspects of the plan.
- Focused outreach in partnership with local jurisdictions—the 2010 planning process allowed for two opportunities for public comment.

2.2 WHY UPDATE?

2.2.1 Federal Eligibility

Title 44 of the Code of Federal Regulations (44 CFR) stipulates that hazard mitigation plans must present a schedule for monitoring, evaluating, and updating the plan. This provides an opportunity to reevaluate recommendations, monitor the impacts of actions that have been accomplished, and determine if there is a need to change the focus of mitigation strategies. A jurisdiction covered by a plan that has expired is not able to pursue elements of federal funding under the Robert T. Stafford Act for which a current hazard mitigation plan is a prerequisite.

2.2.2 Changes in Development

Hazard mitigation plan updates must be revised to reflect changes in development within the OA since the previous plan (44 CFR Section 201.6(d)(3)). The plan must describe changes in development in hazard-prone areas that increased or decreased vulnerability for each jurisdiction since the last plan was approved. If no changes in development impacted the jurisdiction’s overall vulnerability, plan updates may validate the information in the previously approved plan. The intent of this requirement is to ensure that the mitigation strategy continues to

address the risk and vulnerability of existing and potential development and takes into consideration possible future conditions that could impact vulnerability.

According to data from the California Department of Finance, the OA experienced a 7.6-percent increase in population between 2010 and 2015, an average annual growth rate of 1.52 percent per year. Participating planning partners have adopted general plans that govern land-use decisions and policy-making, as well as building codes and specialty ordinances based on state and federal mandates. This plan update assumes that some new development triggered by the increase in population occurred in hazard areas. Because all such new development would have been regulated pursuant to local programs and codes, it is assumed that vulnerability did not increase even if exposure did.

2.2.3 New Analysis Capabilities

The risk assessment for the previous Santa Clara County OA hazard mitigation plan used both quantitative and qualitative analyses. Building count data and annualized average loss estimates were provided for some, but not all, hazards of concern. These estimates were predominantly reported at the countywide scale. The updated risk assessment provides more detailed information on exposed population and building counts for each hazard of concern. This update also expands the level of detail in the loss estimate modeling for dam and levee failure, earthquake, and flood. Exposure and vulnerability estimates are presented at the community level. This enhanced risk assessment, and the full participation of every local jurisdiction within the county, allows for a more detailed understanding of the ways risk in the OA is changing over time.

2.3 THE UPDATED PLAN—WHAT IS DIFFERENT?

Although the Santa Clara County OA’s 2010 hazard mitigation plan update was prepared under the ABAG process, the OA’s stakeholders, including County agencies, municipalities, and special districts, determined that a new Operational Area-wide hazard mitigation plan would better suit the needs and capabilities of the planning partners. The plan update process included a greater focus on public involvement that concentrated on targeted public engagement instead of simply opening technical workshops to the public. A renewed effort was made to establish a plan maintenance and implementation protocol that clearly defines ongoing commitment to the plan’s success. Some of the major differences between the current and previous plans are as follows:

- The plan has been totally restructured as an Operational Area plan, focusing only on the geographic area of Santa Clara County. The risk assessment is not a subset of a larger regional effort. Instead, it is isolated to the Santa Clara County OA and focuses on the hazards of concern for the OA.
- The risk assessment has been prepared to best support future grant applications by providing information on risk and vulnerability that will directly support the measurement of “cost-effectiveness” required under FEMA mitigation grant programs.
- Newly available data and tools provide for a more detailed and accurate risk assessment using means such as FEMA’s Hazards U.S. (Hazus) Multi-Hazard computer model or new data such as FEMA’s countywide Digital Flood Insurance Rate Maps.
- The planning process creates the opportunity for all municipal planning partners to prepare to meet the requirements of California Senate Bill 379 during the next plan update. That bill will require integration of quantitative climate change risk assessment in the development of climate change related initiatives as part of the safety element of general plans.
- The plan is more user-friendly because it is confined to one package.
- The update created an opportunity for the County of Santa Clara, local cities, and other planning partners to engage citizens directly in a coordinated approach to gauge their perception of risk and support of the concept of risk reduction through mitigation.

- The plan’s goals objectives and actions are more clearly defined. The plan identifies actions rather than strategies as was the case with the prior plans. Strategies provide direction, but actions are fundable under grant programs. This plan replaces strategies with a guiding principle, goals, and objectives. The actions identified meet multiple objectives that are measurable, so that each planning partner can measure the effectiveness of its mitigation actions, which was difficult prior to this plan update.
- This plan update includes local jurisdictions that did not participate during the 2010 ABAG process, including the Town of Los Altos Hills, the City of Milpitas, and the Santa Clara County Fire Department. The inclusion of these jurisdictions has provided area planners with a greater understanding of risk exposure and mitigation needs across the wider OA. Additionally, their participation in this latest plan update will benefit the wider OA planning community by amplifying the benefits of multi-jurisdictional mitigation projects, ultimately making all local jurisdictions more competitive for mitigation grant funding.

There are fundamental differences in the planning process conducted for this update and past planning efforts under the ABAG initiative. The planning partners have treated this update as an opportunity to perform a “functional reset” in mitigation planning. The focus of this update was to transition from a nine-county regional scale, to an OA-specific scale. Given the extent of changes in this update, reviewers should consider this document to be a new plan. When relevant, the update discusses correlations with the initial plan, especially when data or information is being carried over to this update. Table 2-1 indicates the major changes between the two plans as they relate to 44 CFR planning requirements.

Table 2-1. Plan Changes Crosswalk

44 CFR Requirement	Previous Plan	Updated Plan
<p>§201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:</p> <ul style="list-style-type: none"> • (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval; • (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and • (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information. 	<p>Appendix A of the ABAG Plan includes a description of the planning process. It includes detail of coordination with other agencies and review of the previous plan.</p>	<p>The plan development process for this update was based upon the CRS 10-step planning process, which emphasizes comprehensive risk assessment and public engagement. Volume 1 Chapters 2, 3, 4, and 5 describe the planning process for the update.</p>

44 CFR Requirement	Previous Plan	Updated Plan
<p>§201.6(c)(2): The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.</p>	<p>Appendix C of the ABAG plan includes a risk assessment for nine hazards (earthquake, tsunami, flood, landslide, wildfire, drought, climate change, dam failure, and delta levee failure) for the nine-county regional area. These are primarily qualitative risk assessments with quantitative modeling for the earthquake hazard using Hazus.</p>	<p>Volume 1 Part 2 presents a risk assessment of nine hazards of concern: Climate change, dam failure, drought, earthquake, flood, landslide, severe weather, tsunami, and wildfire. These hazards are profiled as they impact the Santa Clara County OA.</p> <p>The risk assessment includes multiple-scenario modeling for dam failure, earthquake, flood and sea-level rise. Hazard profiles are standardized for each hazard of concern, so that there is uniformity in the discussion of each hazard and the information provided can support ranking of risk for each jurisdiction.</p> <p>Other hazards of interest were qualitatively assessed to develop a more complete picture of the hazards facing the OA.</p>
<p>§201.6(c)(2)(i): [The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.</p>	<p>Appendix C of the ABAG plan includes a risk assessment for six hazards (earthquake, severe weather, flood, wildfire, landslide and tsunami) for the multi-county regional area.</p>	<p>Volume 1 Part 2 presents a risk assessment of each hazard of concern. Each chapter includes the following components:</p> <ul style="list-style-type: none"> Hazard profile, including maps of extent and location, historical occurrences, frequency, severity, and warning time. Secondary hazards Climate change impacts Exposure of people, property, critical facilities and environment. Vulnerability of people, property, critical facilities and environment. Future trends in development Scenarios Issues
<p>§201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i). This description shall include an overall summary of each hazard and its impact on the community</p>	<p>Utilizing existing studies and documents, the ABAG plan discussed vulnerability with an emphasis on exposure and land use. There was extensive discussion on the vulnerability to the earthquake hazard. The ABAG risk assessment attempts to estimate potential damage from future events. ABAG concluded that Hazus was not an adequate tool for planning purposes.</p>	<p>Vulnerability was assessed for all hazards of concern. The Hazus computer model was used for the dam failure, earthquake, and flood hazards. These were Level 2—user defined analyses using city and county data.</p> <p>Site-specific data on County-identified critical facilities were entered into the Hazus model. Hazus outputs were generated for other hazards by applying an estimated damage function to an asset inventory was extracted from Hazus.</p>

44 CFR Requirement	Previous Plan	Updated Plan
§201.6(c)(2)(ii): [The risk assessment] must also address National Flood Insurance Program insured structures that have been repetitively damaged floods	The ABAG plan includes summary information by county on identified repetitive losses. The plan includes a link to a website that includes more detailed information on repetitive losses which is no longer maintained. Within the plan itself, while there are inventories on the numbers and types of structures in repetitive loss areas, there is no description of the causes of repetitive flooding.	The plan includes a comprehensive analysis of repetitive loss areas that includes an inventory of the number and types of structures in the repetitive loss area. Repetitive loss areas are delineated, causes of repetitive flooding are cited, and these areas are reflected on maps.
§201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.	The focus of the ABAG plan is on existing land use without detailed discussion on future land use. There is no consistent inventory of the number and types of structures exposed to each hazard of concern. The plan does provide an inventory of identified critical facilities.	A complete inventory of the numbers and types of buildings exposed was generated for each hazard of concern. Critical facilities were defined for the OA, and these facilities were inventoried by exposure. Each hazard chapter provides a discussion on future development trends.
§201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) and a description of the methodology used to prepare the estimate.	The ABAG plan relied on creating regional correlations from past observed damage to create estimates of future losses from the hazards of concern. Appendix F assesses vulnerability by providing private building exposure estimates for earthquake, landslide, wildfire, dam failure, and 100-year flood.	Loss estimations in terms of dollar loss were generated for all hazards of concern. These estimates were generated by Hazus for the dam failure, earthquake, and flood hazards. For the other hazards, loss estimates were generated by applying a regionally relevant damage function to the exposed inventory. In all cases, a damage function was applied to an asset inventory. The asset inventory was the same for all hazards and was generated in Hazus.
§201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.	A strong component of the ABAG plan is its look at existing land use in hazard areas, especially for earthquake. Appendix E provides additional detail on existing land use, with a brief discussion of future land use (through 2030) by county.	There is a discussion on future development trends as they pertain to each hazard of concern. This discussion looks predominantly at the existing land use and the current regulatory environment that dictates this land use.
§201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.	The ABAG plan has identified a comprehensive list of mitigation strategies for each planning partner to consider when creating annexes to the plan. These strategies were created via a facilitated process chronicled in the plan.	The plan contains a guiding principal, goals, objectives and actions. The guiding principal, planning partners. The actions are jurisdiction specific and strive to meet multiple objectives. The objectives of this plan are broad, similar to the strategies identified in the ABAG plan. All objectives meet multiple goals and stand alone as components of the plan. Each planning partner was asked to complete a capability assessment that looks at its regulatory, technical and financial capabilities.

44 CFR Requirement	Previous Plan	Updated Plan
§201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.	The ABAG plan has identified one overall goal and basic "commitments" for the plan.	A guiding principal, seven goals, and 11 objectives are described in Chapter 16. These goals and objectives targeted specifically for this hazard mitigation plan are completely new. They were identified based upon the capabilities of the planning partnership.
§201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.	The ABAG plan contains a discussion on the process used to generate the mitigation strategies, but it does include an alternatives review.	Volume 1, Part 3 includes a hazard mitigation catalog that was developed through a facilitated process. This catalog identifies actions that manipulate the hazard, reduce exposure to the hazard, reduce vulnerability, and increase mitigation capability. The catalog further segregates actions by scale of implementation. A table in the action plan section analyzes each action by mitigation type to illustrate the range of actions selected.
§201.6(c)(3)(ii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program, and continued compliance with the program's requirements, as appropriate.	Strategy GOVT-c-5 deals with maintaining compliance and good standing in the National Flood Insurance Program. Strategies HSNG-h-1, LAND-c-4, and ECON-f-1 encourage participation in the CRS program.	All municipal planning partners that participate in the National Flood Insurance Program have identified an action stating their commitment to maintain compliance and good standing under the National Flood Insurance Program. Communities that participate in the Community Rating System have identified actions to maintain or enhance their standing under the CRS program.
§201.6(c)(3)(iii): [The mitigation strategy shall describe] how the actions identified in Section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.	Under the ABAG plan, priorities are organized based on the following categories – <ul style="list-style-type: none"> • Existing • Existing/underfunded • Very High • High • Moderate • Under study • Not applicable • Not yet considered 	Each of the recommended initiatives is prioritized using a qualitative methodology that looked at the objectives the project will meet, the timeline for completion, how the project will be funded, the impact of the project, the benefits of the project and the costs of the project. This prioritization scheme is detailed in Chapter 18.
§201.6(c)(4)(i): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.	Appendix B of the ABAG plan contains a plan maintenance and update process.	Volume 1, Part 3 details a plan maintenance strategy that contains additional detail addressing deficiencies observed during the 2010 update process. This update includes a more defined role and vehicle for facilitating the annual review of the plan
§201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.	Appendix B of the ABAG plan contains a brief discussion on incorporation of the plan into other planning mechanisms.	Volume 1, Part 3 details recommendations for incorporating the plan into other planning mechanisms, such as: <ul style="list-style-type: none"> General Plan Emergency response plan Capital Improvement Programs Municipal code Specific current and future plan and program integration activities are detailed in each participating jurisdiction's annex located in Volume 2.

44 CFR Requirement	Previous Plan	Updated Plan
§201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.	The ABAG plan does not contain a process for how each jurisdiction will continue public participation in the plan maintenance process. Some of the local government annexes contain this discussion, however.	Volume 1, Part 3 details a comprehensive strategy for continuing public involvement.
§201.6(c)(5): [The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commission, Tribal Council).	All agencies utilizing the ABAG tools submitted to the state and FEMA individually.	Volume 1, Appendix C contains the resolutions of all planning partners that adopted this plan.

3. PLAN UPDATE APPROACH

The process followed to develop the Santa Clara County Operational Area Hazard Mitigation Plan had the following primary objectives:

- Secure grant funding.
- Form a planning group.
- Identify Stakeholders
- Establish a planning partnership.
- Define the Santa Clara County OA.
- Establish a volunteer working group.
- Coordinate with other agencies.
- Review existing programs.
- Engage the public.

These objectives are discussed in the following sections.

3.1 GRANT FUNDING

This planning effort was supplemented by a FEMA Hazard Mitigation Assistance grant in fiscal year 2014. Santa Clara County Office of Emergency Services (OES) was the applicant agent for the grant. It covered 75-percent of the cost for development of this plan; the planning partners covered the balance through in-kind contributions.

3.2 FORMATION OF THE PLANNING GROUP

Santa Clara County OES hired Tetra Tech, Inc. to assist with development and implementation of the plan. The Tetra Tech project manager assumed the role of the lead planner, reporting directly to the Santa Clara County OES project manager. A planning group was formed to lead the planning effort, made up of the following members:

- Darrell Ray, Santa Clara County Office of Emergency Services/Santa Clara County Fire Department
- Louay Toma, Santa Clara County Office of Emergency Services/Santa Clara County Fire Department
- Rob Flaner, Tetra Tech
- Carol Baumann, Tetra Tech

This planning group—designated the Santa Clara County Operational Area Local Hazard Mitigation Plan (LHMP) Core Planning Group (or the Core Planning Group)—coordinated regularly during the course of this project to track plan development milestones and to identify meeting content for a working group established to help with development of the update.

3.3 DEFINING STAKEHOLDERS

For this planning process, “stakeholder” was defined as: *any person or public or private entity that owns or operates facilities that would benefit from the mitigation actions of this plan, and/or has an authority or capability to support mitigation actions identified by this plan.* Stakeholders were separated into two categories:

- **Participatory Stakeholders**—Stakeholders that actively participated in the planning process as planning partners or members of the Steering Committee.
- **Coordinating Stakeholders**—Stakeholders that were not able to commit to actively participating in the process as a participatory stakeholder, but were kept apprised of plan development milestones or were able to provide data that was used in the plan development.

At the beginning of the planning process, the planning team identified a list of stakeholders to engage during the development of the Santa Clara County Operational Area Hazard Mitigation Plan. The following stakeholders played a role in the planning process:

- **Federal Agencies:**
 - ❖ FEMA Region IX provided updated planning guidance, provided summary and detailed data for the planning area from the National Flood Insurance Program (NFIP) (including repetitive loss information), and conducted plan review.
 - ❖ The U.S. Geological Survey (USGS) provided ShakeMaps to support the earthquake risk assessment.
- **State Agencies:**
 - ❖ The California Governor’s Office of Emergency Services (CalOES) facilitated FEMA review, provided updated planning guidance, and reviewed the draft and final versions of the plan prior to FEMA review.
 - ❖ The California Department of Forestry and Fire Protection (CAL FIRE) provided fire severity mapping to support the wildfire risk assessment.
 - ❖ The California Department of Water Resources provided information on NFIP compliance for the cities.
- **Regional and Local Stakeholders**—The planning team offered regional and local stakeholders the opportunity to be informed about the planning process. The following organizations received information about the planning process, were invited to provide input, and elected to participate in the planning process as full members of the Working Group:
 - ❖ Santa Clara County agencies:
 - Santa Clara County Fire Department
 - Santa Clara Valley Water District
 - Santa Clara Valley Transportation Authority
 - Mineta San José International Airport
 - American Red Cross, Santa Clara Valley Chapter
 - Santa Clara County, Community Emergency Response Team (CERT)
 - Santa Clara County Office of Education
 - ❖ San Mateo County
 - ❖ Alameda County
 - ❖ Pacific Gas and Electric (PG&E)

3.4 ESTABLISHMENT OF THE PLANNING PARTNERSHIP

Santa Clara County OES opened this planning effort to all eligible local governments within the OA. The Core Planning Group made a presentation at a stakeholder meeting on July 19, 2016 to introduce the mitigation planning process and solicit planning partners. Key meeting objectives were as follows:

- Provide an overview of the Disaster Mitigation Act.
- Describe the reasons for a plan.
- Outline the hazard mitigation work plan.
- Outline planning partner expectations.
- Seek commitment to the planning partnership.
- Seek volunteers for the working group.

Each jurisdiction wishing to join the planning partnership was asked to provide a “letter of intent to participate” that designated a point of contact for the jurisdiction and confirmed the jurisdiction’s commitment to the process and understanding of expectations. Linkage procedures have been established (see Volume 2 of this plan) for any jurisdiction wishing to link to the Santa Clara County Operational Area Hazard Mitigation Plan in the future. The planning partners covered under this plan are listed in Table 3-1.

Table 3-1. Municipal Planning Partners

Jurisdiction	Point of Contact	Title
County of Santa Clara	David Flamm	Deputy Director, Emergency Services
City of Campbell	Joe Cefalu	Captain, Police Department
City of Cupertino	Timm Borden	Director, Public Works
City of Gilroy	Roy Shackel	Fire Captain OES Coordinator
City of Los Altos	Scott McCrossin	Captain, Police Department
Town of Los Altos Hills	Marsha Hovey	Emergency Preparedness Consultant
Town of Los Gatos	Laurel Prevetti	Town Manager
City of Milpitas	Toni Charlop	Manager, Emergency Services
City of Monte Sereno	Debra Figone	Interim City Manager
City of Morgan Hill	Jennifer Ponce	Coordinator, Emergency Services
City of Mountain View	Lynn Brown	Coordinator, Emergency Services
City of Palo Alto	Nathan Rainey	Coordinator, Emergency Services
City of San José	Cay Denise MacKenzie	Senior Emergency Services Planner
City of Santa Clara	Lisa Schoenthal	Coordinator, Emergency Services
City of Saratoga	Michael Taylor	Director, Recreation and Facilities
City of Sunnyvale	Vinnie Mata	Captain, Public Safety
Santa Clara County Fire Department	Brian Glass	Battalion Chief

3.5 DEFINING THE PLANNING AREA

The defined planning area for this update has been defined as the Santa Clara County Operational Area (OA). The OA is defined as the unincorporated county and incorporated cities within the geographical boundary of Santa Clara County. Relevant OA characteristics are described in Chapter 4. All partners to this plan have jurisdictional authority within this OA. Figure 4-1 in Chapter 4 shows the geographic boundary of the defined planning area for this plan update.

3.6 ESTABLISHMENT OF A WORKING GROUP

Hazard mitigation planning enhances collaboration and support among diverse parties whose interests can be affected by hazard losses. A working group, made up of participatory stakeholders, was formed to oversee all phases of this plan. The official title for this group was the Santa Clara County Operational Area LHMP Working Group (or the Working Group). Its members included key planning partner staff, citizens, and other stakeholders from within the OA. The Core Planning Group assembled a list of candidates willing to fully participate in the planning process, with interests within the OA that could have recommendations for the plan or be impacted by its recommendations. The planning partners confirmed a committee of 19 members at the kickoff meeting. Table 3-2 lists the Working Group members.

Table 3-2. Santa Clara County Operational Area LHMP Working Group Members

Name	Title	Jurisdiction/Agency
David Flamm	Deputy Director	Santa Clara County OES
Darrell Ray	Emergency Management Planner	Santa Clara County OES/Fire Department
Louay Toma	Emergency Management Planner	Santa Clara County OES/Fire Department
Kent Fielden	Volunteer	American Red Cross, Santa Clara Valley Chapter
Joseph Cefalu	Captain	Campbell Police Department
Marsha Hovey	Volunteer	Collaborating Agencies Disaster Relief Effort
Kara Gross	Executive Director	Joint Venture, Silicon Valley
Jennifer Ponce	Coordinator	Morgan Hill Emergency Services
Lisa Schoenthal	Coordinator	Santa Clara (City) Emergency Services
Lynn Brown	Coordinator	Mountain View Emergency Services
Anne Wein	Operations Research Analyst	US Geological Survey (USGS)
Ian Hogg	Superintendent	Mineta San José International Airport
Cay Denise MacKenzie	Director	Senior Emergency Services Planner
Jared Hart	Planner	San José Planning
Brian Glass	Battalion Chief	Santa Clara County Fire Department
Raymond Fields	Project Manager	Santa Clara Valley Water District
Michael Brill	System Safety	Santa Clara Valley Transportation Authority
John Lang	Economic Development Coordinator	Silicon Valley Economic Development Alliance
Bart Spencer	Emergency Services Coordinator	Central County Fire
John Lang	Program Manager	Silicon Valley Economic Development Alliance

Leadership roles and ground rules were established during the Working Group's initial meeting on August 24, 2016. The Working Group agreed to meet once per month, as needed throughout the course of the plan's development. The Core Planning Group facilitated each Working Group meeting, which addressed a set of objectives based on an established work plan. The Working Group met eight times from August 2016 through April 2017. Meeting agendas, notes and attendance logs are available for review upon request. All Working Group meetings were open to the public and advertised as such via the hazard mitigation planning website. Agendas and meeting notes were posted to the hazard mitigation plan website.

3.7 COORDINATION WITH OTHER AGENCIES

Opportunities for involvement in the planning process must be provided to neighboring communities, local and regional agencies involved in hazard mitigation, agencies with authority to regulate development, businesses, academia, and other private and nonprofit interests (44 CFR, Section 201.6(b)(2)). This task was accomplished by the Core Planning Group as follows:

- **Working Group Involvement**—Identified participatory stakeholders were invited to participate on the Working Group by formal invitation from the Core Planning Group via email.
- **Agency Notification**—The following agencies and contacts were invited to participate in the plan development process from the beginning and were kept apprised of plan development milestones through regular participation as full Steering Committee members. These were considered coordinating stakeholders as defined in Section 3.3:
 - ❖ California Office of Emergency Services (CalOES), Emergency Services Coordinator
 - ❖ FEMA Region IX, Lead Community Planner
 - ❖ California Department of Water Resources, California State NFIP Coordinator
 - ❖ Association of Bay Area Governments, Resilience Program Coordinator
 - ❖ Santa Clara Valley Water District, Security and Emergency Services Unit Manager
 - ❖ American Red Cross.
 - ❖ NASA Ames Research Center, Risk Manager
 - ❖ Collaborating Agencies Disaster Relief Effort.
 - ❖ Silicon Valley Community Foundation.

These agencies received meeting announcements, meeting agendas, and meeting minutes by e-mail throughout the plan development process. Some of these agencies supported the effort by attending meetings or providing feedback on issues.

- **Pre-Adoption Review**—all the agencies listed above were provided an opportunity to review and comment on this plan, primarily through the hazard mitigation plan website (see Section 3.9). Each agency was sent an e-mail message informing them that draft portions of the plan were available for review. In addition, the complete draft plan was sent to CalOES and FEMA for a pre-adoption review to ensure program compliance.

3.8 REVIEW OF EXISTING PROGRAMS

Hazard mitigation planning must include review and incorporation, if appropriate, of existing plans, studies, reports and technical information (44 CFR, Section 201.6(b)(3)). Chapter 4 of this plan provides a review of laws and ordinances in effect within the OA that can affect hazard mitigation actions. In addition, the following programs can affect mitigation within the OA:

- California Fire Code.
- 2016 California Building Code.
- California State Hazard Mitigation Forum.
- Local Capital Improvement Programs.
- Local Emergency Operations Plan.
- Local General Plans.
- Housing Element.
- Safety Element.
- Local Zoning Ordinances.
- Local Coastal Program Policies.

An assessment of all planning partners' regulatory, technical and financial capabilities to implement hazard mitigation actions is presented in Chapter 4 and in the individual jurisdiction-specific annexes in Volume 2. Many of these relevant plans, studies and regulations are cited in the capability assessment.

3.9 PUBLIC INVOLVEMENT

Broad public participation in the planning process helps ensure that diverse points of view about the OA’s needs are considered and addressed. The public must have opportunities to comment on disaster mitigation plans during the drafting stages and prior to plan approval (44 CFR, Section 201.6(b)(1)). The Community Rating System expands on these requirements by making CRS credits available for optional public involvement activities.

3.9.1 Strategy

The strategy for involving the public in this plan emphasized the following elements:

- Include members of the public on the Working Group.
- Use a survey to determine if the public’s perception of risk and support of hazard mitigation has changed since the initial planning process.
- Attempt to reach as many OA citizens as possible using multiple media.
- Identify and involve OA stakeholders.

Stakeholders and the Santa Clara County Operational Area LHMP Working Group

Stakeholders are the individuals, agencies and jurisdictions that have a vested interest in the recommendations of the hazard mitigation plan, including all planning partners. The effort to include stakeholders in this process included stakeholder participation on the Working Group.

The planning process involved a broad range of federal, state, regional, and local stakeholders. The following stakeholders played a role in the planning process:

- Federal Agencies—FEMA Region IX provided updated planning guidance, provided summary and detailed data for the OA from the National Flood Insurance Program (including repetitive loss information), and conducted plan review. Representatives from the National Weather Service and U.S. Geological Survey served as subject matter advisors for the Working Group.
- State Agencies—CalOES facilitated FEMA review, provided updated planning guidance, and reviewed the draft and final versions of the plan prior to FEMA review.
- Regional and Local Stakeholders—The Core Planning Group offered regional and local stakeholders the opportunity to remain informed about the planning process. The following organizations received information about the planning process and invitations to provide input, and elected to participate in the planning process as members or subject matter advisors to the Working Group:
 - ❖ City of Campbell
 - ❖ City of Cupertino
 - ❖ City of Gilroy
 - ❖ City of Milpitas
 - ❖ City of Monte Sereno
 - ❖ City of Mountain View
 - ❖ City of Morgan Hill
 - ❖ City of Palo Alto
 - ❖ City of San José
 - ❖ City of Santa Clara
 - ❖ City of Saratoga
 - ❖ City of Sunnyvale
 - ❖ Town of Los Altos Hills
 - ❖ Town of Los Gatos
 - ❖ County of Santa Clara

- ❖ America Red Cross (ARC)
- ❖ Central County (San Mateo) Fire District
- ❖ Joint Venture Silicon Valley
- ❖ Mineta International Airport
- ❖ Santa Clara County Fire Department
- ❖ Santa Clara Valley Water District (SCVWD)
- ❖ Silicon Valley Economic Development Alliance
- ❖ Valley Transportation Authority (VTA).

Survey

A hazard mitigation plan survey (see Figure 3-1) was developed by the Core Planning Group with guidance from the Working Group. The survey was used to gauge household preparedness for natural hazards and the level of knowledge of tools and techniques that assist in reducing risk and loss from natural hazards. This survey was designed to help identify areas vulnerable to one or more natural hazards. The answers to its 30 questions helped guide the Working Group in selecting goals, objectives and mitigation strategies. The survey was made available on the hazard mitigation plan website and advertised throughout the course of the planning process.

The results of this survey were provided to each of the planning partners in a toolkit used to support the jurisdictional annex process (as described in the introduction to Volume 2 of this plan). Each planning partner was able to use the survey results to help identify actions as follows:

- Gauge the public's perception of risk and identify what citizens are concerned about.
- Identify the best ways to communicate with the public.
- Determine the level of public support for the different mitigation strategies.
- Understand the public's willingness to invest in hazard mitigation.

Approximately 2,100 surveys were completed during the course of this planning process. The complete survey and a summary of its findings can be found in Appendix A of this volume.

Information Booths

Hazard mitigation information booths were hosted at two farmer's markets, on January 15, 2017 in Campbell and on January 21, 2017 in Sunnyvale (see Figure 3-2 through Figure 3-4). Each was open from 9 a.m. to 1 p.m. During these events, Core Planning Group members spoke with members of the public about the project and invited them to take the survey and visit the project website. Members of the public were invited to receive a personalized risk assessment based on the project risk assessment results. A computer workstation allowed citizens to see information on their property, including exposure and damage estimates for earthquake and flood hazard events. Participating property owners were provided printouts of this information for their properties.

Final Public Comment period

A final public comment period was conducted to allow the public to provide comment on the proposed draft of the plan prior to submittal to CalOES for pre-adoption review and approval. This public comment period ran for 14 days from April 5 to April 21, 2017. The public comment period was advertised via a formal press release disseminated on April 5, 2017 and well as being posted on the hazard mitigation plan website: (<https://www.sccgov.org/sites/oes/SCCOAHMP20162017/Pages/home.aspx>). The posted draft plan was accompanied by a narrated PowerPoint presentation (see Figure 3-5) accessible on the website that explained to the public the content of the plan and the basis for its preparation. The website provided the public with a point of contact to provide formal comment if they so desired.

Santa Clara Operational Area 2016/2017 Hazard Mitigation Plan Survey

1. Survey Introduction

Santa Clara Operational Area Hazard Mitigation Questionnaire

A range of natural and human-caused disasters can affect any community. Santa Clara County and its incorporated cities, collectively known as the Santa Clara Operational Area, work diligently to mitigate threats and prepare for disasters.

To maintain a high level of preparedness, we need your help to identify and plan for future disasters. Data collected through this survey will help the Santa Clara Operational Area Local Hazard Mitigation Plan Workgroup to:

- Assess our residents' level of awareness regarding disasters;
- Determine areas vulnerable to various types of disasters;
- Coordinate activities to reduce the risk of injury or property damage in the future; and,
- Update the multi-jurisdiction Local Hazard Mitigation Plan.

Local Hazard Mitigation Plans are required to be updated every five years by the federal Disaster Mitigation Act of 2000 in order for the Operational Area to remain eligible for certain federal pre-disaster and post-disaster assistance. The Plan details the risks of both natural and human-caused hazards in the Santa Clara Operational Area and includes programs and projects that can help reduce the exposure of residents and businesses should an event occur.

This survey consists of three sets of questions. The first section is about your experience and knowledge of natural and human-caused hazards in general, and steps your household has taken to prepare for disasters. The second section is about the potential hazards near you and whether your knowledge of potential hazards influenced where you chose to live. The last section consists of demographic information that will be used in evaluating the responses to the questionnaire.

Please note that the information collected through this survey will be used solely for mitigation planning activities.

Thank you for taking the time to participate in the 2016/2017 Hazard Mitigation Questionnaire!

Figure 3-1. Introductory Page from Survey Distributed to the Public



Figure 3-2. Campbell Farmer's Market



Figure 3-3. Campbell Farmer's Market



Figure 3-4. Sunnyvale Farmer's Market



Figure 3-5. Public Comment Narrated Presentation

The Core Planning Group received five comments from the public during this comment period. These comments were reviewed by the Core Planning Group and incorporated in to the final plan as appropriate.

Press Releases

Press releases distributed in tandem with social media blasts were distributed over the course of the plan's development as key milestones were achieved and prior to each public meeting. The planning effort received the following press coverage:

- Wednesday, September 14, 2016—Announcement regarding the launch of the planning process distributed to news media for publishing and inquiry.
- Tuesday, December 27, 2016—Announcement regarding the first round of public information booth meetings distributed for publishing and inquiry.
- Wednesday, April 5, 2017—Announcement of the initiation of the April 5 – 21, 2017 public comment period for the draft plan.

Internet

At the beginning of the plan development process, a website hosted on the Santa Clara County OES main website was created to keep the public posted on plan development milestones and to solicit relevant input (see Figure 3-6). The site's address (<https://www.sccgov.org/sites/oes/SCCOAHMP20162017/Pages/home.aspx>) was publicized in all press releases, mailings, surveys and public meetings. Information on the plan development process, the Working Group, the survey and phased drafts of the plan was made available to the public on the site throughout the process. Santa Clara County OES intends to keep a website active after the plan's completion to keep the public informed about successful mitigation projects and future plan updates.



Figure 3-6. Sample Page from Hazard Mitigation Plan Web Site

3.9.2 Public Involvement Results

Survey Outreach

Completed surveys were received from 2,092 respondents. Of these respondents, 99 percent indicated that they live in the Santa Clara County OA, 72 percent work in San Clara County, and 87 percent own property in the OA. Survey results were shared with the planning partners. Detailed survey results are provided in Appendix A of this volume. Key results are summarized as follows:

- Survey respondents ranked earthquake as the hazard of highest concern, followed by drought, and wildfire.
- The majority of respondents expect to receive information on immediate threats caused by hazards from the radio, followed by television, and the Santa Clara County Operational Area’s alert system, AlertSCC.
- Respondents were overwhelmingly concerned about response resources for individuals with disabilities and others with access and functional needs.
- Respondents indicated concern about isolation and transportation gridlock during a major disaster.
- Approximately 45 percent and 38 percent of respondents were unaware if their residence was located in a high liquefaction zone or floodplain, respectively.

Public Meetings

By engaging the public through the public involvement strategy, the concept of mitigation was introduced to the public, and the Working Group received written feedback that was used in developing the plan. The Working Group answered multiple technical questions regarding the plan during all meetings, but no verbal comments were received on the plan. Table 3-3 summarizes details of contacts made during these events.

Table 3-3. Summary of Public Meetings

Date	Location	Number of Public Contacts
1/15/2017	Campbell Farmer’s Market, East Campbell Avenue and North 1st Street, Campbell, CA	59 fliers distributed, 24 individual risk assessments conducted, 75+ contacts made regarding the plan
1/21/2017	Sunnyvale Farmer’s Market, W. Washington Avenue and S. Murphy Avenue, Sunnyvale, CA	64 flyers distributed, 27 individual risk assessment conducted, 80+ contacts made regarding the plan

3.10 PLAN DEVELOPMENT CHRONOLOGY/MILESTONES

Table 3-4 summarizes important milestones in the plan update process.

Table 3-4. Plan Development Chronology/Milestones

Date	Event	Description
2016		
7/19	Stakeholder Kickoff	Planning partners convened to kick off the project.
8/24	Working Group Meeting #1	Review project timeline, establish Working Group ground rules, discuss state and previous plan.
9/7	Initial Press Release	Press release announcing the beginning of the plan update process and the Working Group meeting schedule.
9/14	Working Group Meeting #2	Discuss state and previous plan, discuss mission statement and goals.
10/12	Working Group Meeting #3	Confirm mission statement and goals, discuss objectives and critical facilities.
11/9	Working Group Meeting #4	Confirm objectives and critical facilities, discuss public outreach Phase 1 opportunities, confirm survey.
11/28	Survey Release	Coordinated jurisdictional release of the public survey via multiple social media platforms. Planning partners encouraged to link to the survey from their jurisdictional web pages.
12/14	Working Group Meeting #5	Review risk assessment results, discuss strengths, weaknesses, obstacles and opportunities for the Operational Area, review initial public survey results.
12/15	Annex Workshop #1	Guidance to planning partners on completing the jurisdictional annex, ranking risk, identifying local vulnerabilities, and selecting mitigation strategies.
12/19	Annex Workshop #2	Guidance to planning partners on completing the jurisdictional annex, ranking risk, identifying local vulnerabilities, and selecting mitigation strategies.
12/27	Press Release – Information Booths	Press release regarding location and time of the two farmer's market information booths in Campbell and Sunnyvale.
2017		
1/11	Working Group Meeting #6	Discuss plan maintenance, continued discussion of strengths, weaknesses, obstacles and opportunities, planning partner update.
1/15	Campbell Farmers Market – Information Booth	Hazard mitigation information booth as part of farmer's market. Residents provided with a mitigation flier that provided information on the project and advertised the project website and survey, property risk assessment, and general preparedness materials.
1/21	Sunnyvale Farmers Market – Information Booth	Hazard mitigation information booth as part of farmer's market. Residents provided with a mitigation flier that provided information on the project and advertised the project website and survey, property risk assessment, and general preparedness materials.
2/8	Working Group Meeting #7	Confirmed plan maintenance, discussed Operational Area initiatives, critical facilities, and California Environmental Quality Act compliance.
2/9	Jurisdictional Annex Process	Phase 3 annexes due to the Core Planning Group.
3/8	Working Group Meeting #8	Presented draft plan to the Working Group to finalize internal review. Finalized public comment period approach. Presentation on CDBG-DR.
4/5	Public Outreach	Initiation of the public comment period for the draft plan. Press release disseminated to all media outlets. Draft plan posted to the website with a narrated PowerPoint presentation.
4/21	Public Outreach	Conclusion of final public comment period.
4/28	Plan submittal	Final draft plan submitted to CalOES for review and approval.

4. SANTA CLARA COUNTY OPERATIONAL AREA PROFILE

4.1 GEOGRAPHIC OVERVIEW

The Santa Clara County Operational Area is located in north-central California in the southern portion of the San Francisco Bay area (see Figure 4-1). With its numerous natural amenities and one of the highest standards of living in the country, the OA has long been considered one of the best areas in the U.S. in which to live and work. The county is also referred to as “Silicon Valley.”

The Santa Clara County OA has a total area of 1,312 square miles. With a diverse population of more than 1.9 million residents (based on the 2016 census estimate), it is one of the largest counties in the state and encompasses 15 incorporated cities.

San José is the largest city, with over 1 million people, followed by Sunnyvale and Santa Clara; the west valley bedroom communities of Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, and Saratoga; the high-tech communities of Campbell, Cupertino, Mountain View, and Palo Alto; industrial Milpitas, and the south county suburban expansion/rural interface areas of Gilroy, Morgan Hill, and their surrounding unincorporated areas. A significant portion of the county’s land area is unincorporated ranch and farmland.

The Santa Clara County OA has a rich culture of ethnic diversity, artistic endeavors, sports venues, and academic institutions. Numerous public and private golf courses are located throughout the OA and Santa Clara County operates 28 parks covering more than 50,000 acres, including lakes, streams, and miles of hiking and biking trails. The OA is home to three major universities—Stanford University, Santa Clara University, and San José State University—as well as several community colleges.

4.2 HISTORICAL OVERVIEW

The early inhabitants of Santa Clara County were the indigenous Ohlone People, thought to occupy the area at least 1,000 years before Spain began to colonize California in the 18th century.

Spanish settlers established the valley’s first mission and pueblo in Santa Clara and San José, respectively, and governed “El Llano de los Robles” (Plain of the Oaks), until the Mexican Revolution led to Mexican control from the 1820s through 1840s. In 1850, California was admitted to the United States, and Santa Clara County was incorporated as one of the state’s original 27 counties. Deriving its name from Mission Santa Clara, the county originally included much of what was Washington Township (part of Union City and Fremont) in what is now Alameda County. The current county boundaries were set in 1853 when Alameda County was established.

From 1850 to 1870, ranchers made a transition from raising cattle and sheep to cultivating hay and grain. French immigrants planted the first vineyards. Mercury mining flourished. California’s first colleges were founded in Santa Clara County. The coming of the railroad produced a small boom in real estate.

After 1870, orchards began displacing grain fields and vineyards. The Santa Clara Valley became the world’s leading producer of canned fruit and processed dried fruit. By the end of the 19th century, wealthy San Franciscans, such as Leland Stanford and James Lick, established farms and summer homes in the county.

Figure Placeholder

Figure 4-1. Santa Clara County Operational Area (Planning Area)

Santa Clara County remained pastoral until World War II, when many people gravitated to California to work in war-related industries. To accommodate the growing population, mass-produced housing spread across the Santa Clara Valley, and agricultural land was subdivided and developed for housing. Like much of the rest of the United States in the decades immediately following the war, development in the county shifted from largely agricultural to largely suburban.

At the same time, technology companies began to flourish in Santa Clara County, with significant support and encouragement from Stanford University. The Stanford Industrial Park, established in 1951, later became the Stanford Research Park and provided space for companies such as Hewlett-Packard, Eastman Kodak, General Electric and Lockheed. Related companies began to form around the region, and by the 1970s Santa Clara County and surrounding areas had become known as a center of high-technology development. The term silicon valley was coined in 1971, referring to the high concentration of companies in the area that are involved in making silicon semiconductors and the computers that rely on them. Technology industries remain central to the area economy to this day.

4.3 MAJOR PAST HAZARD EVENTS

Presidential disaster declarations are typically issued for hazard events that cause more damage than state and local governments can handle without assistance from the federal government, although no specific dollar loss threshold has been established for these declarations. A presidential disaster declaration puts federal recovery programs into motion to help disaster victims, businesses and public entities. Some of the programs are matched by state programs. Santa Clara County has experienced 14 events (11 major disaster declarations, one emergency declaration, one fire management assistance declaration, and one fire suppression declaration) since 1950 for which presidential disaster declarations were issued. These events are listed in Table 4-1.

Table 4-1. Presidential Disaster Declarations

Type of Event	FEMA Disaster Number ^a	Date
Severe Winter Storms, Flooding, Mudslides	DR-4308	April 1, 2017
Severe Winter Storms, Flooding, and Mudslides	DR-4301	February 14, 2017
Summit Fire	FM-2766	May 22, 2008
Croy Fire	FS-2465	September 25, 2002
Severe Winter Storms and Flooding	DR-1203	February 9, 1998
Severe Storms, Flooding, Mud and Landslides	DR-1155	January 4, 1997
Severe Winter Storms, Flooding Landslides, Mud Flow	DR-1046	March 12, 1995
Severe Winter Storms, Flooding, Landslides, Mud Flows	DR-1044	January 10, 1995
Severe Freeze	DR-894	February 11, 1991
Loma Prieta Earthquake	DR-845	October 18, 1989
Severe Storms and Flooding	DR-758	February 21, 1986
Grass, Wildlands, and Forest Fires	DR-739	July 18, 1985
Coastal Storms, Floods, Slides, and Tornadoes	DR-677	February 9, 1983
Severe Storms, Flood, Mudslides, and High Tide	DR-651	January 7, 1982
Drought	EM-3023	January 20, 1977

a. DR = Disaster Declaration; EM = Emergency Declaration; FM = Fire Management; FS = Fire Suppression

Source: FEMA, 2016

Review of these events helps identify targets for risk reduction and ways to increase a community's capability to avoid large-scale events in the future. Still, many natural hazard events do not trigger federal disaster declaration

protocol but have significant impacts on their communities. These events are also important to consider in establishing recurrence intervals for hazards of concern.

4.4 PHYSICAL SETTING

4.4.1 Geology and Topography

The OA's topography is characterized by its location in the southern San Francisco Bay area. The Santa Clara Valley runs the entire length of the county from north to south, ringed by the rolling hills of the Diablo Range on the east, and the Santa Cruz Mountains on the west. Salt marshes and wetlands lie in the northwestern part of the county, adjacent to the waters of San Francisco Bay.

4.4.2 Soils

Prior to 1950 and as far back as the late 1800s, Santa Clara Valley was the scene of vibrant and productive agriculture. Many of the soils of the Santa Clara Valley are alluvial, deposited on fans or floodplains within the valley. The young, deep soils (Elder, El Palo Alto, Still, Stevens Creek, Landels Park, Botella, and Campbell) are naturally very fertile. Field crops were grown on the lower parts of the valley, and orchards spanned from the hills east of Milpitas and San José across the valley to Los Altos and Palo Alto. With the introduction of the electric water pump in the early 20th century, irrigation water from the plentiful ground-water supply became readily available on every farm, thus increasing productivity. The Santa Clara Valley became widely known for the production of high-quality orchard fruits, which were shipped across the United States.

Dams were constructed on major streams to store irrigation water and control flooding. As groundwater was rapidly pumped from a depth of several hundred feet, subsurface materials compacted and led to land subsidence. Subsidence damaged pipes and other in-ground structures, and levees were required to block tidewater from entering subsided land. The benefit of the control of streams and pumping of groundwater was a valley relatively free from flooding and high groundwater, an ideal condition for the rapid urban expansion that followed.

After World War II, urban growth in the San Francisco Bay area began to expand down to the south end of the bay and into the Santa Clara Valley. Subdivisions began to spring up as the development pace quickened after 1950. The first wave of development occurred on the soils along the El Camino Real corridor, where the alluvial fans were relatively level, with slopes of 2 percent or less. Development exploded in the 1960s and topsoil was moved to house lots was from the street areas. This type of subdivision construction continued until about 1980, when more shaping of house lots to control drainage began. By 1980, home construction was slowing because relatively level areas that were easy for construction were already developed.

After 1980, subdivision development moved into areas of alluvial fans and greater slopes, and lot-shaping became more common. After 1990, development moved into steep areas at the edge of the valley and the foothills. Soil disturbance can be severe in these areas, with more than 5 feet of cuts or fills. Fills may be materials from several feet below the soil surface, have a high content of clay or fragments, and be low in organic matter and fertility. Cut areas may have subsoil materials at the surface, which also may have a high content of clay or fragments and be low in organic matter and fertility. Many residents have modified the soil surface texture in garden areas with sandy materials and mulches. In areas of the basin soils (Hangerone, Clear Lake, and Embarcadero), clay surface and subsurface textures and slow internal drainage due to a high clay content are problems for gardens, ornamental plants, and lawns (USDA, 2015).

4.4.3 Climate

Table 4-2 summarizes normal climate data from 1981 through 2010 at the National Climatic Data Center weather station at San José. The Mediterranean climate of the OA remains temperate year round due to the area's geography and its proximity to the Pacific Ocean. The area is warm and dry much of the year. Rarely is the humidity uncomfortable, and the thermometer seldom drops below freezing. Rain is generally limited to winter and snow to the tops of local mountains.

Table 4-2. San José Normal Precipitation and Temperatures, 1981 – 2010

Months	Mean Precipitation (inches)	Minimum Temperature (F)	Maximum Temperature (F)
January	3.07	42.0	58.1
February	3.11	44.7	61.9
March	2.54	46.6	65.7
April	1.18	48.6	69.3
May	0.51	52.4	74.3
June	0.10	56.0	79.1
July	0.02	58.1	81.9
August	0.02	58.3	81.9
September	0.18	56.8	80.1
October	0.80	52.5	74.0
November	1.68	46.0	64.3
December	2.61	41.9	58.0
Annual	15.82	50.4	70.8

4.5 DEVELOPMENT PROFILE

4.5.1 Land Use

Table 4-3 shows current land use for unincorporated Santa Clara County; complete land use data was not available for municipalities in the OA. Land use information is analyzed in this plan for each identified hazard that has a defined spatial extent and location. For hazards that lack this spatial reference, the information in the table serves as a baseline estimate of land use and exposure. The distribution of land uses for the unincorporated county will change over time.

Table 4-3. Unincorporated Santa Clara County Present Land Use

Type of Land Use	Area (acres)	Percentage of Total Area
Agricultural	33,355.5	5.53
General / Institutional	5,381.3	0.89
Open Space	548,603.4	90.88
Low Density Residential	15,988.7	2.65
High Density Residential	68.6	0.01
Commercial	161.8	0.03
Industrial	85.0	0.01
Total	603,644.5	100.00

4.5.2 Critical Facilities, Infrastructure and Assets

Critical facilities and infrastructure are those that are essential to the health and welfare of the population. These features become especially important after a hazard event. Critical facilities typically include police and fire stations, schools, department operation centers, and emergency operations centers. Critical infrastructure can include the roads and bridges that provide ingress and egress and allow emergency vehicles access to those in need, and the utilities that provide water, electricity, and communication services to the community. Critical facilities identified in this plan were selected, mapped, and included in geographic information system (GIS) databases based on information provided through the Working Group meetings, stakeholder information requests, and the 2013 *State of California Multi-Hazard Mitigation Plan*. The Working Group created the categories for critical facilities and infrastructure listed in Table 4-4.

Table 4-4. Critical Facilities and Infrastructures in OA

Jurisdiction	Emergency Response / Public Health & Safety	Infrastructure Lifeline	Military Facilities	Recovery Facilities	Socioeconomic Facilities	Hazardous Materials	Total
Campbell	8	27	0	0	53	5	93
Cupertino	8	36	0	0	47	4	95
Gilroy	15	45	0	1	50	7	118
Los Altos	6	31	0	0	36	0	73
Los Altos Hills	1	48	0	0	6	0	55
Los Gatos	14	40	0	0	24	1	79
Milpitas	12	68	0	0	56	42	178
Monte Sereno	1	2	0	0	2	0	5
Morgan Hill	9	14	0	0	39	7	69
Mountain View	17	84	0	0	50	23	174
Palo Alto	19	71	0	0	95	22	207
San José	116	593	0	1	654	115	1479
Santa Clara (city)	19	79	0	0	103	94	295
Saratoga	7	33	0	0	30	0	70
Sunnyvale	16	81	0	0	86	49	232
Unincorporated County	20	248	1	2	51	5	327
Total	288	1500	1	4	1382	374	3,549

Although many facilities and assets of the Santa Clara County OA are important to the quality of life, this plan focuses on those whose loss would result in the greatest impacts on life and safety in the event of a natural hazard. As defined for this hazard mitigation plan update, critical facilities are:

Structures or other improvements, public or private, that, because of function, size, service area, or uniqueness, have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if it is destroyed or damaged or if its functionality is impaired. Critical facilities may include but are not limited to health and safety facilities, utilities, government facilities, hazardous materials facilities, or vital community economic facilities.

All critical facilities/infrastructure were analyzed in Hazus to help rank risk and identify mitigation actions. The risk assessment for each hazard qualitatively discusses critical facilities with regard to that hazard. Table 4-4 summarizes of the general types of critical facilities and infrastructure by local jurisdiction. Figure 4-2 and Figure 4-3 show the location of critical facilities and infrastructure in the OA. Due to the sensitivity of this information, a detailed list of facilities is not provided. The list is on file with Santa Clara County OES.

Figure Placeholder

Figure 4-2. Critical Facilities in Operational Area

Figure Placeholder

Figure 4-3. Critical Infrastructure in the Operational Area

4.5.3 Future Trends in Development

An understanding of population and development trends can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place to protect human health and community infrastructure. The DMA requires that communities consider land use trends, which can alter the need for, and priority of, mitigation options over time. Land use and development trends significantly affect exposure and vulnerability to various hazards. For example, significant development in a hazard area increases the building stock and population exposed to that hazard. New development that has occurred in the last five years within the OA and potential future development in the next five years, as identified by each jurisdiction, is addressed in the jurisdictional annexes located in Volume 2 of this plan.

The municipal planning partners have adopted general plans that govern land use decision and policy making for their jurisdictions. Decisions on land use will be governed by these programs. This plan will work together with these programs to support wise land use in the future by providing vital information on the risk associated with natural hazards in the OA. All municipal planning partners will incorporate this hazard mitigation plan in their general plans by reference. This will ensure that future development trends can be established with the benefits of the information on risk and vulnerability to natural hazards identified in this plan.

4.6 DEMOGRAPHICS

Some populations are at greater risk from hazard events because of decreased resources or physical abilities. Elderly people, for example, may be more likely to require additional assistance. Research has shown that people living near or below the poverty line, the elderly, women, children, ethnic minorities, renters, individuals with disabilities, and others with access and functional needs, all experience more severe effects from disasters than the general population. These vulnerable populations may vary from the general population in risk perception, living conditions, access to information before, during and after a hazard event, capabilities during an event, and access to resources for post-disaster recovery. Indicators of vulnerability—such as disability, age, poverty, and minority race and ethnicity—often overlap spatially and often in the geographically most vulnerable locations. Detailed spatial analysis to locate areas where there are higher concentrations of vulnerable community members would help to extend focused public outreach and education to these most vulnerable citizens.

4.6.1 Population

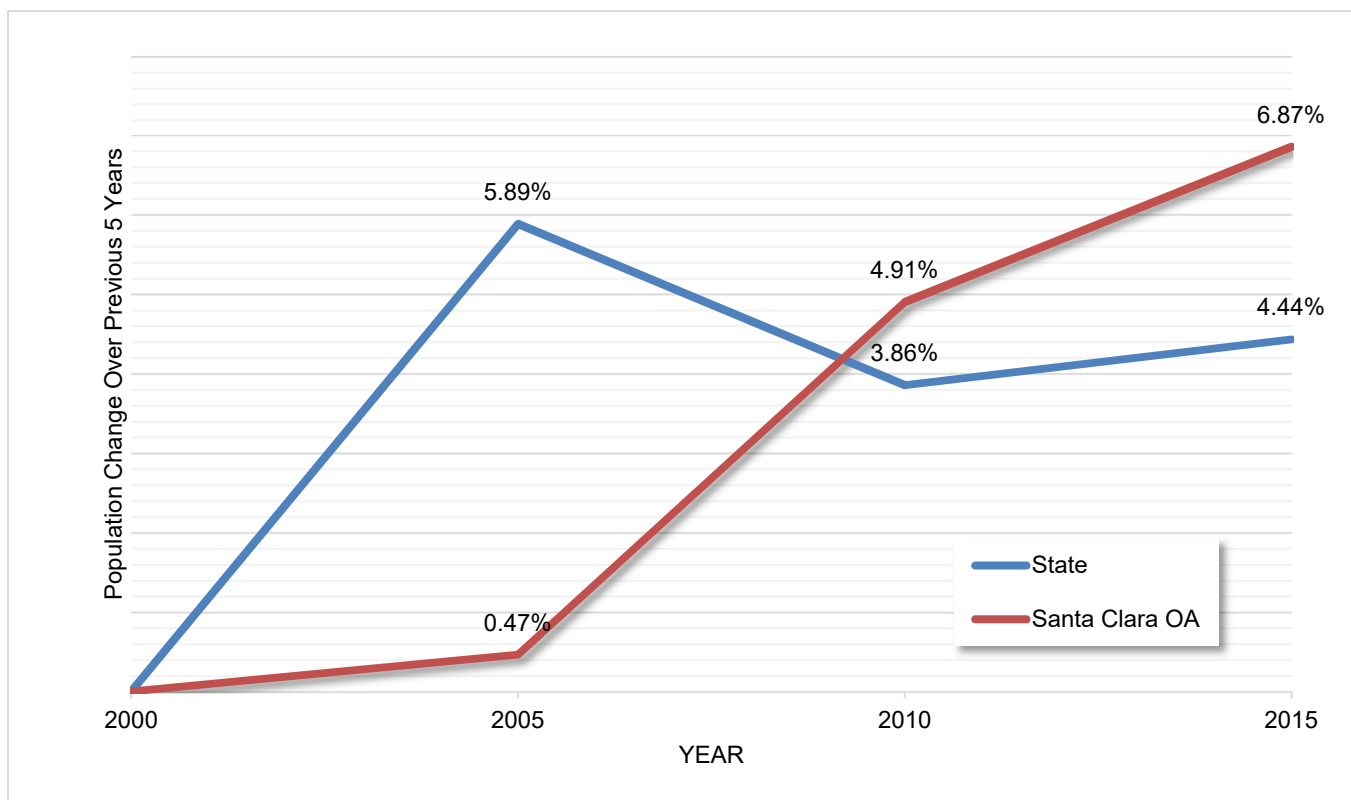
Resident Population

Information about population is a critical part of planning because it directly relates to land needs such as housing, industry, stores, public facilities and services, and transportation. The California Department of Finance estimated the OA's population at 1,927,888 as of January 1, 2016.

Population changes are useful socio-economic indicators. A growing population generally indicates a growing economy, while a decreasing population signifies economic decline. Table 4-5 shows the population in the OA from 2000 to 2016. Figure 4-4 shows the OA population change compared to that of the State of California. Between 2000 and 2015, California's population grew by 14.8 percent (about 0.93 percent per year) while the OA's population increased by 12.6 percent (0.79 percent per year).

Table 4-5. Recent Population Data

Jurisdiction	Population				
	2000	2005	2010	2015	2016
City of Campbell	38,138	37,406	39,349	41,986	42,584
City of Cupertino	50,546	53,632	58,302	58,038	58,185
City of Gilroy	41,464	45,782	48,821	54,324	55,170
City of Los Altos	27,693	27,381	28,976	30,513	31,353
Town of Los Altos Hills	7,902	7,852	7,922	8,595	8,658
Town of Los Gatos	28,592	28,070	29,413	31,157	31,376
City of Milpitas	62,698	62,177	66,790	74,140	75,521
City of Monte Sereno	3,483	3,324	3,341	3,445	3,475
City of Morgan Hill	33,556	35,011	37,822	42,382	43,645
City of Mountain View	70,708	70,629	74,066	76,712	77,925
City of Palo Alto	58,598	60,723	64,403	67,331	68,207
City of San José	894,943	901,159	945,942	1,030,053	1,042,094
City of Santa Clara	102,361	107,058	116,468	121,580	123,752
City of Saratoga	29,843	29,630	29,926	30,060	30,219
City of Sunnyvale	131,760	131,853	140,081	146,629	148,372
Unincorporated County	100,300	96,547	90,020	87,029	87,352
Total	1,682,585	1,698,234	1,781,642	1,903,974	1,927,888


Figure 4-4. California and Santa Clara County OA Population Percentage Growth Comparison [2000-2015]

Daily Commuting Population

According to the California Employment Development Department, 208,965 daily commuters who worked in the Santa Clara County OA in 2013 lived in other locations. Most came from Alameda County, followed by San Mateo County and San Francisco County. Some commuters travel to the Santa Clara County OA from as far as Sacramento and Amador Counties. Conversely, 109,000 residents of the Santa Clara County OA commute outside of the OA daily. Figure 4-5 provides the county-to-county commuting estimates to the Santa Clara County OA from other counties.

Source: California Employment Development Department, 2015

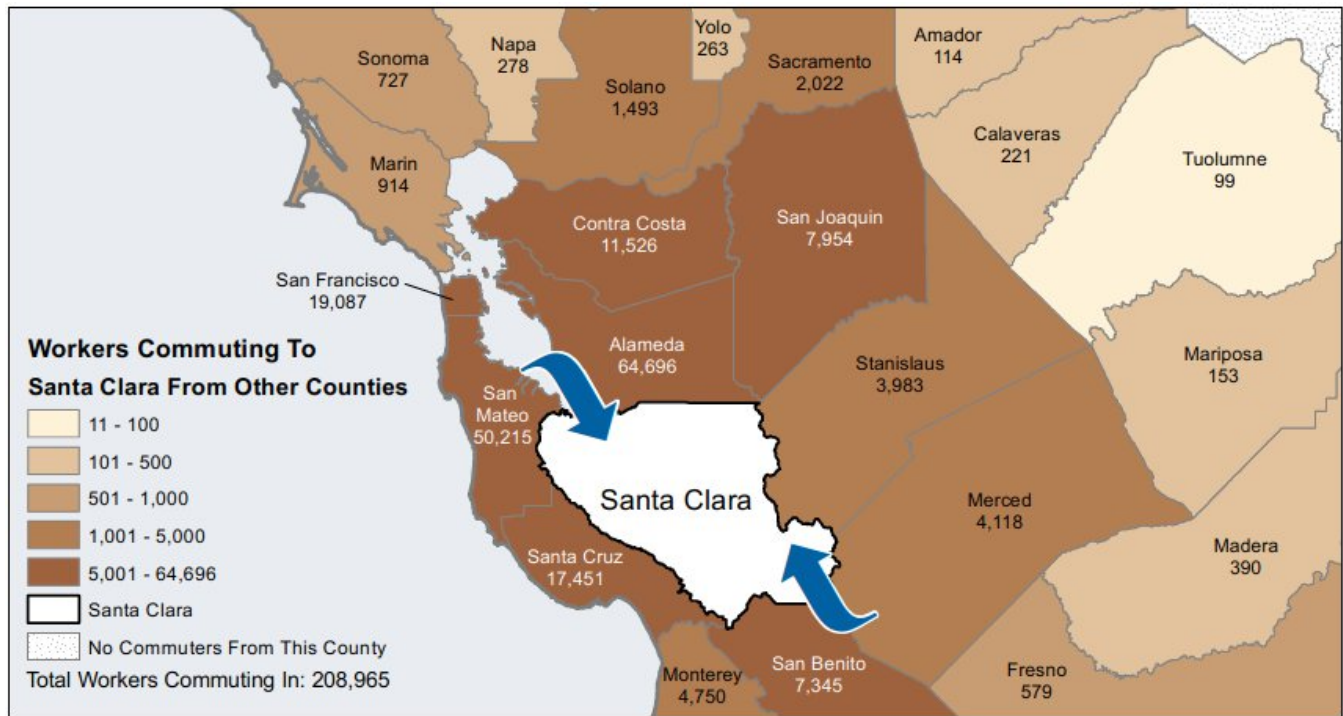


Figure 4-5. 2010 County-to-County Commuting Estimates

This large commuter contingent has impacts on planning for the OA's infrastructure and service needs, as well as on planning for hazard mitigation and emergency management. Commuters may be familiar with the area immediately surrounding their place of business or regular route to work, but may be less familiar with the services and resources provided to the population during a disaster event.

The U.S. Census estimates that over 76 percent of workers in the OA commute alone (by car, truck or van) to work, and mean travel time to work is 27 minutes (the state average is 28 minutes).

4.6.2 Age Distribution

As a group, the elderly are more apt to lack the physical and economic resources necessary for response and resiliency for hazard events and are more likely to suffer health-related consequences making recovery slower. They are more likely to be vision, hearing, and/or mobility impaired, and more likely to experience mental impairment or dementia. Additionally, the elderly are more likely to live in assisted-living facilities where emergency preparedness occurs at the discretion of facility operators. These facilities are typically identified as "critical facilities" by emergency managers because they require extra notice to implement evacuation. Elderly residents living in their own homes may have more difficulty evacuating their homes and could be stranded in

dangerous situations. This population group is more likely to need special medical attention, which may not be readily available during natural disasters due to isolation caused by the event. Specific planning attention for the elderly is an important consideration given the current aging of the American population.

Children under 14 are particularly vulnerable to disaster events because of their young age and dependence on others for basic necessities. Additionally, very young children may be vulnerable to injury or sickness; this added vulnerability can be worsened during a natural disaster because they may not understand the measures that need to be taken to protect themselves from hazards.

The overall age distribution for the OA is illustrated in Figure 4-6. Based on U.S. Census 2010-2014 American Community Survey 5-Year Estimates, 11.7 percent of the OA's population is 65 or older, compared to the state average of 12.1 percent. The Census data also indicate that 33.4 percent of the over-65 population has disabilities of some kind and 8.6 percent have incomes below the poverty line. Children under 18 account for nearly 12 percent of individuals who are below the poverty line. An estimated 20 percent of the OA population is 14 or younger, compared to the state average of 20 percent.

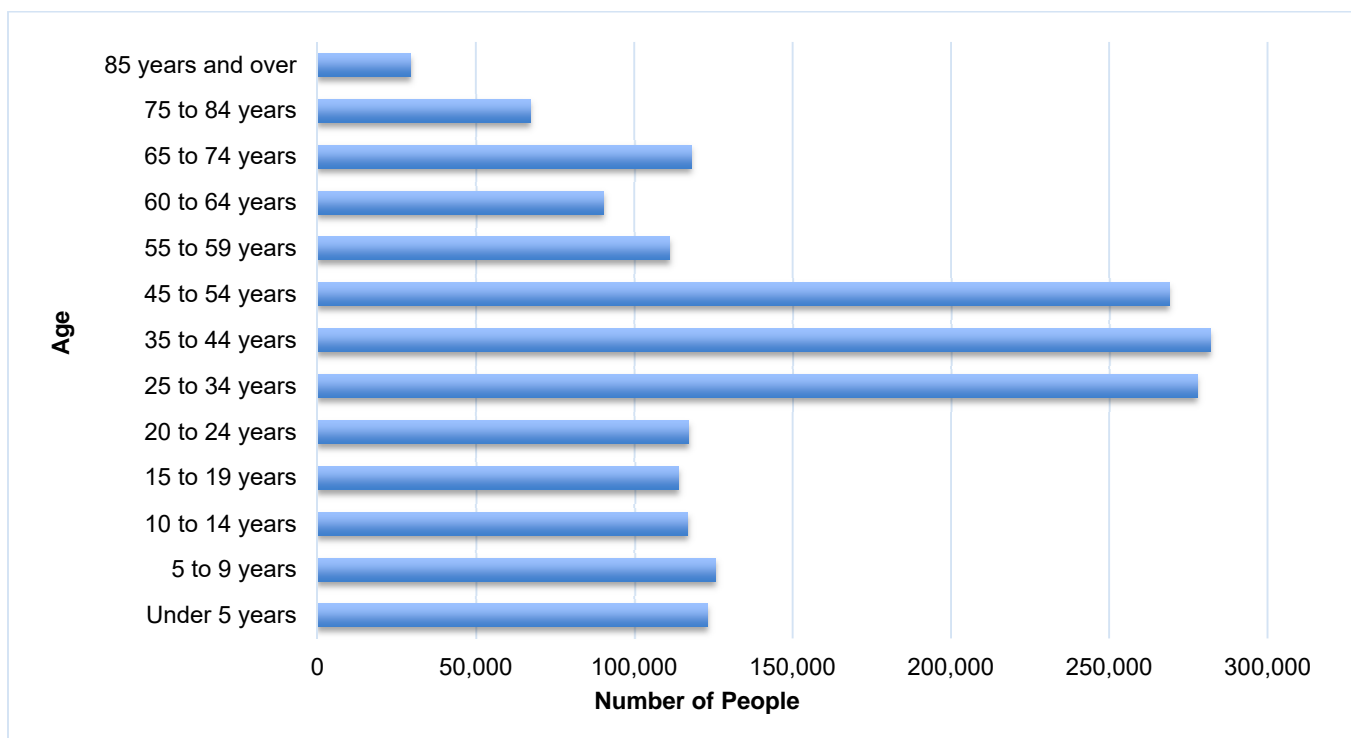


Figure 4-6. OA Age Distribution

4.6.3 Race, Ethnicity and Language

Research shows that minorities are less likely to be involved in pre-disaster planning and experience higher mortality rates during a disaster event. Post-disaster recovery can be ineffective and is often characterized by cultural insensitivity. Since higher proportions of ethnic minorities live below the poverty line than the majority white population, poverty can compound vulnerability. According to the U.S. Census, the racial composition of the OA is predominantly white, at about 49 percent. The largest minority population is Asian, at 33 percent. Figure 4-7 shows the racial distribution in the OA.

The OA has a 37 percent foreign-born population. Other than English, the most commonly spoken languages in the OA are Asian languages. The census estimates 21 percent of the residents speak English “less than very well.”

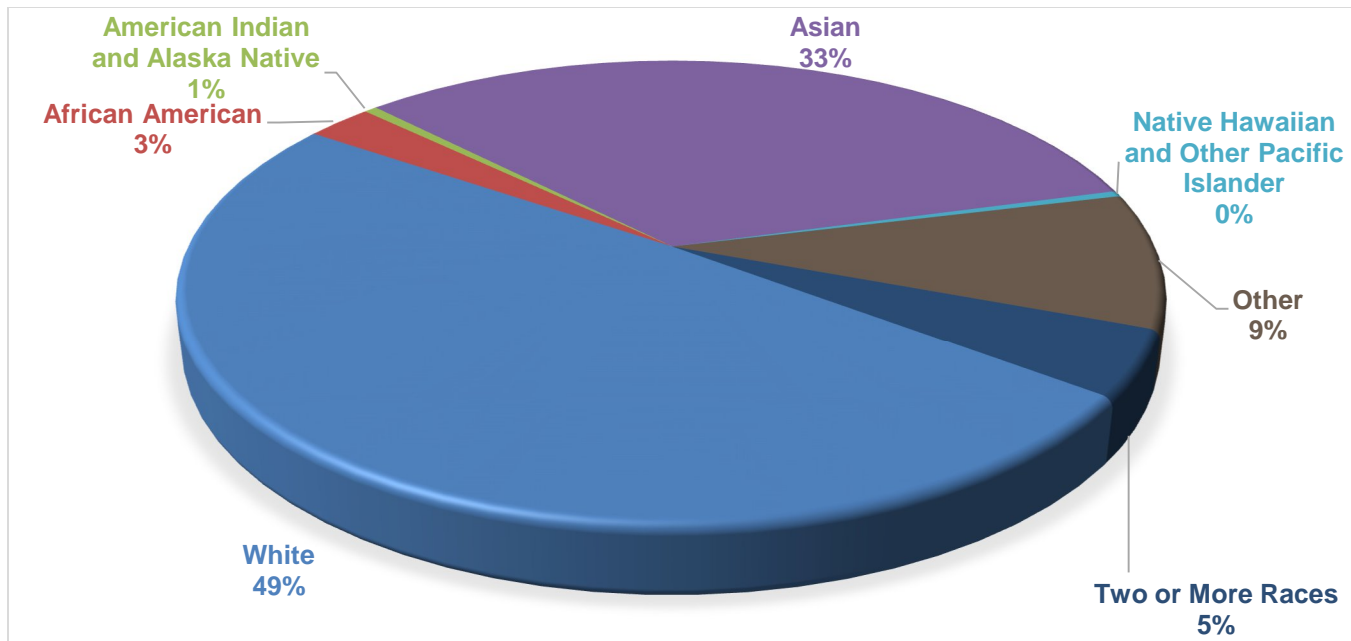


Figure 4-7. OA Race Distribution

4.6.4 Individuals with Disabilities or with Access or Functional Needs

The 2010 U.S. Census estimates that 54 million non-institutionalized Americans with disabilities live in the U.S. This equates to about one-in-five persons. Individuals with disabilities are more likely to have difficulty with resilience and responding to a hazard event than the general population. Local government may be the first level of response to assist these individuals, and coordination of efforts to meet their access and functional needs is paramount to life safety efforts. It is important for emergency and incident managers to distinguish between functional and medical needs in order to plan for incidents that require evacuation and sheltering. Knowing the percentage of population with a disability will allow emergency management personnel and first responders to have personnel available who can provide services needed by those with access and functional needs.

According to the U.S. Census 2010-2014 American Community Survey 5-Year Estimates, there are 141,397 individuals with some form of disability in the OA.

4.7 ECONOMY

4.7.1 Income

In the United States, individual households are expected to use private resources to prepare for, respond to and recover from disasters to some extent. This means that households living in poverty are automatically disadvantaged when confronting hazards. Additionally, the poor typically occupy more poorly built and inadequately maintained housing. Mobile or modular homes, for example, are more susceptible to damage in earthquakes and floods than other types of housing. In urban areas, the poor often live in older houses and apartment complexes, which are more likely to be made of un-reinforced masonry, a building type that is particularly susceptible to damage during earthquakes. Furthermore, residents below the poverty level are less likely to have insurance to compensate for losses incurred from natural disasters. This means that residents below the poverty level have a great deal to lose during an event and are the least prepared to deal with potential losses. The events following Hurricane Katrina in 2005 illustrated that personal household economics significantly

impact people's decisions on evacuation. Individuals who cannot afford gas for their cars will likely decide not to evacuate.

Based on U.S. Census Bureau estimates, per capita income in the OA in 2015 was \$46,631, and the median household income was \$93,840. It is estimated that about 18 percent of households receive an income between \$100,000 and \$149,999 per year and over 15 percent of household incomes are above \$150,000 annually. About 8 percent of the households in the OA make less than \$25,000 per year and are therefore below the poverty level. The weighted average poverty threshold for a family of four in 2015 was \$24,120; for a family of three, \$19,096; for a family of two, \$15,391 and for unrelated individuals, \$12,082.

A living wage calculator developed at the Massachusetts Institute of Technology estimates the hourly living wage needed to support different types of families. The calculator takes into consideration basic needs such as health, housing, transportation, and other necessities and interprets the living wage as a geographically specific hourly rate required to acquire basic minimum necessities cost. Table 4-6 presents summary information from the living wage calculator for 2015. Each hourly rate is adjusted per each working adult.

Table 4-6. Hourly Living Wage Calculation for Santa Clara County, California (2015)

Wage Level	One Adult	One Adult + 2 Children	Two Adults	Two Adults + One Child
Living Wage	\$14.52	\$33.63	\$11.30	\$15.83
Poverty Wage	\$5.00	\$10.00	\$11.00	\$4.00
Minimum Wage	\$9.00	\$9.00	\$9.00	\$9.00

4.7.2 Industry, Businesses and Institutions

The OA's economy is strongly based in the professional, scientific, and management, and administrative and waste management services industry (18.3 percent), followed by educational services and health care and social assistance, manufacturing, and retail trade. Public administration, wholesale trade and agriculture make up the smallest source of the local economy. Figure 4-8 shows the breakdown of industry types in the OA.

The OA benefits from a variety of business activity. Major businesses include Apple, Inc, Alphabet Inc. (Google), Netflix, Roku, Inc. Shockley Semiconductor Laboratory, eBay Inc., Cisco Systems Inc., Applied Materials Inc., Flextronics International, Intel Corp, Kaiser Permanente Medical Center, Liberty Tax Service, Lockheed Martin Space Systems, NASA, Phillips Lumileds Lighting Company, Santa Clara Valley Medical Center, and many others.

Major educational and research institutions in the OA include Stanford University, San José State University, Santa Clara University, Mission College, De Anza College, Foothill College, West Valley College, Mission College, Evergreen Valley College, San José City College and Gavilan College.

4.7.3 Employment Trends and Occupations

According to the American Community Survey, 67 percent of the OA's population is in the labor force. Of the working-age population group (ages 20-64), 40 percent of men and 60 percent of women are in the labor force.

Figure 4-9 compares California's and the Santa Clara County OA's unemployment trends from 2007 through 2014. The Santa Clara County OA's unemployment rate was lowest in 2007, at 4.7 percent. Unemployment rates peaked in 2010, at 11.1 percent, but have been on a downward trend ever since.

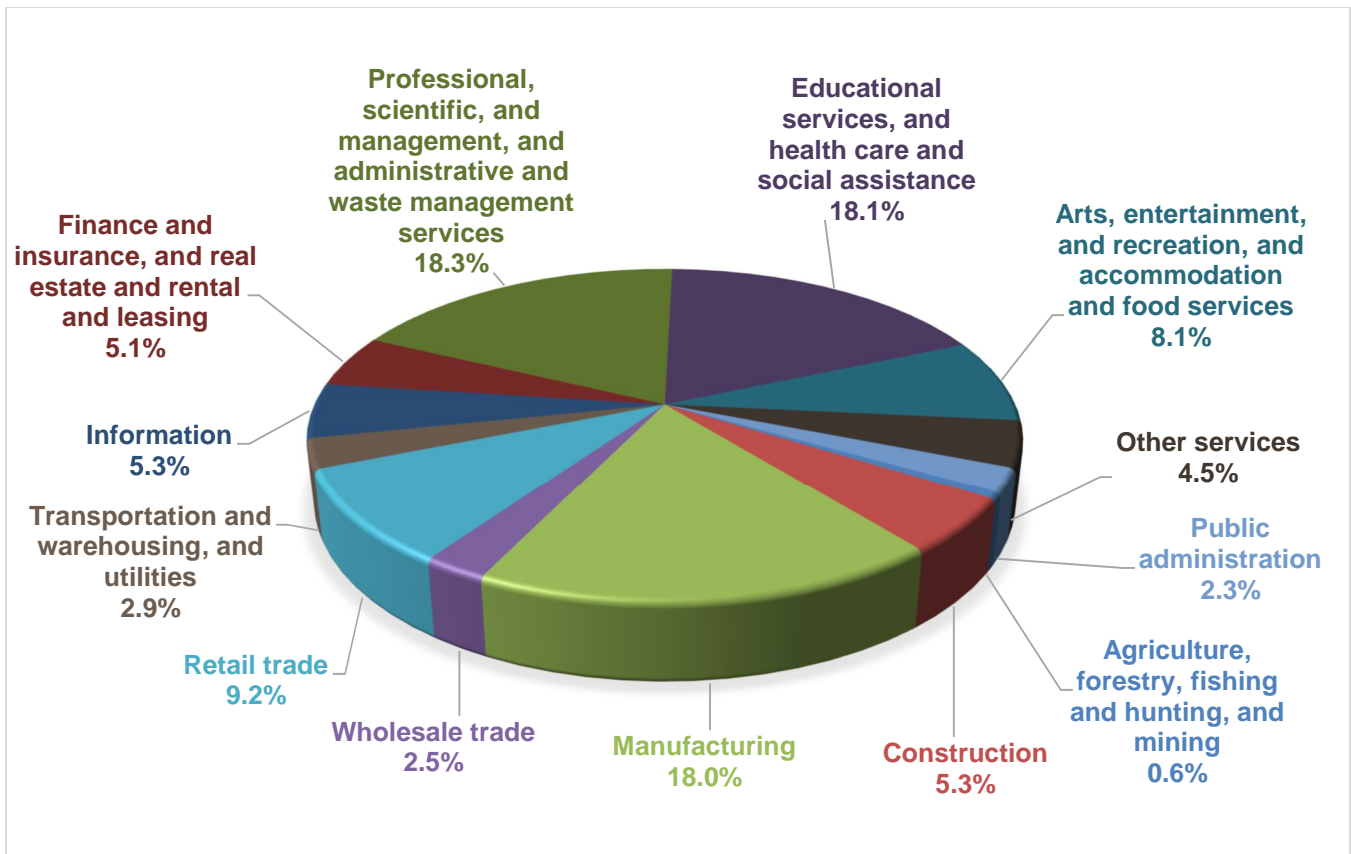


Figure 4-8. Industry in the OA

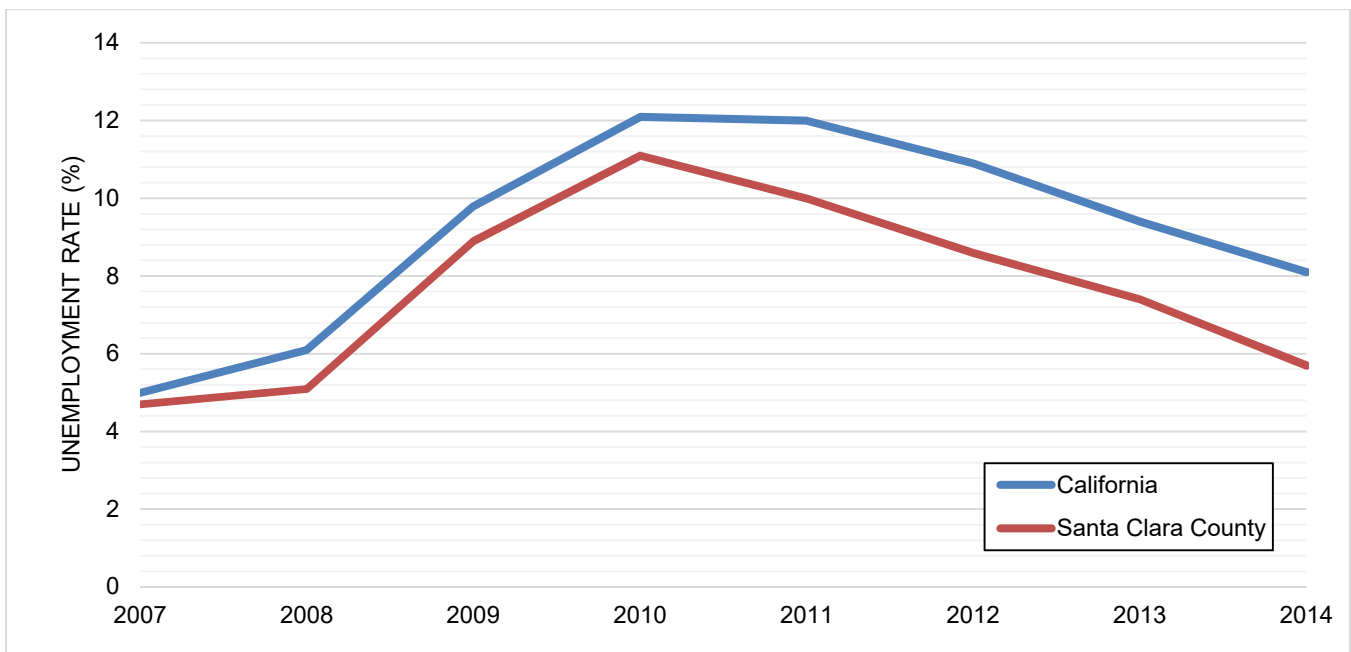


Figure 4-9. California and Santa Clara County OA Unemployment Rate

Management, business, science and arts, and sales and office occupations make up 70 percent of jobs in the OA. Management, business, science, and arts occupations make up 51 percent of the local working population. Other major occupations are sales and office (19 percent) and service (15 percent). Only about 15 percent of the employment in the OA is in production, transportation, and material moving and natural resources (see Figure 4-10). The largest employers are eBay Inc. and Cisco Systems Inc., both with over 10,000 employees. Nine other employers employ between 5,000 and 9,999 employees.

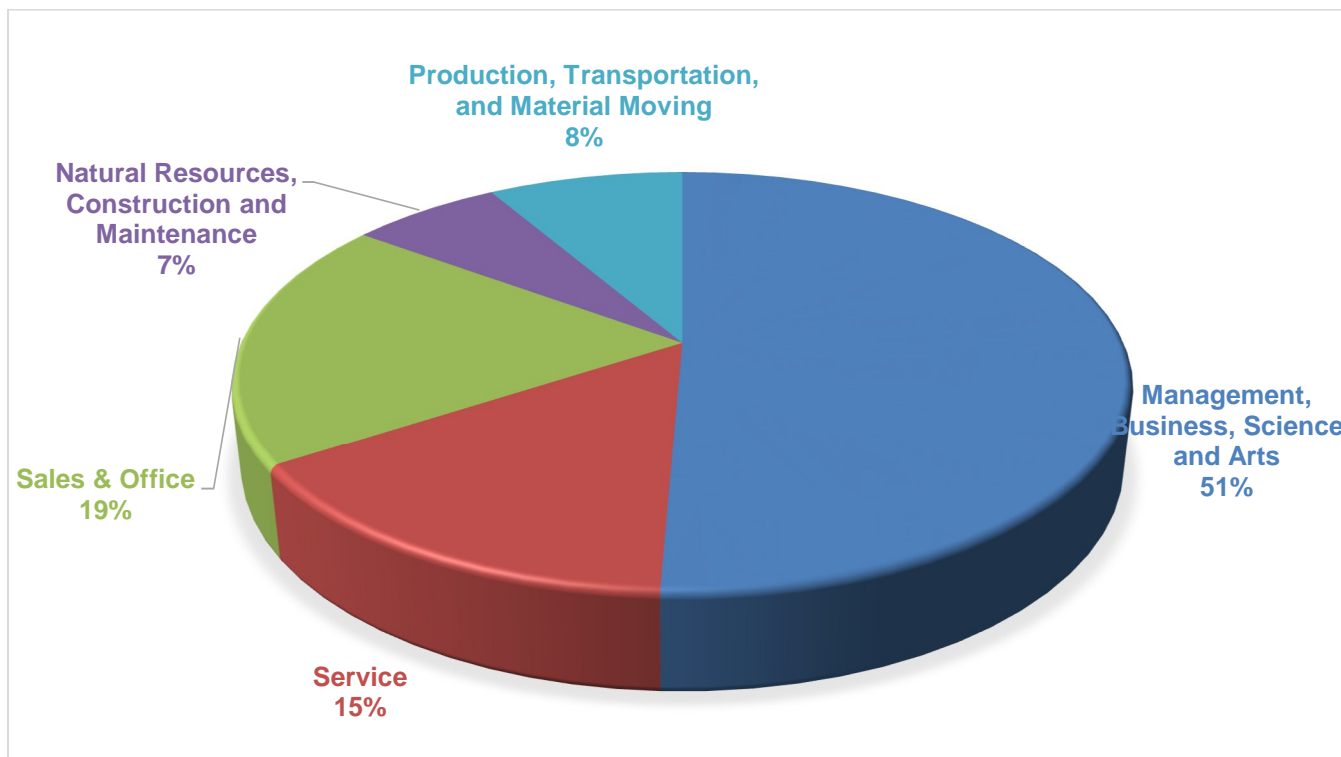


Figure 4-10. Occupations in the OA

4.8 LAWS AND ORDINANCES

Existing laws, ordinances and plans at the federal, state and local level can support or impact hazard mitigation actions identified in this plan. Hazard mitigation plans are required to include a review and incorporation, if appropriate, of existing plans, studies, reports, and technical information as part of the planning process (44 CFR, Section 201.6(b)(3)). The following federal and state programs have been identified as programs that may interface with the actions identified in this plan. Each program enhances capabilities to implement mitigation actions or has a nexus with a mitigation action in this plan. Information presented in this section can be used in review local capabilities to implement the actions found in the jurisdictional annexes of Volume 2. Each planning partner has individually reviewed existing local plans, studies, reports, and technical information in its jurisdictional annex, presented in Volume 2.

4.8.1 Federal

Disaster Mitigation Act

The DMA is the current federal legislation addressing hazard mitigation planning. It emphasizes planning for disasters before they occur. It specifically addresses planning at the local level, requiring plans to be in place

before Hazard Mitigation Grant Program funds are available to communities. This plan is designed to meet the requirements of DMA, improving eligibility for future hazard mitigation funds.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires federal agencies to consider the environmental impacts of proposed actions and reasonable alternatives to those actions, alongside technical and economic considerations. NEPA established the Council on Environmental Quality (CEQ), whose regulations (40 CFR Parts 1500-1508) set standards for NEPA compliance. Consideration and decision-making regarding environmental impacts must be documented in an environmental impact statement or environmental assessment. Environmental impact assessment requires the evaluation of reasonable alternatives to a proposed action, solicitation of input from organizations and individuals that could be affected, and an unbiased presentation of direct, indirect, and cumulative environmental impacts. FEMA hazard mitigation project grant applications require full compliance with applicable federal acts. Any action identified in this plan that falls within the scope of this act will need to meet its requirements.

Endangered Species Act

The federal Endangered Species Act (ESA) was enacted in 1973 to conserve species facing depletion or extinction and the ecosystems that support them. The act sets forth a process for determining which species are threatened and endangered and requires the conservation of the critical habitat in which those species live. The ESA provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species and contains exceptions and exemptions. It is the enabling legislation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Criminal and civil penalties are provided for violations of the ESA and the Convention.

Federal agencies must seek to conserve endangered and threatened species and use their authorities in furtherance of the ESA's purposes. The ESA defines three fundamental terms:

- Endangered means that a species of fish, animal or plant is “in danger of extinction throughout all or a significant portion of its range.” (For salmon and other vertebrate species, this may include subspecies and distinct population segments.)
- Threatened means that a species “is likely to become endangered within the foreseeable future.” Regulations may be less restrictive for threatened species than for endangered species.
- Critical habitat means “specific geographical areas that are...essential for the conservation and management of a listed species, whether occupied by the species or not.”

Five sections of the ESA are of critical importance to understanding it:

- Section 4: Listing of a Species—The National Oceanic and Atmospheric Administration (NOAA) Fisheries Service is responsible for listing marine species; the U.S. Fish and Wildlife Service is responsible for listing terrestrial and freshwater aquatic species. The agencies may initiate reviews for listings, or citizens may petition for them. A listing must be made “solely on the basis of the best scientific and commercial data available.” After a listing has been proposed, agencies receive comment and conduct further scientific reviews for 12 to 18 months, after which they must decide if the listing is warranted. Economic impacts cannot be considered in this decision, but it may include an evaluation of the adequacy of local and state protections. Critical habitat for the species may be designated at the time of listing.

- Section 7: Consultation—Federal agencies must ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed or proposed species or adversely modify its critical habitat. This includes private and public actions that require a federal permit. Once a final listing is made, non-federal actions are subject to the same review, termed a “consultation.” If the listing agency finds that an action will “take” a species, it must propose mitigations or “reasonable and prudent” alternatives to the action; if the proponent rejects these, the action cannot proceed.
- Section 9: Prohibition of Take—It is unlawful to “take” an endangered species, including killing or injuring it or modifying its habitat in a way that interferes with essential behavioral patterns, including breeding, feeding or sheltering.
- Section 10: Permitted Take—Through voluntary agreements with the federal government that provide protections to an endangered species, a non-federal applicant may commit a take that would otherwise be prohibited as long as it is incidental to an otherwise lawful activity (such as developing land or building a road). These agreements often take the form of a “Habitat Conservation Plan.”
- Section 11: Citizen Lawsuits—Civil actions initiated by any citizen can require the listing agency to enforce the ESA’s prohibition of taking or to meet the requirements of the consultation process.

FEMA hazard mitigation project grant applications require full compliance with applicable federal acts. Any action identified in this plan that falls within the scope of this act will need to meet its requirements.

The Clean Water Act

The federal Clean Water Act (CWA) employs regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation’s surface waters so that they can support “the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water.”

Evolution of CWA programs over the last decade has included a shift from a program-by-program, source-by-source, and pollutant-by-pollutant approach to more holistic watershed-based strategies. Under the watershed approach, equal emphasis is placed on protecting healthy waters and restoring impaired ones. A full array of issues are addressed, not just those subject to CWA regulatory authority. Involvement of stakeholder groups in the development and implementation of strategies for achieving and maintaining water quality and other environmental goals is a hallmark of this approach.

FEMA hazard mitigation project grant applications require full compliance with applicable federal acts. Any action identified in this plan that falls within the scope of this act will need to meet its requirements.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) provides federally backed flood insurance in exchange for communities enacting floodplain regulations. Participation and good standing under NFIP are prerequisites to grant funding eligibility under the Robert T. Stafford Act. Santa Clara County and most of the partner cities for this plan participate in the NFIP and have adopted regulations that meet the NFIP requirements. At the time of the preparation of this plan, all participating jurisdictions in the partnership were in good standing and in full compliance with the minimum requirements of the NFIP.

Coastal Zone Management Act

The national Coastal Zone Management Act requires federal agencies to conduct their planning, management, development, and regulatory activities in a manner consistent to the maximum extent practicable with the policies of state Coastal Zone Management (CZM) programs. State CZM lead agencies have the authority to review federal actions for consistency with their federally approved CZM programs. In California, the California Coastal

Commission, the Bay Conservation and Development Commission, and the California Coastal Conservancy are the three CZM agencies empowered to conduct federal consistency reviews. The informational and procedural requirements for CZM federal consistency reviews are prescribed by federal regulations (15 CFR 930). Any action identified in this plan that falls within the scope of this act will need to meet its requirements.

National Incident Management System

The National Incident Management System is a systematic approach for government, nongovernmental organizations, and the private sector to work together to manage incidents involving hazards. The system provides a flexible but standardized set of incident management practices. Incidents typically begin and end locally, and they are managed at the lowest possible geographical, organizational, and jurisdictional level. In other instances, success depends on the involvement of multiple jurisdictions, levels of government, functional agencies, and emergency-responder disciplines. These instances necessitate coordination across this spectrum of organizations. Communities using the National Incident Management System follow a comprehensive national approach that improves the effectiveness of emergency management and response personnel across the full spectrum of potential hazards (including natural hazards, terrorist activities, and other human-caused disasters) regardless of size or complexity.

Although participation is voluntary, federal departments and agencies are required to make adoption of NIMS by local and state jurisdictions a condition to receive federal preparedness grants and awards. The content of this plan is considered to be a viable support tool for any phase of emergency management. The NIMS program is considered as a response function, and information in this hazard mitigation plan can support the implementation and update of all NIMS-compliant plans within the planning area.

Americans with Disabilities Act and Amendments

The Americans with Disabilities Act (ADA) seeks to prevent discrimination against people with disabilities in employment, transportation, public accommodation, communications, and government activities. The most recent amendments became effective in January 2009 (P.L. 110-325). Title II of the ADA deals with compliance with the act in emergency management and disaster-related programs, services, and activities. It applies to state and local governments as well as third parties, including religious entities and private nonprofit organizations.

The ADA has implications for sheltering requirements and public notifications. During an emergency alert, officials must use a combination of warning methods to ensure that all residents have any necessary information. Those with hearing impairments may not hear radio, television, sirens, or other audible alerts, while those with visual impairments may not see flashing lights or visual alerts. Two stand-alone technical documents have been issued for shelter operators to meet the needs of people with disabilities. These documents address physical accessibility as well as medical needs and service animals.

The ADA also intersects with disaster preparedness programs in regards to transportation, social services, temporary housing, and rebuilding. Persons with disabilities may require additional assistance in evacuation and transit (such as vehicles with wheelchair lifts or paratransit buses). Evacuation and other response plans should address the unique needs of residents. Local governments may be interested in implementing a special-needs registry to identify the home addresses, contact information, and needs for residents who may require more assistance.

FEMA hazard mitigation project grant applications require full compliance with applicable federal acts. Any action identified in this plan that falls within the scope of this act will need to meet its requirements.

Civil Rights Act of 1964

The Civil Rights Act of 1964 prohibits discrimination based on race, color, religion, sex or national origin and requires equal access to public places and employment. The act is relevant to emergency management and hazard mitigation in that it prohibits local governments from favoring the needs of one population group over another. Local government and emergency response must ensure the continued safety and well-being of all residents equally, to the extent possible. FEMA hazard mitigation project grant applications require full compliance with applicable federal acts. Any action identified in this plan that falls within the scope of this act will need to meet its requirements.

Rural Development Program

The mission of the U.S. Department of Agriculture (USDA) Rural Development Program is to help improve the economy and quality of life in rural America. The program provides project financing and technical assistance to help rural communities provide the infrastructure needed by rural businesses, community facilities, and households. The program addresses rural America's need for basic services, such as clean running water, sewage and waste disposal, electricity, and modern telecommunications and broadband. Loans and competitive grants are offered for various community and economic development projects and programs, such as the development of essential community facilities including fire stations. Some of the actions identified in this plan may be eligible for funding available under this program.

Community Development Block Grant Disaster Resilience Program

In response to disasters, Congress may appropriate additional funding for the U.S. Department of Housing and Urban Development Community Development Block Grant programs to be distributed as Disaster Recovery grants (CDBG-DR). These grants can be used to rebuild affected areas and provide seed money to start the recovery process. CDBG-DR assistance may fund a broad range of recovery activities, helping communities and neighborhoods that otherwise might not recover due to limited resources. CDBG-DR grants often supplement disaster programs of FEMA, the Small Business Administration, and the U.S. Army Corps of Engineers. Housing and Urban Development generally awards noncompetitive, nonrecurring CDBG-DR grants by a formula that considers disaster recovery needs unmet by other federal disaster assistance programs. To be eligible for CDBG-DR funds, projects must meet the following criteria:

- Address a disaster-related impact (direct or indirect) in a presidentially declared county for the covered disaster.
- Be a CDBG-eligible activity (according to regulations and waivers).
- Meet a national objective.

Incorporating preparedness and mitigation into these actions is encouraged, as the goal is to rebuild in ways that are safer and stronger. CDGB-DR funding is a potential alternative source of funding for actions identified in this plan.

Emergency Watershed Program

The USDA Natural Resources Conservation Service administers the Emergency Watershed Protection Program, which responds to emergencies created by natural disasters. Eligibility for assistance is not dependent on a national emergency declaration. The program is designed to help people and conserve natural resources by relieving imminent hazards to life and property caused by floods, fires, wind-storms, and other natural occurrences. The Emergency Watershed Protection is an emergency recovery program. Financial and technical assistance are available for the following activities (National Resources Conservation Service, 2016):

- Remove debris from stream channels, road culverts, and bridges.

- Reshape and protect eroded banks.
- Correct damaged drainage facilities.
- Establish cover on critically eroding lands.
- Repair levees and structures.
- Repair conservation practices.

This federal program could be a possible funding source for actions identified in this plan.

Presidential Executive Orders 11988 and 13690

Executive Order 11988 requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. It requires federal agencies to provide leadership and take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values of floodplains. The requirements apply to the following activities (FEMA, 2015d):

- Acquiring, managing, and disposing of federal lands and facilities.
- Providing federally undertaken, financed, or assisted construction and improvements.
- Conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing.

Executive Order 13690 expands Executive Order 11988 and acknowledges that the impacts of flooding are anticipated to increase over time due to the effects of climate change and other threats. It mandates a federal flood risk management standard to increase resilience against flooding and help preserve the natural values of floodplains. This standard expands management of flood issues from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain when federal dollars are involved in a project. The goal is to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended (Office of the Press Secretary, 2015). All actions identified in this plan will seek full compliance with all applicable presidential executive orders.

Presidential Executive Order 11990

Executive Order 11990 requires federal agencies to provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. The requirements apply to the following activities (National Archives, 2016):

- Acquiring, managing, and disposing of federal lands and facilities.
- Providing federally undertaken, financed, or assisted construction and improvements.
- Conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing.

All actions identified in this plan will seek full compliance with all applicable presidential executive orders.

Emergency Relief for Federally Owned Roads Program

The U.S. Forest Service's Emergency Relief for Federally Owned Roads Program was established to assist federal agencies with repair or reconstruction of tribal transportation facilities, federal lands transportation facilities, and other federally owned roads that are open to public travel and have suffered serious damage by a natural disaster over a wide area or by a catastrophic failure. The program funds both emergency and permanent repairs (Office of Federal Lands Highway, 2016). Eligible activities under this program meet some of the goals and objectives for this plan and the program is a possible funding source for actions identified in this plan.

U.S. Army Corps of Engineers Programs

The U.S. Army Corps of Engineers has several civil works authorities and programs related to flood risk and flood hazard management:

- Floodplain Management Services are 100-percent federally funded technical services such as development and interpretation of site-specific data related to the extent, duration and frequency of flooding. Special studies may be conducted to help a community understand and respond to flood risk. These may include flood hazard evaluation, flood warning and preparedness, or flood modeling.
- For more extensive studies, the Corps of Engineers offers a cost-shared program called Planning Assistance to States and Tribes. Studies under this program generally range from \$25,000 to \$100,000, with the local jurisdiction providing 50 percent of the cost.
- The Corps of Engineers has several cost-shared programs (typically 65 percent federal and 35 percent non-federal) aimed at developing, evaluating and implementing structural and non-structural capital projects to address flood risks at specific locations or within a specific watershed:
 - ❖ The Continuing Authorities Program for smaller-scale projects includes Section 205 for Flood Control, with a \$7 million federal limit and Section 14 for Emergency Streambank Protection with a \$1.5 million federal limit. These can be implemented without specific authorization from Congress.
 - ❖ Larger scale studies, referred to as General Investigations, and projects for flood risk management, for ecosystem restoration or to address other water resource issues, can be pursued through a specific authorization from Congress and are cost-shared, typically at 65 percent federal and 35 percent non-federal.
 - ❖ Watershed Management planning studies can be specifically authorized and are cost-shared at 50 percent federal and 50 percent non-federal.
- The Corps of Engineers provides emergency response assistance during and following natural disasters. Public Law 84-99 enables the Corps to assist state and local authorities in flood fight activities and cost share in the repair of flood protective structures. Assistance afforded under PL 84-99 is broken down in to the following categories:
 - ❖ Preparedness—The Flood Control and Coastal Emergency Act establishes an emergency fund for preparedness for emergency response to natural disasters; for flood fighting and rescue operations; for rehabilitation of flood control and hurricane protection structures. Funding for Corps of Engineers emergency response under this authority is provided by Congress through the annual Energy and Water Development Appropriation Act. Disaster preparedness activities include coordination, planning, training and conduct of response exercises with local, state and federal agencies.
 - ❖ Response Activities—PL 84-99 allows the Corps of Engineers to supplement state and local entities in flood-fighting for urban and other non-agricultural areas under certain conditions (Engineering Regulation 500-1-1 provides specific details). All flood-fight efforts require a Project Cooperation Agreement (PCA) signed by the public sponsor and a requirement for the sponsor to remove all flood-fight material after the flood has receded. PL 84-99 also authorizes emergency water support and drought assistance in certain situations and allows for “advance measures” assistance to prevent or reduce flood damage conditions of imminent threat of unusual flooding.
 - ❖ Rehabilitation—Under PL 84-99, an eligible flood protection system can be rehabilitated if damaged by a flood event. The flood system would be restored to its pre-disaster status at no cost to the federal system owner, and at 20-percent cost to the eligible non-federal system owner. All systems eligible for PL 84-99 rehabilitation assistance have to be in the Rehabilitation and Inspection Program prior to the flood event. Acceptable operation and maintenance by the public levee sponsor are verified by levee inspections conducted by the Corps on a regular basis. The Corps has the responsibility to

coordinate levee repair issues with interested federal, state, and local agencies following natural disaster events where flood control works are damaged.

All of these authorities and programs are available to the planning partners to support any intersecting mitigation actions.

4.8.2 State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was enacted in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent construction of buildings used for human occupancy on the surface trace of active faults. Before a new project is permitted, cities and counties require a geologic investigation to demonstrate that proposed buildings will not be constructed on active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards, such as liquefaction or seismically induced landslides. The law requires geologists from the State of California to establish regulatory zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. Projects include all land divisions and most structures for human occupancy. All seismic hazard mitigation actions identified in this plan will seek full compliance with the Alquist-Priolo Earthquake Fault Zoning Act.

California General Planning Law

California state law requires that every county and city prepare and adopt a comprehensive long-range plan to serve as a guide for community development. The general plan expresses the community's goals, visions, and policies relative to future land uses, both public and private. The general plan is mandated and prescribed by state law (Cal. Gov. Code §65300 et seq.), and forms the basis for most local government land use decision-making.

The plan must consist of an integrated and internally consistent set of goals, policies, and implementation measures. In addition, the plan must focus on issues of the greatest concern to the community and be written in a clear and concise manner. City and county actions, such as those relating to land use allocations, annexations, zoning, subdivision and design review, redevelopment, and capital improvements, must be consistent with the plan.

All municipal planning partners to this plan have general plans that are currently compliant with this law and have committed to integrating this mitigation plan with their general plans through provisions referenced below (AB-2140 and SB-379)

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was passed in 1970, shortly after the federal government enacted the National Environmental Policy Act, to institute a statewide policy of environmental protection. CEQA requires state and local agencies in California to follow a protocol of analysis and public disclosure of the potential environmental impacts of development projects. CEQA makes environmental protection a mandatory part of every California state and local agency's decision making process.

CEQA establishes a statewide environmental policy and mandates actions all state and local agencies must take to advance the policy. Jurisdictions conduct analysis of the project to determine if there are potentially significant environmental impacts, identify mitigation measures, and possible project alternatives by preparing environmental

reports for projects that requires CEQA review. This environmental review is required before an agency takes action on any policy, program, or project.

Santa Clara County has sought exemption from CEQA for the Hazard Mitigation Plan based on four different sections of the CEQA Guidelines:

- Section 15183(d): “The project is consistent with...a general plan of a local agency, and an EIR was certified by the lead agency for the...general plan.”
- Section 15262: “A project involving only feasibility or planning studies for possible future actions which the agency, board or commission has not approved, adopted, or funded does not require the preparation of an EIR or negative declaration but does require consideration of environmental factors. This section does not apply to the adoption of a plan that will have a legally binding effect on later activities.”
- Section 15306: “(Categorical Exemption) Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted or funded.”
- Section 15601(b)(3): “...CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.”

Planning partners may seek exemption at their discretion.

California Coastal Management Program

The California Coastal Management Program under the California Coastal Act requires each city or county lying wholly or partly within the coastal zone to prepare a local coastal plan. The specific contents of such plans are not specified by state law, but they must be certified by the Coastal Commission as consistent with policies of the Coastal Act (Public Resources Code, Division 20). The Coastal Act has provisions relating to geologic hazards, but does not mention tsunamis specifically. Section 30253(1) of the Coastal Act states that new development shall minimize risks to life and property in areas of high geologic, flood, and fire hazard. Development should be prevented or limited in high hazard areas whenever possible. However, where development cannot be prevented or limited, land use density, building value, and occupancy should be kept at a minimum.

There are identified coastal zones in the Santa Clara County Operational Area, and affected planning partners have developed local coastal plans to address them. Any mitigation project identified in this plan that intersects the mapped coastal zone will be consistent with the recommendations of the local coastal plan.

AB 162: Flood Planning, Chapter 369, Statutes of 2007

This California State Assembly Bill passed in 2007 requires cities and counties to address flood-related matters in the land use, conservation, and safety and housing elements of their general plans. The land use element must identify and annually review the areas covered by the general plan that are subject to flooding as identified in floodplain mapping by either FEMA or the Department of Water Resources (DWR). During the next revision of the housing element on or after January 1, 2009, the conservation element of the general plan must identify rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for groundwater recharge and stormwater management. The safety element must identify information regarding flood hazards, including:

- Flood hazard zones.
- Maps published by FEMA, DWR, the U.S. Army Corps of Engineers, the Central Valley Flood Protection Board, and CalOES.

- Historical data on flooding.
- Existing and planned development in flood hazard zones.

The general plan must establish goals, policies and objectives to protect from unreasonable flooding risks, including:

- Avoiding or minimizing the risks of flooding new development.
- Evaluating whether new development should be located in flood hazard zones.
- Identifying construction methods to minimize damage.

AB 162 establishes goals, policies and objectives to protect from unreasonable flooding risks. It establishes procedures for the determination of available land suitable for urban development, which may exclude lands where FEMA or DWR has concluded that the flood management infrastructure is not adequate to avoid the risk of flooding.

AB 2140: General Plans: Safety Element, Chapter 739, Statutes of 2006

This bill provides that the state may allow for more than 75 percent of public assistance funding under the California Disaster Assistance Act only if the local agency is in a jurisdiction that has adopted a local hazard mitigation plan as part of the safety element of its General Plan. The local hazard mitigation plan needs to include elements specified in this legislation. In addition, this bill requires CalOES to give preference for federal mitigation funding to cities and counties that have adopted local hazard mitigation plans. The intent of the bill is to encourage cities and counties to create and adopt hazard mitigation plans.

AB 70: Flood Liability, Chapter Number 367, Statutes of 2007

This bill provides that a city or county may be required to contribute a fair and reasonable share to compensate for property damage caused by a flood to the extent that it has increased the state's exposure to liability for property damage by unreasonably approving new development in a previously undeveloped area that is protected by a state flood control project, unless the city or county meets specified requirements.

AB 32: The California Global Warming Solutions Act

This bill addresses greenhouse gas emissions. It identifies the following potential adverse impacts of global warming:

... the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

AB 32 establishes a state goal of reducing greenhouse gas emissions to 1990 levels by 2020 (a reduction of approximately 25 percent from forecast emission levels), with further reductions to follow. The law requires the state Air Resources Board to do the following:

- Establish a program to track and report greenhouse gas emissions.
- Approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions from sources of greenhouse gas emissions.
- Adopt early reduction measures to begin moving forward.
- Adopt, implement and enforce regulations—including market mechanisms such as “cap and-trade” programs—to ensure that the required reductions occur.

The Air Resources Board recently adopted a statewide greenhouse gas emissions limit and an emissions inventory, along with requirements to measure, track, and report greenhouse gas emissions by the industries it determined to be significant sources of greenhouse gas emissions.

AB 2800: Climate Change: Infrastructure Planning

This California State Assembly bill, in effect through July 1, 2020, requires state agencies to take into account the current and future impacts of climate change when planning, designing, building, operating, maintaining, and investing in state infrastructure. The bill requires the agency to establish a climate-safe infrastructure working group by July 1, 2017, to examine how to integrate scientific data concerning projected climate change impacts into state infrastructure engineering.

Senate Bill 97

Senate Bill 97, enacted in 2007, amends CEQA to clearly establish that greenhouse gas emissions and the effects of greenhouse gas emissions are appropriate subjects for CEQA analysis. It directs the Governor's Office of Planning and Research to develop draft CEQA guidelines for the mitigation of greenhouse gas emissions or their effects by July 1, 2009, and directs the California Natural Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010.

Senate Bill 1000 General Plan Amendments: Safety and Environmental Justice Elements

Senate Bill 1000 amends California's Planning and Zoning Law in two ways:

- The original law established requirements for initial revisions of general plan safety elements to address flooding, fire, and climate adaptation and resilience. It also required subsequent review and revision as necessary based on new information. Senate Bill 1000 specifies that the subsequent reviews and revision based on new information are required to address only flooding and fires (not climate adaptation and resilience).
- Senate Bill 1000 adds a requirement that, upon adoption or revision of any two other general plan elements on or after January 1, 2018, an environmental justice element be adopted for the general plan or environmental justice goals, policies and objectives be incorporated into other elements of the plan.

Senate Bill 1241: General Plans: Safety Element—Fire Hazard Impacts

In 2012, Senate Bill 1241 was enacted, requiring that all future General Plans address fire risk in state responsibility areas and very high fire hazard severity zones in their safety element. In addition, the bill requires cities and counties to make certain findings regarding available fire protection and suppression services before approving a tentative map or parcel map.

Senate Bill 379: General Plans: Safety Element—Climate Adaptation

Senate Bill 379 builds on the flood planning inclusions into the safety and housing elements and the hazard mitigation planning safety element inclusions in General Plans outlined in AB 162 and AB 2140. Senate Bill 379 specifically focuses on a new requirement that cities and counties include climate adaptation and resiliency strategies in the safety element of their General Plans beginning January 1, 2017. In addition, this bill requires general plans to include a set of goals, policies, and objectives, and specified implementation measures based on the conclusions drawn from climate adaptation research and recommendations.

This update process for this hazard mitigation plan was conducted with the intention of full compliance with this bill. However, at the time of the update, there was no clear guidance from the state on what constitutes full compliance or what protocol is to be used to determine compliance. When such guidance has been established, the planning partners will submit this plan or its subsequent updates to the state for review and approval.

California State Building Code

California Code of Regulations Title 24 (CCR Title 24), also known as the California Building Standards Code, is a compilation of building standards from three sources:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes.
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions.
- Building standards authorized by the California legislature that constitute extensive additions not covered by the model codes adopted to address particular California concerns.

The state Building Standards Commission is authorized by California Building Standards Law (Health and Safety Code Sections 18901 through 18949.6) to administer the processes related to the adoption, approval, publication, and implementation of California's building codes. These building codes serve as the basis for the design and construction of buildings in California. The national model code standards adopted into Title 24 apply to all occupancies in California, except for modifications adopted by state agencies and local governing bodies. Since 1989, the Building Standards Commission has published new editions of Title 24 every 3 years. All municipal planning partners to this plan have adopted building codes that are in full compliance with the California State Building Code.

Standardized Emergency Management System

CCR Title 19 establishes the Standardized Emergency Management System to standardize the response to emergencies involving multiple jurisdictions. The system is intended to be flexible and adaptable to the needs of all emergency responders in California. It requires emergency response agencies to use basic principles and components of emergency management. Local governments must use the Standardized Emergency Management System by December 1, 1996, to be eligible for state funding of response-related personnel costs under CCR Title 19 (Sections 2920, 2925 and 2930). The roles and responsibilities of individual agencies contained in existing laws or the state emergency plan are not superseded by these regulations. This hazard mitigation plan is considered to be a support document for all phases of emergency management, including those associated with SEMS.

State of California Multi-Hazard Mitigation Plan

Under the DMA, California must adopt a federally approved state multi-hazard mitigation plan to be eligible for certain disaster assistance and mitigation funding. The intent of the *State of California Multi-Hazard Mitigation Plan* is to reduce or prevent injury and damage from hazards in the state through the following:

- Documenting statewide hazard mitigation planning in California.
- Describing strategies and priorities for future mitigation activities.
- Facilitating the integration of local and tribal hazard mitigation planning activities into statewide efforts.
- Meeting state and federal statutory and regulatory requirements.

The plan is an annex to the *State Emergency Plan*, and it identifies past and present mitigation activities, current policies and programs, and mitigation strategies for the future. It also establishes hazard mitigation goals and objectives. The plan will be reviewed and updated annually to reflect changing conditions and new information, especially information on local planning activities.

Under 44 CFR Section 201.6, local hazard mitigation plans must be consistent with their state's hazard mitigation plan. In updating this plan, the Steering Committee reviewed the California State Hazard Mitigation Plan to identify key relevant state plan elements (see Section 3.8).

Governor’s Executive Order S-13-08

Governor’s Executive Order S-13-08 enhances the state’s management of climate impacts from sea level rise, increased temperatures, shifting precipitation and extreme weather events. There are four key actions in the executive order:

- Initiate California’s first statewide climate change adaptation strategy to assess expected climate change impacts, identify where California is most vulnerable, and recommend adaptation policies by early 2009. This effort will improve coordination within state government so that better planning can more effectively address climate impacts on human health, the environment, the state’s water supply and the economy.
- Request that the National Academy of Science establish an expert panel to report on sea level rise impacts in California, to inform state planning and development efforts.
- Issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects.
- Initiate a report on critical infrastructure projects vulnerable to sea level rise.

4.8.3 Local

Plans, Reports and Codes

Plans, reports and other technical information were identified and provided directly by participating jurisdictions and stakeholders or were identified through independent research by the planning consultant. These documents were reviewed to identify the following:

- Existing jurisdictional capabilities.
- Needs and opportunities to develop or enhance capabilities, which may be identified within the local mitigation strategies.
- Mitigation-related goals or objectives, considered during the development of the overall goals and objectives.
- Proposed, in-progress, or potential mitigation projects, actions and initiatives to be incorporated into the updated jurisdictional mitigation strategies.

The following local regulations, codes, ordinances and plans were reviewed in order to develop complementary and mutually supportive goals, objectives, and mitigation strategies that are consistent across local and regional planning and regulatory mechanisms:

- General Plans (Housing Elements, Safety Elements).
- Building Codes.
- Zoning and Subdivision Ordinances.
- NFIP Flood Damage Prevention Ordinances.
- Stormwater Management Plans.
- Emergency Management and Response Plans.
- Land Use and Open Space Plans.
- Climate Action Plans.

Capability Assessment

All participating jurisdictions compiled an inventory and analysis of existing authorities and capabilities called a “capability assessment.” A capability assessment creates an inventory of a jurisdiction’s mission, programs and policies, and evaluates its capacity to carry them out. This assessment identifies potential gaps in the jurisdiction’s capabilities.

The Planning Partnership views all core jurisdictional capabilities as fully adaptable to meet a jurisdiction's needs. Every code can be amended, and every plan can be updated. Such adaptability is itself considered to be an overarching capability. If the capability assessment identified an opportunity to add a missing core capability or expand an existing one, then doing so has been selected as an action in the jurisdiction's action plan, which is included in the individual annexes presented in Volume 2 of this plan.

Capability assessments for each planning partner are presented in the jurisdictional annexes in Volume 2. The sections below describe the specific capabilities evaluated under the assessment.

Legal and Regulatory Capabilities

Jurisdictions have the ability to develop policies and programs and to implement rules and regulations to protect and serve residents. Local policies are typically identified in a variety of community plans, implemented via a local ordinance, and enforced through a governmental body.

Jurisdictions regulate land use through the adoption and enforcement of zoning, subdivision and land development ordinances, building codes, building permit ordinances, floodplain, and stormwater management ordinances. When effectively prepared and administered, these regulations can lead to hazard mitigation.

Fiscal Capabilities

Assessing a jurisdiction's fiscal capability provides an understanding of the ability to fulfill the financial needs associated with hazard mitigation projects. This assessment identifies both outside resources, such as grant-funding eligibility, and local jurisdictional authority to generate internal financial capability, such as through impact fees.

Administrative and Technical Capabilities

Legal, regulatory, and fiscal capabilities provide the backbone for successfully developing a mitigation strategy; however, without appropriate personnel, the strategy may not be implemented. Administrative and technical capabilities focus on the availability of personnel resources responsible for implementing all the facets of hazard mitigation. These resources include technical experts, such as engineers and scientists, as well as personnel with capabilities that may be found in multiple departments, such as grant writers.

NFIP Compliance

Flooding is the costliest natural hazard in the United States and, with the promulgation of recent federal regulation, homeowners throughout the country are experiencing increasingly high flood insurance premiums. Community participation in the NFIP opens up opportunity for additional grant funding associated specifically with flooding issues. Assessment of the jurisdiction's current NFIP status and compliance provides planners with a greater understanding of the local flood management program, opportunities for improvement, and available grant funding opportunities.

Public Outreach Capability

Regular engagement with the public on issues regarding hazard mitigation provides an opportunity to directly interface with community members. Assessing this outreach and education capability illustrates the connection between the government and community members, which opens a two-way dialogue that can result in a more resilient community based on education and public engagement.

Participation in Other Programs

Other programs, such as the Community Rating System, StormReady, and Firewise, enhance a jurisdiction's ability to mitigate, prepare for, and respond to natural hazards. These programs indicate a jurisdiction's desire to

go beyond minimum requirements set forth by local, state and federal regulations in order to create a more resilient community. These programs complement each other by focusing on communication, mitigation, and community preparedness to save lives and minimize the impact of natural hazards on a community.

Development and Permitting Capability

Identifying previous and future development trends is achieved through a comprehensive review of permitting since completion of the previous plan and in anticipation of future development. Tracking previous and future growth in potential hazard areas provides an overview of increased exposure to a hazard within a community.

Adaptive Capacity

An adaptive capacity assessment evaluates a jurisdiction's ability to anticipate impacts from future conditions. By looking at public support, technical adaptive capacity, and other factors, jurisdictions identify their core capability for resilience against issues such as sea level rise. The adaptive capacity assessment provides jurisdictions with an opportunity to identify areas for improvement by ranking their capacity high, medium or low.

Integration Opportunity

The assessment looked for opportunities to integrate this mitigation plan with the legal/regulatory capabilities identified. Capabilities were identified as integration opportunities if they can support or enhance the actions identified in this plan or be supported or enhanced by components of this plan. Planning partners considered actions to implement this integration as described in their jurisdictional annexes.

Santa Clara County Operational Area Hazard Mitigation Plan

PART 2—RISK ASSESSMENT

5. IDENTIFIED HAZARDS OF CONCERN AND RISK ASSESSMENT METHODOLOGY

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from identified hazards. It allows emergency management personnel to establish early response priorities by identifying potential hazards and vulnerable assets. The process focuses on the following elements:

- Hazard identification—Use all available information to determine what types of hazards may affect a jurisdiction, how often they can occur, and their potential severity.
- Exposure identification—Estimate the total number of people and properties in the jurisdiction that are likely to experience a hazard event if it occurs.
- Vulnerability identification and loss estimation—Assess the impact of hazard events on the people, property, environment, economy and lands of the region, including estimates of the cost of potential damage or cost that can be avoided by mitigation.

The risk assessment for this hazard mitigation plan update evaluates the risk of natural hazards prevalent in the OA and meets requirements of the Disaster Mitigation Act (44 CFR, Section 201.6(c)(2)).

To protect individual privacy and the security of critical facilities, information on properties assessed is presented in aggregate, without details about specific individual personal or public properties.

5.1 IDENTIFIED HAZARDS OF CONCERN

The Core Planning Group considered the full range of natural hazards that could affect the OA and then listed hazards that present the greatest concern. The process incorporated a review of state and local hazard planning documents as well as information on the frequency of, magnitude of, and costs associated with hazards that have struck the OA or could do so. Anecdotal information regarding natural hazards and the perceived vulnerability of the OA's assets to them was also used. Based on the review, this plan addresses the following hazards of concern (presented in alphabetical order; the order of listing does not indicate the hazards' relative severity):

- Climate change/sea-level rise.
- Dam and levee failure.
- Drought.
- Earthquake.
- Flood.
- Landslide.
- Severe weather.
- Tsunami.
- Wildfire.

In addition to the hazards of concern for which full risk assessments were performed, other hazards of interest were identified for inclusion in this plan: intentional hazards, technological hazards, and epidemic and pandemic. These hazards are of interest because they present risk to the OA. However, no methodologies are currently available to perform risk assessments on them that are equivalent to those used for the natural hazards of concern addressed in detail in this plan.

5.2 HAZARD RISK RANKING

FEMA requires all hazard mitigation planning partners to have jurisdiction-specific mitigation actions based on local risk, vulnerability and community priorities (FEMA, 2011). This plan included a risk ranking protocol for each planning partner, in which “risk” was calculated by multiplying probability by impact on people, property and the economy. All planning partners ranked risk for their own jurisdictions following the same methodology. Numerical ratings of probability and impact were based on the hazard profiles and exposure and vulnerability evaluations presented in Chapters 6 through 13. Using that data, each planning partner ranked the risk of all the natural hazards of concern described in this plan except tsunami; the risk assessment demonstrated the low risk to the OA from the tsunami hazard, given the small portion of the area along the uppermost part of San Francisco Bay that would be affected. Other hazards of interest were not ranked for the following reasons:

- A key component of risk as defined for the planning effort is probability of occurrence. While it is possible to assign a recurrence interval for natural hazards because of historical occurrence, it is not feasible to assign recurrence intervals for the other hazards of interest, which lack such historical precedent.
- Federal hazard mitigation planning regulations do not require the assessment of non-natural hazards (44 CFR, 201.6). It is FEMA’s position that this is a local decision.

The risk ranking at the planning partner scale was used to inform the action plan development process for each partner. Planning partners were directed to identify mitigation actions addressing hazards that, at a minimum, had a “high” or “medium” risk ranking (see Section 5.2.3). Actions that address hazards with a low or no hazard ranking are considered optional by this planning process.

Volume 2 presents the risk rankings for each planning partner. The following Operational Area-wide risk ranking was conducted via facilitated brainstorming sessions with the Core Planning Group. Estimates of risk were generated with data from Hazus using methodologies promoted by FEMA. The results are used in establishing mitigation priorities.

5.2.1 Probability of Occurrence

The probability of occurrence of a hazard is indicated by a probability factor based on likelihood of annual occurrence:

- High—Hazard event is likely to occur within 25 years (Probability Factor = 3).
- Medium—Hazard event is likely to occur within 100 years (Probability Factor =2).
- Low—Hazard event is not likely to occur within 100 years (Probability Factor =1).
- No exposure—There is no probability of occurrence (Probability Factor = 0).

The assessment of hazard frequency is generally based on past hazard events in the area. Table 5-1 summarizes the probability assessment for each hazard of concern for this plan.

Table 5-1. Probability of Hazards

Hazard Event	Probability (high, medium, low)	Probability Factor
Dam and Levee Failure	Low	1
Drought	High	3
Flood	High	3
Earthquake	High	3
Landslide	High	3
Severe Weather	High	3
Wildfire	High	3

5.2.2 Impact

Hazard impacts were assessed in three categories: impacts on people, impacts on property and impacts on the local economy. Numerical impact factors were assigned as follows:

- People—Values were assigned based on the percentage of the total *population exposed* to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. It should be noted that planners can use an element of subjectivity when assigning values for impacts on people. Impact factors were assigned as follows:
 - ❖ High—50 percent or more of the population is exposed to a hazard (Impact Factor = 3).
 - ❖ Medium—25 percent to 49 percent of the population is exposed to a hazard (Impact Factor = 2).
 - ❖ Low—25 percent or less of the population is exposed to the hazard (Impact Factor = 1).
 - ❖ No impact—None of the population is exposed to a hazard (Impact Factor = 0).
- Property—Values were assigned based on the percentage of the total *property value exposed* to the hazard event:
 - ❖ High—30 percent or more of the total assessed property value is exposed to a hazard (Impact Factor = 3).
 - ❖ Medium—15 percent to 29 percent of the total assessed property value is exposed to a hazard (Impact Factor = 2).
 - ❖ Low—14 percent or less of the total assessed property value is exposed to the hazard (Impact Factor = 1).
 - ❖ No impact—None of the total assessed property value is exposed to a hazard (Impact Factor = 0).
- Economy—Values were assigned based on the percentage of the total *property value vulnerable* to the hazard event. Values represent estimates of the loss from a major event of each hazard in comparison to the total replacement value of the property exposed to the hazard. For some hazards, such as wildfire, landslide and severe weather, vulnerability was considered to be the same as exposure due to the lack of loss estimation tools specific to those hazards. Loss estimates separate from the exposure estimates were generated for the earthquake and flood hazards using Hazus.
 - ❖ High—Estimated loss from the hazard is 20 percent or more of the total exposed property value (Impact Factor = 3).
 - ❖ Medium—Estimated loss from the hazard is 10 percent to 19 percent of the total exposed property value (Impact Factor = 2).
 - ❖ Low—Estimated loss from the hazard is 9 percent or less of the total exposed property value (Impact Factor = 1).
 - ❖ No impact—No loss is estimated from the hazard (Impact Factor = 0).

The impacts of each hazard category were assigned a weighting factor to reflect the significance of the impact. These weighting factors are consistent with those typically used for measuring the benefits of hazard mitigation actions: impact on people was given a weighting factor of 3; impact on property was given a weighting factor of 2; and impact on the economy was given a weighting factor of 1.

Table 5-2, Table 5-3 and Table 5-4 summarize the impacts for each hazard.

Table 5-2. Impact on People from Hazards

Hazard Event	Impact (high, medium, low, no impact)	Impact Factor	Multiplied by Weighting Factor (3)
Dam and Levee Failure	High	3	9
Drought	No Impact	0	0
Flood	Medium	2	6
Earthquake	High	3	9
Landslide	Low	1	3
Severe Weather	Medium	2	6
Wildfire	Low	1	3

Table 5-3. Impact on Property from Hazards

Hazard Event	Impact (high, medium, low, no impact)	Impact Factor	Multiplied by Weighting Factor (2)
Dam and Levee Failure	High	3	6
Drought	Low	1	2
Flood	Medium	2	4
Earthquake	High	3	6
Landslide	Low	1	2
Severe Weather	Medium	2	4
Wildfire	Low	1	2

Table 5-4. Impact on Economy from Hazards

Hazard Event	Impact (high, medium, low, no impact)	Impact Factor	Multiplied by Weighting Factor (1)
Dam and Levee Failure	High	3	3
Drought	High	3	3
Flood	Low	1	1
Earthquake	High	3	3
Landslide	Low	1	1
Severe Weather	Low	1	1
Wildfire	Low	1	1

5.2.3 Risk Rating and Ranking

The risk rating for each hazard was determined by multiplying the probability factor by the sum of the weighted impact factors for people, property and economy, as summarized in Table 5-5. Based on these ratings, a priority of high, medium or low was assigned to each hazard. The hazard ranked as being of highest concern is earthquake, followed by flood and severe weather. Hazards ranked as being of medium concern are dam and levee failure, landslide, and wildfire. The hazard ranked as being of lowest concern is drought. Table 5-6 shows the hazard risk ranking.

Table 5-5. Hazard Risk Rating

Hazard Event	Probability Factor	Sum of Weighted Impact Factors	Total (Probability x Impact)
Dam and Levee Failure	1	18	18
Drought	3	5	15
Flood	3	6	39
Earthquake	3	18	54
Landslide	3	6	18
Severe Weather	3	11	33
Wildfire	3	6	18

Table 5-6. Hazard Risk Ranking

Hazard Ranking	Hazard Event	Category
1	Earthquake	High
2	Flood	High
3	Severe Weather	High
4	Dam and Levee Failure	Medium
5	Landslide	Medium
6	Wildfire	Medium
7	Drought	Medium

5.3 RISK ASSESSMENT TOOLS

5.3.1 Mapping

National, state, and county databases were reviewed to locate available spatially based data relevant to this planning effort. Maps were produced using geographic information system (GIS) software to show the spatial extent and location of hazards when such datasets were available. These maps are included in the hazard profile chapters of this document.

5.3.2 Hazus

Overview

In 1997, FEMA developed the standardized Hazards U.S. (Hazus) model to estimate losses caused by earthquakes and identify areas that face the highest risk and potential for loss. Hazus was later expanded into a multi-hazard methodology with new models for estimating potential losses from hurricanes and floods.

Hazus is a GIS-based software program used to support risk assessments, mitigation planning, and emergency planning and response. It provides a wide range of inventory data, such as demographics, building stock, critical facility, transportation and utility lifeline, and multiple models to estimate potential losses from natural disasters. The program maps and displays hazard data and the results of damage and economic loss estimates for buildings and infrastructure. Its advantages include the following:

- Provides a consistent methodology for assessing risk across geographic and political entities.
- Provides a way to save datasets so that they can readily be updated as population, inventory, and other factors change and as mitigation planning efforts evolve.

- Facilitates review of mitigation plans because it helps to ensure that FEMA methodologies are incorporated.
- Supports grant applications by calculating benefits using FEMA definitions and terminology.
- Produces hazard data and loss estimates that can be used in communication with local stakeholders.
- Is administered by the local government and can be used to manage and update a hazard mitigation plan throughout its implementation.

Levels of Detail for Evaluation

Hazus provides default data for inventory, vulnerability, and hazards; the default data can be supplemented with local data to provide a more refined analysis. The model can carry out three levels of analysis, depending on the format and level of detail of information about the OA:

- Level 1—All of the information needed to produce an estimate of losses is included in the software's default data. These data are derived from national databases and describe in general terms the characteristic parameters of the OA.
- Level 2—More accurate estimates of losses require more detailed information about the OA. To produce Level 2 estimates of losses, detailed information is required about local geology, hydrology, hydraulics, and building inventory, as well as data about utilities and critical facilities. This information is needed in a GIS format.
- Level 3—This level of analysis generates the most accurate estimate of losses. It requires detailed engineering and geotechnical information to customize it for the OA.

5.4 RISK ASSESSMENT APPROACH

The risk assessments in this plan describe the risks associated with each identified hazard of concern. The following steps were used to define the risk of each hazard:

- Identify and profile each hazard—The following information is given for each hazard:
 - ❖ Geographic areas most affected by the hazard.
 - ❖ Event frequency estimates.
 - ❖ Severity estimates.
 - ❖ Warning time likely to be available for response.
- Determine exposure to each hazard—Exposure was assessed by overlaying hazard maps with an inventory of structures, facilities, and systems to decide which of them would be exposed to each hazard.
- Assess the vulnerability of exposed facilities—Vulnerability of exposed structures and infrastructure was evaluated by interpreting the probability of occurrence of each event and assessing structures, facilities, and systems that are exposed to each hazard. Tools such as GIS and Hazus were used for this assessment for the flood, earthquake, and Anderson Dam failure hazards. Outputs similar to those from Hazus were generated for other hazards, using data generated through GIS.

5.4.1 Dam Failure, Earthquake, and Flood

The following hazards were evaluated using Hazus:

- Flood—A Level 2 user-defined analysis was performed for general building stock in flood zones and for critical facilities and infrastructure. Current flood mapping for the OA was used to delineate flood hazard areas and estimate potential losses from the 10-percent-annual-chance, 1-percent-annual-chance and 0.2-percent-annual-chance flood events. To estimate damage that would result from a flood, Hazus uses

pre-defined relationships between flood depth at a structure and resulting damage, with damage given as a percent of total replacement value. Curves defining these relationships have been developed for damage to structures and for damage to typical contents within a structure. By inputting flood depth data and known property replacement cost values, dollar-value estimates of damage were generated.

- Dam Failure—A Level 2 analysis was run on the Anderson Dam inflow design flood using the flood methodology described above.
- Earthquake—A Level 2 analysis was performed to assess earthquake exposure and vulnerability for three scenario events and two probabilistic events:
 - ❖ A Magnitude-7.0 event on the Hayward Fault with an epicenter approximately 25 miles north of the City of Palo Alto.
 - ❖ A Magnitude-7.0 event on the Calaveras Fault with an epicenter approximately 25 miles north of the City of Milpitas.
 - ❖ A Magnitude-7.8 event on the San Andreas Fault with an epicenter approximately 148 miles northwest of the City of Palo Alto.
 - ❖ The standard Hazus 100- and 500-year probabilistic events.

5.4.2 Drought

The risk assessment methodologies used for this plan focus on damage to structures. The risk assessment for drought was more limited and qualitative than the assessment for the other hazards of concern because drought does not affect structures.

5.4.3 All Other Assessed Hazards

Historical datasets were not adequate to model future losses for most of the hazards of concern. However, areas and inventory susceptible to some of the hazards of concern were mapped by other means and exposure was evaluated. A qualitative analysis was conducted for other hazards using the best available data and professional judgment.

5.5 SOURCES OF DATA USED IN HAZUS MODELING

5.5.1 Building and Cost Data

Replacement cost values and detailed structure information derived from parcel and tax assessor data provided by Santa Clara County were loaded into Hazus. When available, an updated inventory was used in place of the Hazus defaults for critical facilities and infrastructure.

Replacement cost is the cost to replace the entire structure with one of equal quality and utility. Replacement cost is based on industry-standard cost-estimation models published in *RS Means Square Foot Costs* (RS Means, 2017). It is calculated using the RS Means square foot cost for a structure, which is based on the Hazus occupancy class (i.e., multi-family residential or commercial retail trade), multiplied by the square footage of the structure from the tax assessor data. The construction class and number of stories for single-family residential structures also factor into determining the square foot costs.

5.5.2 Hazus Data Inputs

The following hazard datasets were used for the Hazus Level 2 analysis conducted for the risk assessment:

- Flood—The effective Digital Flood Insurance Rate Map for the OA was used to delineate flood hazard areas and estimate potential losses from the 10-percent-annual-chance, 1-percent-annual-chance and 0.2-

percent-annual-chance flood events. Using the Digital Flood Insurance Rate Map floodplain boundaries and base flood elevation information, and the U.S. Geological Survey (USGS) 3-meter digital elevation model data, flood depth grids were generated and integrated into the Hazus model.

- **Dam Failure**—Dam inundation area data for the Anderson Dam provided by the Santa Clara Valley Water District, and the USGS 3-meter digital elevation model were used to develop depth grids that were integrated into the Hazus model.
- **Earthquake**—Earthquake shake maps and probabilistic data prepared by the USGS were used for the analysis of this hazard. A National Earthquake Hazard Reduction Program soils map from the California Department of Conservation, ABAG’s liquefaction susceptibility data and susceptibility to deep-seated landslides from the California Geological Survey were also integrated into the Hazus model.

5.5.3 Other Local Hazard Data

Locally relevant information on hazards was gathered from a variety of sources. Frequency and severity indicators include past events and the expert opinions of geologists, emergency management specialists, and others. Data sources for specific hazards were as follows:

- **Landslide**—Susceptibility to deep-seated landslide data were provided by the California Geological Survey.
- **Sea Level Rise**—Sea level rise data were provided by the San Francisco Bay Conservation and Development Commission. A sea level rise of 6 feet above current mean higher high water was used for the exposure analysis.
- **Dam Inundation**—Dam inundation exposure areas for the Lexington, Searsville and Stevens Creek dams were provided by ABAG.
- **Levee Inundation**—Levee inundation exposure areas were defined with boundaries provided by Santa Clara County.
- **Severe Storm**—No GIS format severe storm area datasets were identified for the OA.
- **Tsunami**—Tsunami inundation map was prepared by California Department of Conservation in cooperation with the University of Southern California, California Geological Survey, and California Emergency Management Agency.
- **Wildfire**—Fire severity data was acquired from California Department of Forestry and Fire Protection (CAL FIRE).

5.5.4 Data Source Summary

Table 5-7 summarizes the data sources used for the risk assessment for this plan.

Table 5-7. Hazus Model Data Documentation

Data	Source	Date	Format
Property parcel data	Santa Clara County	2016	Digital (GIS) format
Building information such as area, occupancy, date of construction, and stories	Santa Clara County	2016	Digital (tabular) format
Building replacement cost	RS Means	2017	Paper format.
Population data	FEMA Hazus version 3.1, California Dept. of Finance	2010, 2016	Digital (GIS and tabular) format
Flood hazard data	FEMA	2016	Digital (GIS) format
Tsunami	ABAG (State of California)	2009	Digital (GIS) format
Earthquake shake maps	USGS Earthquake Hazards Program website	2012, 2014	Digital (GIS) format
Liquefaction susceptibility	ABAG, USGS	2006	Digital (GIS) format
National Earthquake Hazard Reduction Program	California Department of Conservation	2008	Digital (GIS) format
Dam Inundation Areas			
Anderson Dam	Santa Clara Valley Water District	2016	Digital (GIS) format
Lexington, Stevens Creek, Searsville Dams	ABAG	Unknown	Digital (GIS) format
Landslide	California Geological Survey	2011	Digital (GIS) format
Sea Level Rise	Adapting to Rising Tides - San Francisco Conservation and Development Commission	2017	Digital (GIS) format
Wildfire	CAL FIRE	2008	Digital (GIS) format
Digital Elevation Model	USGS	Downloaded 2016	Digital (GIS) format
Critical Facilities and Assets			
Emergency operation centers, airport facilities, bus facilities, light rail facilities, rail facilities, communication facilities, electric power facilities, potable water facilities, wastewater facilities	FEMA Hazus version 3.1 Default Critical Facilities Data	2016	Digital (GIS) format
Points of interest (city halls, community centers, other county facilities, child day care facilities)	Santa Clara County	2016	Digital (GIS) format
Santa Clara County critical facilities (fire stations, hospitals, skilled nursing facilities and clinics, police stations, public / private schools, universities and colleges)	Santa Clara County	2016	Digital (spreadsheet) format
Superfund sites (hazardous material sites)	Santa Clara County	2016	Digital (GIS) format
Toxic release inventory facilities (hazardous material facilities, designated communications centers, electric power and petroleum facilities)	Environmental Protection Agency (EPA)	2016	Digital (GIS) format
State and local bridges (highway bridges, light rail bridges, rail bridges, includes pedestrian bridges)	Santa Clara County	2016	Digital (GIS) format

5.6 LIMITATIONS

Loss estimates, exposure assessments, and hazard-specific vulnerability evaluations rely on the best available data and methodologies. Uncertainties are inherent in any loss estimation methodology and arise in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from the following:

- Approximations and simplifications necessary to conduct a study.
- Incomplete or outdated inventory, demographic or economic parameter data.

- The unique nature, geographic extent, and severity of each hazard.
- Mitigation measures already employed.
- The amount of advance notice residents have to prepare for a specific hazard event.
- Lack of a standardized model for assessing sea level rise impacts. Multiple models provide multiple results. Not all models were run in the development of the sea level rise analysis.

These factors can affect loss estimates by a factor of two or more. Therefore, potential exposure and loss estimates are approximate and should be used only to understand relative risk. Over the long term, Santa Clara County will collect additional data to assist in estimating potential losses associated with other hazards.

6. DAM AND LEVEE FAILURE

6.1 GENERAL BACKGROUND

6.1.1 Dams

A dam is an artificial barrier that has the ability to store water, wastewater, or liquid-borne materials for many reasons—flood control, human water supply, irrigation, livestock water supply, energy generation, containment of mine tailings, recreation, or pollution control. Many dams fulfill a combination of these functions. They are an important resource in the United States (Association of State Dam Safety Officials, 2013).

Man-made dams can be classified according to the type of construction material used, the methods used in construction, the slope or cross-section of the dam, the way the dam resists the forces of the water pressure behind it, the means used for controlling seepage, and, occasionally, according to the purpose of the dam. The materials used for construction of dams include earth, rock, tailings from mining or milling, concrete, masonry, steel, timber, miscellaneous materials (plastic or rubber), and any combination of these materials (Association of State Dam Safety Officials, 2013).

More than a third of the country's dams are 50 or more years old. Approximately 14,000 of those dams pose a significant hazard to life and property if failure occurs. There are about 2,000 unsafe dams in the United States, located in almost every state.

Dam failures typically occur when spillway capacity is inadequate and excess flow overtops the dam, or when internal erosion (piping) through the dam or foundation occurs. Complete failure occurs if internal erosion or overtopping results in a complete structural breach, releasing a high-velocity wall of debris-filled water that rushes downstream damaging anything in its path (FEMA, 1996).

DEFINITIONS

Dam—Any artificial barrier, together with appurtenant works, that does or may impound or divert water, and that either (a) is 25 feet or more in height from the natural bed of the stream or watercourse at the downstream toe of the barrier (or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse) to the maximum possible water storage elevation; or (b) has an impounding capacity of 50 acre-feet or more (CA Water Code, Division 3).

Levee—A man-made structure, usually an earthen embankment or concrete floodwall, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water.

Dam Failure—An uncontrolled release of impounded water due to structural deficiencies in a dam.

Levee Failure (Breach)—When part of a levee breaks away, leaving a large opening for water to flood the land protected by the levee.

Emergency Action Plan—A formal document that identifies potential emergency conditions at a dam and specifies actions to be followed to minimize property damage and loss of life. The plan specifies actions the dam owner should take to alleviate problems at a dam. It contains procedures and information to assist the dam owner in issuing early warning and notification messages to responsible downstream emergency management authorities of the emergency situation. It also contains inundation maps to show emergency management authorities the critical areas for action in case of an emergency. (FEMA, 2013a)

High Hazard Dam—Dams where failure or improper operation will probably cause loss of human life. (FEMA, 2004)

Significant Hazard Dam—Dams where failure or improper operation will result in no probable loss of human life but can cause economic loss, environmental damage or disruption of lifeline facilities, or can impact other concerns. Significant hazard dams are often located in rural or agricultural areas but could be located in areas with population and significant infrastructure. (FEMA, 2004)

6.1.2 Levees

Levees are man-made structures, usually an earthen embankment, designed and constructed to contain, control, or divert a flow of water in order to protect land from peak flood levels or to protect land that is below sea level.

Santa Clara Valley Water District (SCVWD) maintains two types of levees in the OA:

- Levees designed to withstand peak flood levels that are caused by rapid snowmelt or intense rainfall and protect the lives and property behind them.
- Levees designed to withstand nominal water levels on a continuous basis as well as peak flood levels, such as the levees lining the Sacramento-San Joaquin River Delta on San Francisco Bay, which delivers irrigation and drinking water.

The U.S. Army Corps of Engineers operates, maintains, and evaluates flood protection levees to determine if they meet accreditation requirements. Most levees are owned by local communities and flood control districts that must ensure proper operation and maintenance of the levee system as well (FEMA, 2013c).

Levees, when functioning properly, reduce the risk of flooding for communities. However, an unexpected levee breach or failure can be catastrophic, with the flooding causing loss of life, emergency evacuations, and insufficient time to reduce damage to property.

6.1.3 Causes of Dam Failure

Dam failures can be catastrophic to human life and property downstream. Dam failures in the United States typically occur in one of four ways:

- Overtopping of the primary dam structure, which accounts for 34 percent of all dam failures, can occur due to inadequate spillway design, settlement of the dam crest, blockage of spillways, and other factors.
- Foundation defects due to differential settlement, slides, slope instability, uplift pressures, and foundation seepage can also cause dam failure. These account for 30 percent of all dam failures.
- Failure due to piping and seepage accounts for 20 percent of all failures. These are caused by internal erosion due to piping and seepage, erosion along hydraulic structures such as spillways, erosion due to animal burrows, and cracks in the dam structure.
- Failure due to problems with conduits and valves, typically caused by the piping of embankment material into conduits through joints or cracks, constitutes 10 percent of all failures.

The remaining 6 percent of U.S. dam failures are due to miscellaneous causes. Many dam failures in the United States have been secondary results of other disasters. The prominent causes are earthquakes, landslides, extreme storms, massive snowmelt, equipment malfunction, structural damage, foundation failures, and sabotage.

The most likely disaster-related causes of dam failure in the OA are earthquake, excessive rainfall, and landslides. Poor construction, lack of maintenance and repair, and deficient operational procedures are preventable or correctable by a program of regular inspections. Terrorism and vandalism are serious concerns that all operators of public facilities must plan for; these threats are under continuous review by public safety agencies.

6.1.4 Causes of Levee Failure

A levee breach occurs when part of a levee gives way, creating an opening through which floodwaters may pass. A breach may occur gradually or suddenly. The most dangerous breaches happen quickly during periods of high water. The resulting torrent can quickly swamp a large area behind the failed levee with little or no warning.

When a levee system fails or is overtopped, severe flood damage can occur due to increased water surface elevation associated with levees and the resulting increase in water velocity.

Earthen levees can be damaged in several ways. For instance, strong river currents and waves can erode the surface. Trees growing on a levee can blow over, leaving a hole where the root wad and soil used to be. Burrowing animals, such as the California ground squirrel, the salt marsh harvest mouse, or the western burrowing owl can create holes that enable water to pass through a levee. If severe enough, any of these situations can lead to a zone of weakness that could cause a levee breach. In seismically active areas, earthquakes and ground shaking can cause a loss of soil strength, weakening a levee and possibly resulting in failure. Seismic activity can also cause levees to slide or slump, both of which can lead to failure.

No levee provides protection from events for which it was not designed, and levees require maintenance to continue to provide the level of protection they were designed and built to offer. Maintenance responsibility belongs to a variety of entities including local, state, and federal government and private landowners. Well-maintained levees may obtain certification through independent inspections. Levees may not be certified for maintaining flood protection when the levee owner does not maintain the levee or pay for an independent inspection. The impacts of an un-certified levee include higher risk of levee failure. In addition, insurance rates may increase because FEMA identifies on Flood Insurance Rate Maps that the structures are not certified to protect from a 1-percent annual chance flood event (FEMA, 2004).

6.1.5 Regulatory Oversight

National Dam Safety Act

Potential for catastrophic flooding due to dam failures led to passage of the National Dam Safety Act (Public Law 92-367). The National Dam Safety Program requires a periodic engineering analysis of the majority of dams in the country; exceptions include the following:

- Dams under jurisdiction of the Bureau of Reclamation, Tennessee Valley Authority, or International Boundary and Water Commission.
- Dams constructed pursuant to licenses issued under the Federal Power Act.
- Dams that the Secretary of the Army determines do not pose any threat to human life or property.

The goal of this FEMA-monitored effort is to identify and mitigate the risk of dam failure so as to protect lives and property of the public. The National Dam Safety Program is a partnership among the states, federal agencies, and other stakeholders that encourages individual and community responsibility for dam safety. Under FEMA's leadership, state assistance funds have allowed all participating states to improve their programs through increased inspections, emergency action planning, and purchases of needed equipment. FEMA has also expanded existing and initiated new training programs. Grant assistance from FEMA provides support for improvement of dam safety programs that regulate most of the dams in the United States (FEMA, 2013).

California's Division of Safety of Dams monitors dam maintenance and safety at the state level. When a new dam is proposed, Division engineers and geologists inspect the site and the subsurface. Upon submittal of an application, the Division reviews the plans and specifications prepared by the owner to ensure that the dam is designed to meet minimum requirements and that the design is appropriate for the known geologic conditions. After approval of the application, the Division inspects all aspects of the construction to ensure that the work accords with the approved plans and specifications. After construction, the Division inspects each dam annually to ensure performance as intended and to identify developing problems. Roughly a third of these inspections include in-depth reviews of instrumentation. Finally, the Division periodically reviews stability of dams and their major appurtenances in light of improved design approaches, requirements, and new findings regarding earthquake hazards and hydrologic estimates in California (DWR, 2016).

U.S. Army Corps of Engineers Dam Safety Program

The U.S. Army Corps of Engineers is responsible for safety inspections of some federal and non-federal dams in the United States that meet size and storage limitations specified in the National Dam Safety Act. The Corps has inventoried dams; surveyed each state and federal agency's capabilities, practices, and regulations regarding design, construction, operation, and maintenance of dams; and developed guidelines for inspection and evaluation of dam safety (U.S. Army Corps of Engineers, Date Unknown). The Corps' National Inventory of Dams provides the most recent inspection dates for 22 high-hazard dams in Santa Clara County (see Table 6-1).

Table 6-1. Santa Clara County High Hazard Dam Inspection Dates

Santa Clara County Dam	Inspection Date	Santa County Dam	Inspection Date
Almaden	April 4, 2012	Guadalupe	April 4, 2012
Leroy Anderson	April 25, 2012	Higuera	August 9, 2011
Austrian	August 8, 2011	James J. Lenihan	April 3, 2012
Calero	April 4, 2012	Kuhn	April 23, 2012
Cherry Flat	April 23, 2012	Lake Ranch	August 9, 2011
Columbine	August 9, 2011	North Fork	January 26, 2012
Coyote	November 15, 2011	Peabody	January 26, 2012
Debell	January 26, 2012	Stevens Creek	November 14, 2011
Elmer J Chesbro	November 15, 2011	Upper Howell	August 8, 2011
Felt Lake	July 13, 2012	Uvas	November 15, 2011
Foothill Park	January 25, 2012	Vasona Percolating	April 3, 2012

Source: U.S. Army Corps of Engineers, 2016b

Federal Energy Regulatory Commission Dam Safety Program

The Federal Energy Regulatory Commission (FERC) cooperates with a large number of federal and state agencies to ensure and promote dam safety. More than 3,000 dams are part of regulated hydroelectric projects in the FERC program. Two-thirds of these are more than 50 years old. As dams age, concern about their safety and integrity grows, so oversight and regular inspection are important.

FERC inspects hydroelectric projects on an unscheduled basis to investigate the following:

- Potential dam safety problems.
- Complaints about constructing and operating a project.
- Safety concerns related to natural disasters.
- Issues concerning compliance with the terms and conditions of a license.

Every five years, an independent consulting engineer, approved by the FERC, must inspect and evaluate projects with dams higher than 32.8 feet (10 meters), or with a total storage capacity of more than 2,000 acre-feet.

FERC monitors and evaluates seismic research in geographic areas such as California where there are concerns about possibly seismic activity. This information is applied in investigating and performing structural analyses of hydroelectric projects. FERC also evaluates the effects of potential and actual large floods on the safety of dams. During and following floods, FERC visits dams and licensed projects, determines the extent of damage, if any, and directs any necessary studies or remedial measures the licensee must undertake. The FERC publication *Engineering Guidelines for the Evaluation of Hydropower Projects* guides the FERC engineering staff and licensees in evaluating dam safety. The publication is frequently revised to reflect current information and methodologies.

FERC requires licensees to prepare emergency action plans and conducts training sessions on how to develop and test these plans. The plans outline an early warning system if there is an actual or potential sudden release of water from a dam due to failure. The plans include operational procedures that may be used, such as reducing reservoir levels and reducing downstream flows, as well as procedures for notifying affected residents and agencies responsible for emergency management. These plans are frequently updated and tested to ensure that everyone knows what to do in emergency situations (FERC, 2016).

Corps of Engineers and FEMA Levee Oversight

The Corps and FEMA have differing roles and responsibilities related to levees. The Corps addresses a range of operation and maintenance, risk communication, risk management, and risk reduction issues as part of its responsibilities under the Levee Safety Program. FEMA addresses mapping and floodplain management issues related to levees, and it accredits levees as meeting requirements set forth by the National Flood Insurance Program.

Depending on the levee system, the Corps and FEMA may be involved with a levee sponsor and community independently or jointly. The two agencies' long-term goals are similar: to reduce risk and lessen the devastating consequences of flooding. Corps and FEMA partnering activities related to levees include the following:

- Joint meetings with levee sponsors and other stakeholders.
- Integration of levee information into the National Levee Database.
- State Silver Jackets teams.
- Sharing of levee information.
- Targeted task forces to improve program alignment.

Coordination between the Corps and FEMA on levees is now standard within many of each agency's policies and practices. Over the past several years, both agencies coordinated policies where appropriate; jointly participated in meetings with stakeholders; and participated in many multiagency efforts, such as the National Committee on Levee Safety, the Federal Interagency Floodplain Management Task Force, and the Silver Jackets Program.

The Silver Jackets is a program that provides an opportunity to consistently bring together multiple state, federal, tribal, and local agencies to learn from each other and apply their knowledge to reduce risk. The Program's primary goals include the following:

- Create or supplement a mechanism to collaboratively identify, prioritize, and address risk management issues and implement solutions.
- Increase and improve risk communication through a unified interagency effort.
- Leverage information and resources and provide access to national programs (FEMA's Risk MAP and the Corps' Levee Inventory and Assessment Initiative).
- Provide focused, coordinated hazard mitigation assistance in implementing high-priority actions such as those identified by state hazard mitigation plans.
- Identify gaps among agency programs and barriers to implementation, such as conflicting agency policies or authorities, and provide recommendations for addressing these issues.

National Committee on Levee Safety

Congress created the National Committee on Levee Safety to "develop recommendations for a national levee safety program, including a strategic plan for implementation of the program." The Committee adopted a vision of "an involved public and reliable levee systems working as part of an integrated approach to protect people and property from floods," and has been working toward this goal since October 2008 (National Committee on Levee Safety, 2010). The Committee is made up of representatives from state, regional, and local agencies; the private sector; the Corps; and FEMA.

California DWR Levee Repair Program

California initiated this program in 2006 after a state of emergency for heavy rainfall and runoff was declared and California’s levee system was compromised. This allowed for \$500 million of state funds to repair and evaluate state and federal levees. The project evaluated the stability of the levee system and implemented critically needed repairs to protect communities, farmlands, and infrastructure (California DWR, 2016).

6.2 HAZARD PROFILE

6.2.1 Past Events

According to the 2013 *State of California Multi-Hazard Mitigation Plan*, there have been nine dam failures in the state since 1950, none in the Bay Area. The most recent dam emergency occurred in February 2017 at Oroville Dam in northern California’s Butte County when it was on the verge of overflow. The concrete spillway was damaged by erosion and a massive hole developed. The auxiliary spillway was used to prevent overtopping of the dam and it experiences erosion problems also. Evacuation orders were issued out of concern about a potential large uncontrolled release of water from Lake Oroville. Such a release was ultimately prevented, and evacuees returned to their homes.

Historically, overtopping caused two of the state’s nine failures; the others were caused by seepage or leaks. One failure, the 1963 Baldwin Hills Dam Failure, resulted in three deaths because the leak turned into a washout. The historical record indicates that California has had about 45 failures of non-federal dams. The failures occurred for a variety of reasons, the most common being overtopping. Other reasons include shortcomings in the dams or an inadequate assessment of surrounding geomorphologic characteristics.

California’s first notable dam failure was in 1883 in Sierra County; the most recent failure was in 1965. The most catastrophic event was the failure of the St. Francis Dam in Los Angeles County, which failed in 1928 and killed an estimated 450 people.

6.2.2 Location

According to DWR, there are 42 dams in the OA and 22 are classified as high-hazard dams, as listed in Table 6-2. All 22 are under the jurisdiction of the state. The Leroy Anderson Reservoir, referred to as the “Anderson Reservoir” is the largest of the 10 water district reservoirs and provides water supply to the OA.

The SCVWD manages approximately 100 miles of levees in Santa Clara County. About 50 miles provide 100-year flood protection and nearly 18 miles were constructed in partnership with the Corps (SCVWD, 2008). The Corps’ National Levee Database lists seven levees in Santa Clara County, as shown in Table 6-3.

6.2.3 Frequency

Dam and levee failure events are infrequent and usually coincide with events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a “residual risk” associated with dams that remains after safeguards have been implemented. The residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of occurrence of any type of dam or levee failure event is considered to be low in today’s regulatory and safety oversight environment.

Table 6-2. High Hazard Dams in the Santa Clara County OA

Name	National ID #	Water Course	Owner	Year Built	Dam Type	Crest Length (feet)	Height (feet)	Storage Capacity (acre-feet)	Drainage area (sq. mi.)
Almaden	72.004	Alamitos Creek	SCVWD	1936	Earth	500	110	62	12.50
Leroy Anderson, "Anderson Reservoir"	CA00294	Coyote River	SCVWD	1950	Earth	1,430	235	1,271	194.40
Austrian	622.013	Los Gatos Creek	San José Water Co.	1950	Earth	700	185	96	9.80
Calero	72.003	Calero Creek	SCVWD	1935	Earth	840	90	337	7.14
Cherry Flat	CA00158	Penitencia Creek	City of San José	1936	Earth	230	60	25	2.41
Columbine	CA00682	Offstream	San José Water Co.	1963	Earth	1,480	24	3	n/a
Coyote	CA00287	Coyote Creek	SCVWD	1936	Earth and Rock	980	140	635	120
DeBell	CA00686	Bodfish Creek Tributary	Private Entity	1952	Earth	580	53	8	0.72
Elmer J Chesbro	CA00806	Llagas Creek	SCVWD	1955	Earth and Rock	690	95	328	19.50
Felt Lake	CA00670	Trail Los Trancos Creek	Santa Clara	1930	Earth	590	67	40	0.20
Foothill Park	CA00868	Trail Los Trancos Creek	City of Palo Alto	1988	Earth	600	86	11	0.11
Guadalupe	CA00290	Guadalupe Creek	SCVWD	1935	Earth	695	142	75	6.00
Higuera	CA00687	South Calera Creek	Private Entity	1953	Earth	525	44	4	0.60
James J. Lenihan, "Lexington Reservoir"	CA00293	Los Gatos Creek	SCVWD	1953	Earth	810	208	450	27.70
Kuhn	CA00683	Trail Dry Creek	Private Entity	1947	Earth	312	67	5	0.10
Lake Ranch	CA00676	Beardsley Creek	San José Water Co.	1877	Earth	160	38	18	0.70
North Fork	CA00299	Pacheco Creek	Pacheco Pass Water District	1939	Earth	600	100	197	67.20
Peabody	CA00685	Trail Llagas Creek	Private Entity	1950	Earth	295	63	76	5.50
Stevens Creek	CA00292	Stevens Creek	SCVWD	1935	Earth	1,080	132	95	17.50
Upper Howell	CA00678	Rundell Creek	San José Water Co.	1878	Earth	640	36	243	13.00
Uvas	CA00807	Uvas Creek	SCVWD	1957	Earth	1,100	118	280	32.00
Vasona Percolating	CA01516	Pickle Canyon Creek	Private Entity	1935	Earth	1,00	34	58	44.20

Sources: California Division of Safety of Dams, 2017; Stanford University National Performance of Dams Program, 2017

Table 6-3. Levees in Santa Clara County

Levee Name	Counties Where System is Located	Levee Owner	Segment Length (miles)	Corps Program Levee
Uvas Creek-Left Bank	Santa Clara	SCVWD	2.19	Yes
King & Lyons	Alameda and Santa Clara	Alameda Flood Control and Water Conservation District	3.5	Yes
Guadalupe River – Right Bank	Santa Clara	SCVWD	6.9	No
Guadalupe River – Left Bank	Santa Clara	SCVWD	8.48	No
Coyote Creek, Santa Clara – Right Bank Bypass	Alameda and Santa Clara	SCVWD	0.43	Yes
Coyote Creek, Santa Clara – Right Bank	Santa Clara	SCVWD	4.9	Yes
Coyote Creek, Santa Clara – Left Bank	Santa Clara	SCVWD	6.72	Yes

Source: U.S. Army Corps of Engineers, 2016c

6.2.4 Severity

Dams upstream of towns and cities create a high risk potential for life and property, particularly in seismically active states such as California. Measure of extent or severity of a dam failure is through the classification of the dam. Two additional factors influence potential severity of a full or partial dam failure: the amount of water impounded; and the density, type, and value of downstream development and infrastructure. The SCVWD conducts seismic stability evaluations on its dams and applies recently adopted, more stringent, earthquake standards. The U.S. Army Corps of Engineers developed the classification system shown in Table 6-4 for the hazard potential of dam failures. This rating system is based only on the potential consequences of a dam failure; it does not take into account the probability of such failures.

Table 6-4. Corps of Engineers Hazard Potential Classification

Hazard Category ^a	Direct Loss of Life ^b	Lifeline Losses ^c	Property Losses ^d	Environmental Losses ^e
Low	None (rural location, no permanent structures for human habitation)	No disruption of services (cosmetic or rapidly repairable damage)	Private agricultural lands, equipment, and isolated buildings	Minimal incremental damage
Significant	Rural location, only transient or day-use facilities	Disruption of essential facilities and access	Major public and private facilities	Major mitigation required
High	Certain (one or more) extensive residential, commercial, or industrial development	Disruption of essential facilities and access	Extensive public and private facilities	Extensive mitigation cost or impossible to mitigate

- Categories are assigned to overall projects, not individual structures at a project.
- Loss of life potential based on inundation mapping of area downstream of the project. Analyses of loss of life potential should take into account the population at risk, time of flood wave travel, and warning time.
- Indirect threats to life caused by the interruption of lifeline services due to project failure or operational disruption; for example, loss of critical medical facilities or access to them.
- Damage to project facilities and downstream property and indirect impact due to loss of project services, such as impact due to loss of a dam and navigation pool, or impact due to loss of water or power supply.
- Environmental impact downstream caused by the incremental flood wave produced by the project failure, beyond what would normally be expected for the magnitude flood event under which the failure occurs.

Source: U.S. Army Corps of Engineers, 1995

In the event of a levee failure, floodwaters may ultimately inundate the protected area landward of the levee. The extent of inundation is dependent on the flooding intensity. Failure of a levee during a 1-percent annual chance flood will inundate the 100-year floodplain previously protected by the levee. Residential and commercial buildings nearest the levee overtopping or breach location will suffer the most damage from the initial embankment failure flood wave. Landward buildings will be damaged by inundation (FEMA, 2004).

6.2.5 Warning Time

Warning time for dam failure varies depending on the cause of the failure. In events of extreme precipitation or massive snowmelt, evacuations can be planned with sufficient time. In the event of a structural failure due to earthquake, there may be no warning time. A dam's structural type also affects warning time. Earthen dams do not tend to fail completely or instantaneously. Once a breach is initiated, discharging water erodes the breach until either the reservoir water is depleted or the breach resists further erosion. Concrete gravity dams also tend to have a partial breach as one or more monolith sections are forced apart by escaping water. The time of breach formation ranges from a few minutes to a few hours (U.S. Army Corps of Engineers, 1997).

Santa Clara County and its planning partners have established protocols for emergency warning and response through the County's adopted emergency operations plan. The SCVWD Dam Safety Program maintains the operation of its dams and works with Santa Clara County Emergency Management to provide copies of the most recent dam emergency action plans and inundation maps, and uses this information to plan notification needs for downstream areas in the event of a failure.

Warning time for levee failures depends on the cause of the failure. A levee failure caused by structural failure can be sudden and occur with little to no warning. If heavy rains are impacting a levee system, communities located in the immediate danger zone can be evacuated before a failure occurs. If the levee failure is caused by overtopping, the community may or may not be able to recognize the impending failure and evacuate. If a levee failure occurs suddenly, evacuation may not be possible.

6.3 SECONDARY HAZARDS

Dam and levee failures can cause severe downstream flooding, depending on the magnitude of the failure. Other potential secondary hazards are landslides, bank erosion, and destruction of downstream habitat. Levee failures can also cause environmental incidents due to hazardous materials releases when floodwaters infiltrate facilities that store these types of materials.

6.4 EXPOSURE

Exposure and vulnerability to the dam failure hazard were assessed by use of spatial analysis. The consistency of the data available to support this risk assessment varied greatly within the OA. The level of analyses varied based on available data. A detailed exposure and vulnerability analysis was done for the Andersen Dam and for areas protected by levees.

Exposure-only analyses were completed for the James J. Lenihan Dam, Searsville Dam, and Stevens Creek Dam. This data was provided to the planning partnership for informational risk ranking purposes, but is not included in this comprehensive assessment due to data age and inaccuracies. The Working Group has identified acquisition of detailed information and data for additional dams as a priority need.

6.4.1 Population

All populations in a dam failure inundation zone would be exposed to the risk of a dam failure. The potential for loss of life is affected by the capacity and number of evacuation routes available to populations living in areas of potential inundation. The estimated population living in the mapped Anderson, Lexington, Searsville, and Stevens Creek Dam inundation areas is summarized in Table 6-5 and Table 6-6. The population within a levee failure inundation area is 1,775, which represent only 0.09 percent of the OA population (see Table 6-7).

6.4.2 Property

Based on assessor parcel data, the Hazus model estimated the Anderson Dam inundation area, which is the largest reservoir. The inundation boundaries for this dam cover a large portion of the OA. There are 91,601 structures within the mapped dam failure inundation areas in the OA. The value of exposed buildings in the OA was generated using Hazus and is summarized in Table 6-8. This methodology estimated \$136 billion worth of building-and-contents exposure to dam failure inundation, representing 28.5 percent of the total replacement value of the OA. The number of exposed structures by land use type is summarized in Table 6-9.

Structures located in Lexington, Searsville, and Stevens Creek Dam inundation areas also were evaluated based on assessor parcel data, but the only available inundation boundary data for these dams—from ABAG (2006)—does not provide a detailed boundary. The approximate value of exposed buildings is summarized in Table 6-10, Table 6-11 and

Table 6-12. The approximate number of exposed structures by land use is summarized Table 6-13, Table 6-14 and Table 6-15.

Table 6-5. Population within Anderson and Lexington Dam Failure Inundation Areas

Jurisdiction	Anderson Dam		Lexington Dam	
	Population Exposed	Percentage of Total Population	Population Exposed	Percentage of Total Population
Campbell	0	0.0%	27,502	64.58%
Cupertino	0	0.0%	0	0.00%
Gilroy	9,220	16.7%	0	0.00%
Los Altos	0	0.0%	0	0.00%
Los Altos Hills	0	0.0%	0	0.00%
Los Gatos	0	0.0%	3,127	9.97%
Milpitas	4,406	5.8%	0	0.00%
Monte Sereno	0	0.0%	0	0.00%
Morgan Hill	26,584	60.9%	0	0.00%
Mountain View	0	0.0%	0	0.00%
Palo Alto	0	0.0%	0	0.00%
San José	316,294	30.4%	94,405	9.06%
Santa Clara (city)	21,109	17.1%	71,413	57.71%
Saratoga	0	0.0%	0	0.00%
Sunnyvale	366	0.2%	0	0.00%
Unincorporated County	5,232	6.0%	7,454	8.53%
Total	383,210	19.9%	203,901	10.58%

Note: The Anderson and Lexington Dam's inundation areas overlap in a small area in the Cities of Santa Clara and San José.

Table 6-6. Population within Searsville and Stevens Dam Failure Inundation Areas

Jurisdiction	Searsville Dam		Stevens Creek Dam	
	Population Exposed	Percentage of Total Population	Population Exposed	Percentage of Total Population
Campbell	0	0.00%	0	0.00%
Cupertino	0	0.00%	4,284	7.36%
Gilroy	0	0.00%	0	0.00%
Los Altos	0	0.00%	84	0.27%
Los Altos Hills	0	0.00%	0	0.00%
Los Gatos	0	0.00%	0	0.00%
Milpitas	0	0.00%	0	0.00%
Monte Sereno	0	0.00%	0	0.00%
Morgan Hill	0	0.00%	0	0.00%
Mountain View	0	0.00%	0	0.00%
Palo Alto	24,704	36.22%	0	0.00%
San José	0	0.00%	0	0.00%
Santa Clara (city)	0	0.00%	0	0.00%
Saratoga	0	0.00%	0	0.00%
Sunnyvale	0	0.00%	46,901	31.61%
Unincorporated County	14	0.02%	102	0.12%
Total	24,718	1.28%	51,371	2.66%

Note: Searsville and Stevens Creek Dam inundation areas do not overlap with any other dam inundation zones.

Table 6-7. Population within Levee Failure Inundation Area

Jurisdiction	Population Exposed	Percentage of Total Population
Campbell	0	0.00%
Cupertino	0	0.00%
Gilroy	0	0.00%
Los Altos	0	0.00%
Los Altos Hills	0	0.00%
Los Gatos	0	0.00%
Milpitas	0	0.00%
Monte Sereno	0	0.00%
Morgan Hill	0	0.00%
Mountain View	0	0.00%
Palo Alto	4	0.01%
San José	1,771	0.17%
Santa Clara (city)	0	0.00%
Saratoga	0	0.00%
Sunnyvale	0	0.00%
Unincorporated County	0	0.00%
Total	1,775	0.09%

Table 6-8. Exposure and Value of Structures in Anderson Dam Failure Inundation Areas

Jurisdiction	Number of Buildings Exposed ^a	Value Exposed ^b			Exposed Value as % of Total Replacement Value ^b
		Structure	Contents	Total	
Campbell	0	\$0	\$0	\$0	0.0%
Cupertino	0	\$0	\$0	\$0	0.0%
Gilroy	2,371	\$2,426,314,807	\$2,214,963,210	\$4,641,278,017	34.6%
Los Altos	0	\$0	\$0	\$0	0.0%
Los Altos Hills	0	\$0	\$0	\$0	0.0%
Los Gatos	0	\$0	\$0	\$0	0.0%
Milpitas	1,065	\$738,770,581	\$631,254,957	\$1,370,025,538	7.2%
Monte Sereno	0	\$0	\$0	\$0	0.0%
Morgan Hill	7,486	\$4,747,494,356	\$3,761,592,009	\$8,509,086,365	76.2%
Mountain View	0	\$0	\$0	\$0	0.0%
Palo Alto	0	\$0	\$0	\$0	0.0%
San José	73,737	\$57,089,646,257	\$45,935,355,046	\$103,025,001,303	48.3%
Santa Clara (city)	5,227	\$6,577,993,232	\$6,177,399,001	\$12,755,392,232	29.4%
Saratoga	0	\$0	\$0	\$0	0.0%
Sunnyvale	242	\$1,248,782,606	\$1,587,526,055	\$2,836,308,662	6.6%
Unincorporated County	1,473	\$1,499,517,135	\$1,330,816,931	\$2,830,334,066	11.2%
Total	91,601	\$74,328,518,973	\$61,638,907,209	\$135,967,426,182	28.5%

a. Anderson Dam failure flooding hazard depth grids provided by SCVWD.

b. Values based on Santa Clara County tax assessor data received August 2016.

Note: The Anderson and Lexington Dam's inundation areas overlap in a small area in the Cities of Santa Clara and San José.

Table 6-9. Structures Exposed to Anderson Dam Failure by Land Use Type

Jurisdiction	Number of Structures in Dam Inundations Area							
	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Campbell	0	0	0	0	0	0	0	0
Cupertino	0	0	0	0	0	0	0	0
Gilroy	2,064	198	82	8	9	1	9	2,371
Los Altos	0	0	0	0	0	0	0	0
Los Altos Hills	0	0	0	0	0	0	0	0
Los Gatos	0	0	0	0	0	0	0	0
Milpitas	1,015	25	22	0	1	2	0	1,065
Monte Sereno	0	0	0	0	0	0	0	0
Morgan Hill	6,904	364	181	18	11	4	4	7,486
Mountain View	0	0	0	0	0	0	0	0
Palo Alto	0	0	0	0	0	0	0	0
San José	68,750	3,419	1,344	13	139	25	47	73,737
Santa Clara (city)	4,597	236	388	0	5	1	0	5,227
Saratoga	0	0	0	0	0	0	0	0
Sunnyvale	75	39	127	1	0	0	0	242
Unincorporated County	1,128	93	24	208	10	7	3	1,473
Total	84,533	4374	2168	248	175	40	63	91,601

Table 6-10. Exposure and Value of Structures in Lexington Dam Failure Inundation Areas

Jurisdiction	Number of Buildings Exposed ^a	Value Exposed ^b			Exposed Value as % of Total Replacement Value ^b
		Structure	Contents	Buildings Exposed ^a	
Campbell	7,901	\$4,604,158,781	\$3,553,103,236	\$8,157,262,017	72.95%
Cupertino	0	\$0	\$0	\$0	0.00%
Gilroy	0	\$0	\$0	\$0	0.00%
Los Altos	0	\$0	\$0	\$0	0.00%
Los Altos Hills	0	\$0	\$0	\$0	0.00%
Los Gatos	1,037	\$733,314,896	\$519,890,010	\$1,253,204,906	11.50%
Milpitas	0	\$0	\$0	\$0	0.00%
Monte Sereno	0	\$0	\$0	\$0	0.00%
Morgan Hill	0	\$0	\$0	\$0	0.00%
Mountain View	0	\$0	\$0	\$0	0.00%
Palo Alto	0	\$0	\$0	\$0	0.00%
San José	22,313	\$17,615,261,921	\$13,542,081,898	\$31,157,343,819	14.60%
Santa Clara (city)	17,085	\$16,609,952,520	\$15,291,520,055	\$31,901,472,575	73.51%
Saratoga	0	\$0	\$0	\$0	0.00%
Sunnyvale	0	\$0	\$0	\$0	0.00%
Unincorporated County	1,688	\$657,884,576	\$511,282,284	\$1,169,166,860	4.61%
Total	50,024	\$40,220,572,694	\$33,417,877,483	\$73,638,450,178	15.45%

a. Lexington Dam failure flooding hazard zones based on ABAG 2006 data.

b. Values based on Santa Clara County tax assessor data received August 2016.

Note: The Anderson and Lexington Dam's inundation areas overlap in a small area in the Cities of Santa Clara and San José.

Table 6-11. Exposure and Value of Structures in Searsville Dam Failure Inundation Areas

Jurisdiction	Number of Buildings Exposed ^a	Value Exposed ^b			Exposed Value as % of Total Replacement Value ^b
		Structure	Contents	Buildings Exposed ^a	
Campbell	0	\$0	\$0	\$0	0.00%
Cupertino	0	\$0	\$0	\$0	0.00%
Gilroy	0	\$0	\$0	\$0	0.00%
Los Altos	0	\$0	\$0	\$0	0.00%
Los Altos Hills	0	\$0	\$0	\$0	0.00%
Los Gatos	0	\$0	\$0	\$0	0.00%
Milpitas	0	\$0	\$0	\$0	0.00%
Monte Sereno	0	\$0	\$0	\$0	0.00%
Morgan Hill	0	\$0	\$0	\$0	0.00%
Mountain View	0	\$0	\$0	\$0	0.00%
Palo Alto	7,329	\$5,425,794,045	\$4,090,819,895	\$9,516,613,940	36.92%
San José	0	\$0	\$0	\$0	0.00%
Santa Clara (city)	0	\$0	\$0	\$0	0.00%
Saratoga	0	\$0	\$0	\$0	0.00%
Sunnyvale	0	\$0	\$0	\$0	0.00%
Unincorporated County	27	\$251,650,593	\$368,421,855	\$620,072,448	2.45%
Total	7,356	\$5,677,444,638	\$4,459,241,749	\$10,136,686,389	2.13%

a. Searsville Dam failure flooding hazard zones based on ABAG 2006 data.

b. Values based on Santa Clara County tax assessor data received August 2016.

Note: Searsville and Stevens Creek Dam inundation areas do not overlap with any other dam inundation zones.

Table 6-12. Exposure and Value of Structures in Stevens Creek Dam Failure Inundation Areas

Jurisdiction	Number of Buildings Exposed ^a	Value Exposed ^b			Exposed Value as % of Total Replacement Value ^b
		Structure	Contents	Buildings Exposed ^a	
Campbell	0	\$0	\$0	\$0	0.00%
Cupertino	1,207	\$722,579,855	\$421,324,629	\$1,143,904,485	8.23%
Gilroy	0	\$0	\$0	\$0	0.00%
Los Altos	29	\$26,093,597	\$21,653,678	\$47,747,275	0.54%
Los Altos Hills	0	\$0	\$0	\$0	0.00%
Los Gatos	0	\$0	\$0	\$0	0.00%
Milpitas	0	\$0	\$0	\$0	0.00%
Monte Sereno	0	\$0	\$0	\$0	0.00%
Morgan Hill	0	\$0	\$0	\$0	0.00%
Mountain View	1	\$17,213,760	\$17,213,760	\$34,427,520	0.14%
Palo Alto	0	\$0	\$0	\$0	0.00%
San José	0	\$0	\$0	\$0	0.00%
Santa Clara (city)	0	\$0	\$0	\$0	0.00%
Saratoga	0	\$0	\$0	\$0	0.00%
Sunnyvale	9,766	\$4,197,286,651	\$2,425,247,372	\$6,622,534,022	15.45%
Unincorporated County	22	\$7,335,970	\$3,667,985	\$11,003,955	0.04%
Total	11,025	\$4,970,509,832	\$2,889,107,424	\$7,859,617,257	1.65%

a. Stevens Creek Dam failure flooding hazard zones based on ABAG 2006 data

b. Values based on Santa Clara County tax assessor data received August 2016.

Note: Searsville and Stevens Creek Dam inundation areas do not overlap with any other dam inundation zones.

Table 6-13. Structures Exposed to Lexington Dam Failure by Land Use Type

Jurisdiction	Number of Structures in Dam Inundations Area							
	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Campbell	7,179	528	169	0	22	1	2	7,901
Cupertino	0	0	0	0	0	0	0	0
Gilroy	0	0	0	0	0	0	0	0
Los Altos	0	0	0	0	0	0	0	0
Los Altos Hills	0	0	0	0	0	0	0	0
Los Gatos	974	56	0	2	4	0	1	1,037
Milpitas	0	0	0	0	0	0	0	0
Monte Sereno	0	0	0	0	0	0	0	0
Morgan Hill	0	0	0	0	0	0	0	0
Mountain View	0	0	0	0	0	0	0	0
Palo Alto	0	0	0	0	0	0	0	0
San José	20,520	1,441	279	0	41	10	22	22,313
Santa Clara (city)	15,552	815	668	0	21	2	27	17,085
Saratoga	0	0	0	0	0	0	0	0
Sunnyvale	0	0	0	0	0	0	0	0
Unincorporated County	1,607	78	0	0	2	0	1	1,688
Total	45,832	2,918	1,116	2	90	13	53	50,024

Table 6-14. Structures Exposed to Searsville Dam Failure by Land Use Type

Jurisdiction	Number of Structures in Dam Inundations Area							Total
	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	
Campbell	0	0	0	0	0	0	0	0
Cupertino	0	0	0	0	0	0	0	0
Gilroy	0	0	0	0	0	0	0	0
Los Altos	0	0	0	0	0	0	0	0
Los Altos Hills	0	0	0	0	0	0	0	0
Los Gatos	0	0	0	0	0	0	0	0
Milpitas	0	0	0	0	0	0	0	0
Monte Sereno	0	0	0	0	0	0	0	0
Morgan Hill	0	0	0	0	0	0	0	0
Mountain View	0	0	0	0	0	0	0	0
Palo Alto	6,858	431	9	1	19	3	8	7,329
San José	0	0	0	0	0	0	0	0
Santa Clara (city)	0	0	0	0	0	0	0	0
Saratoga	0	0	0	0	0	0	0	0
Sunnyvale	0	0	0	0	0	0	0	0
Unincorporated County	3	1	0	0	0	0	23	27
Total	6,861	432	9	1	19	3	31	7,356

Table 6-15. Structures Exposed to Stevens Creek Dam Failure by Land Use Type

Jurisdiction	Number of Structures in Dam Inundations Area							Total
	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	
Campbell	0	0	0	0	0	0	0	0
Cupertino	1,173	30	1	0	3	0	0	1,207
Gilroy	0	0	0	0	0	0	0	0
Los Altos	28	1	0	0	0	0	0	29
Los Altos Hills	0	0	0	0	0	0	0	0
Los Gatos	0	0	0	0	0	0	0	0
Milpitas	0	0	0	0	0	0	0	0
Monte Sereno	0	0	0	0	0	0	0	0
Morgan Hill	0	0	0	0	0	0	0	0
Mountain View	0	1	0	0	0	0	0	1
Palo Alto	0	0	0	0	0	0	0	0
San José	0	0	0	0	0	0	0	0
Santa Clara (city)	0	0	0	0	0	0	0	0
Saratoga	0	0	0	0	0	0	0	0
Sunnyvale	9,615	132	0	0	14	1	4	9,766
Unincorporated County	22	0	0	0	0	0	0	22
Total	10,838	164	1	0	17	1	4	11,025

6.4.3 Critical Facilities

GIS analysis determined that 1,001 of the OA’s critical facilities (28.2 percent) are in the mapped Anderson Dam inundation area, as summarized in Table 6-16.

Table 6-16. Critical Facilities in Anderson Dam Failure Inundation Areas^a

Jurisdiction	Emergency Response / Public Health & Safety	Infrastructure Lifeline	Military Facilities	Recovery Facilities	Socioeconomic Facilities	Hazardous Materials	Total
Campbell	0	0	0	0	0	0	0
Cupertino	0	0	0	0	0	0	0
Gilroy	7	21	0	0	13	3	44
Los Altos	0	0	0	0	0	0	0
Los Altos Hills	0	0	0	0	0	0	0
Los Gatos	0	0	0	0	0	0	0
Milpitas	0	17	0	0	6	5	28
Monte Sereno	0	0	0	0	0	0	0
Morgan Hill	5	13	0	0	32	7	57
Mountain View	0	0	0	0	0	0	0
Palo Alto	0	0	0	0	0	0	0
San José	45	365	0	1	207	85	703
Santa Clara (city)	4	28	0	0	17	42	91
Saratoga	0	0	0	0	0	0	0
Sunnyvale	1	0	0	0	0	6	7
Unincorporated County	3	60	0	0	7	1	71
Total	65	504	0	1	282	149	1,001

a. Due to data availability and quality, only Anderson Dam was used in this assessment

6.4.4 Environment

Reservoirs held behind dams affect many ecological aspects of a river. River topography and dynamics depend on a wide range of flows, but rivers below dams often experience long periods of very stable flow conditions or saw-tooth flow patterns caused by releases followed by no releases. Water releases from dams usually contain very little suspended sediment; this can lead to scouring of river beds and banks.

The environment would be exposed to a number of risks in the event of dam failure. The inundation could introduce many foreign elements into local waterways. This could result in destruction of downstream habitat and could have detrimental effects on many species of animals, especially endangered species such as salmon.

6.5 VULNERABILITY

6.5.1 Population

Vulnerable populations are all populations downstream from dam failures that are incapable of escaping the area within the allowable time frame. This population includes the elderly and young who may be unable to get themselves out of the inundation area. The vulnerable population also includes those who would not have adequate warning from a television or radio emergency warning system.

6.5.2 Property

Vulnerable properties are those closest to the dam inundation area. These properties would experience the largest, most destructive surge of water. Low-lying areas are also vulnerable since they are where the dam waters would collect. Transportation routes are vulnerable to dam inundation and have the potential to be wiped out, creating isolation issues. This includes all roads, railroads and bridges in the path of the dam inundation. Those that are most vulnerable are those that are already in poor condition and would not be able to withstand a large water surge. Utilities such as overhead power lines, cable and phone lines could also be vulnerable. Loss of these utilities could create additional isolation issues for the inundation areas.

It is estimated that there could be up to \$36.6 billion in loss from an Anderson dam failure affecting the OA. This represents 27 percent of the total exposure within the inundation area, or 7.7 percent of the total replacement value of the OA. Table 6-17 summarizes the loss estimates for dam failure.

Table 6-17. Loss Estimates for Dam Failure

Jurisdiction	Estimated Loss Associated with Dam Failure ^a			Estimated Loss as % of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$0	\$0	\$0	0.0%
Cupertino	\$0	\$0	\$0	0.0%
Gilroy	\$123,414,912	\$264,509,313	\$387,924,224	2.9%
Los Altos	\$0	\$0	\$0	0.0%
Los Altos Hills	\$0	\$0	\$0	0.0%
Los Gatos	\$0	\$0	\$0	0.0%
Milpitas	\$3,264,371	\$2,489,545	\$5,753,917	0.0%
Monte Sereno	\$0	\$0	\$0	0.0%
Morgan Hill	\$953,794,167	\$1,341,152,417	\$2,294,946,584	20.6%
Mountain View	\$0	\$0	\$0	0.0%
Palo Alto	\$0	\$0	\$0	0.0%
San José	\$13,319,285,267	\$17,251,673,625	\$30,570,958,892	14.3%
Santa Clara (city)	\$1,107,372,297	\$1,474,757,272	\$2,582,129,569	5.9%
Saratoga	\$0	\$0	\$0	0.0%
Sunnyvale	\$48,225,722	\$119,713,887	\$167,939,609	0.4%
Unincorporated County	\$271,263,851	\$364,058,859	\$635,322,709	2.5%
Total	\$15,826,620,586	\$20,818,354,918	\$36,644,975,504	7.7%

a. Due to data availability and quality, only Anderson Dam was used in this assessment

It is estimated that there could be up to \$6.3 billion in loss from a levee failure affecting the OA. This represents only 1.34 percent of the total replacement value of the OA. Table 6-18 summarizes the loss estimates for levee failure.

6.5.3 Critical Facilities

Critical facilities in the Anderson Dam's inundation area would receive 13.4 percent damage to structures and 42.3 percent damage to contents during a dam failure event. The estimated time to restore these facilities to 100 percent of their functionality is 612 days. Critical facilities vulnerability was not available for the Lexington, Searsville, or Stevens Creek dam inundation areas.

Table 6-18. Loss Estimates for Levee Failure

Jurisdiction	Estimated Loss Associated with Levee Failure			Estimated Loss as % of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$0	\$0	\$0	0.00%
Cupertino	\$0	\$0	\$0	0.00%
Gilroy	\$0	\$0	\$0	0.00%
Los Altos	\$0	\$0	\$0	0.00%
Los Altos Hills	\$0	\$0	\$0	0.00%
Los Gatos	\$0	\$0	\$0	0.00%
Milpitas	\$0	\$0	\$0	0.00%
Monte Sereno	\$0	\$0	\$0	0.00%
Morgan Hill	\$0	\$0	\$0	0.00%
Mountain View	\$302,501,709	\$358,394,436	\$660,896,145	2.64%
Palo Alto	\$251,765,030	\$273,275,192	\$525,040,223	2.04%
San José	\$946,889,058	\$906,446,482	\$1,853,335,540	0.87%
Santa Clara (city)	\$144,539,498	\$149,199,908	\$293,739,407	0.68%
Saratoga	\$0	\$0	\$0	0.00%
Sunnyvale	\$1,420,567,856	\$1,619,151,888	\$3,039,719,744	7.09%
Unincorporated County	\$0	\$0	\$0	0.00%
Total	\$3,066,263,151	\$3,306,467,906	\$6,372,731,058	1.34%

Environment

The environment would be vulnerable to a number of risks in the event of dam failure. The inundation could introduce foreign elements into local waterways, resulting in destruction of downstream habitat and detrimental effects on many species of animals, especially endangered species such as coho salmon. The extent of the vulnerability of the environment is the same as the exposure of the environment.

6.6 FUTURE TRENDS IN DEVELOPMENT

Land use in the OA will be directed by general plans adopted under state law. The safety elements of the general plans establish standards and plans for the protection of the community from hazards. Dam and levee failure are currently not addressed as stand-alone hazards in the safety elements, but flooding is. Municipalities participating in this plan have established comprehensive policies regarding sound land use in identified flood hazard areas. Most of the areas vulnerable to the more severe impacts from dam and levee failure intersect the mapped flood hazard areas. Flood-related policies in the general plans will help to reduce the risk associated with dam and levee failure hazard for all future development in the OA.

6.7 SCENARIO

An earthquake in the region could lead to liquefaction of soils around a dam. This could occur without warning during any time of the day. A terrorist or other intentional attack also could cause a catastrophic failure of a dam that impacts the OA. While the probability of dam failure is very low, the probability of flooding associated with changes to dam operational parameters in response to climate change is higher. Dam designs and operations are developed based on hydrographs with historical record. If these hydrographs experience significant changes over time due to the impacts of climate change, the design and operations may no longer be valid for the changed condition. This could have significant impacts on dams that provide flood control. Specified release rates and

impound thresholds may have to be changed. This would result in increased discharges downstream of these facilities, thus increasing the probability and severity of flooding.

6.8 ISSUES

The most significant issue associated with dam failure involves the properties and populations in the inundation zones. Flooding as a result of a dam failure would significantly impact these areas. There is often limited warning time for dam failure. These events are frequently associated with other natural hazard events such as earthquakes, landslides or severe weather, which limits their predictability and compounds the hazard. Important issues associated with dam failure hazards include the following:

- Federally regulated dams have an adequate level of oversight and sophistication in the development of emergency action plans for public notification in the unlikely event of failure. However, the protocol for notification of downstream citizens of imminent failure needs to be tied to local emergency response planning.
- Mapping for federally regulated dams is already required and available; however, mapping for non-federal-regulated dams that estimates inundation depths is needed to better assess the risk associated with dam failure from these facilities. Moreover, although mapping is required for federally regulated dams, development downstream of dams and upgrades to older dams may have altered inundation areas; however, these inundation maps may not have been updated for significant periods of time. Encouraging property owners of dams to update emergency action plans and inundation maps will ensure availability of the most accurate data to assist emergency planners and local officials.
- Most dam failure mapping required at federal levels requires determination of the probable maximum flood. While the probable maximum flood represents a worst-case scenario, it is generally the event with the lowest probability of occurrence. For non-federal-regulated dams, mapping of dam failure scenarios that are less extreme than the probable maximum flood but have a higher probability of occurrence can be valuable to emergency managers and community officials downstream of these facilities. This type of mapping can illustrate areas potentially impacted by more frequent events to support emergency response and preparedness.
- The concept of residual risk associated with structural flood control projects should be considered in the design of capital projects and the application of land use regulations.
- Addressing security concerns and the need to inform the public of the risk associated with dam failure is a challenge for public officials.
- Limited financial resources for dam maintenance during economic downturns result in decreased attention to dam structure operational integrity, because available funding is often directed to more urgent needs. This could increase potential for maintenance failures.
- Dam failure inundation areas are often not considered special flood hazard areas under the NFIP, so flood insurance coverage in these areas is not common.

7. DROUGHT

7.1 GENERAL BACKGROUND

Drought is a significant decrease in water supply relative to what is “normal” in a given location. A normal phase in the climate cycle of most geographical regions, drought originates from a deficiency of precipitation over an extended period of time, usually a season or more. This leads to a water shortage for some activity, group or environmental sector.

Determination of when drought begins is based on impacts on water users and assessments of the available water supply, including water stored in surface reservoirs or groundwater basins. Different water agencies have different criteria for defining drought. Some issue drought watch or drought warning announcements. The California water code does not include a statutory definition of drought; however, analysis of the code indicates that legal matters most frequently focus on drought conditions during times of water shortages (California Code of Regulations (CCR), 2016).

DEFINITIONS

Drought—The cumulative impacts of several dry years on water users. It can include deficiencies in surface and subsurface water supplies and generally impacts health, wellbeing, and quality of life.

Agricultural Drought—Not enough soil moisture to meet the needs of a particular crop at a particular time.

Hydrological Drought—Deficiencies in surface and subsurface water supplies.

Socioeconomic Drought—Drought impacts on health, well-being, and quality of life.

7.1.1 Monitoring Drought

The National Oceanic and Atmospheric Administration (NOAA) has developed several indices to measure drought impacts and severity and to map their extent and locations:

- The Palmer Crop Moisture Index measures short-term drought on a weekly scale and is used to quantify drought’s impacts on agriculture during the growing season. Figure 7-1 shows this index for the week ending October 1, 2016.
- The Palmer Drought Index measures the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during a given month depends on current weather plus the cumulative weather of previous months. The Palmer Drought Index responds rapidly as weather patterns change quickly. Figure 7-2 shows this index for October 2016.
- The Palmer Z Index measures short-term drought on a monthly scale. Figure 7-3 shows this index for August 2016.
- The hydrological impacts of drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop and it takes longer to recover from them. The Palmer Hydrological Drought Index is a long-term index to quantify hydrology effects. The Palmer Hydrological Drought Index responds more slowly to changing conditions than the Palmer Drought Index. Figure 7-4 shows this index for August 2016.
- While the Palmer indices consider precipitation, evapotranspiration and runoff, the Standardized Precipitation Index considers only precipitation. In the Standardized Precipitation Index, an index of zero indicates the median precipitation amount; the index is negative for drought and positive for wet conditions. The Standardized Precipitation Index is computed for time scales ranging from one month to 24 months. Figure 7-5 shows the 24-month Standardized Precipitation Index map for January 2013 through December 2015.

Note: The following graphics represent snapshots in time of parameters that can change daily. They are provided only as examples of the type and level of detail of mapping available on the drought hazard.

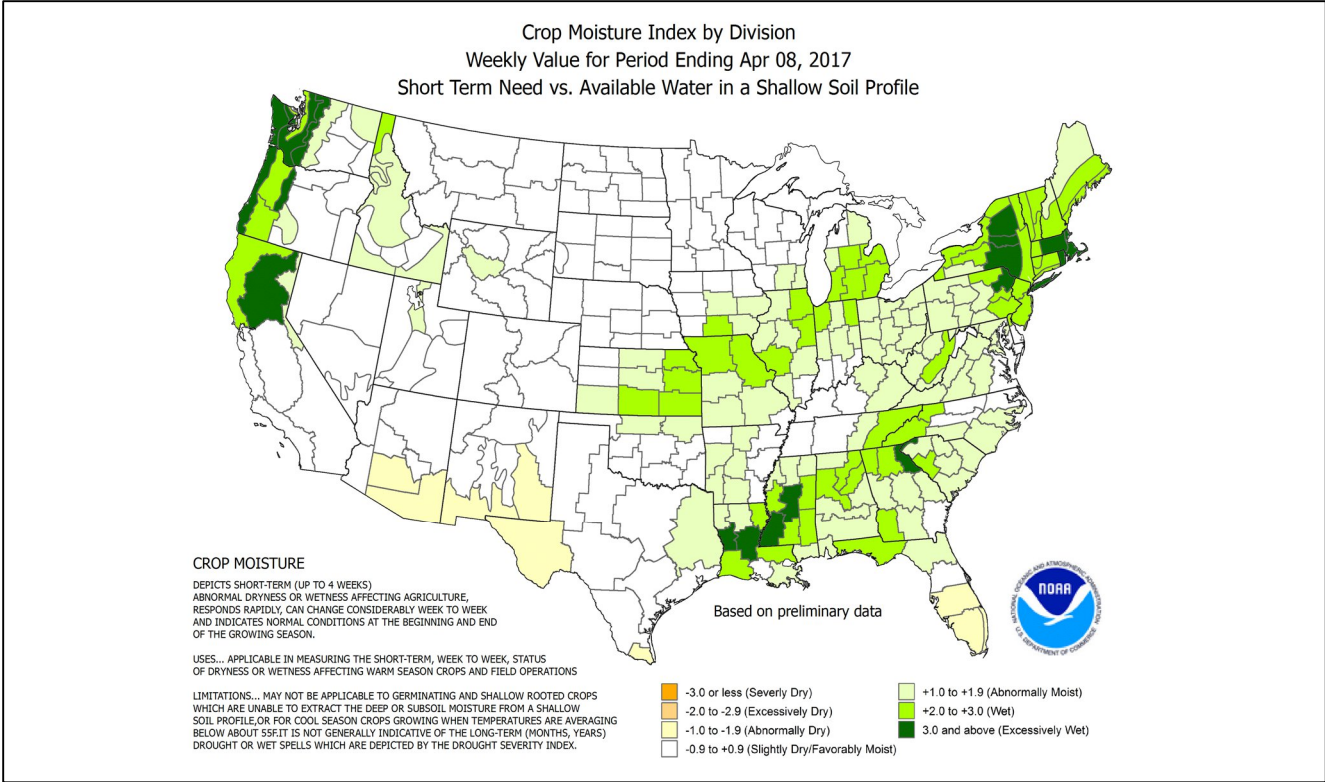


Figure 7-1. Palmer Crop Moisture Index for Week Ending April 8, 2017

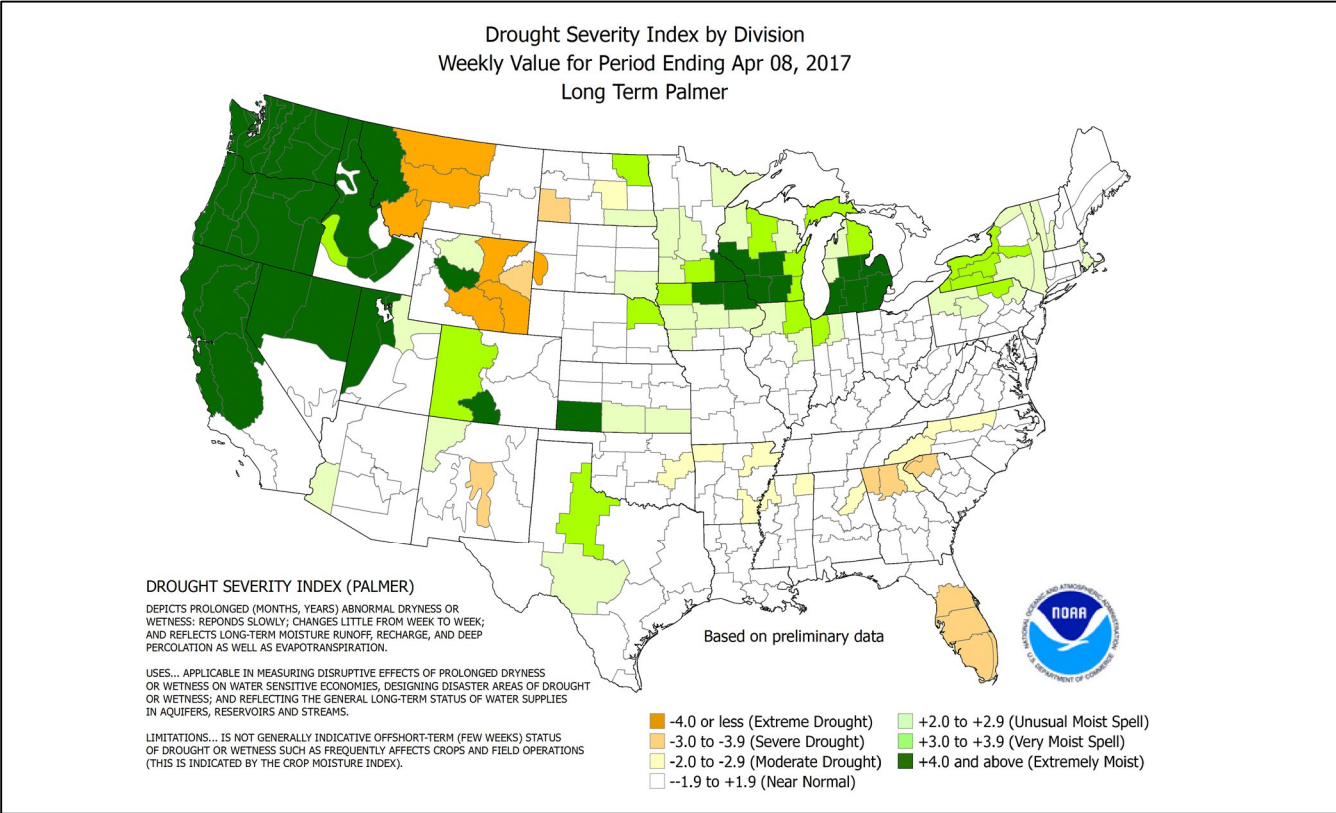


Figure 7-2. Palmer Drought Index for April 8, 2017

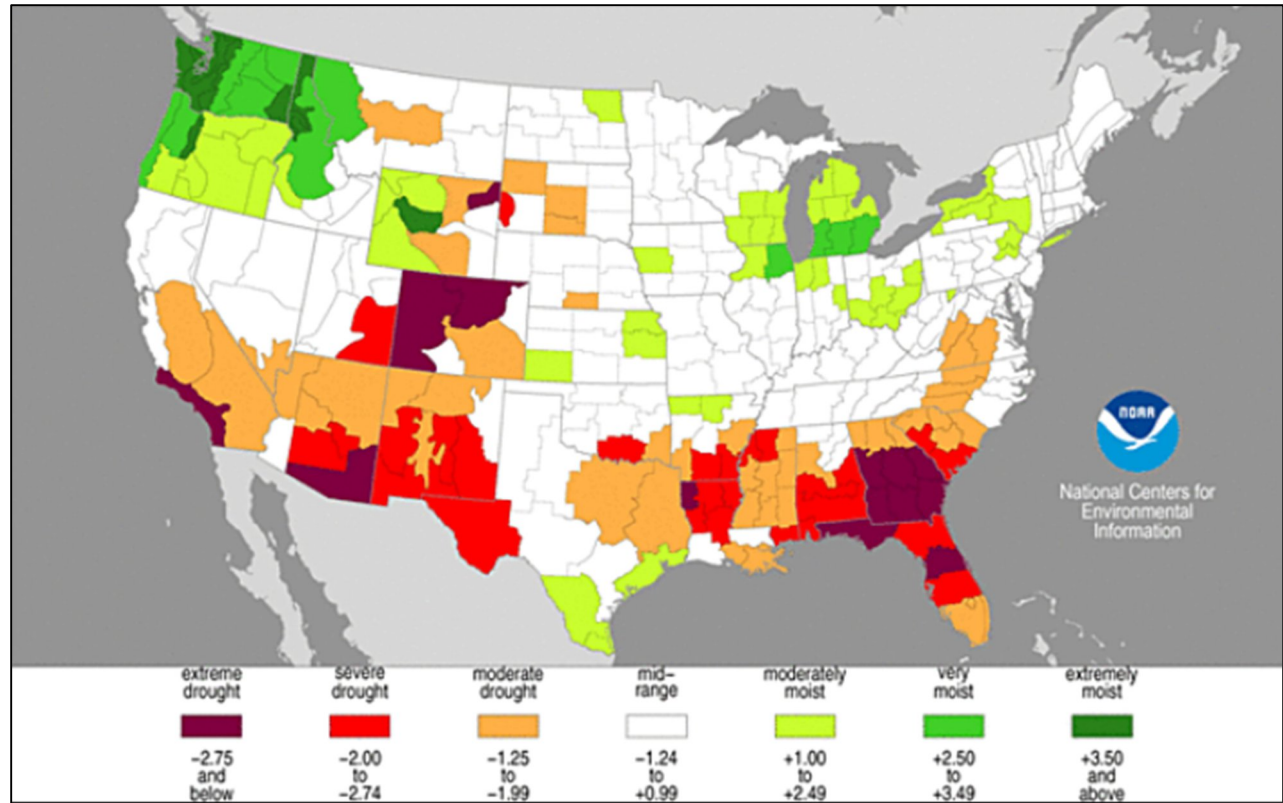


Figure 7-3. Palmer Z Index Short-Term Drought Conditions for March 2017

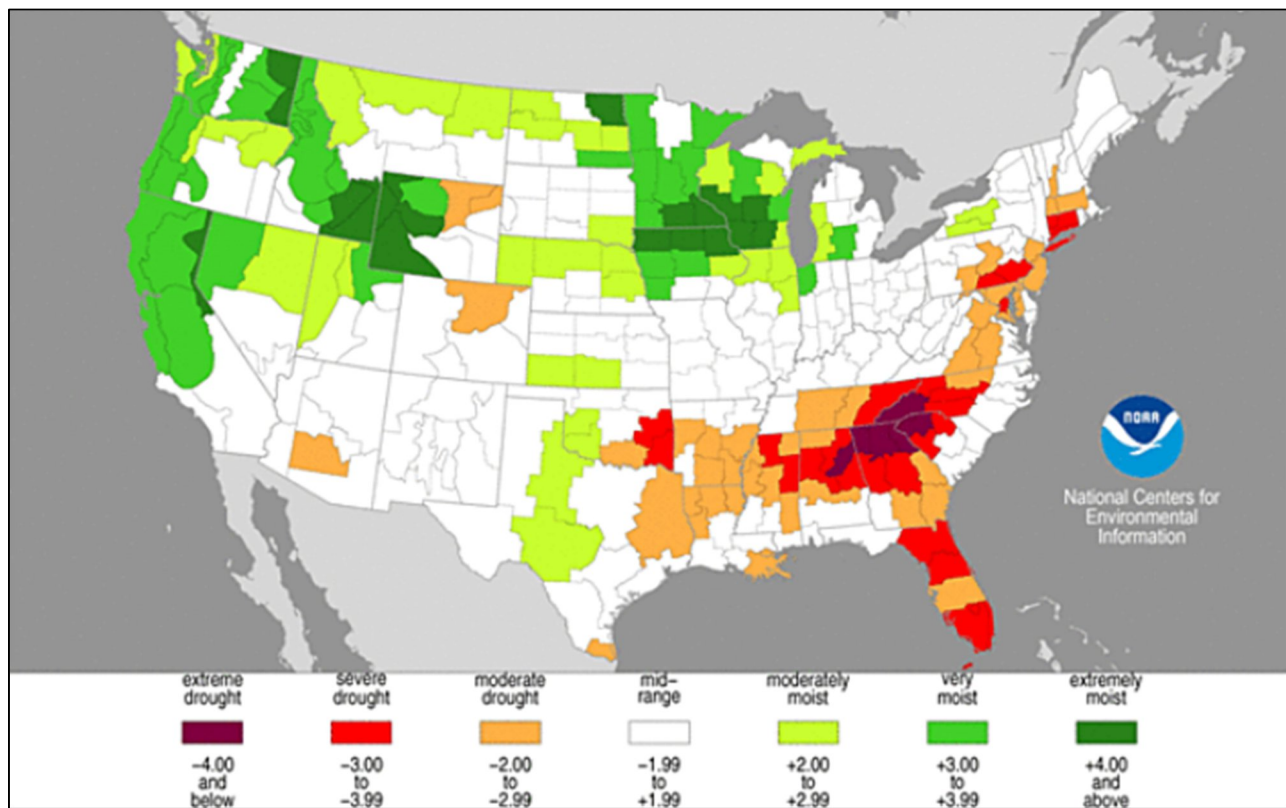


Figure 7-4. Palmer Hydrological Drought Index Long-Term Hydrologic Conditions for March 2017

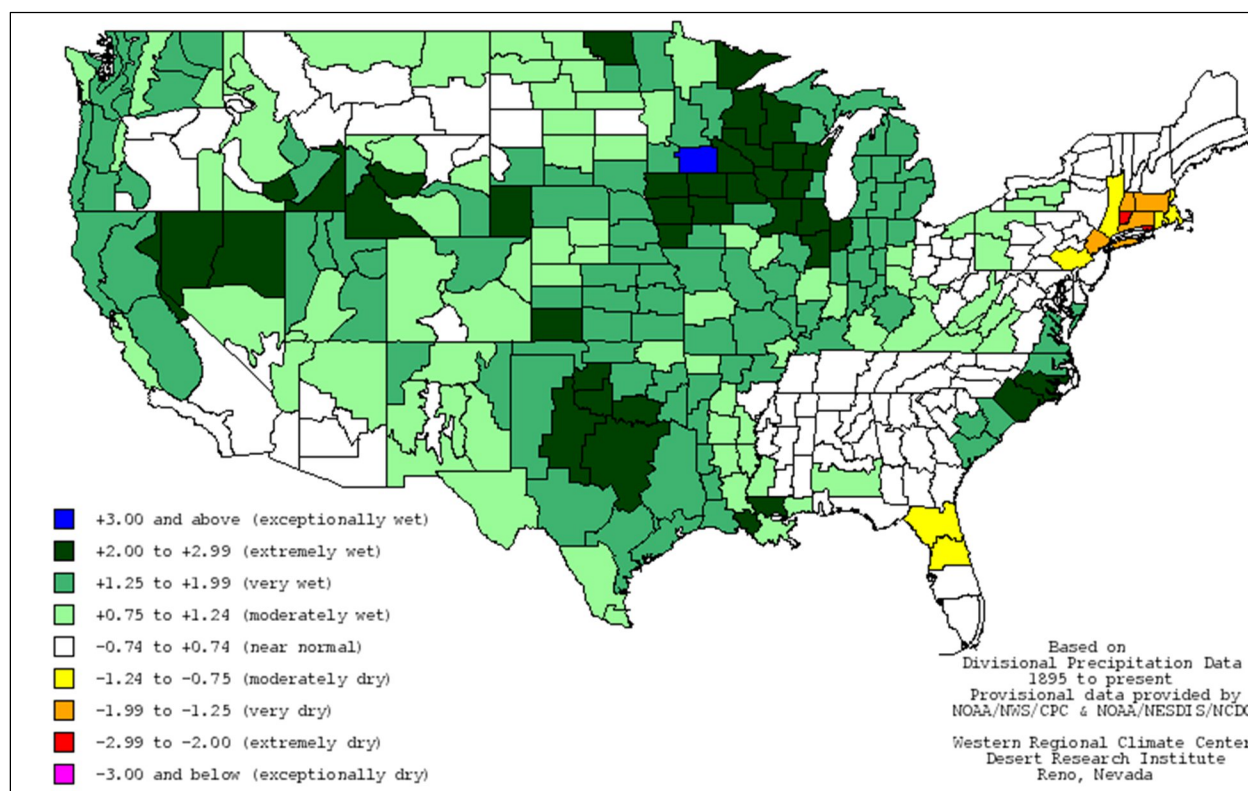


Figure 7-5. 24-Month Standardized Precipitation Index through the end of March 2017

7.1.2 Normal Precipitation in California

Most of California's precipitation comes from storms moving across the Pacific Ocean. The path followed by the storms is determined by the position of an atmospheric high pressure belt that normally shifts southward during the winter, allowing low pressure systems to move into the State. On average, 75 percent of California's annual precipitation occurs between November and March, with 50 percent occurring between December and February. A persistent Pacific high pressure zone over California in mid-winter signals a tendency for a dry water year. A typical water year produces about 100 inches of rainfall over the North Coast, 50 inches of precipitation (combination of rain and snow) over the Northern Sierra, and 15 inches in Santa Clara County. In extremely dry years, these annual totals can fall to as little as one half, or even one third of these amounts.

The Sierra Nevada snowpack serves as the primary agent for replenishing water in the San Francisco Bay area, including Santa Clara County, and for much of the State of California. A reduction in spring snowpack runoff, whether due to drier winters or to increasing temperatures leading to more rain than snow, can increase risk of summer or fall water shortages throughout the region.

7.1.3 Water Supply Strategy

The Bay Area Water Supply Conservation Agency (BAWSCA) is the main water provider for much of the Bay Area, allowing SCVWD to manage the continual water supply necessary to maintain health, safety, and economic wellbeing of residents, businesses, and community organizations. BAWSCA agencies manage two-thirds of water consumption from the Hetch-Hetchy Water System, providing water to 2.4 million people in San Francisco, Santa Clara, Alameda, and San Mateo Counties. The Hetch-Hetchy System was so-named because 85 percent of its water comes from Sierra Nevada snowmelt stored in the Hetch-Hetchy reservoir along the Tuolumne River in Yosemite National Park; the remaining 15 percent of water in this system comes from runoff in the Alameda and Peninsula watersheds (BAWSCA, 2016).

BAWSCA developed a two-phase, long-term water supply strategy for customers throughout the Bay Area, as outlined in the 2015 *Long-Term Reliable Water Supply Strategy Phase II Final Report*. Purposes of its strategy are as follows:

- Quantifying water supply reliability needs of BAWSCA member agencies through 2040.
- Identifying water supply management programs or programs that can be developed to meet those regional water reliability needs.
- Developing an implementation plan for the water supply strategy.

This strategy recognized that drought-year shortfalls could be significant, but determined that normal-year water supply would be adequate through at least 2014. Dry years could result in system-wide cutbacks of up to 20 percent, but 10 to 15 percent is the more consistent standard. BAWSCA noted that the impacts of water shortages would be regional and could lead to secondary detrimental economic effects. To address this concern, the strategy focused on identifying options for filling all or part of the drought-year supply shortfall, and investigating and potentially implementing actions that seem most beneficial.

BAWSCA also developed a *Water Conservation Implementation Plan*, focusing on the following objectives (BAWSCA, 2009):

- Help BAWSCA member agencies evaluate potential water savings and cost-effectiveness associated with implementing additional water conservation measures beyond their commitments of 2004.
- Determine potential water savings in 2018 and 2030 based on a selected range of new conservation measures and the 2004 water conservation commitments.
- Determine BAWSCA's role in helping member agencies achieve individual water conservation goals.
- Develop a coordinated regional plan for water conservation implementation measures to serve as a guideline for member agencies.

The Santa Clara Valley Water District (SCVWD) is the wholesale water and groundwater management agency throughout Santa Clara County, relying on local retailers (municipalities and private companies) to deliver water throughout the County (SCVWD, 2016). In the Santa Clara County OA, the following districts and cities are members of BAWSCA: SCVWD, Gilroy, Mountain View, Palo Alto, San José, City of Santa Clara, and Sunnyvale (SCVWD, 2016). The following are the retailer water providers for each municipal planning partner

- Campbell—San José Water Company.
- Cupertino—San José Water Company and California Water Service Company.
- Gilroy—Gilroy Community Services Department.
- Los Altos—California Water Service Company.
- Los Altos Hills—Purissima Hills Water District and California Water Service Company.
- Los Gatos—San José Water Company.
- Milpitas—City of Milpitas Community Services.
- Monte Sereno—San José Water Company.
- Morgan Hill—City of Morgan Hill.
- Mountain View—City of Mountain View Public Works.
- Palo Alto—City of Palo Alto Utilities Department.
- San José—San José Water Company, Great Oaks Water Company, and San José Municipal Water System.
- Santa Clara City—City of Santa Clara Water Department.
- Saratoga—San José Water Company.
- Sunnyvale—City of Sunnyvale Public Works Department and California Water Service Company.

The SCVWD has its own water supply strategy outlined in the *SCVWD 2012 Water Supply and Infrastructure Master Plan* (Water Master Plan 2012). The Water Master Plan 2012 outlines a water supply strategy with three key elements:

- Secure existing supplies and facilities.
- Optimize the use of existing supplies and facilities.
- Expand water use efficiency efforts.

Some County residents have domestic wells on their property. The South Central Regional Office of California DWR monitors wells for Santa Clara County to help protect groundwater quality (DWR, 2016). Under Ordinance 90-1, as of July 1, 2013, a person must obtain a permit from SCVWD to perform any well activities.

7.1.4 Water Supply Infrastructure

Figure 7-6 shows the SCVWD water supply system. Santa Clara County receives 55 percent of its water supply from the San Francisco Bay-Delta watershed. Of this water, 40 percent comes directly through the Delta watershed or water conveyance systems (State Water Project) and 15 percent is from the Hetch-Hetchy System. Another 30 percent of the County's supply is local, from natural groundwater, reservoirs to groundwater, and reservoirs to drinking water treatment plans. Five percent is recycled water, primarily used for irrigation, industry, and agriculture. The last 10 percent is savings needed.

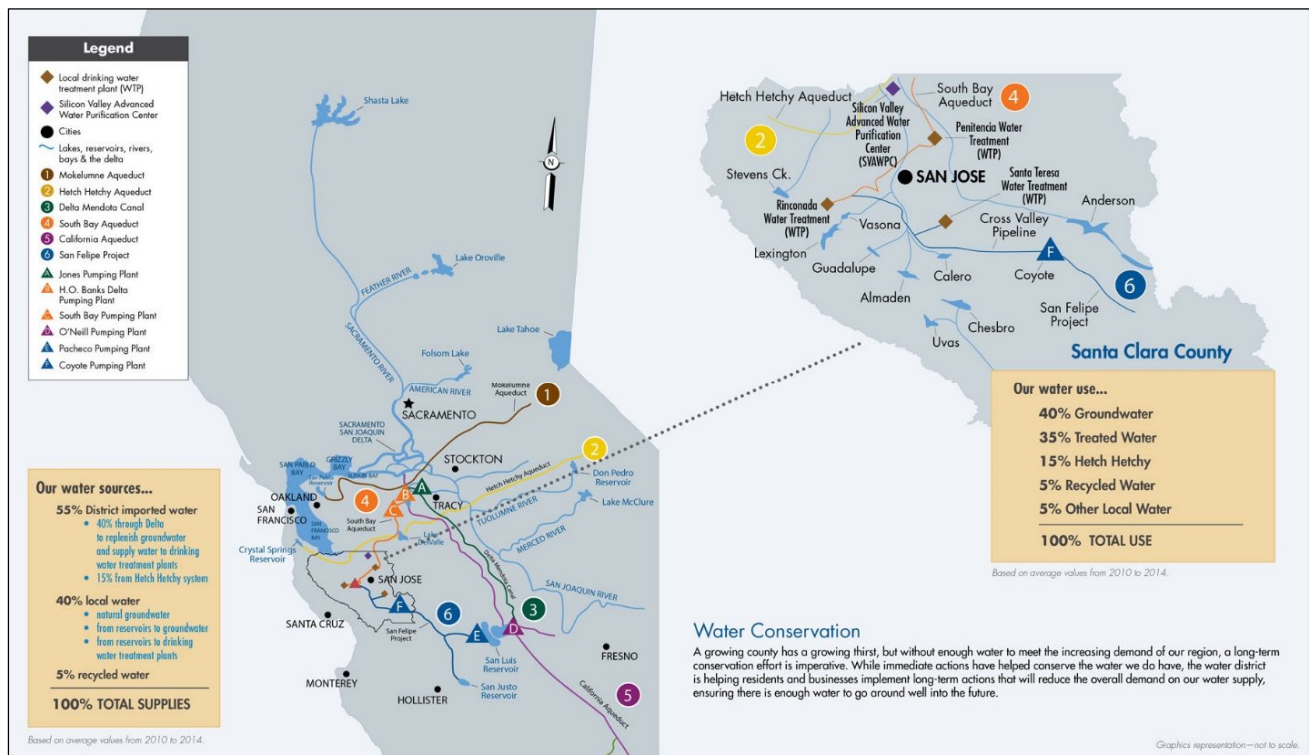


Figure 7-6. Santa Clara Valley Water District System Water Supply

The Hetch-Hetchy Water System was approved in 1913 under the Raker Act, which allowed use of federal lands to build that water system. The water system was constructed by San Francisco over the next 20 years, with first delivery of water in 1934. Although the system is owned by San Francisco, it was designed from the beginning to serve as a regional water supply system (BAWSCA, 2016). Figure 7-7 shows the Hetch-Hetchy Water System. Figure 7-8 shows the local, imported, and other water sources for the municipalities (SCVWD, 2016).

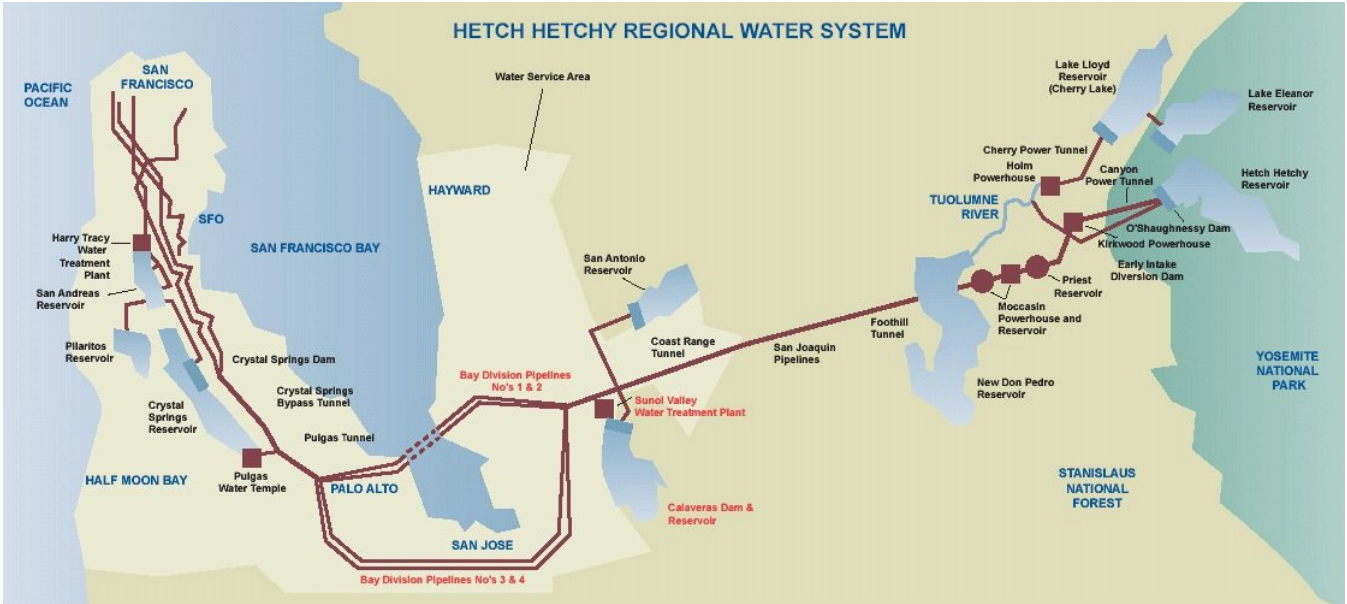


Figure 7-7. Hetch-Hetchy Water System

	Local water			Imported water			Other
	Natural groundwater	From reservoirs to replenish groundwater	From reservoirs to drinking water treatment plants	Thru Delta to replenish groundwater	Thru Delta to drinking water treatment plants	From Hetch Hetchy	Recycled
Alviso						•	•
Campbell	•	•	•	•	•		
Cupertino	•	•	•	•	•		
Gilroy	•	•		•			•
Los Altos	•	•	•	•	•		
Los Altos Hills	•	•	•	•	•	•	
Los Gatos	•	•	•	•	•		
Milpitas			•		•	•	
Monte Sereno	•	•	•	•	•		
Morgan Hill	•	•		•			
Mountain View	•	•	•	•	•	•	•
Palo Alto						•	•
San Jose	•	•	•	•	•	•	•
San Martin	•	•		•			
Santa Clara	•	•	•	•	•	•	•
Saratoga	•	•	•	•	•		
Sunnyvale	•	•	•	•	•	•	•

Figure 7-8. Santa Clara County Municipal Water Source

7.1.5 Responses to Defined Drought Stages

The SCVWD defined drought stages in the *2010 Urban Water Management Plan* (Chapter 6.0, Water Shortage Contingency Planning), along with the following outreach and water savings measures associated with each stage:

- Stage 1, Normal—The SCVWD continues ongoing outreach strategies aimed toward achieving long-term water conservation goals. Messages at this stage focus on services and rebate programs the SCVWD provides to facilitate water use efficiency for residents, agricultural operations and businesses. While the other stages are more urgent, success in Stage 1 is vital to achieving long-term water use reduction goals.
- Stage 2, Alert—Communication tactics that are employed in Stage 1 may be augmented with additional funding to reach more people with an increased frequency and urgency. Additional communication tools can be employed to further broaden awareness and promote immediate behavioral changes. Specific implementation plans will be developed when a worsening of the water shortage condition has occurred and up to 10-percent water usage reduction is suggested. Supplemental funding may be identified to augment budgeted efforts, which normally will be set based on an assumption that the county is in Stage 1. Based on historical hydrology and management and operations of SCVWD supplies, it is estimated that groundwater storage would be in Stage 2 one out of every 10 years.
- Stage 3, Severe—As the severity of a water shortage increases, the intensity of communications efforts may also increase. Messages are modified to reflect the more dire circumstances. The messages conveyed change to correspond to the call for immediate actions to save water and a 10- to 20-percent water usage reduction is suggested. Based on historical hydrology and management and operations of SCVWD supplies, it is estimated that in one out of every 15 years groundwater storage would be in Stage 3.
- Stage 4, Critical—In this stage, retailers and cities would be encouraged to enforce their water shortage plans, which could include fines for repeated violations and a 20- to 40-percent water usage reduction would be suggested. Stage 4 strengthens and expands the Stage 3 activities, including further expansion of outreach efforts and opening a drought information center.
- Stage 5, Emergency—Stage 5 of the water shortage contingency plan designates and reserves up to 150,000 acre-feet in surface and groundwater storage for emergency conditions to ensure availability of water to meet essential public health and safety requirements. Up to a 50-percent water usage reduction would be suggested and the Emergency Operations Center would be activated.

Participating municipality retail water providers' drought contingency measures are described in the municipal annexes in Volume 2 of this hazard mitigation plan.

7.2 HAZARD PROFILE

Droughts originate from a deficiency of precipitation resulting from an unusual weather pattern. Such patterns can be short-term, lasting for a few weeks or months, or long-term, lasting for many months or for years. It is possible for a region to experience a long-term circulation pattern that produces drought, and to have short-term changes in this long-term pattern that result in short-term wet spells. Likewise, it is possible for a long-term wet circulation pattern to be interrupted by short-term weather spells that result in short-term drought. Droughts typically occur after 2 or 3 years of below-average rainfall during the period from November to March, when about 75 percent of California's average annual precipitation falls.

7.2.1 Past Events

Statewide Droughts

California DWR has state hydrologic data from as far back as the early 1900s. These data indicate occurrences of multi-year droughts from 1912 to 1913, 1918 to 1920, and 1922 to 1924. Between 1954 and 2016, California experienced one FEMA-declared emergency (EM) classified as a drought: FEMA Declaration EM-3023 in 1977,

which applied to 58 California counties, including Santa Clara County (FEMA, 2016). During the last 40 years, four prolonged periods of drought in California have impacted Santa Clara County (CalOES, 2013):

- 1976 to 1977 Drought—California had one of its most severe droughts during the winters of 1976 and 1977. 1977 was the driest period on record in California, with the previous winter recorded as the fourth driest in California’s hydrological history. The cumulative impact led to widespread water shortages and severe water conservation measures across the state. Only 37 percent of normal Sacramento Valley runoff was received. Over \$2.6 billion in crop damage was recorded in 31 counties. Santa Clara County was included in FEMA-3023-EM-CA declaration on January 20, 1977.
- 1987 to 1992 Drought—California received precipitation well below average levels for four consecutive years. While the Central Coast was most affected, the Sierra Nevadas in Northern California and the Central Valley were also affected. Water suppliers did not begin to experience shortages until the third or fourth years of the drought. Reservoir storage provided a buffer against drought impacts during the initial years of the drought. In 1991, the State Water Project sharply decreased deliveries to water suppliers, including the San Francisco Bay Area. The SCVWD implemented drought contingency measures such as rationing and mandatory conservation to reach its 25 percent reduction goal. By February 1991, all 58 counties in California were suffering under drought conditions that affected urban, rural, and agricultural areas. Some counties had declared local drought emergency, but Santa Clara County was not included.
- 2007 to 2009 Drought—A governor’s executive order proclaimed a statewide drought emergency on June 4, 2008 after spring 2008 was the driest spring on record, with low snowmelt runoff. On February 27, 2009, after the largest court-ordered water restriction in state history up to that time, a state of emergency was proclaimed for the entire state as the severe drought conditions continued. Santa Clara County received about half of its water through the Sacramento-San Joaquin River Delta, which was already significantly limited that year because of pumping restrictions mandated under the Endangered Species Act. Water deliveries through the Delta were cut by about 20 to 30 percent. The SCVWD had mandatory water conservation and rationing measures in effect to reduce usage by 15 percent.
- 2012 to Present Drought—California’s current drought has set several records. From 2012 to 2014, it ranked as the driest three consecutive years for statewide precipitation. New climate records were set in 2014 for statewide average temperatures and for record-low water allocations from State Water Project and Central Valley Project contractors. A statewide drought emergency was declared in January 2014. Minimum annual precipitation records were set for many communities in 2013. Executive orders and regulations called for water conservation and management. A new law requires retail urban water suppliers with more than 3,000 customers to establish rules defining “excessive water use” and impose those rules during drought emergencies.

Reported Local Drought Impacts

The National Drought Mitigation Center developed the Drought Impact Reporter as a national drought impact database for the United States. Information comes from a variety of sources: on-line, drought-related news stories and scientific publications, members of the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. The database is being populated beginning with the most recent impacts and working backward in time.

The Drought Impact Reporter contains information on 144 impacts from droughts that affected Santa Clara County from 2006 through September 2016. The following are the categories and reported number of impacts. Note that some impacts have been assigned to more than one category.

- Agriculture—28.
- Business and Industry—5.
- Energy—2.

- Fire—16.
- Plants and Wildlife—33.
- Relief, Response, and Restrictions—87.
- Society and Public Health—61.
- Tourism and Recreation—6.
- Water Supply and Quality—88.

The following are summaries of incidents from the Drought Impact Reporter that impacted Santa Clara County:

- April 3, 2009—A mandatory reduction in water use of 15 percent was ordered for the SCVWD because reservoirs contained only 64 percent of their capacity in March 2009. Residents responded by lowering their water use by 18 percent. Persistent drought spurred the board to extend the mandatory water restrictions through June 30, 2010.
- January 30, 2014—The California Department of Fish and Wildlife closed some rivers and streams in Monterey, Santa Cruz and Santa Clara Counties to fishing to protect salmon and steelhead populations while river flows are low.
- March 21, 2014—The SCVWD informed seven cities and companies that they would receive just 80 percent of their requested treated drinking water through the end of the year. Roughly 1.5 million people in San José, Mountain View, Sunnyvale, Cupertino, Milpitas and Santa Clara were affected. The San José Water Company responded by pumping more groundwater from its 100 or so wells throughout the county and strongly urged water conservation.
- March 23, 2014—The SCVWD reduced water releases from Anderson Dam from 14 cubic feet per second (cfs) to 9 cfs, due to drought. With less water, Coyote Creek nearly dried up.
- February 29, 2015—Groundwater withdrawals in the SCVWD during 2014 amounted to nearly 84,000 acre-feet, exceeding groundwater use in 2013. The SCVWD's 10 reservoirs hold only 68,000 acre-feet, about 81 percent of what was used in 2014.
- May 5, 2015—About 100 members of city councils, school boards and other local bodies came together at the Santa Clara Convention Center to discuss ways to encourage water conservation by all members of the public.
- August 8, 2015—Eight miles of the 14-mile Guadalupe River in San José went dry for a few months, contributing to the absence or deaths of fish and other wildlife. Water releases from four upstream SCVWD reservoirs were halved because years of drought had slashed reservoir storage. Twelve of the about 30 primary miles of Coyote Creek were also dry.
- August 8, 2015—One hundred tons of trash were removed from Los Gatos Creek and the Guadalupe River over a two-year period. Drought lowered water levels, making it easier to access and collect trash along the waterways.
- August 25, 2015—A large microcystis bloom developed in the Sacramento-San Joaquin Delta. Microcystis is a type of blue-green algae that can produce toxins that are lethal to fish and people in high concentrations, though such concentrations were not currently present. The algae bloom was observed in the central and north parts of the Delta. Scientists monitoring the bloom were unsure of its cause but suggested that it was produced through a combination of factors related to the warmer, slower water flow due to the drought. Roughly 25 million people from Napa to San Diego to some extent rely on fresh water from the Delta, as do about 3 million acres of irrigated farmland.
- July to November 2015—The SCVWD added \$4.6 million to its landscape conversion rebate program. While the expanded budget of \$22.8 million had been nearly spent for the year, the district was looking for additional funds to continue the rebates. The SCVWD paid rebates for the removal of 2.9 million square feet in 2015, with another 3.5 million square feet approved and in progress. The added \$4.6 million will allow another 2 million square feet to be converted, totaling 8 million square feet.
- July 2016—Coyote Lake was closed on July 18 for the remainder of 2016 after the water level was drawn down below the bottom of the boat ramp. Water from the lake was being used for drinking water in Santa

Clara County. The SCVWD would normally be using water from its primary source, the Sacramento-San Joaquin Delta, or the San Luis Reservoir, but both had higher than normal levels of algae, giving the water a taste and smell that customers did not appreciate. In late June, the water district turned to Coyote Lake and Anderson Lake. Drought was thought to be playing a role in the presence of algae in the Delta and the San Luis Reservoir.

- September 26, 2016—The Loma wildfire burned a dozen homes, 16 other structures and nearly 4,500 acres northwest of Morgan Hill in Santa Clara County, according to the California Department of Forestry and Fire Protection.

U.S. Department of Agriculture Disaster Declarations

The U.S. Department of Agriculture (USDA) Farm Service Agency provides assistance for natural disaster losses resulting from drought, flood, fire, freeze, tornadoes, pest infestation, and other natural disasters. The USDA Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in contiguous counties. Between 2012 and 2016, the period for which data was available, California has been included in 61 USDA disaster declarations. Santa Clara County was included in 12 of these declarations in relation to drought:

- S3248, S3379 and S3452 in 2012.
- S3547, S3558 and S3569 in 2013.
- S3626, S3637, and S3743 in 2014.
- S3784 and S3943 in 2015.
- S3952 in 2016.

7.2.2 Location

Drought is a regional phenomenon. A drought that affects the OA would affect all aspects of the environment and the community simultaneously and has the potential to directly or indirectly impact every person in the county as well as adversely affect the local economy.

7.2.3 Frequency

Historical drought data regarding Santa Clara County indicate four significant droughts over the last 40 years, with drought occurring in 12 of those 40 years. Based on risk factors and this history, droughts likely will continue to occur in the Santa Clara County OA. Moreover, as temperatures increase, probability of future droughts will likely increase as well. Therefore, droughts likely will occur in Santa Clara County at varied severities in the future, even after conclusion of the current drought.

7.2.4 Severity

The severity of a drought depends on the degree of moisture deficiency, the duration, and the size and location of the affected area. The longer the duration of the drought and the larger the area impacted, the more severe the potential impacts. Drought can have a widespread impact on the environment and the economy, although it typically does not result in loss of life or damage to property, as do other natural disasters. Drought affects agriculture, business and industry, energy, fire, plants, tourism and recreation, and water supply and quality. The National Drought Mitigation Center uses three categories to describe drought impacts:

- **Economic Impacts**—These impacts of drought cost people or businesses money. They include farmers' loss of crops, costs for irrigation or drilling new wells to address low water supply, lost business for companies that sell boats or fishing equipment, and water companies' costs for additional water supplies.
- **Environmental Impacts**—Plants and animals depend on water. When a drought occurs, their food supply can shrink and their habitat can be damaged.

- **Social Impacts**—Social impacts include public safety, health, conflicts between people when there is not enough water to go around, and changes in lifestyle.

Drought generally does not affect groundwater sources as quickly as surface water supplies, but groundwater supplies generally take longer to recover. Reduced precipitation during a drought means that groundwater supplies are not replenished at a normal rate. This can lead to a reduction in groundwater levels and problems such as reduced pumping capacity or wells going dry. Shallow wells are more susceptible than deep wells. Reduced replenishment of groundwater affects streams. Much of the flow in streams comes from groundwater, especially during the summer when there is less precipitation and after snowmelt ends. Reduced groundwater levels mean that even less water will enter streams when stream flows are lowest.

7.2.5 Warning Time

Empirical studies conducted over the past century have shown that meteorological drought is never the result of a single cause. It is the result of many causes, often synergistic in nature; these include global weather patterns that produce persistent, upper-level high-pressure systems along the West Coast with warm, dry air resulting in less precipitation.

Scientists at this time do not know how to predict drought more than a month in advance for most locations. Predicting drought depends on the ability to forecast precipitation and temperature. Anomalies of precipitation and temperature may last from several months to several decades; California is currently finishing a several-year-long drought, while other areas in the United States may undergo droughts as short as 1 or 2 months. How long droughts last depends on interactions between the atmosphere and the oceans, soil moisture and land surface processes, topography, internal dynamics, and the accumulated influence of weather systems on the global scale.

7.3 SECONDARY HAZARDS

The secondary hazard most commonly associated with drought is wildfire. A prolonged lack of precipitation dries out vegetation, which becomes increasingly susceptible to ignition as the duration of the drought extends. Millions of board feet of timber have been lost, and in many cases erosion occurred, which caused serious damage to aquatic life, irrigation, and power production by heavy silting of streams, reservoirs, and rivers.

Drought also is often accompanied by extreme heat, exposing people to the risk of sunstroke, heat cramps and heat exhaustion. Pets and livestock are also vulnerable to heat-related injuries. Crops can be vulnerable as well.

Environmental losses include damage to plants, animals, wildlife habitat, and air and water quality; forest and range fires; degradation of landscape quality; loss of biodiversity; and soil erosion. Some effects are short-term and conditions quickly return to normal following the end of the drought. Other effects linger for some time or may even become permanent. Wildlife habitat, for example, may be degraded through the loss of wetlands, lakes, and vegetation. However, many species will eventually recover from this temporary aberration. The degradation of landscape quality, including increased soil erosion, may lead to a more permanent loss of biological productivity. Although environmental losses are difficult to quantify, growing public awareness and concern for environmental quality has forced public officials to focus greater attention and resources on these effects.

Tree mortality is a key secondary impact of drought. Drought can affect a tree's ability to generate pitch, which it uses to defend itself against infestation by insects such as the bark beetle. Prolonged periods of drought, such as the one just experienced by the State of California, can cause extensive damage to trees. Since May 2016, the U.S. Forest Service has identified 36 million new dead trees, bringing the total estimate of dead trees in California to 62 million (Tree Mortality Task Force, 2017). Removal of dead trees can be costly and challenging, which can add to the financial impacts of drought. These impacts are not instantaneous, and sometimes are not felt by communities for many years following a drought. Figure 7-9 shows the extent and location of tree mortality within the planning based on studies by California's Tree Mortality Task Force.

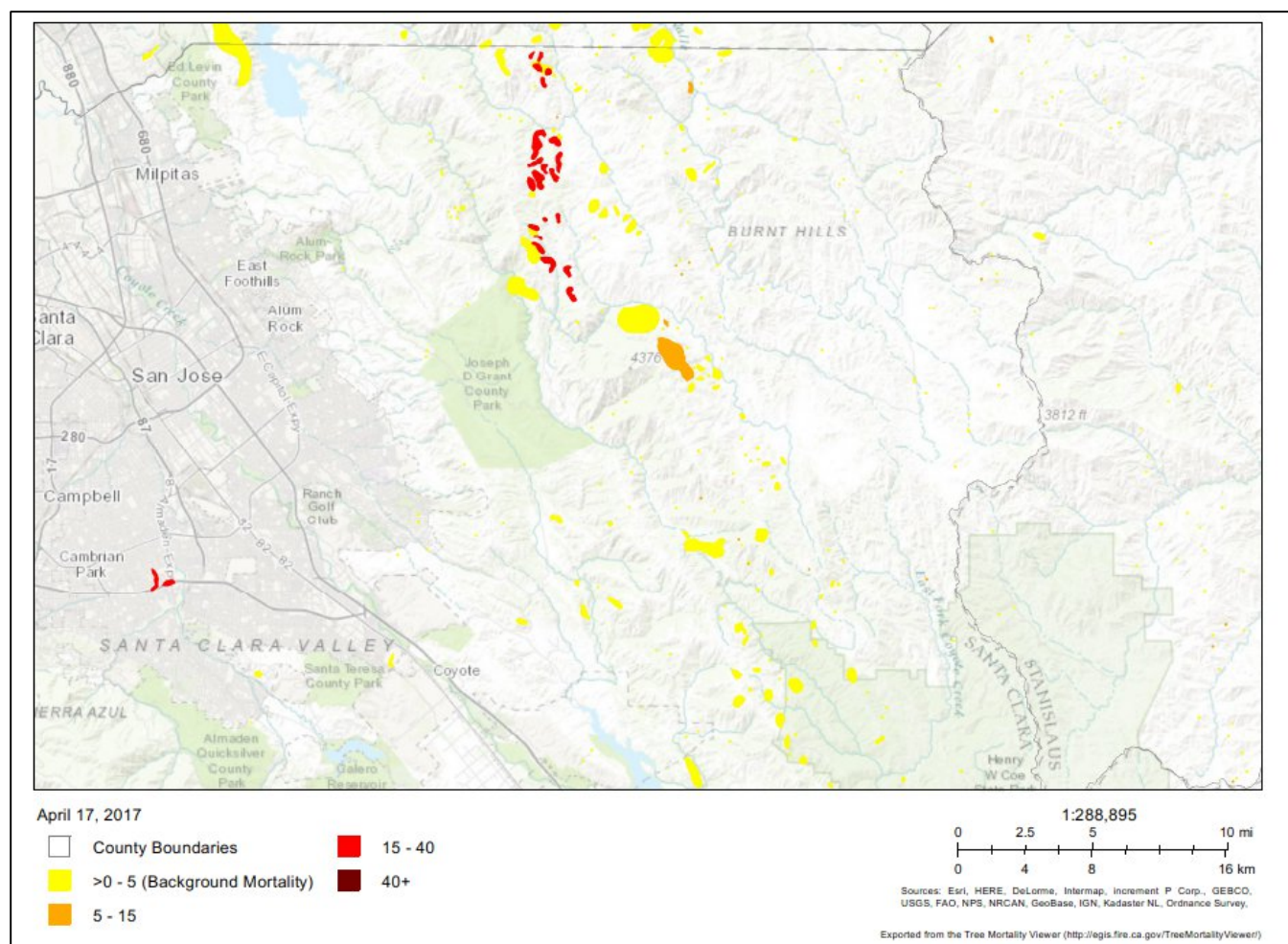


Figure 7-9. Santa Clara County Tree Mortality Exposure

Significant depletion of groundwater supplies—from drought, excessive groundwater pumping or both—can lead to subsidence, which is the downward collapse of the land surface when groundwater aquifers lack the water to support the weight of the ground. Compaction of aquifer systems is the greatest cause of subsidence in California. Although this is typically due to groundwater pumping rather than drought, drought creates a need for greater groundwater pumping as freshwater sources disappear. Drought-induced subsidence is not as common as wildfire or extreme heat, but it can significantly impact the local environment, floodplain/wetlands and water supply, and it typically is irreversible. It may cause wetlands to change size and shape, migrate to lower elevations, or disappear entirely. Rivers may change course, and patterns of erosion and deposition may change (CA Water Science Center, 2016). The SCVWD has conducted aquifer recharge efforts for years trying to recover groundwater levels and halt subsidence issues (USGS, 2017).

7.4 EXPOSURE

Drought can affect a wide range of economic, environmental, and social activities. Its impacts can span many sectors of the economy because water is integral to the ability to produce goods and provide services. The impacts can reach well beyond the area undergoing physical drought. Vulnerability of an activity to drought depends on its water demand and the water supplies available to meet the demand.

California's 2005 Water Plan and subsequent updates indicate that water demand in the state will increase through 2030. The Department of Water Resources predicts a modest decrease in agricultural water use, but an urban

water use increase of 1.5 to 5.8 million acre-feet per year (DWR, 2005). The 2013 update to the Water Plan explores measures, benchmarks, and successes in increasing agricultural and urban water use efficiency.

7.5 VULNERABILITY

7.5.1 Population

The entire population of the Santa Clara County OA is vulnerable to drought. Drought can affect people's health and safety, including health problems related to low water flows, poor water quality, or dust. Droughts can also lead to loss of human life (National Drought Mitigation Center, 2016). Other possible impacts include recreational risks; effects on air quality; diminished living conditions related to energy, air quality, and hygiene; compromised food and nutrition; and increased incidence of illness and disease (Centers for Disease Control and Prevention, 2012). Droughts can also lead to reduced local firefighting capabilities.

The SCVWD, BAWSCA, regional water purveyors, and other regional stakeholders have devoted considerable time and effort to protect life, safety, and health during times of consecutive dry years, such as the current drought. Provisions and measures have been taken to analyze and account for anticipated water shortages. With coordination from its cities, the SCVWD has the ability to minimize and reduce impacts on residents and water consumers in the Santa Clara County OA.

7.5.2 Property

No structures will be directly affected by drought conditions, though some structures may become vulnerable to wildfires, which are more likely following years of drought. Droughts can also have significant impacts on landscapes, which could cause a financial burden to property owners. However, these impacts are not considered critical in planning for impacts from the drought hazard.

7.5.3 Critical Facilities

Critical facilities as defined for this plan will continue to be operational during a drought. Critical facility elements such as landscaping may not be maintained due to limited resources, but the risk to the OA's critical facilities inventory will be largely aesthetic. For example, when water conservation measures are in place, landscaped areas will not be watered and may die. These aesthetic impacts are not considered significant.

7.5.4 Environment

Environmental losses from drought are associated with damage to plants, animals, wildlife habitat, and air and water quality; forest and range fires; degradation of landscape quality; loss of biodiversity; and soil erosion. Some of the effects are short-term and conditions quickly return to normal following the end of the drought. Other environmental effects linger for some time or may even become permanent. Wildlife habitat, for example, may be degraded through the loss of wetlands, lakes and vegetation. However, many species will eventually recover from this temporary aberration. The degradation of landscape quality, including increased soil erosion, may lead to a more permanent loss of biological productivity. Although environmental losses are difficult to quantify, growing public awareness and concern for environmental quality has forced public officials to focus greater attention and resources on these effects.

7.5.5 Economic Impact

Drought causes the most significant economic impacts on industries that use water or depend on water for their business, most notably, agriculture and related sectors (forestry, fisheries, and waterborne activities). In addition to losses in yields in crop and livestock production, drought is associated with increased insect infestations, plant diseases, and wind erosion. Drought can lead to other losses because so many sectors are affected—losses that

include reduced income for farmers and reduced business for retailers and others who provide goods and services to farmers. This leads to unemployment, increased credit risk for financial institutions, capital shortfalls, and loss of tax revenue. Prices for food, energy, and other products may also increase as supplies decrease.

When a drought occurs, the agricultural industry faces greatest risk of economic impact and damage. During droughts, crops do not mature, resulting in smaller crop yields, undernourishment of wildlife and livestock, decreases in land values, and ultimately financial losses to farmers (FEMA, 1997). Agriculture production has been a significant and growing factor in Santa Clara County, especially as agricultural effects on the economy start to normalize (after a period of decline).

Evaluation of direct effects (i.e., excluding indirect and induced spending benefits) can occur based on information conveyed in USDA reports. According to the 2012 Census of Agriculture, 1,003 farms were present in Santa Clara County, encompassing 229,927 acres of total farmland, including 38,398 acres of cropland and 165,547 acres of pastureland. The average farm size was 229 acres.

Santa Clara County farms had a total market value of products sold of \$243.8 million (\$233.4 million in vegetable crops including nursery and greenhouse; and \$10.4 million in cattle, layers, and horses, and related products), averaging \$243,100 per farm. The Census indicated that 562 farm operators reported farming as their primary occupation (USDA, 2012).

A prolonged drought can affect a community's economy significantly. Increased demand for water and electricity may result in shortages and higher costs of these resources. Industries that rely on water for business may be impacted the most (e.g., landscaping businesses). Although most businesses will still be operational, they may be affected aesthetically—especially the recreation and tourism industry. Moreover, droughts within another area could affect food supply/price of food for residents within the Santa Clara County OA.

7.6 FUTURE TRENDS IN DEVELOPMENT

Land use planning is also directed by general plans adopted under California's General Planning Law. Municipal planning partners are encouraged to establish General Plans with policies directing land use and dealing with issues of water supply and protection of water resources. These plans increase capability at the local municipal level to protect future development from impacts of drought. All planning partners reviewed their general plans under the capability assessments undertaken for this effort. Deficiencies revealed by these reviews can be identified as mitigation actions to increase capability to deal with future trends in development.

7.7 SCENARIO

Continuation or exacerbation of the current situation across the State of California (i.e., an extreme, multiyear drought associated with record-breaking rates of low precipitation and high temperatures) is the worst-case scenario for Santa Clara County. Low precipitation and high temperatures increase possibility of wildfires throughout the County, increasing need for water when water is already in limited supply. Surrounding counties, also under drought conditions, could increase their demand for the water supplies on which Santa Clara County also relies, triggering social and political conflicts. The higher density population of the Bay Area increases likelihood of such conflicts. Additionally, the longer drought conditions last in or near the OA, the greater the effect on the local economy; water-dependent industries especially will undergo setbacks.

7.8 ISSUES

The Core Planning Group has identified the following drought-related issues:

- Identification and development of alternative water supplies.

- Utilization of groundwater recharge techniques to stabilize the groundwater supply.
- The probability of increased drought frequencies and durations due to climate change.
- The promotion of active water conservation even during non-drought periods.
- Monitoring of implementation and benefits of the *Long-Term Reliable Water Supply Strategy* projects, *Water Conservation Implementation Plan* projects, and water system capital improvement upgrades.
- Application of alternative techniques (groundwater recharge, water recycle, local capture and reuse, desalination, and transfer) to stabilize and offset Sierra Nevada snowpack water supply shortfalls.
- Regular occurrence of drought or multiyear droughts that may limit the Operational Area's ability to successfully recover from or prepare for more occurrences-particularly noteworthy due to longevity of the current ongoing drought.

8. EARTHQUAKE

8.1 GENERAL BACKGROUND

An earthquake is the vibration of the earth's surface following a release of energy in the earth's crust. This energy can be generated by a sudden dislocation of the crust or by a volcanic eruption. Most destructive quakes are caused by dislocations of the crust. The crust may first bend and then, when the stress exceeds the strength of the rocks, break and snap to a new position. In the process of breaking, vibrations called "seismic waves" are generated. These waves travel outward from the source of the earthquake at varying speeds.

Geologists have found that earthquakes tend to reoccur along faults, which are zones of weakness in the earth's crust. Even if a fault zone has recently experienced an earthquake, there is no guarantee that all the stress has been relieved. Another earthquake could still occur. Aftershocks are common after a large earthquake. In fact, relieving stress can increase stress in other parts of the affected fault and other faults.

California is seismically active because of movement of the North American Plate, east of the San Andreas Fault, and the Pacific Plate to the west, which includes the state's coastal communities. Movement of the tectonic plates against one another creates stress, which is released as energy that moves through the earth as seismic waves.

Active faults have experienced displacement in historical time. However, inactive faults, where no such displacements have been recorded, also have the potential to reactivate or experience displacement along a branch sometime in the future. An example of a fault zone that has been reactivated is the Foothills Fault Zone. The zone was considered inactive until evidence of an earthquake (approximately 1.6 million years ago) was found near Spenceville, California. Then, in 1975, an earthquake occurred on another branch of the zone near Oroville, California (now known as the Cleveland Hills Fault). The State Division of Mines and Geology indicates that increased earthquake activity throughout California may cause tectonic movement along currently inactive fault systems.

8.1.1 Damage from Earthquakes

A direct relationship exists between a fault's length and location and its ability to generate damaging ground motion at a given site. Small, local faults produce lower magnitude quakes, but ground shaking can be strong and damage can be significant in areas close to the fault. In contrast, large regional faults can generate earthquakes of great magnitudes but, because of their distance and depth, they may result in only moderate shaking in an area.

DEFINITIONS

Earthquake—The shaking of the ground caused by an abrupt shift of rock along a fracture in the earth or a contact zone between tectonic plates.

Epicenter—The point on the earth's surface directly above the hypocenter of an earthquake. The location of an earthquake is commonly described by the geographic position of its epicenter and by its focal depth.

Fault—A fracture in the earth's crust along which two blocks of the crust have slipped with respect to each other.

Hypocenter—The region underground where an earthquake's energy originates

Liquefaction—Loosely packed, water-logged sediments losing their strength in response to strong shaking, causing major damage during earthquakes.

Earthquakes can last from a few seconds to over five minutes; they may also occur as a series of tremors over a period of several days. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties generally result from falling objects and debris, because earthquakes shake, damage or demolish furnishings and buildings and other structures. Disruption of communications and internet, electrical power, gas, sewer and water services should be expected in the affected area. Earthquakes may trigger dam failures and landslides. Their damage may cause fires and releases of hazardous material, compounding the disastrous effects.

8.1.2 Earthquake Classifications

Earthquakes are typically classified in one of two ways: by the amount of energy released, measured as magnitude; or by the impact on people and structures, measured as intensity.

Magnitude

An earthquake's magnitude is a measure of the energy released at the source of the earthquake. It is commonly expressed by ratings on either of two scales (Michigan Tech University, 2016):

- The **Richter scale** measures magnitude of earthquakes based on the amplitude of the largest energy wave released by the earthquake. Richter scale readings are suitable for smaller earthquakes; however, because it is a logarithmic scale, the scale does not distinguish clearly the magnitude of large earthquakes above a certain level. Richter scale magnitudes and corresponding earthquake effects are as follows:
 - ❖ 2.5 or less—Usually not felt, but can be recorded by seismograph.
 - ❖ 2.5 to 5.4—Often felt, but causes only minor damage.
 - ❖ 5.5 to 6.0—Slight damage to buildings and other structures.
 - ❖ 6.1 to 6.9—May cause a lot of damage in very populated areas.
 - ❖ 7.0 to 7.9—Major earthquake; serious damage.
 - ❖ 8.0 or greater—Great earthquake; can totally destroy communities near the epicenter.
- A more commonly used magnitude scale today is the **moment magnitude (M_w) scale**. The moment magnitude scale is based on the total moment release of the earthquake (the product of the distance a fault moved and the force required to move it). Moment magnitude roughly matches the Richter scale but provides more accuracy for larger magnitude earthquakes. The scale is as follows:
 - ❖ Great— $M_w \geq 8$.
 - ❖ Major— $M_w = 7.0 - 7.9$.
 - ❖ Strong— $M_w = 6.0 - 6.9$.
 - ❖ Moderate— $M_w = 5.0 - 5.9$.
 - ❖ Light— $M_w = 4.0 - 4.9$.
 - ❖ Minor— $M_w = 3.0 - 3.9$.
 - ❖ Micro— $M_w < 3$.

Intensity

For an earthquake, intensity varies across the area. Intensity will be larger near the fault rupture, in the direction of the rupture, and in sedimentary basins. Currently the most commonly used intensity scale is the modified Mercalli intensity scale, with ratings defined as follows (USGS, 1989):

- I – Not felt except by a very few under especially favorable conditions.
- II – Felt only by a few persons at rest, especially on upper floors of buildings.

- III – Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it is an earthquake. Standing cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
- IV – Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like a heavy truck striking building. Standing cars rocked noticeably.
- V – Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
- VI – Felt by all; many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
- VII – Damage negligible in buildings of good design and construction; slight in well-built ordinary structures; considerable in poorly built or badly designed structures. Some chimneys broken.
- VIII – Damage slight in specially designed structures; considerable damage in ordinary buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
- IX – Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
- X – Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

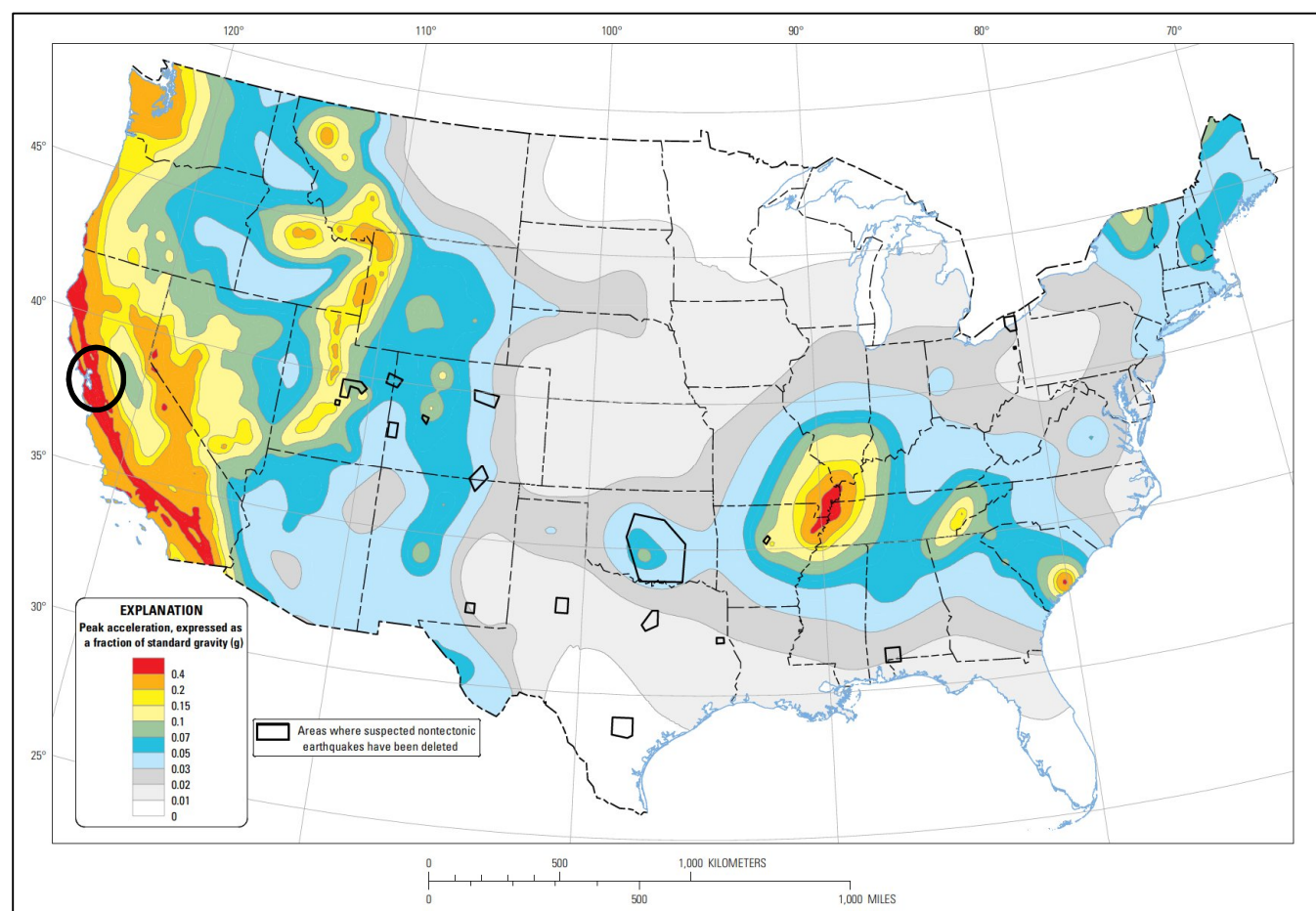
8.1.3 Ground Motion

Earthquake hazard assessment is also based on expected ground motions. During an earthquake when the ground is shaking, it experiences acceleration. The peak ground acceleration (PGA) is the largest increase in velocity recorded by a particular station during an earthquake. PGA indicates the severity of an earthquake and is a measure of how hard the earth shakes, or accelerates, in a given geographic area. It is measured in g (the acceleration due to gravity), expressed as a percentage of that acceleration (%g). Horizontal and vertical PGA varies with soil or rock type. Instruments called accelerographs record levels of ground motion due to earthquakes at stations throughout a region. These readings are recorded by state and federal agencies that monitor and predict seismic activity. Earthquake hazard assessment involves estimating the annual probability that certain ground motion accelerations will be exceeded, and then summing the annual probabilities over the time period of interest.

National maps of earthquake shaking hazards, which have been produced since 1948, provide information for creating and updating seismic design requirements for building codes, insurance rate structures, earthquake loss studies, retrofit priorities and land use planning. After thorough review of the studies, professional organizations of engineers update the seismic-risk maps and seismic design requirements contained in building codes (Brown et al., 2001). The USGS updated the National Seismic Hazard Maps in 2014. New seismic, geologic, and geodetic information on earthquake rates and associated ground shaking were incorporated into these revised maps. The 2014 map, shown in Figure 8-1, represents the best available data as determined by the USGS.

Building codes that include seismic provisions specify the horizontal force due to lateral acceleration that a building should be able to withstand during an earthquake. Buildings, bridges, highways and utilities built to meet modern seismic design requirements are typically able to withstand earthquakes better, with less damage and disruption. PGA values are directly related to these lateral forces that could damage “short period structures” (e.g. single-family dwellings). Longer-period response components determine the lateral forces that damage taller structures with longer natural periods (apartment buildings, factories, high-rises, bridges). Table 8-1 lists damage potential and perceived shaking by PGA factors, compared to the Mercalli scale.

Source: USGS, 2014



Note: The black circle indicates the approximate vicinity of Santa Clara County

Figure 8-1. Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years

Table 8-1. Mercalli Scale and Peak Ground Acceleration Comparison

Modified Mercalli Scale	Perceived Shaking	Potential Structure Damage		Estimated PGA ^a (%g)
		Resistant Buildings	Vulnerable Buildings	
I	Not Felt	None	None	<0.17%
II-III	Weak	None	None	0.17% - 1.4%
IV	Light	None	None	1.4% - 3.9%
V	Moderate	Very Light	Light	3.9% - 9.2%
VI	Strong	Light	Moderate	9.2% - 18%
VII	Very Strong	Moderate	Moderate/Heavy	18% - 34%
VIII	Severe	Moderate/Heavy	Heavy	34% - 65%
IX	Violent	Heavy	Very Heavy	65% - 124%
X - XII	Extreme	Very Heavy	Very Heavy	>124%

a. PGA measured in percent of g, where g is the acceleration of gravity

Sources: USGS, 2008; USGS, 2010

8.1.4 Effect of Soil Types

The impact of an earthquake on structures and infrastructure is largely a function of ground shaking, distance from the source of the quake, and liquefaction, a secondary effect of an earthquake in which soils lose their shear strength and flow or behave as liquid, thereby damaging structures that derive their support from the soil. Liquefaction generally occurs in soft, unconsolidated sedimentary soils and shallow water table.

A program called the National Earthquake Hazard Reduction Program (NEHRP) creates maps based on soil characteristics to help identify locations subject to liquefaction. Table 8-2 summarizes NEHRP soil classifications. NEHRP Soils B and C typically can sustain ground shaking without much effect, dependent on the earthquake magnitude. The areas that are commonly most affected by ground shaking have NEHRP Soils D, E and F. In general, these areas are also most susceptible to liquefaction.

Table 8-2. NEHRP Soil Classification System

NEHRP Soil Type	Description	Mean Shear Velocity to 30 m (m/s)
A	Hard Rock	1,500
B	Firm to Hard Rock	760-1,500
C	Dense Soil/Soft Rock	360-760
D	Stiff Soil	180-360
E	Soft Clays	< 180
F	Special Study Soils (liquefiable soils, sensitive clays, organic soils, soft clays >36 m thick)	

The USGS has created a soil type map for the San Francisco Bay area that provides rough estimates of site effects based on surface geology. NEHRP soil types were assigned to a geologic unit based on the average velocity of that unit, and the USGS notes that this approach can lead to some inaccuracy. For instance, a widespread unit consisting of Quaternary sand, gravel, silt, and mud has been assigned as Class C soil types; however, some of the slower soil types in this unit fall under Class D. USGS does not have any way of differentiating units for slower-velocity soils in its digital geologic dataset (USGS, 2016e).

8.2 HAZARD PROFILE

The Bay region is located within the active boundary between the Pacific and the North American tectonic plates. The western edge of the Santa Clara County OA is on the Pacific Plate, which is constantly moving northwest past the North American Plate at a rate of about 2 inches per year (CalOES, 2013). Earthquakes in the San Francisco Bay region result from strain energy constantly accumulating across the region because of the motion of the Pacific Plate relative to the North American Plate. The San Andreas Fault, on which earthquakes of magnitude 7.8 and 7.9 have occurred in historical time, including the 1906 San Francisco earthquake, is the fastest slipping fault along the plate boundary.

8.2.1 Past Events

The last major earthquake with an epicenter in the Santa Clara County OA was the 1984 Morgan Hill Earthquake (Magnitude 6.2). The epicenter of the 1989 Loma Prieta Earthquake (Magnitude 7.1) was just a few miles outside the OA. Since then, there have been no significant seismic events in Santa Clara County (ABAG, 2016). Other significant earthquakes in California include the 1906 earthquake in San Francisco, the 1971 San Fernando Earthquake, the 1994 Northridge earthquake, and the 2014 Napa earthquake.

The Morgan Hill Earthquake of April 24, 1984, was a moderate size earthquake on the Calaveras Fault. It caused moderate damage that extended southward from the epicenter. In the Santa Clara County OA, where most of the

damage occurred, more than 550 structures experienced minor damage. Major structural damage was mainly confined to a small area on two streets in the Jackson Oaks subdivision east of Morgan Hill. There were numerous reports of fires resulting from the earthquake. Minor damage was also reported in San Martin and Coyote. Twenty seven people were injured (ABAG, 2010). This event led to a FEMA major disaster declaration (DR-845).

The Loma Prieta Earthquake on October 17, 1989, occurred near Loma Prieta in the Santa Cruz Mountains along the San Andreas Fault. Thousands of landslides across the area blocked roads and highways, impacting rescue efforts and damaging structures. In Santa Clara County, collapsed and damaged buildings were reported in Gilroy, Los Gatos, and San José (Santa Clara HMP, 2011).

California has been included in 12 FEMA major disaster (DR) or emergency (EM) declarations for earthquakes. Santa Clara County was included in only one declaration: DR-845 for the Loma Prieta Earthquake, which occurred in 1989. The declaration for this event covered Alameda, Contra Costa, Marin, Monterey, Sacramento, San Benito, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, and Solano Counties. Figure 8-2 and Table 8-3 summarize recent earthquakes of magnitude of 5.0 or greater within a 100-mile radius of the OA.

Source: USGS, 2016d

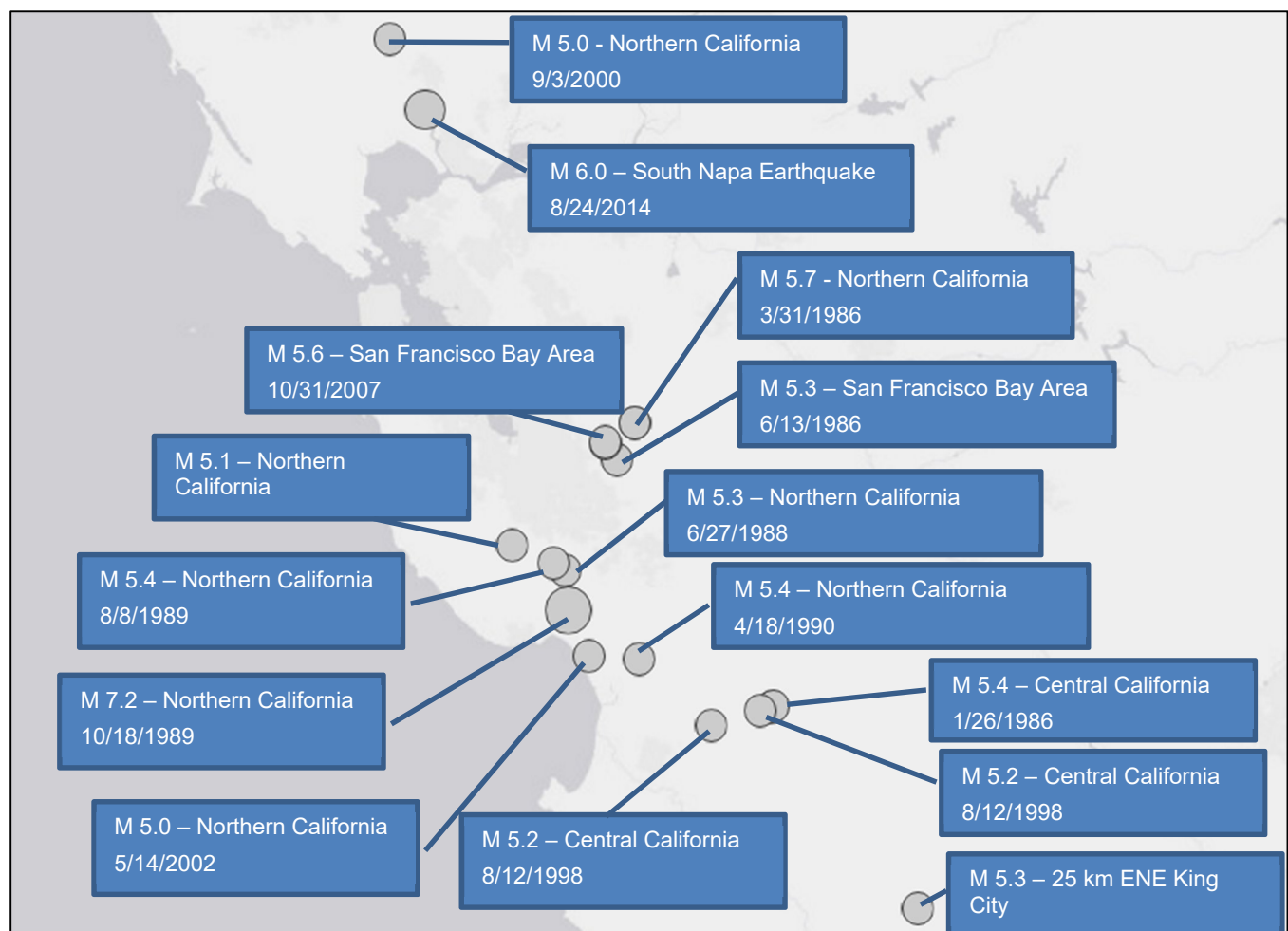


Figure 8-2. Recent Earthquakes Within 100-mile Radius of the OA

Table 8-3. Recent Earthquakes Magnitude 5.0 or Larger Within 100-mile Radius of the OA

Date	Magnitude	Epicenter Location
8/24/2014	6.0	South Napa Earthquake
10/21/2012	5.3	28 km east-northeast of King City, CA
10/31/2007	5.6	San José, California
5/14/2002	5	Northern California
9/3/2000	5	Northern California
8/12/1998	5.2	Central California
4/18/1990	5.4	Northern California
10/18/1989	7.2	Northern California
8/8/1989	5.2	Central California
6/27/1989	5.3	Northern California
6/13/1988	5.3	San Francisco Bay area, California
2/20/1988	5.1	Central California
3/31/1986	5.6	Northern California
1/26/1986	5.4	Central California

8.2.2 Location

Santa Clara County is exposed to major regional faults: Hayward, Calaveras, and San Andreas. The Hayward and Calaveras faults are in the central portion of Santa Clara County and present the greatest earthquake threat to the OA. The San Andreas Fault is on the northwestern boundary of the OA and runs through hills separating Santa Clara County from Santa Cruz County. The primary seismic hazard for the OA is potential ground shaking from these three large faults (ABAG, 2016). The Greenville fault in the northeastern portion of the county presents less risk than these three major faults. Figure 8-3 provides location and probability of area fault lines. Specific probabilities associated with the three major faults are described in the following sections.

Hayward Fault

The Hayward Fault runs parallel to and east of the San Andreas Fault. It extends from San José about 74 miles northward along the base of the East Bay Hills to San Pablo Bay. The Hayward Fault extends through some of the Bay Area's most populated areas. Communities on or near the fault include San José, Oakland, Fremont, Richmond, Berkeley, Hayward, San Leandro, San Lorenzo, El Cerrito, Emeryville, Kensington and Milpitas. Among other sites, the fault runs directly under the now-abandoned old city hall in downtown Hayward, the University of California-Berkeley football stadium, the Mira Vista Golf Course near Berkeley, Lake Temescal, Contra Costa College, and Port Pinole Shoreline Regional Park. The Hayward Fault is a right-lateral slip fault.

The Hayward Fault is becoming a hazard priority throughout the Bay Area because of its increased chance for activity and its intersection with multiple highly populated areas and critical infrastructure. The probability of experiencing a Magnitude 6.7 or greater earthquake along the Hayward Fault in the next 30 years is 33 percent. An earthquake of this magnitude has regional implications for the entire Bay Area, as the Hayward Fault crosses transportation and resource infrastructure, such as multiple highways and the Hetch-Hetchy Aqueduct. Disruption of the Hetch-Hetchy system has the potential to severely impair water service to the Santa Clara County OA.

An important difference between the Hayward and San Andreas faults is “aseismic creep.” The San Andreas Fault is locked in many places; much of its energy is released in the form of earthquakes. However, creep occurs in spots along the Hayward Fault. The ground moves a few millimeters each year, pulling apart sidewalks, pipelines and other structures that sit astride the fault. At Memorial Stadium at the University of California Berkeley, which was built in 1923, creep has caused the two sides of the stadium to be offset more than a foot, requiring retrofitting with expansion joints. Creep accounts for a small part of the total motion that takes place on a fault over geologic time; earthquakes account for the rest. (California Department of Conservation, 2017).

Source is USGS. <https://pubs.usgs.gov/fs/2016/3020/fs20163020.pdf>

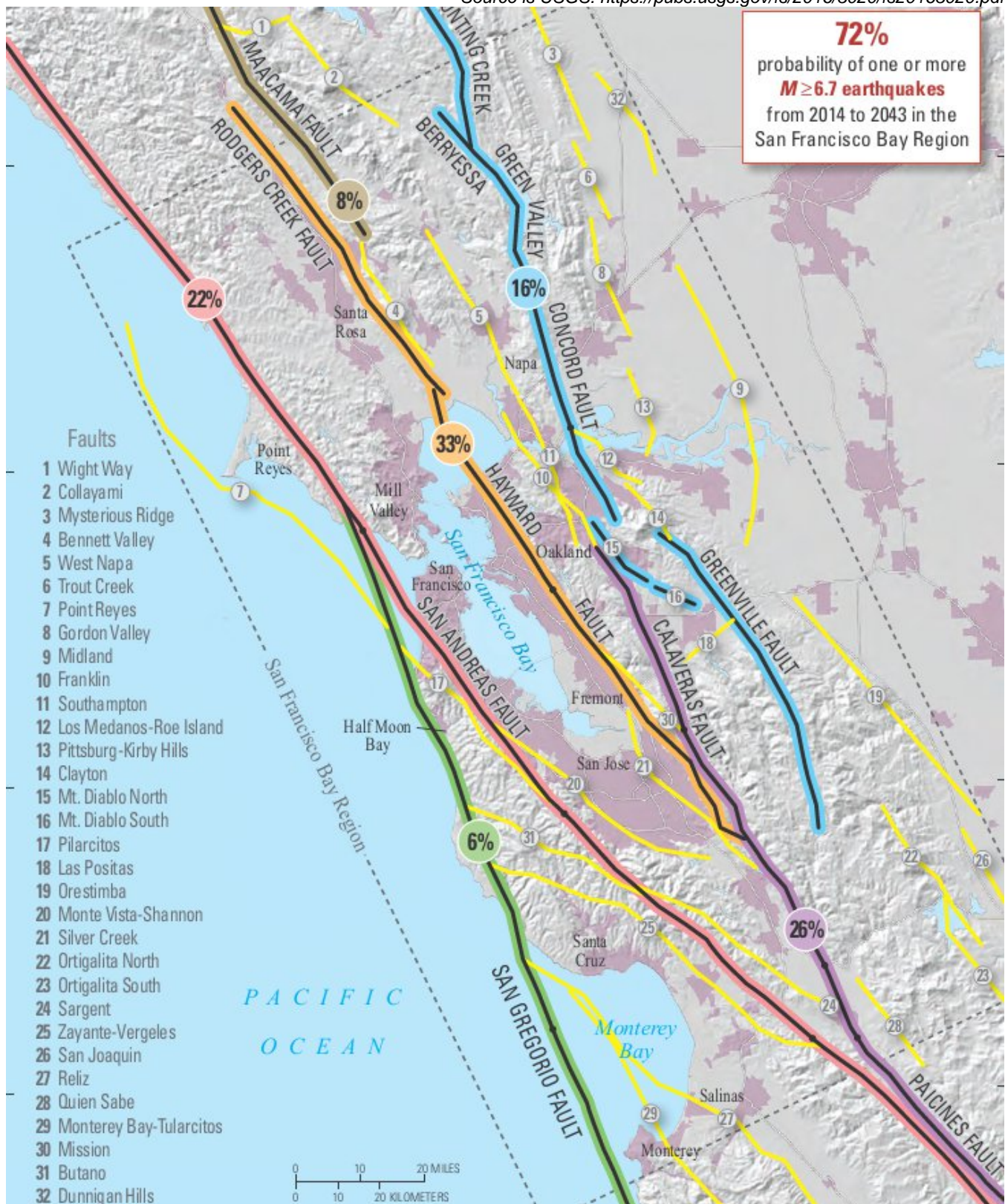


Figure 8-3. Significant Known Faults in the Bay Area

Calaveras Fault

The Calaveras Fault is a major branch of the San Andreas Fault, located to the east of the Hayward Fault. It extends 76 miles from the San Andreas Fault near Hollister to Danville at its northern end. The Calaveras Fault is one of the most geologically active and complex faults in the Bay Area (USGS, 2003). The probability of experiencing a Magnitude 6.7 or greater earthquake along the Calaveras Fault in the next 30 years is 26 percent.

San Andreas Fault

The San Andreas Fault extends 810 miles from the East Pacific rise in the Gulf of California through the Mendocino fracture zone off the shore of northern California. The fault is estimated to be 28 million years old. The San Andreas Fault is an example of a transform boundary exposed on a continent. It forms the tectonic boundary between the Pacific Plate and the North American Plate, and its motion is right-lateral strike-slip.

The San Andreas Fault is typically referenced in three segments. The southern segment extends from its origin at the East Pacific Rise to Parkfield, California, in Monterey County. The central segment extends from Parkfield to Hollister, California. The northern segment extends northwest from Hollister, through Santa Clara County, to its ultimate junction with the Mendocino fracture zone and the Cascadia subduction zone in the Pacific Ocean. The probability of experiencing a Magnitude 6.7 or greater earthquake along the San Andreas Fault within the next 30 years is 22 percent.

Maps of Earthquake Impact on the OA

The impact of an earthquake is largely a function of the following components:

- Surface fault rupture
- Ground shaking (ground motion accelerations)
- Liquefaction (soil instability).

Impacts vary with distance from the source (both horizontally and vertically). Mapping that shows the impacts of these components was used to assess the risk of earthquakes within the OA, as described in the sections below.

Probabilistic Seismic Hazard Map

A probabilistic seismic hazard map shows the hazard from earthquakes that geologists and seismologists agree could occur. The maps are expressed in terms of probability of exceeding a certain ground motion, such as the 10-percent probability of exceedance in 50 years. This level of ground shaking has been used for designing buildings in high seismic areas. Figure 8-4 and Figure 8-5 show the estimated ground motion for the 100-year and 500-year probabilistic earthquake ground motions in the OA.

Shake Maps

A shake Map is a representation of ground shaking produced by an earthquake. The information it presents is different from the earthquake magnitude and epicenter that are released after an earthquake because shake maps focus on the ground shaking resulting from the earthquake, rather than the parameters describing the earthquake source. An earthquake has only one magnitude and one epicenter, but it produces a range of ground shaking at sites throughout the region, depending on the distance from the earthquake, the rock and soil conditions at sites, and variations in the propagation of seismic waves from the earthquake due to complexities in the structure of the earth's crust. A shake map shows the extent and variation of ground shaking in a region immediately following significant earthquakes.

Figure Placeholder

Figure 8-4. 100-Year Probabilistic Earthquake Scenario Peak Ground Acceleration

Figure Placeholder

Figure 8-5. 500-Year Probabilistic Earthquake Scenario Peak Ground Acceleration

Ground motion and intensity maps are derived from peak ground motion amplitudes recorded on seismic sensors (accelerometers), with interpolation based on estimated amplitudes where data are lacking, and site amplification corrections. Color-coded instrumental intensity maps are derived from empirical relations between peak ground motions and Modified Mercalli intensity.

There are two types of scenario ground motion maps: a ShakeMap of median shaking for a fault rupture; and a map of simulated ground motions for a specified earthquake hypocenter and fault rupture. The latter is more like an earthquake event and presents more variability in ground motions than a scenario shake map.

Earthquake scenario maps describe the expected ground motions and effects of hypothetical large earthquakes for a region. The following scenarios were chosen for this plan:

- A Magnitude 7.0 on the Hayward Fault with an epicenter approximately 25 miles north of the City of Palo Alto. Figure 8-6 shows the simulated ground motion map.
- A Magnitude 7.0 on the Calaveras Fault with an epicenter approximately 25 miles north of the City of Milpitas. Figure 8-7 shows the scenario ShakeMap.
- A Magnitude 7.8 on the San Andreas Fault with an epicenter approximately 148 miles northwest of the City of Palo Alto. Figure 8-8 shows the scenario ShakeMap.

NEHRP Soil Maps

NEHRP soil types define the locations that will be significantly impacted by an earthquake. NEHRP Soils B and C typically can sustain low-magnitude ground shaking without much effect. The areas that are most commonly affected by ground shaking have NEHRP Soils D, E and F. Figure 8-9 shows NEHRP soil classifications in the Santa Clara County OA.

Liquefaction Maps

Soil liquefaction maps are useful tools to assess potential damage from earthquakes. When the ground liquefies, sandy or silty materials saturated with water behave like a liquid, causing pipes to leak, roads and airport runways to buckle, and building foundations to be damaged. In general, areas with NEHRP Soils D, E and F are also susceptible to liquefaction. If there is a dry soil crust, excess water will sometimes come to the surface through cracks in the confining layer, bringing liquefied sand with it, creating sand boils. Figure 8-10 shows the liquefaction susceptibility in the Santa Clara County OA.

Alquist-Priolo Zone Maps

The sliding movement of earth on either side of a fault is called fault rupture. Fault rupture begins below the ground surface at the earthquake hypocenter, typically between 3 and 12 miles below the ground surface in California. If an earthquake is large enough, the fault rupture will travel to the ground surface, potentially destroying structures built across its path (CalOES, 2013).

California's Alquist-Priolo Zone maps define regulatory zones for potential surface fault rupture where fault lines intersect with future development and populated areas. The purpose of these maps is to assist in the geologic investigation before construction begins to ensure that structures will not be located on an active fault. The Santa Clara County OA is located in a designated Alquist-Priolo Zone for the Hayward Fault (California Department of Conservation, 2010).

Alquist-Priolo maps were referenced, but not specifically used, in the assessment of risk for this plan. This plan assumes that the studies conducted and information provided by the State of California are the best available data for surface rupture risk and could not be improved through a separate assessment for this plan. Alquist-Priolo maps are available to the public on the California Department of Conservation website.

Figure Placeholder

Figure 8-6. Hayward M7.0 Fault Scenario Peak Ground Acceleration

Figure Placeholder

Figure 8-7. Calaveras M7.0 Fault Scenario Peak Ground Acceleration

Figure Placeholder

Figure 8-8. San Andreas M7.8 Fault Scenario Peak Ground Acceleration

Figure Placeholder

Figure 8-9. National Earthquake Hazard Reduction Program Soil Classifications

Figure Placeholder

Figure 8-10. Liquefaction Susceptibility

8.2.3 Frequency

California experiences hundreds of earthquakes each year, most with minimal damage and magnitudes below 3.0 on the Richter Scale. Earthquakes that cause moderate damage to structures occur several times a year. According to the USGS, a strong earthquake measuring greater than 5.0 on the Richter Scale occurs every 2 to 3 years and major earthquakes of more than 7.0 on the Richter Scale occur once a decade. Both the San Andreas and the Hayward Faults have the potential for experiencing major to great events.

The USGS has created ground motion maps based on current information about fault zones. These maps show the PGA that has a certain probability (2 percent or 10 percent) of being exceeded in a 50-year period. The maps were most recently updated in 2014 with new seismic, geologic, and geodetic information on earthquake rates and ground shaking, representing the best currently available data. The 2014 map for California shows that for Santa Clara County, the PGA with a 10-percent probability of exceedance in 50 years is 0.4g (see Figure 8-11).

The USGS estimated in 2016 that there is a 72-percent probability of at least one earthquake before 2043 with a magnitude of 6.7 or greater that could cause widespread damage in the San Francisco Bay area (USGS, 2015). California's state hazard mitigation plan (CalOES, 2013) cites projections that in the next 30 years there is more than a 99-percent probability of a Magnitude 6.7 earthquake in California and a 94-percent probability of a Magnitude 7.0 earthquake. Probabilities for earthquakes on major fault lines in the San Francisco Bay Area have been estimated by the USGS in its 2016 report, as summarized in Table 8-4.

Table 8-4. Earthquake Probabilities for the San Francisco Bay Area Region, 2014-2043

Fault	Probability of One or More M \geq 6.7 Quake 2014-2043
Hunting Creek	16%
Green Valley	16%
Concord	16%
Greenville	16%
Berryessa	16%
Calaveras	26%
Maacama	8%
Rodgers Creek Fault	33%
Hayward	33%
San Andreas	22%
San Gregorio	6%

Source: USGS, 2015

8.2.4 Severity

The severity of an earthquake can be expressed in terms of intensity or magnitude:

- Intensity represents the observed effects of ground shaking at any specified location. The intensity of earthquake shaking lessens with distance from the earthquake epicenter. Tabulated peak ground accelerations for a listed “maximum credible earthquakes” are a measure of how a site will be affected by seismic events on distant faults.
- Magnitude represents the amount of seismic energy released at the hypocenter of the earthquake. It is based on the amplitude of the earthquake waves recorded on instruments. Magnitude is thus represented by a single, instrumentally determined value.

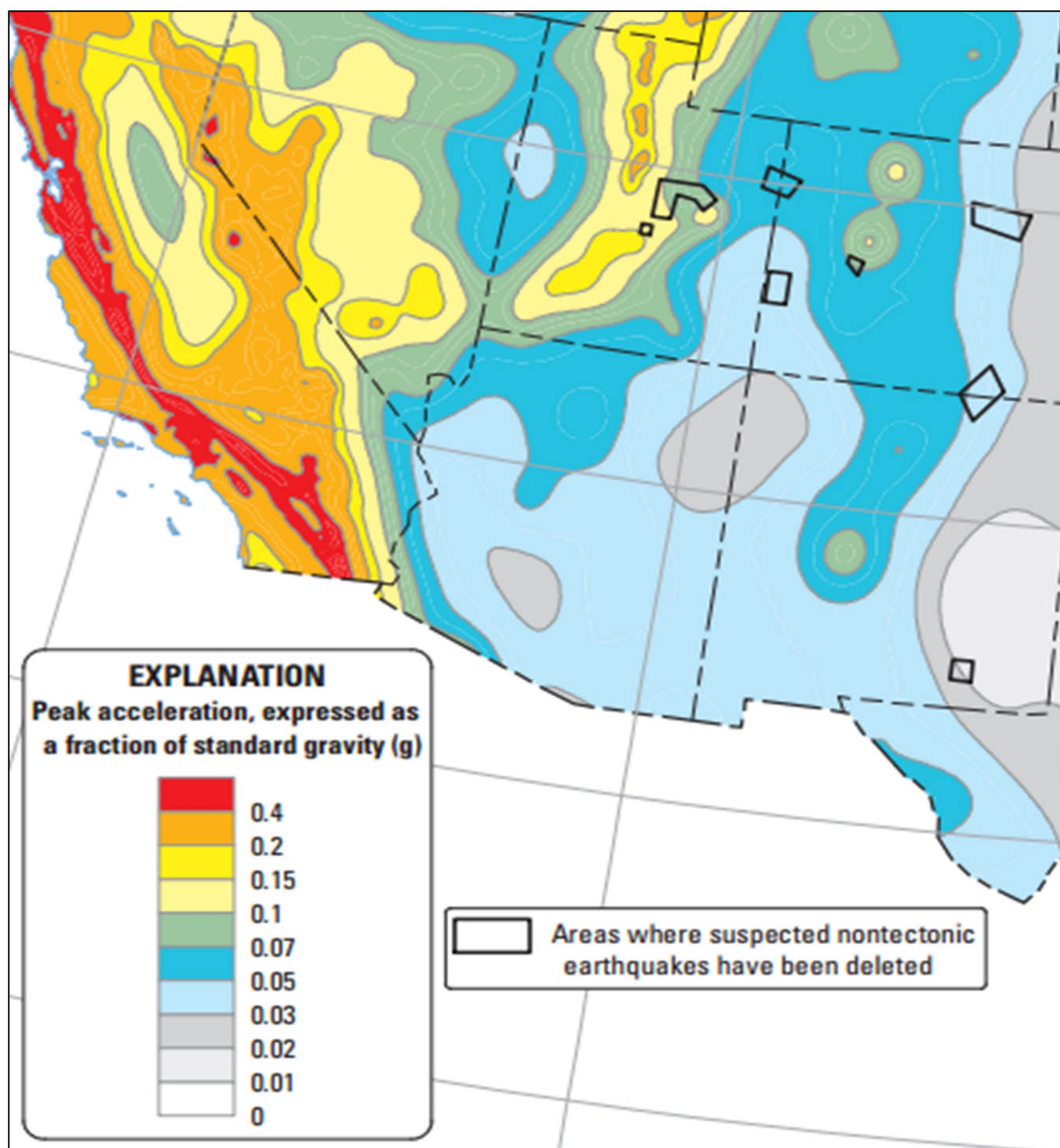


Figure 8-11. Peak Ground Acceleration with 10-percent Probability of Exceedance in 50 Years

ABAG estimates a potential loss of 159,000 housing units in Bay Area communities after a large earthquake. This loss would have disastrous effects on local and regional economies. Recovery, repair, and rebuilding time for each household would be lengthy because of the number of homes that would need repair or replacement.

8.2.5 Warning Time

There is no current reliable way to predict the day or month that an earthquake will occur at any given location. Research and beta testing are being done with warning systems that use telecommunications that can travel faster than an earthquake's high energy waves, called S waves. The warning is generated by a rupture at an earthquake's hypocenter and telecommunicated to provide a warning for shaking before the S waves arrive. These potential earthquake early warning systems could give up to approximately 40 seconds' notice of peak earthquake shaking. The warning time is very short, but it could allow for someone to get under a desk, step away from a hazardous material, or shut down a computer system.

8.3 SECONDARY HAZARDS

Earthquakes can cause large and sometimes disastrous landslides and mudslides. River valleys are vulnerable to slope failure, often as a result of loss of cohesion in clay-rich soils. Soil liquefaction occurs when water-saturated sands, silts, or gravelly soils are shaken so violently that the individual grains lose contact with one another and "float" freely in the water, turning the ground into a pudding-like liquid. Building and road foundations lose load-bearing strength and may sink quicksand-like into what was previously solid ground. Unless properly secured, hazardous materials can be released, causing significant damage to the environment and people.

Earthen dams and levees are highly susceptible to seismic events, and the impacts of their eventual failures can be considered secondary risk exposure to earthquakes. Depending on the location, earthquakes can also trigger tsunamis. Additionally, fires can result from gas lines or power lines that are broken or downed during the earthquake. It may be difficult to control a fire, particularly if the water lines feeding fire hydrants are also broken. After the 1906 earthquake in San Francisco, for example, a fire burned for three days, destroying much of the city and leaving 250,000 people homeless (Michigan Tech University, no date).

8.4 EXPOSURE

8.4.1 Population

The entire population of the OA is potentially exposed to direct and indirect impacts from earthquakes. The degree of exposure is dependent on many factors, including the age and construction type of the structures people live in, the soil type their homes are constructed on, their proximity to fault location, etc. Whether directly impacted or indirectly impact, the entire population will have to deal with the consequences of earthquakes to some degree. Business interruption could keep people from working, road closures could isolate populations, and loss of functions of utilities could impact populations that suffered no direct damage from an event itself.

8.4.2 Property

According to Santa Clara County Tax Assessor records, there are 464,223 buildings in the OA, with a total replacement value of \$477 billion. Since all structures in the OA are susceptible to earthquake impacts to varying degrees, this total represents the property exposure to seismic events. Table 8-5 shows the exposure value breakdown by municipality with the OA.

Table 8-5. Earthquake Exposure by Municipality

Jurisdiction	Total # of Buildings	Total Building Value—Structure and Contents
Campbell	11,987	\$11,181,660,749
Cupertino	16,413	\$13,890,786,985
Gilroy	13,144	\$13,401,505,586
Los Altos	10,981	\$8,825,187,782
Los Altos Hills	2,970	\$3,242,710,721
Los Gatos	10,407	\$10,893,322,460
Milpitas	18,242	\$19,146,882,365
Monte Sereno	1,218	\$872,909,228
Morgan Hill	11,974	\$11,160,393,427
Mountain View	18,891	\$25,062,452,472
Palo Alto	20,209	\$25,777,115,586
San José	235,552	\$213,377,474,752
Santa Clara (city)	28,809	\$43,398,577,930
Saratoga	10,830	\$8,143,761,638
Sunnyvale	31,915	\$42,852,045,398
Unincorporated County	20,681	\$25,352,649,992
Total	464,223	\$476,579,437,071

8.4.3 Critical Facilities and Infrastructure

All critical facilities in the OA are exposed to the earthquake hazard. Table 4-4 lists the number of each type of facility by jurisdiction. Hazardous materials releases can occur during an earthquake from fixed facilities or transportation-related incidents. Transportation corridors can be disrupted during an earthquake, leading to the release of materials to the surrounding environment. Facilities holding hazardous materials are of particular concern because of possible isolation of neighborhoods surrounding them. During an earthquake, structures storing these materials could rupture and leak into the surrounding area or an adjacent waterway, having a disastrous effect on the environment, or emit chemicals in a toxic plume.

8.4.4 Environment

Environmental problems as a result of an earthquake can be numerous. Secondary hazards will likely have some of the most damaging effects on the environment. Earthquake-induced landslides in landslide-prone areas can significantly damage surrounding habitat. It is also possible for streams to be rerouted after an earthquake. Rerouting can change the water quality, possibly damaging habitat and feeding areas. There is a possibility that streams fed by groundwater wells will dry up because of changes in underlying geology.

8.5 VULNERABILITY

Earthquake vulnerability data was generated using a Level 2 Hazus analysis. Once the location and size of a hypothetical earthquake are identified, Hazus estimates the intensity of the ground shaking, the number of buildings damaged, the number of casualties, the damage to transportation systems and utilities, the number of people displaced from their homes, and the estimated cost of repair and clean up.

8.5.1 Population

There are estimated to be 34,006 people in 7,803 households living on soils with high to very high liquefaction potential in the OA, or about 1.8 percent of the total population. Impacts on persons and households in the OA were estimated for the 100-year and 500-year shaking from earthquakes and the three scenario events through the Level 2 Hazus analysis. Table 8-6 summarizes the results.

Table 8-6. Estimated Earthquake Impact on Persons

Scenario	Number of Displaced Households	Number of Persons Requiring Short-Term Shelter
100-Year Shaking from Earthquakes	14,823	9,185
500-Year Shaking from Earthquakes	54,146	34,220
San Andreas ShakeMap Scenario	6,798	3,742
Calaveras ShakeMap Scenario	1,204	805
Hayward ShakeMap Scenario	7,258	4,403

The 100-year shaking results are less than the 500-year shaking results because stronger shaking occurs less often and is more likely to occur in a 500-year period than a 100-year period. The results for the Hayward fault simulation are larger than those for the San Andrea scenario because a simulation is more like a real event with more variable ground shaking than a ShakeMap, and stronger ground motions cause more damage. Therefore, it should not be concluded that a Hayward fault earthquake would be more damaging than a San Andreas fault earthquake in Santa Clara county. The relativity of these results is similar in the following property damage assessments.

8.5.2 Property

Building Age

Table 8-7 identifies significant milestones in building and seismic code requirements that directly affect the structural integrity of development. Using these time periods, the Core Planning Group used Hazus to identify the number of structures in the OA by date of construction.

Table 8-7. Age of Structures in OA

Time Period	Number of Current OA Structures Built in Period	Significance of Time Frame
Pre-1933	17,185	Before 1933, there were no explicit earthquake requirements in building codes. State law did not require local governments to have building officials or issue building permits.
1933-1940	6,416	In 1940, the first strong motion recording was made.
1941-1960	111,973	In 1960, the Structural Engineers Association of California published guidelines on recommended earthquake provisions.
1961-1975	139,907	In 1975, significant improvements were made to lateral force requirements.
1976-1994	107,185	In 1994, the Uniform Building Code was amended to include provisions for seismic safety.
1994 - present	81,557	Seismic code is currently enforced.
Total	464,223	

The number of structures does not reflect the number of total housing units, as many multi-family units and attached housing units are reported as one structure. Approximately 17.6 percent of the OA's structures were constructed after the Uniform Building Code was amended in 1994 to include seismic safety provisions.

Approximately 3.7 percent were built before 1933 when there were no building permits, inspections, or seismic standards.

Soft-Story Buildings

A soft-story building is a multi-story building with one or more floors that are “soft” because of structural design. If a building has a floor that is 70-percent less stiff than the floor above it, it is considered a soft-story building. This soft story creates a major weak point in an earthquake. Since soft stories are typically associated with retail spaces and parking garages, they are often on the lower stories of a building. When they collapse, they can take the whole building down with them, causing serious structural damage that may render the structure totally unusable.

These floors can be especially dangerous in earthquakes because they cannot cope with the lateral forces caused by the swaying of the building during a quake. As a result, the soft story may fail, causing what is known as a soft-story collapse. Soft-story collapse is one of the leading causes of earthquake damage to private residences.

Loss estimation and vulnerability analyses based on models with specified fragility curves for soft-story construction in the OA are not currently available to support quantitative analyses of risk. There are qualitative reports on risk available within the OA. These reports were not used for this analysis due to their lack of quantitative data. ABAG and other agencies in the Bay Area have programs generating this type of data, but it is not known when such data will be available for the Santa Clara County OA. This type of data will need to be generated to support future risk assessments of the earthquake hazard.

Unreinforced Masonry Buildings

Unreinforced masonry buildings are constructed from materials such as adobe, brick, hollow clay tiles, or other masonry materials and do not contain an internal reinforcing structure, such as rebar in concrete or steel bracing for brick. Unreinforced masonry poses a significant danger during an earthquake because the mortar holding masonry together is typically not strong enough to withstand significant earthquakes. Additionally, the brittle composition of these houses can break apart and fall away or buckle, potentially causing a complete collapse of the building.

In the Santa Clara County OA, unreinforced masonry buildings are generally brick buildings that were constructed before modern earthquake building codes and designs were enacted. The State of California enacted a law in 1986 that required all local governments in Seismic Zone 4 (nearest to active earthquake faults) to inventory unreinforced masonry buildings. The law encourages local governments to adopt local mandatory strengthening programs, delineate seismic retrofit standards, and put into place measures to reduce the number of people in unreinforced masonry buildings.

According to ABAG, housing units in unreinforced masonry buildings account for only 1-percent of the total Bay Area housing stock and 2.9-percent of the total Bay Area multi-family stock.

Loss Potential

Property losses were estimated through the Level 2 Hazus analysis for the 100-year and 500-year earthquakes and the three scenario events. Table 8-8 through Table 8-12 show the results for two types of property loss:

- Structural loss, representing damage to building structures.
- Non-structural loss, representing the value of lost contents and inventory, relocation, income loss, rental loss, and wage loss.

Table 8-8. Loss Estimates for 100-Year Probabilistic Earthquake

Jurisdiction	Estimated Loss Associated with Earthquake			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$505,996,427	\$169,701,861	\$675,698,288	6.0%
Cupertino	\$472,758,374	\$149,906,631	\$622,665,005	4.5%
Gilroy	\$987,983,263	\$335,108,563	\$1,323,091,826	9.9%
Los Altos	\$214,771,634	\$69,176,386	\$283,948,020	3.2%
Los Altos Hills	\$47,488,693	\$15,366,287	\$62,854,981	1.9%
Los Gatos	\$409,842,678	\$128,919,536	\$538,762,214	4.9%
Milpitas	\$1,463,680,416	\$545,788,776	\$2,009,469,193	10.5%
Monte Sereno	\$20,976,126	\$6,568,989	\$27,545,114	3.2%
Morgan Hill	\$632,735,072	\$231,755,018	\$864,490,090	7.7%
Mountain View	\$977,754,443	\$366,874,887	\$1,344,629,330	5.4%
Palo Alto	\$765,915,867	\$264,705,357	\$1,030,621,224	4.0%
San José	\$12,478,614,024	\$4,258,371,674	\$16,736,985,698	7.8%
Santa Clara (city)	\$2,233,949,303	\$853,038,669	\$3,086,987,972	7.1%
Saratoga	\$232,740,429	\$71,128,743	\$303,869,171	3.7%
Sunnyvale	\$2,293,623,291	\$866,490,416	\$3,160,113,707	7.4%
Unincorporated County	\$1,195,998,097	\$428,631,176	\$1,624,629,273	6.4%
Total	\$24,934,828,136	\$8,761,532,969	\$33,696,361,106	7.1%

Table 8-9. Loss Estimates for 500-Year Probabilistic Earthquake

Jurisdiction	Estimated Loss Associated with Earthquake			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$1,438,806,333	\$501,460,207	\$1,940,266,541	17.4%
Cupertino	\$1,493,375,153	\$481,454,968	\$1,974,830,121	14.2%
Gilroy	\$2,125,578,652	\$766,191,462	\$2,891,770,114	21.6%
Los Altos	\$660,942,324	\$213,836,429	\$874,778,753	9.9%
Los Altos Hills	\$269,561,245	\$83,572,523	\$353,133,768	10.9%
Los Gatos	\$1,565,681,355	\$499,357,070	\$2,065,038,425	19.0%
Milpitas	\$3,453,277,477	\$1,336,817,335	\$4,790,094,811	25.0%
Monte Sereno	\$81,828,223	\$26,022,814	\$107,851,037	12.4%
Morgan Hill	\$1,556,183,963	\$598,989,430	\$2,155,173,394	19.3%
Mountain View	\$2,714,834,855	\$999,369,227	\$3,714,204,082	14.8%
Palo Alto	\$3,121,522,448	\$1,119,984,940	\$4,241,507,389	16.5%
San José	\$30,697,874,311	\$10,721,388,274	\$41,419,262,585	19.4%
Santa Clara (city)	\$6,109,242,405	\$2,436,086,086	\$8,545,328,491	19.7%
Saratoga	\$782,305,711	\$237,727,257	\$1,020,032,967	12.5%
Sunnyvale	\$5,502,290,870	\$2,099,320,754	\$7,601,611,623	17.7%
Unincorporated County	\$3,747,240,300	\$1,352,454,448	\$5,099,694,748	20.1%
Total	\$65,320,545,625	\$23,474,033,224	\$88,794,578,850	18.6%

Table 8-10. Loss Estimates for San Andreas Fault Scenario Earthquake

Jurisdiction	Estimated Loss Associated with Earthquake			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$288,381,593	\$91,939,187	\$380,320,780	3.4%
Cupertino	\$394,938,108	\$121,571,712	\$516,509,820	3.7%
Gilroy	\$419,064,648	\$117,867,975	\$536,932,623	4.0%
Los Altos	\$168,040,477	\$60,915,166	\$228,955,644	2.6%
Los Altos Hills	\$73,012,402	\$26,086,665	\$99,099,067	3.1%
Los Gatos	\$551,147,772	\$160,453,296	\$711,601,068	6.5%
Milpitas	\$217,482,059	\$84,942,479	\$302,424,538	1.6%
Monte Sereno	\$25,384,893	\$7,985,652	\$33,370,545	3.8%
Morgan Hill	\$167,134,435	\$55,290,307	\$222,424,742	2.0%
Mountain View	\$729,409,216	\$250,935,763	\$980,344,980	3.9%
Palo Alto	\$822,534,220	\$277,726,356	\$1,100,260,576	4.3%
San José	\$3,651,329,465	\$1,178,457,733	\$4,829,787,198	2.3%
Santa Clara (city)	\$937,119,157	\$318,839,374	\$1,255,958,531	2.9%
Saratoga	\$275,758,169	\$87,183,818	\$362,941,987	4.5%
Sunnyvale	\$1,070,982,765	\$349,525,192	\$1,420,507,957	3.3%
Unincorporated County	\$936,808,771	\$326,396,017	\$1,263,204,788	5.0%
Total	\$10,728,528,152	\$3,516,116,691	\$14,244,644,843	3.0%

Table 8-11. Loss Estimates for Hayward Fault Scenario Earthquake

Jurisdiction	Estimated Loss Associated with Earthquake			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$145,652,171	\$57,004,474	\$202,656,645	1.8%
Cupertino	\$157,615,283	\$63,067,552	\$220,682,835	1.6%
Gilroy	\$155,997,953	\$58,596,414	\$214,594,367	1.6%
Los Altos	\$105,557,744	\$39,945,699	\$145,503,444	1.6%
Los Altos Hills	\$18,928,887	\$7,258,126	\$26,187,013	0.8%
Los Gatos	\$75,310,084	\$28,707,690	\$104,017,775	1.0%
Milpitas	\$1,324,794,294	\$457,349,460	\$1,782,143,754	9.3%
Monte Sereno	\$4,498,438	\$1,533,500	\$6,031,938	0.7%
Morgan Hill	\$62,285,836	\$26,761,682	\$89,047,518	0.8%
Mountain View	\$472,591,853	\$177,400,300	\$649,992,154	2.6%
Palo Alto	\$393,537,058	\$150,658,781	\$544,195,839	2.1%
San José	\$7,036,459,632	\$2,307,273,557	\$9,343,733,189	4.4%
Santa Clara (city)	\$1,262,160,116	\$513,816,830	\$1,775,976,946	4.1%
Saratoga	\$61,159,729	\$22,344,258	\$83,503,988	1.0%
Sunnyvale	\$919,597,590	\$330,574,618	\$1,250,172,208	2.9%
Unincorporated County	\$316,852,862	\$122,271,622	\$439,124,484	1.7%
Total	\$12,512,999,531	\$4,364,564,564	\$16,877,564,096	3.5%

Table 8-12. Loss Estimates for Calaveras Fault Scenario Earthquake

Jurisdiction	Estimated Loss Associated with Earthquake			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$41,154,055	\$20,587,484	\$61,741,540	0.6%
Cupertino	\$35,648,046	\$18,035,203	\$53,683,249	0.4%
Gilroy	\$375,692,676	\$118,641,437	\$494,334,113	3.7%
Los Altos	\$15,658,147	\$8,570,989	\$24,229,136	0.3%
Los Altos Hills	\$3,450,136	\$1,723,990	\$5,174,126	0.2%
Los Gatos	\$24,305,779	\$12,714,053	\$37,019,832	0.3%
Milpitas	\$346,665,577	\$129,750,710	\$476,416,287	2.5%
Monte Sereno	\$1,299,175	\$684,311	\$1,983,486	0.2%
Morgan Hill	\$248,724,109	\$84,812,585	\$333,536,695	3.0%
Mountain View	\$84,101,436	\$44,618,612	\$128,720,048	0.5%
Palo Alto	\$56,714,344	\$32,020,983	\$88,735,327	0.3%
San José	\$2,356,423,562	\$931,175,892	\$3,287,599,454	1.5%
Santa Clara (city)	\$290,057,384	\$147,835,571	\$437,892,955	1.0%
Saratoga	\$13,423,753	\$6,859,950	\$20,283,703	0.2%
Sunnyvale	\$219,546,926	\$113,196,728	\$332,743,654	0.8%
Unincorporated County	\$318,804,780	\$122,154,165	\$440,958,945	1.7%
Total	\$4,431,669,885	\$1,793,382,664	\$6,225,052,549	1.3%

A summary of the property-related loss results is as follows:

- For a 100-year probabilistic earthquake shaking, the estimated damage potential is \$33.7 billion, or 7.1 percent of the total replacement value for the OA.
- For a 500-year probabilistic earthquake shaking, the estimated damage potential is \$88.8 billion, or 18.6 percent of the total replacement value for the OA.
- For a 7.0-magnitude event on the San Andreas Fault, the estimated damage potential is \$14.2 billion, or 3 percent of the total replacement value for the OA.
- For a 7.0-magnitude event on the Hayward Fault, the estimated damage potential is \$16.9 billion or 3.5 percent of the total replacement value for the OA.
- For a 7.8-magnitude event on the Calaveras Fault, the estimated damage potential is \$6.2 billion, or 1.3 percent of the total replacement value for the OA.

The Hazus analysis also estimated the amount of earthquake-caused debris in the OA for the 100-year and 500-year earthquakes and the three scenario events, as summarized in Table 8-13.

Table 8-13. Estimated Earthquake-Caused Debris

Scenario	Debris to Be Removed (tons)
100-Year Earthquake	8,341.19
500-Year Earthquake	21,207.49
San Andreas Fault Scenario	4,044.37
Hayward Fault Scenario	4,270.05
Calaveras Fault Scenario	1,203.24

8.5.3 Critical Facilities and Infrastructure

Level of Damage

Hazus classifies the vulnerability of critical facilities to earthquake damage in five categories: no damage, slight damage, moderate damage, extensive damage, or complete damage. The model was used to assign a vulnerability category to each critical facility category in the OA. The analysis was performed for the 100-year and 500-year events and for all three fault scenarios. Results are summarized in Table 8-14 through Table 8-18.

Table 8-14. Estimated Damage to Critical Facilities from 100-Year Earthquake

Type of Critical Facility	Damage Probabilities (%)				
	None	Slight	Moderate	Extensive	Complete
Emergency Response / Public Health & Safety	59.01%	30.28%	8.75%	1.52%	0.42%
Infrastructure Lifeline	79.27%	10.18%	4.90%	3.89%	1.73%
Military Facilities	5.29%	58.86%	23.57%	9.58%	2.67%
Recovery Facilities	10.23%	23.93%	34.44%	23.62%	7.76%
Socioeconomic Facilities	36.79%	33.26%	24.07%	4.58%	1.28%
Hazardous Materials	17.65%	14.23%	38.53%	21.04%	8.51%
Overall	34.7%	28.5%	22.4%	10.7%	3.7%

Notes:

Damage level represents the highest-probability damage state for each facility

Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Table 8-15. Estimated Damage to Critical Facilities from 500-Year Earthquake

Type of Critical Facility	Damage Probabilities (%)				
	None	Slight	Moderate	Extensive	Complete
Emergency Response / Public Health & Safety	33.65%	41.57%	18.60%	3.58%	2.58%
Infrastructure Lifeline	41.97%	16.59%	11.75%	15.12%	14.54%
Military Facilities	0.86%	33.45%	31.05%	22.42%	12.19%
Recovery Facilities	0.73%	7.16%	18.27%	31.65%	42.17%
Socioeconomic Facilities	14.58%	25.17%	31.46%	17.14%	11.63%
Hazardous Materials	0.92%	1.51%	13.03%	35.48%	49.04%
Overall	15.5%	20.9%	20.7%	20.9%	22.0%

Notes:

Damage level represents the highest-probability damage state for each facility

Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Table 8-16. Estimated Damage to Critical Facilities from Hayward Fault

Type of Critical Facility	Damage Probabilities (%)				
	None	Slight	Moderate	Extensive	Complete
Emergency Response / Public Health & Safety	71.42%	24.54%	3.20%	0.72%	0.09%
Infrastructure Lifeline	84.93%	7.97%	3.49%	2.53%	1.06%
Military Facilities	7.07%	62.40%	20.98%	7.64%	1.89%
Recovery Facilities	9.45%	30.59%	39.02%	19.16%	1.76%
Socioeconomic Facilities	45.68%	37.92%	14.57%	1.69%	0.13%
Hazardous Materials	34.33%	21.99%	32.50%	9.98%	1.18%
Overall	42.1%	30.9%	19.0%	7.0%	1.0%

Notes:

Damage level represents the highest-probability damage state for each facility

Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Table 8-17. Estimated Damage to Critical Facilities from San Andreas Fault

Type of Critical Facility	Damage Probabilities (%)				
	None	Slight	Moderate	Extensive	Complete
Emergency Response / Public Health & Safety	84.28%	13.09%	2.36%	0.24%	0.01%
Infrastructure Lifeline	88.39%	7.01%	2.63%	1.48%	0.47%
Military Facilities	7.07%	62.40%	20.98%	7.64%	1.89%
Recovery Facilities	35.99%	35.29%	22.64%	5.49%	0.57%
Socioeconomic Facilities	59.68%	29.35%	10.32%	0.61%	0.02%
Hazardous Materials	14.67%	20.40%	49.77%	14.09%	1.05%
Overall	48.3%	27.9%	18.1%	4.9%	0.7%

Notes:

Damage level represents the highest-probability damage state for each facility

Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Table 8-18. Estimated Damage to Critical Facilities from Calaveras

Type of Critical Facility	Damage Probabilities (%)				
	None	Slight	Moderate	Extensive	Complete
Emergency Response / Public Health & Safety	90.24%	8.66%	0.99%	0.09%	0.00%
Infrastructure Lifeline	93.78%	4.14%	1.22%	0.65%	0.19%
Military Facilities	16.11%	67.77%	12.42%	3.15%	0.53%
Recovery Facilities	33.15%	39.76%	23.25%	3.34%	0.49%
Socioeconomic Facilities	78.26%	19.10%	2.57%	0.06%	0.00%
Hazardous Materials	62.94%	20.18%	15.79%	1.04%	0.03%
Overall	62.4%	26.6%	9.4%	1.4%	0.2%

Notes:

Damage level represents the highest-probability damage state for each facility

Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Time to Return to Functionality

Hazus estimates the time to restore critical facilities to fully functional use. Results are presented as probability of being functional at specified time increments: 1, 3, 7, 14, 30 and 90 days after the event. For example, Hazus may estimate that a facility has 5 percent chance of being fully functional at Day 3, and a 95-percent chance of being fully functional at Day 90. The analysis was performed for the 100-year and 500-year events and for all three fault scenarios. Results are summarized in Table 8-19 through Table 8-23.

Table 8-19. Functionality of Critical Facilities for 100-Year Event

Type of Critical Facility	# of Critical Facilities	Probability of Being Fully Functional (%)					
		at Day 1	at Day 3	at Day 7	at Day 14	at Day 30	at Day 90
Emergency Response / Public Health & Safety	288	59.0	59.7	88.6	89.3	98.0	99.3
Infrastructure Lifeline	1500	87.6	91.0	93.2	93.4	94.8	97.2
Military Facilities	1	74.7	85.9	89.8	90.3	91.4	96.0
Recovery Facilities	4	24.9	29.1	42.5	42.7	70.3	91.8
Socioeconomic Facilities	1382	36.7	37.9	69.5	70.0	94.1	98.4
Hazardous Materials	374	17.6	18.3	31.8	31.8	70.4	91.4
Total/Average	3,549	50.1	53.6	69.2	69.6	86.5	95.7

Table 8-20. Functionality of Critical Facilities for 500-Year Event

Type of Critical Facility	# of Critical Facilities	Probability of Being Fully Functional (%)					
		at Day 1	at Day 3	at Day 7	at Day 14	at Day 30	at Day 90
Emergency Response / Public Health & Safety	288	33.6	34.5	74.2	75.2	93.8	96.3
Infrastructure Lifeline	1500	58.3	65.6	70.0	70.8	72.8	81.7
Military Facilities	1	50.7	65.6	71.1	72.2	75.0	86.7
Recovery Facilities	4	10.2	13.7	17.0	17.4	29.4	58.0
Socioeconomic Facilities	1382	14.5	15.2	39.2	39.7	71.2	87.3
Hazardous Materials	374	0.9	0.9	2.4	2.4	15.4	50.9
Total/Average	3,549	28.0	32.6	45.6	46.3	59.6	76.8

Table 8-21. Functionality of Critical Facilities for Hayward Fault

Type of Critical Facility	# of Critical Facilities	Probability of Being Fully Functional (%)					
		at Day 1	at Day 3	at Day 7	at Day 14	at Day 30	at Day 90
Emergency Response / Public Health & Safety	288	71.4	72.0	95.4	95.9	99.1	99.8
Infrastructure Lifeline	1500	91.1	93.5	95.4	95.6	96.7	98.2
Military Facilities	1	78.6	88.6	92.1	92.4	93.3	97.0
Recovery Facilities	4	27.3	30.5	45.6	45.8	79.7	97.9
Socioeconomic Facilities	1382	45.6	47.0	83.1	83.5	98.1	99.8
Hazardous Materials	374	34.3	35.3	56.2	56.3	88.8	98.7
Total/Average	3,549	58.0	61.1	78.0	78.2	92.6	98.6

Table 8-22. Functionality of Critical Facilities for San Andreas Fault

Type of Critical Facility	# of Critical Facilities	Probability of Being Fully Functional (%)					
		at Day 1	at Day 3	at Day 7	at Day 14	at Day 30	at Day 90
Emergency Response / Public Health & Safety	288	84.3	84.6	97.1	97.3	99.7	99.9
Infrastructure Lifeline	1500	93.4	95.3	97.1	97.2	98.2	99.1
Military Facilities	1	78.6	88.6	92.1	92.4	93.3	97.0
Recovery Facilities	4	53.8	57.3	76.9	77.0	94.6	99.1
Socioeconomic Facilities	1382	59.6	60.8	88.7	89.0	99.3	99.9
Hazardous Materials	374	14.6	15.6	35.0	35.0	84.8	98.9
Total/Average	3,549	64.1	67.0	81.1	81.3	95.0	99.0

Table 8-23. Functionality of Critical Facilities for Calaveras Fault

Type of Critical Facility	# of Critical Facilities	Probability of Being Fully Functional (%)					
		at Day 1	at Day 3	at Day 7	at Day 14	at Day 30	at Day 90
Emergency Response / Public Health & Safety	288	90.2	90.4	98.7	98.8	99.8	99.9
Infrastructure Lifeline	1500	96.7	97.7	98.8	98.8	99.2	99.6
Military Facilities	1	89.0	94.9	96.9	97.1	97.4	98.9
Recovery Facilities	4	51.0	54.7	78.5	78.6	96.8	99.2
Socioeconomic Facilities	1382	78.2	79.0	97.1	97.3	99.8	99.9
Hazardous Materials	374	62.9	63.8	83.0	83.1	98.9	99.9
Total/Average	3,549	78.0	80.1	92.2	92.3	98.7	99.6

Hazardous Materials

An earthquake can cause hazardous material releases from fixed facilities and transportation-related releases.

Transportation

Liquefaction, landslides and fault surface rupture during an earthquake can significantly damage roads. Access to major roads is crucial to life and safety after a disaster event as well as to response and recovery operations. Disruptions in transportation systems are of particular concern in areas with limited access via transportation corridors, as a major event has the potential to isolate these communities from critical assistance and aid.

Bridges

Earthquake shaking, liquefaction and landslides can significantly damage bridges, which often provide the only access to some neighborhoods. Since soft soil regions generally follow floodplain boundaries, those bridges that cross water courses are considered vulnerable. Key factors in the degree of vulnerability are the facility's age and type of construction and soil classification at the bridge support structure, which indicate the standards to which the facility was built.

Water and Sewer Infrastructure

Water and sewer infrastructure would likely suffer considerable damage in the event of an earthquake. This factor is difficult to analyze based on the amount of infrastructure and because water and sewer infrastructure are usually linear easements, which are difficult to thoroughly assess in Hazus. Without further analysis of individual system components, it should be assumed that these systems are exposed to breakage and failure. Distribution systems

with older brittle pipes are vulnerable to shaking and liquefaction in particular. Water and sewer restoration generally takes longer than other critical infrastructure.

8.5.4 Environment

The environmental vulnerability from earthquakes would be an expansion of what was discussed under environmental exposure in Section 8.4.4. Secondary hazards will likely have some of the most damaging effects on the environment. Earthquake-induced landslides in landslide-prone areas can significantly damage surrounding habitat. It is also possible for streams to be rerouted after an earthquake. Rerouting can change the water quality, possibly damaging habitat and feeding areas. There is a possibility that streams fed by groundwater wells will dry up because of changes in underlying geology.

8.5.5 Economic Impact

Earthquake events can severely disrupt the economy of the affected area. Economic impact will be largely associated with the disruption of power, gas, telecommunication, water, and wastewater services caused by an earthquake event. In general, significant events may cause damage to land, buildings, transportation infrastructure, and businesses. With an event of such significance, economic recovery could take years, depending on available recovery funds.

The total economic impact of a major earthquake is likely to spread well beyond the impacted area, especially in a population center like the Santa Clara County OA. This is often referred to the “ripple effect” (National Academies of Science, Engineering and Medicine, 2017). The United States has a highly developed, specialized, interdependent, money economy. While those features make the economy productive and resilient, they also mean that a large magnitude earthquake will not be just a regional event. It has the potential to impact the national economy. An earthquake can result in three kinds of national economic damage:

- Disruptions to supply lines
- Shocks to financial markets
- Drain on the insurance system.

Various sectors of an economy would be impacted differently. For example; tourism would likely be impacted over a long term while the impacted area recovers. The retail sector would likely recover quickly to support recovery, and the construction sector would eventually experience growth.

8.6 FUTURE TRENDS IN DEVELOPMENT

Unincorporated Santa Clara County and the development departments in participating jurisdictions will strictly enforce all seismic building codes and design standards to prevent loss of life and property caused by earthquake. Public education, cooperation with the development community, and individual preparedness are essential as the OA welcomes thousands of new residents and hundreds of new businesses to each year.

Land use planning is directed by general plans adopted under California’s General Planning Law. Municipal planning partners are encouraged to establish General Plans with policies directing land use and dealing with issues of geologic and seismic safety. These plans provide the capability at the local municipal level to protect future development from the impacts of earthquakes. All planning partners reviewed their general plans under the capability assessments performed for this effort. Deficiencies identified by these reviews can be identified as mitigation actions to increase the capability to deal with future trends in development.

Since all of the Santa Clara County Operational Area is located within an earthquake hazard zone, all future development will, to some extent, be exposed to the earthquake hazard.

8.7 SCENARIO

With the abundance of fault exposure in the Bay Area, the potential scenarios for earthquake activity are many. According to the USGS, there is a 72-percent probability by 2043 of one or more earthquakes in the San Francisco Bay region with a magnitude of 6.7 or greater. An earthquake does not have to occur within the OA to have a significant impact on the people, property and economy of the OA.

Any seismic activity of 6.0 or greater on faults within the OA would have significant impacts throughout the OA. Potential warning systems could give up to approximately 40 seconds notice that strong earthquake shaking is about to occur. This would not provide adequate time for preparation. Earthquakes of this magnitude or higher would lead to massive structural failure of property on NEHRP C, D, E, and F soils. Levees and revetments built on these poor soils would likely fail, representing a loss of critical infrastructure. These events could cause secondary hazards, including landslides and mudslides that would further damage structures. River valley hydraulic-fill sediment areas are also vulnerable to slope failure, often as a result of loss of cohesion in clay-rich soils. Soil liquefaction would occur in water-saturated sands, silts or gravelly soils.

8.8 ISSUES

Important issues associated with an earthquake include the following:

- More quantitative information is needed on the exposure and performance of soft-story construction within the OA.
- Approximately 29 percent of the OA's building stock was built prior to 1975, when seismic provisions became uniformly applied through building code applications.
- Based on the modeling of critical facility performance performed for this plan, a portion of facilities in the OA is expected to have complete or extensive damage from scenario events. These facilities are prime targets for structural retrofits.
- Critical facility owners should be encouraged to create or enhance continuity of operations plans using the information on risk and vulnerability contained in this plan.
- Geotechnical standards should be established that take into account the probable impacts from earthquakes in the design and construction of new or enhanced facilities.
- There are a large number of high risk dams within the OA. Dam failure warning and evacuation plans and procedures should be reviewed and updated to reflect the dams' risk potential associated with earthquake activity in the region.
- Earthquakes could trigger other natural hazard events such as liquefaction, dam failures and landslides, and fire which could severely impact the OA.
- A worst-case scenario would be the occurrence of a large seismic event during a flood or high-water event. Levee failures would happen at multiple locations, increasing the impacts of the individual events.
- Citizens are expected to be self-sufficient up to 3 days after a major earthquake without government response agencies, utilities, private-sector services, and infrastructure components. Education programs are currently in place to facilitate development of individual, family, neighborhood, and business earthquake preparedness. Government alone can never make this region fully prepared. It takes individuals, families, and communities working in concert with one another to truly be prepared for disaster.
- After a major seismic event, the Santa Clara County Operational Area is likely to experience disruptions in the flow of goods and services resulting from the destruction of major transportation infrastructure across the broader region.
- The Santa Clara County OA is home to multiple tech centers that provide goods and services to the nation and world. A major earthquake in the region would disrupt these service providers and severely impact the economic and functional stability of the region and potentially the country.

9. FLOOD

9.1 GENERAL BACKGROUND

A floodplain is the area adjacent to a river, creek or lake that becomes inundated during a flood. Floodplains may be broad, as when a river crosses an extensive flat landscape, or narrow, as when a river is confined in a canyon.

When floodwaters recede after a flood event, they leave behind layers of rock and mud. These gradually build up to create a new floor of the floodplain. Floodplains generally contain unconsolidated sediments (accumulations of sand, gravel, loam, silt, and/or clay), often extending below the bed of the stream. These sediments provide a natural filtering system, with water percolating back into the ground and replenishing groundwater. These are often important aquifers, the water drawn from them being filtered compared to the water in the stream. Fertile, flat reclaimed floodplain lands are commonly used for agriculture, commerce and residential development.

Connections between a river and its floodplain are most apparent during and after major flood events. These areas form a complex physical and biological system that not only supports a variety of natural resources but also provides natural flood and erosion control. When a river is separated from its floodplain with levees and other flood control facilities, natural, built-in benefits can be lost, altered, or significantly reduced.

9.1.1 Measuring Floods and Floodplains

The frequency and severity of flooding are measured using a discharge probability, which is the probability that a certain river discharge (flow) level will be equaled or exceeded in a given year. Flood studies use historical records to determine the probability of occurrence for the different discharge levels. The flood frequency equals 100 divided by the discharge probability. For example, the 100-year discharge has a 1-percent chance of being equaled or exceeded in any given year. The “annual flood” is the greatest flood event expected to occur in a typical year. These measurements reflect statistical averages only; it is possible for two or more floods with a 100-year or higher recurrence interval to occur in a short time period. The same flood can have different recurrence intervals at different points on a river.

The extent of flooding associated with a 1-percent annual probability of occurrence (the base flood or 100-year flood) is used as the regulatory boundary by many agencies. Also referred to as the special flood hazard area (SFHA), this boundary is a convenient tool for assessing vulnerability and risk in flood-prone communities. Many communities have maps that show the extent and likely depth of flooding for the base flood. Corresponding

DEFINITIONS

Flood—The inundation of normally dry land resulting from the rising and overflowing of a body of water.

Floodplain—The land area along the sides of a river that becomes inundated with water during a flood.

1-Percent-Annual-Chance (100-Year)

Floodplain—The area flooded by the flood that has a 1-percent chance of being equaled or exceeded in a given year. The 1-percent-annual-chance flood is the standard used by most federal and state agencies.

0.2-Percent-Annual-Chance (500-Year)

Floodplain—The area flooded by the flood that has a 0.2-percent chance of being equaled or exceeded in a given year.

Regulatory Floodway—Channel of a river or other water course and adjacent land areas that must be reserved for discharge of the base flood without cumulatively increasing water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure no increases in upstream flood elevations.

Return Period—The average number of years between occurrences of a hazard (equal to the inverse of the annual likelihood of occurrence).

Riparian Zone—The area along the banks of a natural watercourse.

water-surface elevations describe the elevation of water that will result from a given discharge level, which is one of the most important factors used in estimating flood damage.

9.1.2 Floodplain Ecosystems

Floodplains can support ecosystems that are rich in plant and animal species. A floodplain can contain 100 or even 1,000 times as many species as a river. Wetting of the floodplain soil releases an immediate surge of nutrients: those left over from the last flood, and those that result from the rapid decomposition of organic matter that has accumulated since then. Microscopic organisms thrive and larger species enter a rapid breeding cycle. Opportunistic feeders (particularly birds) move in to take advantage. The production of nutrients peaks and falls away quickly, but the surge of new growth endures for some time. This makes floodplains valuable for agriculture. Species growing in floodplains are markedly different from those that grow outside floodplains. For instance, riparian trees (trees that grow in floodplains) tend to be very tolerant of root disturbance and very quick-growing compared to non-riparian trees.

9.1.3 Effects of Human Activities

Because they border water bodies, floodplains have historically been popular sites to establish settlements. Human activities tend to concentrate in floodplains for a number of reasons: water is readily available; land is fertile and suitable for farming; transportation by water is easily accessible; and land is flatter and easier to develop. But human activity in floodplains frequently interferes with the natural function of floodplains. It can affect the distribution and timing of drainage, thereby increasing flood problems. Human development can create local flooding problems by altering or confining drainage channels. This increases flood potential in two ways: it reduces the stream's capacity to contain flows, and it increases flow rates or velocities downstream during all stages of a flood event.

9.1.4 Federal Flood Programs

National Flood Insurance Program

The NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in participating communities. For most participating communities, FEMA has prepared a detailed Flood Insurance Study. The study presents water surface elevations for floods of various magnitudes, including the 1-percent annual chance (100-year) flood and the 0.2-percent annual chance (500-year) flood. Base flood elevations and the boundaries of the 100- and 500-year floodplains are shown on Flood Insurance Rate Maps (FIRMs), which are the principle tool for identifying the extent and location of the flood hazard. FIRMs are the most detailed and consistent data source available, and for many communities they represent the minimum area of oversight under their floodplain management program. In recent years, FIRMs have been digitized and renamed Digital Flood Insurance Rate Maps (DFIRM). This change renders the documents more accessible to residents, local governments and stakeholders.

Participants in the NFIP must, at a minimum, regulate development in floodplain areas in accordance with NFIP criteria. Before issuing a permit to build in a floodplain, participating jurisdictions must ensure that three criteria are met:

- New buildings and those undergoing substantial improvements must, at a minimum, be elevated to protect against damage by the 100-year flood.
- New floodplain development must not aggravate existing flood problems or increase damage to other properties.
- New floodplain development must exercise a reasonable and prudent effort to reduce its adverse impacts on threatened salmonid species.

Table 9-1 lists each participating municipal jurisdiction's date of entrance into the NFIP and the effective date for its current FIRM. Structures permitted or built in the OA before these dates are called "pre-FIRM" structures, and structures built afterwards are called "post-FIRM." The insurance rate is different for the two types of structures. Details about participation in the NFIP are further described the individual annexes in Volume 2 of this plan.

Table 9-1. NFIP Status in the Operational Area

Community	NFIP Community #	NFIP Entry Date	Current Effective FIRM
City of Campbell	060338	06/30/1976	02/19/2014
City of Cupertino	060339	05/01/1980	05/18/2009
City of Gilroy	060340	08/01/1980	05/18/2009
City of Los Altos	060341	07/16/1980	05/18/09
Los Altos Hills	060342	01/02/1980	05/18/09
Los Gatos	060343	01/17/1979	02/19/2014
City of Milpitas	060344	07/16/1980	02/19/2014
City of Monte Sereno	060345	05/18/2009	02/19/2014
City of Morgan Hill	060346	06/18/1980	05/18/2009
City of Mountain View	060347	08/15/1980	05/18/2009
City of Palo Alto	060348	09/19/1984	10/16/2012
City of San José	060349	08/02/1982	02/19/2014
City of Santa Clara	060350	07/16/1980	02/19/2014
City of Saratoga	060351	01/17/1979	02/19/2014
City of Sunnyvale	060352	05/15/1978	05/18/2009
Unincorporated County	060337	08/02/1982	02/19/2014

All participating planning partners are currently in good standing with the provisions of the NFIP. Compliance is monitored by FEMA regional staff and by the California Department of Water Resources under a contract with FEMA. Maintaining compliance under the NFIP is an important component of flood risk reduction. All planning partners that participate in the NFIP have identified actions to maintain compliance and good standing.

FEMA Regulatory Flood Zones

FEMA defines flood hazard areas as areas shown on a map to be inundated by a flood of a given magnitude. These areas are determined via statistical analyses of records of river flow, storm tides, and rainfall; information obtained through consultation with the community; floodplain topographic surveys; and hydrologic and hydraulic analyses. Flood hazard areas are delineated on DFIRMs, which are official maps of a community on which the Federal Insurance and Mitigation Administration has delineated both SFHAs and risk premium zones applicable to the community. In addition to this, DFIRMS identify locations of specific properties in relation to SFHAs; base flood elevations (1-percent annual chance) at specific sites; magnitudes of flood within specific areas; undeveloped coastal barriers where flood insurance is not available; and regulatory floodways and floodplain boundaries (1-percent and 0.2-percent annual chance floodplain boundaries).

Land area covered by floodwaters of the base flood is the SFHA on a DFIRM—an area where NFIP floodplain management regulations must be enforced, and where mandatory purchase of flood insurance applies. This regulatory boundary is a convenient tool for assessing vulnerability and risk in flood-prone communities, because many communities have maps showing the extent of the base flood and likely depths that will occur.

The 1-percent annual chance flood is also referred to as the base flood elevation. As noted earlier, the NFIP defines the base flood elevation as the elevation of a base flood event or a flood which has a 1-percent chance of occurring in any given year. The base flood elevation is the exact elevation of water that will result from a given discharge level, one of the most important factors in estimating potential damage within a given area. A structure

within a 1-percent annual chance floodplain has a 26-percent chance of undergoing flood damage during the term of a 30-year mortgage. The 1-percent annual chance flood is a regulatory standard adopted by federal agencies and most states to administer floodplain management programs. The 1-percent annual chance flood is used by the NFIP as the basis for insurance requirements nationwide. DFIRMs also depict 0.2-percent annual chance flood designations (500-year events).

DFIRM, FIRMs, and other flood hazard information can be used to identify the expected spatial extent of flooding from a 1-percent and 0.2-percent annual chance event. DFIRMs and FIRMs depict SFHAs—those areas subject to inundation from the 1-percent annual chance. Those areas are defined as follows:

- Zones A1-30 and AE: SFHAs that are subject to inundation by the base flood, determined using detailed hydraulic analysis. Base Flood Elevations are shown within these zones.
- Zone A (Also known as Unnumbered A-zones): SFHAs where no Base Flood Elevations or depths are shown because detailed hydraulic analyses have not been performed.
- Zone AO: SFHAs subject to inundation by types of shallow flooding where average depths are between 1 and 3 feet. These are normally areas prone to shallow sheet flow flooding on sloping terrain.
- Zone VE, V1-30: SFHAs along coasts that are subject to inundation by the base flood with additional hazards due to waves with heights of 3 feet or greater. Base Flood Elevations derived from detailed hydraulic analysis are shown within these zones.
- Zone B and X (shaded): Zones where the land elevation has been determined to be above the Base Flood Elevation, but below the 500-year flood elevation. These zones are not SFHAs.
- Zones C and X (unshaded): Zones where the land elevation has been determined to be above both the Base Flood Elevation and the 500-year flood elevation. These zones are not SFHAs.

Bay-adjacent SFHAs are of concern to the Santa Clara County Operational Area, particularly where land is at or slightly above sea level.

In California, the DWR is the coordinating agency for floodplain management. The DWR works with FEMA and local governments by providing grants and technical assistance, evaluating community floodplain management programs, reviewing local floodplain ordinances, participating in statewide flood hazard mitigation planning, and facilitating annual statewide workshops. Compliance is monitored by FEMA regional staff and by the DWR.

The Community Rating System

The CRS is a voluntary program within the NFIP that encourages floodplain management activities that exceed the minimum NFIP requirements. Flood insurance premiums are discounted to reflect the reduced flood risk resulting from community actions meeting the following three goals of the CRS:

- Reduce flood losses.
- Facilitate accurate insurance rating.
- Promote awareness of flood insurance.

For participating communities, flood insurance premium rates are discounted in increments of 5 percent. For example, a Class 1 community would receive a 45 percent premium discount, and a Class 9 community would receive a 5 percent discount. (Class 10 communities are those that do not participate in the CRS; they receive no discount.) The discount partially depends on location of the property. Properties outside the SFHA receive smaller discounts: a 10-percent discount if the community is at Class 1 to 6 and a 5-percent discount if the community is at Class 7 to 9.

The CRS classes for local communities are based on 18 creditable activities in the following categories:

- Public information.
- Mapping and regulations.
- Flood damage reduction.
- Flood preparedness.

Figure 9-1 shows the nationwide number of CRS communities by class as of October 2016, when there were 1,391 communities receiving flood insurance premium discounts under the CRS program.

Source: FEMA, 2016

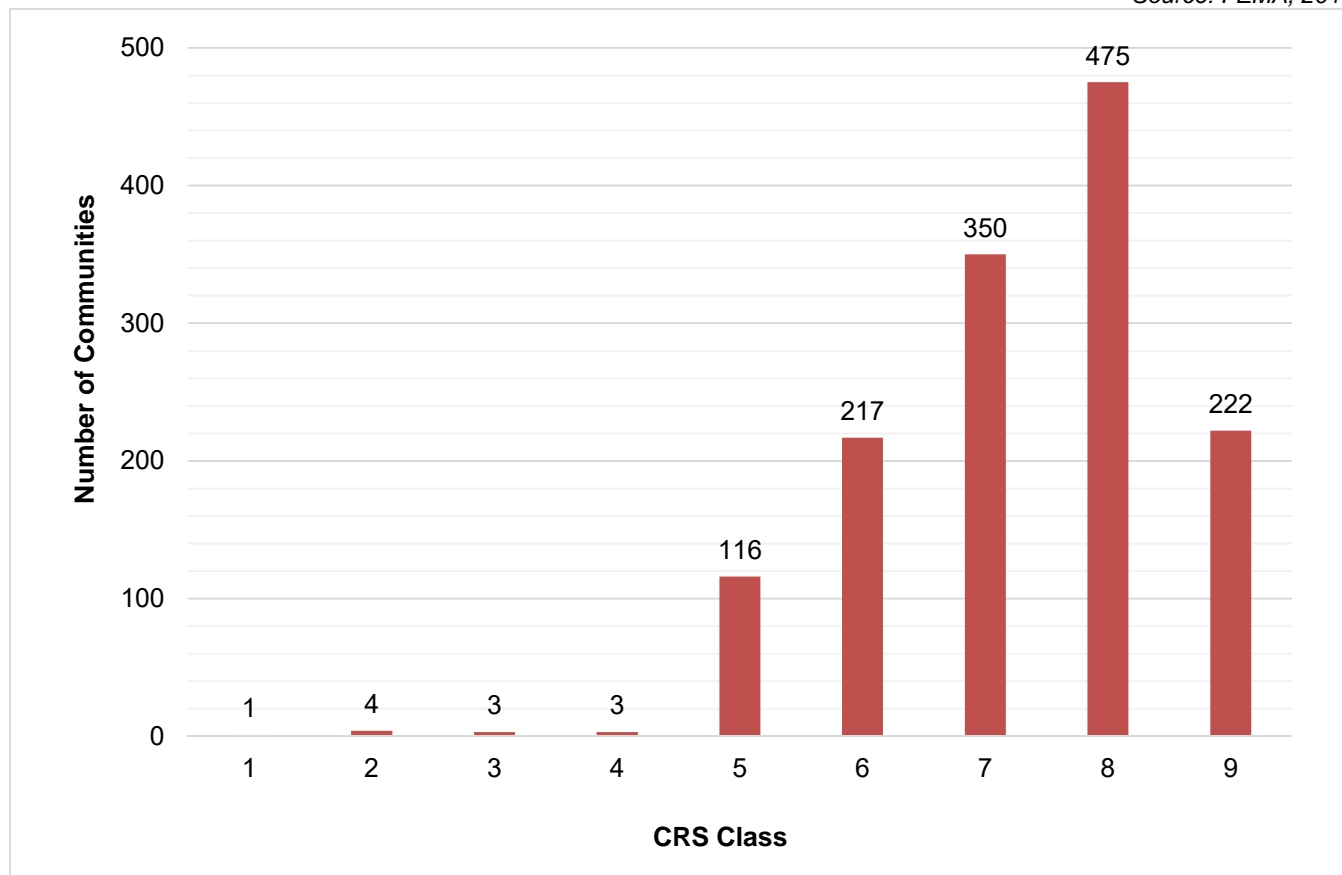


Figure 9-1. CRS Communities by Class Nationwide as of October 2016

CRS activities can help to save lives and reduce property damage. Communities participating in the CRS represent a significant portion of the nation's flood risk; over 66 percent of the NFIP's policy base is located in these communities. Communities receiving premium discounts through the CRS range from small to large and represent a broad mixture of flood risks, including both coastal and riverine flood risks.

Current CRS ratings are detailed in each jurisdiction's annex and in Table 9-2. Many of the mitigation actions identified in planning partners' individual annexes for this plan are creditable activities under the CRS program. Therefore, successful implementation of this plan offers the potential to enhance the CRS classification.

Table 9-2. CRS Community Status in the OA

Community	NFIP Community #	CRS Entry Date	Current CRS Classification	% Premium Discount, SFHA/non-SFHA	Total Premium Savings (2014)
Cupertino	060339	10/01/2005	7	15/5	\$6,537
Gilroy	060340	05/01/2007	8	10/5	\$23,722
Los Altos	060341	10/01/1991	8	10/5	\$10,465
Milpitas	060344	10/01/1991	7	15/5	\$329,749
Morgan Hill	060346	05/01/2003	7	15/5	\$51,026
Mountain View	060347	05/01/2002	8	10/5	\$53,181
Palo Alto	060348	10/01/1991	7	15/5	\$713,103
San José	060349	10/01/1991	7	15/5	\$1,234,021
Santa Clara (city)	060350	05/01/2002	8	10/5	\$94,810
Sunnyvale	060352	10/01/1998	7	15/5	\$170,009
Total					\$2,686,623

Source: FEMA, 2016

9.2 HAZARD PROFILE

The following information is extracted from the Santa Clara County Flood Insurance Study (FEMA, 2014):

- The mountains and foothills in northern Santa Clara County are the sources of the watercourses that flow through the north portion of the OA. Near San José, the major waterways include Los Gatos, Guadalupe, and Alamosos Creeks flowing out of the Santa Cruz Mountains; Coyote Creek and a host of tributaries, including Upper Penitencia and Silver Creeks, flowing out of the Diablo Range; and Fisher Creek with headwaters on the western side of the Coyote Creek Valley. The 75-mile-long Coyote Creek is the primary natural drainage facility for the eastern side of the Santa Clara Valley.
- Permanente and Stevens Creeks, which flow north through the OA near Mountain View, are the primary runoff drainage channels in that area. In addition to providing flood control, these creek beds provide gravel lenses that penetrate the impervious underground clay layers. These lenses allow rain runoff to percolate down to replenish the underground water supply.
- The principal watercourses in the south portion of the OA are Llagas, Uvas, and Coyote Creeks. Edmundson (Little Llagas), Church, Center, Tennant, Maple, and Foothill Creeks also flow through the area. The area is unusual in that creeks originate in both the Diablo Range, to the east, and the Santa Cruz Mountains, to the west. Waters originating in the area are conveyed to Monterey Bay via the Pajaro River.
- Drainage-ways in the OA are a combination of natural channels (creek beds) and channels altered by human activity.
- Drainage patterns in the OA have been altered by urbanization, and the runoff, which has increased, is a greater flood threat than in previous years. The construction of water-conservation flood retention facilities has also altered the drainage pattern.
- A variety of conditions cause flooding in the Santa Clara County OA. In smaller drainage basins, flooding is usually the result of intense storms. In larger basins, flooding results from storms of long duration. Shallow overland flooding often occurs due to the small capacity of the creeks.

9.2.1 Types of Flood-Related Hazards

Flooding in the Santa Clara County OA typically occurs during the rainy winter season. Four types of flooding primarily affect the County: stormwater runoff, riverine, flash floods, and tidal floods.

Stormwater Runoff Floods

Stormwater flooding is a result of local drainage issues and high groundwater levels. Locally, heavy precipitation, especially during high lunar tide events, may induce flooding within areas other than delineated floodplains or along recognizable channels due to presence of storm system outfalls inadequate to provide gravity drainage into the adjacent body of water. If local conditions cannot accommodate intense precipitation through a combination of infiltration and surface runoff, water may accumulate and cause flooding problems. Flooding issues of this nature generally occur within areas with flat gradients, and generally increase with urbanization, which speeds accumulation of floodwaters because of impervious areas. Shallow street flooding can occur unless channels have been improved to account for increased flows (FEMA, 1997). Numerous areas within the County undergo stormwater flooding that contributes to street and structure inundation.

Urban drainage flooding is caused by increased water runoff due to urban development and drainage systems. Drainage systems are designed to remove surface water from developed areas as quickly as possible to prevent localized flooding on streets and within other urban areas. These systems utilize a closed conveyance system that channels water away from an urban area to surrounding streams, and bypasses natural processes of water filtration through the ground, containment, and evaporation of excess water. Because drainage systems reduce the amount of time surface water takes to reach surrounding streams, flooding in those streams can occur more quickly and reach greater depths than prior to development within that area (FEMA, 2008).

Riverine Floods

Riverine flooding is overbank flooding of rivers and streams. Natural processes of riverine flooding add sediment and nutrients to fertile floodplain areas. Flooding in large river systems typically results from large-scale weather systems that generate prolonged rainfall over a wide geographic area, causing flooding in hundreds of smaller streams, which then drain into the major rivers. Shallow area flooding is a special type of riverine flooding. FEMA defines shallow flood hazards as areas inundated by the 100-year flood with flood depths of only 1 to 3 feet. These areas are generally flooded by low-velocity sheet flows of water. Two types of flood hazards are generally associated with riverine flooding:

- Inundation—Inundation occurs when floodwater is present and debris flows through an area not normally covered by water. These events cause minor to severe damage, depending on velocity and depth of flows, duration of the flood event, quantity of logs and other debris carried by the flows, and amount and type of development and personal property along the floodwater's path.
- Channel Migration—Erosion of banks and soils worn away by flowing water, combined with sediment deposition, causes migration or lateral movement of a river channel across a floodplain. A channel can also abruptly change location (termed “avulsion”); a shift in channel location over a large distance can occur within as short a time as one flood event.

Natural stream channels in rural parts of the Santa Clara County OA typically can accommodate average rainfall amounts and mild storm systems; however, severe floods occur in years of abnormally high rainfall or unusually severe storms. During those periods of severe floods, high-velocity floodwaters carry debris over long distances, block stream channels, and create severe localized flooding.

Flash Floods

The National Weather Service defines a flash flood as a rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level. Such floods generally begin within 6 hours of the rain event that causes them. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters (NWS, 2009).

Flash floods can tear out trees, undermine buildings and bridges, and scour new channels. In urban areas, flash flooding is an increasingly serious problem due to removal of vegetation and replacement of ground cover with impermeable surfaces such as roads, driveways, and parking lots. The greatest risk from flash floods is occurrence with little to no warning. Major factors in predicting potential damage are intensity and duration of rainfall, and steepness of watershed and streams.

Tidal Floods

Tidal floods are characterized by inundation of normally dry lands by bay waters, often caused by extreme high tide events that result in shallow flooding of low-lying coastal areas. Colloquially known as “King Tides,” extreme high level tide events are the highest predicted high tide events of the year at a coastal location. These tides exceed the highest water level reached at high tide on an average day and normally occur once or twice per year. King Tide events are the leading cause of flooding by bay waters.

Tidal flooding is becoming increasingly exacerbated by sea level rise as a result of climate change or tectonic activity (NOAA, no date). Average daily water levels are rising along with the oceans. As a result, high tides are reaching higher and extending further inland than in the past. Additional information regarding the impacts and exposure of the OA to sea level rise is presented in Chapter 14.

9.2.2 Principal Flooding Sources

FEMA’s Flood Insurance Study for Santa Clara County assessed over 50 creeks, channels, and water bodies, including the following principal flooding sources (FEMA, 2014):

- Adobe Creek
- Alamitos Creek
- Alviso Slough
- Arastradero Creek
- Arroyo Calero
- Barron Creek
- Berryessa Creek
- Calabazas Creek
- Canoas Creek
- Concepcion Drain
- Coyote Creek
- Daves Creek
- East Little Llagas Creek
- East Penitencia Creek
- Evergreen Creek
- Fisher Creek
- Fisher Creek Overbank
- Flint Creek
- Fowler Creek
- Guadalupe River
- Guadalupe Slough
- Hale Creek
- Lions Creek
- Llagas Creek
- Llagas Overbank
- Los Gatos Creek
- Lower Penitencia Creek
- Matadero Creek
- Miguelita Creek
- Miller Slough
- North Morey Creek
- Permanente Creek
- Permanente Diversion
- Purissima Creek
- Quimby Creek
- Ronan Channel
- Ross Creek
- Ruby Creek
- San Francisco Bay
- San Francisquito Creek
- San Joaquin River
- Santa Teresa Creek
- San Tomas Aquino Creek
- San Tomas Aquino Creek Reach 2
- Saratoga Creek
- Silver Creek
- Smith Creek
- South Babb Creek
- South Morey Creek
- Stevens Creek
- Sunnyvale East Channel
- Sunnyvale West Channel
- Thompson Creek
- Upper Penitencia Creek
- Upper Penitencia Creek Reach 2
- Upper Penitencia Creek Reach 2 Overflow
- Uvas Creek
- West Branch Llagas Creek
- West Little Llagas Creek
- Wildcat Creek

Investigation of Santa Clara County's vulnerability to flooding can also include assessments of watersheds. Every watershed has unique qualities that affect its response to rainfall. The Santa Clara County OA contains five watersheds (SCVWD, 2017):

- Coyote Watershed is the OA's largest watershed, with 322 square miles. It contains Coyote Creek, which is the longest creek in the county.
- Guadalupe Watershed drains the Guadalupe River and its tributaries through downtown San José.
- Lower Peninsula Watershed is a small-creek watershed that feeds tidal wetlands along the San Francisco Bay's southwest shoreline.
- Uvas-Llagas Watershed is mainly agricultural land and natural areas. This is the only watershed in the county where waterways flow southward.
- West Valley Watershed is the smallest watershed in the county, covering 85 square miles of numerous small creeks.

9.2.3 Past Events

Based on NOAA's National Centers for Environmental Information and the ABAG 2010 Plan, 23 flood events in the OA were recorded between 1950 and 2016, as summarized in Table 9-3. These events include flash floods, winter storm flooding, urban and small stream flooding, and flooding from heavy multi-day rain events. Since 1954, 13 presidential-declared flood events in the OA have caused in excess of \$4.468 billion in property damage throughout the region.

According to the USDA's Risk Management Agency, Santa Clara County received \$8,200,676 in payments for insured crop losses on 2,710 affected acres as a result of excessive moisture and flood events between 2003 and 2016. Table 9-4 summarizes these payments. The highest damaging year was 2016.

9.2.4 Location

Flooding that has occurred in portions of the OA has been extensively documented by gage records, high water marks, damage surveys and personal accounts. This documentation was the basis for the 2014 FIRMs generated by FEMA for the Santa Clara County OA. The 2014 current effective Flood Insurance Study is the sole source of data used in this risk assessment to map the extent and location of the flood hazard, as shown in Figure 9-2.

9.2.5 Frequency

Recurrence intervals and average annual numbers of events in the Santa Clara County OA were calculated based on data from 1996 to 2016 in NOAA's Storm Events Database. Santa Clara County has experienced nine significant events since 1996 classified as "flood" in the database. Smaller floods may occur more frequently and be categorized as a different event type, typically "flash flood" or "winter storm." Based on these data, floods have a 52 percent chance of occurring in any given year, flash floods have a 38 percent chance, and winter storms have a 10 percent chance. Total estimated percent chance of occurrence for any type of flood in a given year is 100 percent, meaning that flooding will likely continue to be an annual hazard.

Additionally, 45 flood-related federally declared disasters or emergencies have occurred in California since 1954 (all 45 events were non-tsunami or hurricane-related flood events). This equates to a major, non-tsunami or hurricane-related flood event impacting the state every 1.37 years on average.

Table 9-3. History of Flood Events

Date	Declaration #	Type of event	Estimated Damage
2/5/1954	15	Flood & Erosion	Not available
12/23/1955	47	Flood	Coyote Creek, Stevens Creek, Matadero Creek, San Francisquito Creek, and Guadalupe River flooded
4/4/1958	82	Heavy Rainstorms and Flood	Penitencia Creek, Guadalupe River, San Tomas Aquinas Creek, Stevens Creek, Permanente Creek, Matadero Creek, and San Francisquito Creek flooded. \$20 million, plus \$4 million agricultural damage
3/6/1962	122	Floods	Not available
10/24/1962	138	Severe Storms and Flooding	\$4 million in regional flooding
2/25/1963	145	Severe Storms, Heavy Rains and Flooding	Not available
1/16/1973	N/A	Severe Storms and Flooding	\$86,207 in damage
1/7/1982	651	Severe Storms, Flood, Mudslides and High Tide	\$273 million, 256 homes and 41 businesses destroyed; 6,259 homes and 1,276 businesses damaged.
2/9/1983	677	Coastal Storms, Floods, Slides and Tornadoes	\$523 million
2/21/1986	758	Severe Storms and Flooding	\$407 million; 1,382 homes and 185 businesses destroyed; 12,447 homes and 967 businesses damaged.
2/11-14/1992	N/A	Severe Storms and Flooding	\$20,000 in damage
1/13/1993	N/A	Severe Storms and Flooding	\$112,000 in damage
1/10/1995	1044	Severe Winter Storms, Flooding, Landslides, Mud Flows	\$741 million total; 11 deaths
3/12/1995	1046	Severe Winter Storms, Flooding Landslides, Mud Flow	Approx. \$1.1 billion total; damage to homes: major 1,322; minor 2,299; destroyed 267.
1/4/1997	1155	Severe Storms, Flooding, Mud and Landslides	\$1.8 billion total; 23,000 homes; 2,000 businesses damaged or destroyed.
2/9/1998	1203	Severe Winter Storms and Flooding	\$550 million; 17 deaths
2/13/2000	N/A	Flash Flood	Mainly on Coyote Creek
10/13/2009	N/A	Heavy Rain and Flooding	\$400,000
1/18-20/2010	N/A	Heavy Rain and Flooding	Localized flooding, roads closed, damage estimate not available.
12/23/2012	N/A	Heavy Rain and Tornado	Localized flooding, levee overtopped in East Palo Alto.
2/28/2014	N/A	Heavy Rain and Flooding	Flooding of urban areas, small streams and creeks, and a few localized mud and rockslides.
12/11/2014	N/A	Heavy Rain and Flooding	Flooding and mudslides
2/06/2015	N/A	Heavy Rain and Flooding	Multiple off ramps from I-280 flooded.
2/14/2017	4301	Severe Winter Storms, Flooding, and Mudslides	34 of 57 CA Counties declared for flooding events that occurred from January 3 to January 12, 2017

N/A = Not Applicable

Sources: NOAA, 2017 and ABAG, 2010

Table 9-4. Crop Insurance Claims Paid from Excessive Moisture and Flood, 2003-2016

Crop Year	Commodity	Acres Affected	Indemnity Amount
2003	None	None	None
2004	None	None	None
2005	All Other Crops	79	\$13,144
2006	All Other Crops	83	\$6,937
2007	None	None	None
2008	None	None	None
2009	None	None	None
2010	None	None	None
2011	Walnuts, Cherries, Processing Apricots	910	2,706,413
2012	Cherries	239	\$113,052
2013	None	None	None
2014	Cherries	18	\$29,015
2015	Cherries, Processing Apricots, All Other Crops	322	\$1,053,095
2016	Cherries, Processing Apricots	1,059	\$4,279,020
Total		2,710	\$8,200,676

Source: USDA, 2016

Figure Placeholder

Figure 9-2. Mapped Flood Hazard Areas in the Operational Area

9.2.6 Severity

The principal factors affecting flood damage are flood depth and velocity. The deeper and faster flood flows become, the more damage they can cause. Shallow flooding with high velocities can cause as much damage as deep flooding with slow velocity. This is especially true when a channel migrates over a broad floodplain, redirecting high velocity flows and transporting debris and sediment.

Although jurisdictions can implement mitigation and take preventative actions to significantly reduce severity and threat of flood events, some type of residual risk will always exist (i.e., risk of a hazard event occurring despite technical and scientific measures applied to reduce/prevent it). Threats associated with residual risk could include failure of a reservoir, a dam breach, or other infrastructure failure, or a severe flood event that exceeds flood design standards or drainage capacity.

Flood severity is often evaluated by examining peak discharges; Table 9-5 lists peak flows used by FEMA to map the floodplains of the OA.

Table 9-5. Summary of Peak Discharges Within the OA

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
ADOBE CREEK				
Above Railroad (At El Camino Real)	1,350	2,500	2,700 ^a	2,700 ^a
At East Charleston Road	1,400 ^a	1,400 ^a	1,400 ^a	1,400 ^a
At East Meadow Drive	1,350	1,350	1,350	1,350
At Edith Road	1,000	1,830	2,140	2,700
At El Monte Avenue	690	1,340	1,700	2,370
At corporate limits	890	1,650	1,920	2,400
At Foothill Expressway	1,070	2,120	2,320	2,690
At Middlefield Road	1,020 ^a	1,020 ^a	1,020 ^a	1,020 ^a
At Moody Road	590	1,150	1,430	1,930
At Old Altos Road	960	1,760	2,050	2,490
At Pine Lane	1,110	2,150	2,360	2,730
At Railroad	1,350	1,450 ^a	1,450 ^a	1,450 ^a
At U.S. Highway 101	1,660	1,780	1,780	1,780
At Van Buren Road	1,060	1,890	2,220	2,810
Below Alma Street	1,450	1,700	1,700	1,750
Below Purissima Creek	1,040	1,980	2,200	2,510
ALAMITOS CREEK				
Downstream of confluence with Arroyo Calero	2,150	5,180	6,750	11,000
Downstream of confluence with Golf Creek	3,530	7,020	8,680	12,700
Downstream of confluence with Greystone Creek	2,940	6,200	7,800	11,800
Downstream of confluence with Randol Creek	2,660	5,800	7,380	11,400
Upstream of confluence with Arroyo Calero	1,430	3,580	4,750	7,900
Upstream of confluence with Guadalupe River	3,630	7,180	8,860	12,900
ALAMITOS CREEK BY-PASS CHANNEL	b	b	3,250	b
ALAMITOS CREEK OVERFLOW AREA	b	b	140	b
ARROYO CALERO				
Downstream of confluence with Santa Teresa Creek	1,020	1,820	2,180	3,010
Upstream of confluence with Alamos Creek	1,180	1,980	2,330	3,110
Upstream of confluence with Santa Teresa Creek	660	1,120	1,320	1,770
ARASTRADERO CREEK				
At Page Mill Road	140	300	360	460

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
ARROYO DE LOS COCHES				
At confluence with Berryessa Creek	b	b	1,420	b
BARRON CREEK				
At El Camino Real	270	270	270	270
At Foothill Expressway	176	364	453	640
At Foothill Expressway	320	630	760	1,100
At Laguna Avenue	180 ^b	180 ^b	180 ^b	180 ^b
At Lower Fremont Road	96	208	268	390
At mouth	320	430	430	430
At Ramona Street	320	430 ^a	430 ^a	430 ^a
At Railroad	320	675	675	675
At Upper Fremont Road	32	77	98	143
Downstream of El Camino Real	270	270	270	270
Upstream of Barron Creek Diversion	b	b	740	b
Upstream of Fabian Way	b	b	250	b
Upstream of Laguna Avenue	b	b	1,603	b
Upstream of Railroad	320	820	920	1,080
BERRYESSA CREEK				
At confluence with Calera Creek	b	b	3,600 ^a	b
At confluence with Sierra Creek	1,230	2,250	2,580	1,230
At confluence with Tularcitos Creek	b	b	2,500 ^a	b
At confluence with Wrigley Ditch	b	b	2,000 ^a	b
At Morrill Avenue	1,230	1,700 ¹	1,750 ^a	1,230
At Piedmont Road	b	b	1,600	b
Downstream of confluence with Arroyo De Los Coches	b	b	2,000 ^a	b
Downstream of Montague Expressway	800 ^a	800 ^a	800 ^a	800 ^a
CALABAZAS CREEK				
Above Prospect Road	b	b	1,800	b
Above Railroad and Prospect Creek	b	b	1,140	b
At Coffin Road	3,000	4,100	4,600	5,800
At El Camino Real	2,090 ^d	2,290 ^d	2,340 ^d	2,360 ^d
At Grant Road	1,200	1,600	1,800	2,300
At Interstate Highway 280	1,950	2,490	2,700	3,360
At Junipero Serro	2,000	2,700	3,100	3,900
At Kifer Road	2,600	3,600	4,000	5,200
At Lawrence Expressway	2,100	3,000	3,300	4,200
At Rainbow Drive Below La Mar Court	750	1,070	1,310	1,370
Below Miller Avenue	1,670	2,050	2,210	2,670
Below Tantau Avenue/Upstream of Pruneridge Avenue	1,700 ^a	1,900 ^a	1,950 ^a	2,000 ^a
Downstream of confluence with Rodeo Creek	1,170	1,700	1,950	2,610
Downstream of Prospect Road	750 ¹	1,000 ^e	1,180 ^e	1,220 ^e
Downstream of U.S. Highway 101	2,760 ^d	3,200 ^f	4,780 ^f	5,510 ^f
Through box culvert at Miller Avenue	1,400 ^a	1,550 ^a	1,600 ^a	1,600 ^a
Upstream of Benton Street	2,100 ^d	2,170 ^a	2,170 ^a	2,200 ^a
Upstream of Kifer Road	2,550 ^d	2,820 ^d	3,000 ^d	3,340 ^d
Upstream of Lawrence Expressway	2,050 ^d	2,310 ^d	2,370 ^d	2,540 ^d
Upstream of Pomeroy Avenue	2,190 ^d	2,200 ^d	2,200 ^d	2,200 ^d

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
Upstream of U.S. Highway 101	2,760 ^d	3,020 ^d	3,200 ^d	3,550 ^d
Upstream of State Highway 237	3,010 ^d	3,420 ^d	5,000 ^d	5,100 ^d
CALERA CREEK				
At confluence with Berryessa Creek	b	b	920	b
Upstream of Interstate Highway 680	b	b	850	b
CANOAS CREEK				
At Blossom Hill Road	1,320	1,390	1,400	1,420
At Capitol Expressway	1,850	1,910	1,960	2,000
At confluence with Guadalupe River	1,900 ^a	1,950 ^a	1,970 ^a	2,000 ^a
At Cottle Road	480	500	510	530
At Santa Teresa Boulevard	780	810	830	850
Upstream of Nightingale Drive	1,990	2,250	2,350	2,500
CONCEPCION DRAINAGE				
At Alto Verde Lane	22	51	68	102
COYOTE CREEK				
At Interstate Highway 280	3,880	10,180	12,630	14,700
At U.S. Geological Survey gage near Edenvale	4,050	10,940	13,670	14,700 ^a
At U.S. geological Survey gage near Madrone	4,500	12,000	15,000	24,000
Downstream of Anderson Reservoir	4,500	11,000	15,000	23,500
Downstream of confluence with Berryessa Creek	7,300	10,500	12,800	15,000
Downstream of confluence with Silver Creek	6,200	10,300	12,500	15,000
Downstream of Silver Creek Diversion	4,000	10,680	13,330	14,700
Upstream of confluence with Fisher Creek	4,410	12,010	14,830	16,400 ^a
Upstream of confluence with Silver Creek	3,790	9,920	11,400 ^a	11,400 ^a
Upstream of Silver Creek Diversion	4,000	10,680	13,330	14,700
DAVES CREEK				
At Los Gatos Creek	130	230	270	370
EAST LITTLE LLAGAS CREEK				
Approx. 1,500 ft. upstream of Sycamore Ave.	b	b	2,211	b
At confluence of Church Creek	b	b	5,355	b
At confluence of San Martin Creek	b	b	3,712	b
At U.S. Highway 101	700	1,200	1,300	1,700
At Tenant Creek confluence	b	b	2,881	b
Upstream of Seymour Ave	330	430	460	490
EAST PENITENCIA CREEK				
Downtown of Trimble Road	280	340 ^a	340 ^a	340 ^a
Upstream of confluence with Lower Penitencia Creek	480	970 ^h	1,080 ^h	1,280 ^h
Upstream of Trimble Road	280	400	450	540
FISHER CREEK				
At confluence with Coyote Creek	700 ^a	700 ^a	700 ^a	700 ^a
At Kalana Avenue	470	960	1,130	1,500
At Miramonte Avenue	300	600	710	930
At Richmond Avenue	450	700	700	700
At Willow Springs Road	270	460	560	810
Downstream of Bailey Avenue	1,000	1,810	2,160	2,950
Upstream of Bailey Avenue	620	900	900	900
Upstream of Railroad	1,260	2,310	2,560	3,530

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
FISHER CREEK OVERBANK				
500 feet downstream of Richmond Avenue	250	630	900	1,540
At Bailey Avenue	220 ^b	680	970	1,670
GUADALUPE RIVER				
At Blossom Hill Road	3,500	8,500	11,500	19,000
At Coleman Avenue	7,000	13,500 ^a	15,500 ^a	15,500 ^a
At Hedding Street	7,500	9,800 ^a	9,800 ^a	9,800 ^a
At Hobson Avenue	7,000	11,400 ^a	11,400 ^a	11,400 ^a
At Interstate Highway 280	6,000	7,000 ^a	7,000 ^a	7,000 ^a
At Malone Road	5,600	11,500	11,900 ^a	11,900 ^a
At Railroad	5,800	10,900 ^a	10,900 ^a	10,900 ^a
Downstream of confluence with Canoas Creek	5,500	11,000	12,800	12,800
Downstream of confluence with Los Gatos Creek	7,000 ^a	10,000 ^a	10,000 ^a	10,000 ^a
Downstream of confluence with Ross Creek	4,500	9,000	12,500	20,000
Downstream of State Highway 17	7,500	12,000 ^a	13,000 ^a	17,000 ^a
Upstream of confluence with Canoas Creek	4,500	9,500	12,000 ^a	12,000 ^a
HALE CREEK				
At Berry Avenue	510	1,020	1,120	1,580
At confluence with Permanente Creek	710	880	900	960
At Cuesta Drive/North Springer Road	595	750	760	810
At Foothill Expressway	460	970	1,060	1,490
At Interstate Highway 280	101	218	284	440
At Rosita Avenue	595	700 ^a	700 ^a	700 ^a
At Summer Hill Avenue	177	370	472	735
LIONS CREEK				
Upstream of West Branch Llagas Creek	b	b	1,840	b
LLAGAS CREEK				
At Rucker Avenue	4,900 ⁱ	9,700 ⁱ	10,200 ⁱ	12,700 ⁱ
At Railroad	2,200	3,900	5,300	8,500
Downstream of Buena Vista Creek	5,200	10,400	11,000	11,500 ^a
Downstream of Chesbro Reservoir	900	3,100	3,900	6,000
Downstream of East Little Llagas Creek	5,000	9,800	10,400	12,900
Downstream of Hayes Creek	1,800	3,800	4,800	7,500
Downstream of Leavesley Road	5,200 ^d	5,200 ^d	5,200 ^d	5,200 ^d
Downstream of Live Oak Creek	5,500	9,700	9,800	10,300
Downstream of Machado Creek	1,400	3,600	4,500	7,000
Downstream of Panther Creek	5,300	9,700 ^a	9,800 ^a	10,100 ^a
Downstream of Princevalle Drain	b	b	18,800	b
Downstream of West Branch Llagas Creek	b	b	17,800	b
Upstream of East Little Llagas Creek	2,500	4,300	5,400	8,600
Upstream of Jones Creek	b	b	18,800	b
Upstream of Panther Creek	5,200	9,400 ^a	9,400 ^a	9,400 ^a
LOS GATOS CREEK				
At Leigh Avenue	1,680	6,510	7,440	11,340
At Meridian Avenue	1,770	6,620	7,570	11,500
At Park Road	1,580	6,140	6,990	10,630
At State Highway 17	1,540 ^k	6,370	7,300	11,200

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
Below Lexington Dam	1,610	5,850	6,650	9,630
Below Vasona Dam	1,550	6,100	6,950	10,600
Upstream of confluence with Guadalupe River	2,130	7,000	7,980	11,900
LOWER PENITENCIA CREEK				
At Capitol Avenue	740	1,200	1,210	1,220
At confluence with Berryessa Creek	2,550	3,700	3,700	3,700
At Nimitz Freeway	1,750 ^a	3,500 ^a	3,500 ^a	3,500 ^a
At Redwood Avenue	850	1,150 ^j	1,150 ^j	1,150 ^j
At South Main Street	700 ³	1,120 ^j	1,120 ^j	1,120 ^j
Downstream of confluence with Berryessa Creek	2,550	2,600 ^a	2,600 ^a	2,600 ^a
Downstream of confluence with East Penitencia Creek	800	1,670	2,150	2,840
Downstream of Trimble Road	320	1,060 ^h	1,510 ^h	1,620 ^h
MADRONE CHANNEL				
At East Dunne Avenue	b	b	600	b
Upstream of East Little Llagas Creek	b	b	1,200	b
MATADERO CREEK				
Above confluence with Arastradero Creek	194	392	506	690
Approximately 270 feet upstream of U.S. Highway 101	b	b	2,800	b
At Alma Street	1,380	2,000 ^a	2,000 ^a	2,000 ^a
At corporate limits	402	795	970	1,300
At El Camino Real	1,100	2,100	2,280	2,690
At Louis Road	1,380	1,500 ^b	1,500 ^b	1,500 ^b
At Middlefield Road	1,380	1,900 ^b	1,500 ^b	1,900 ^b
At Railroad	b	b	2,435	b
At U.S. Highway 101	1,660	1,775	1,775	1,775
Below confluence with Arastradero Creek	325	660	790	1,030
Downstream of Foothill Expressway	b	b	1,900	b
Downstream of Park Boulevard	b	b	2,700	b
Downstream of U.S. Highway 101	b	b	3,100	b
Upstream of Railroad	1,220	2,170	2,520	2,810
MILLER SLOUGH				
At U.S. Highway 101	b	b	760	b
MIDDLE ROAD OVERFLOW AREA				
At convergence with Llagas Creek	b	b	39	b
At divergence from West Little Llagas Creek	b	b	658	b
NORTH MOREY CREEK				
Upstream of Lions Creek	b	b	485	b
PAJARO RIVER				
At U.S. Highway 101	b	b	30,500	b
PERMANENTE CREEK				
At confluence with Hale Creek	780 ^l	1,650 ^l	1,780 ^l	1,980 ^l
At El Camino Real	1,150	1,310	1,310	1,310
At Railroad	1,270	1,470	1,600	1,600
Downstream of confluence with Hale Creek	1,000 ^a	1,000 ^a	1,000 ^a	1,000 ^a
Downstream of East Charleston Road	1,390 ⁿ	1,400 ^a	1,400 ^a	1,400 ^a
Downstream of Miramonte Avenue	370	760	890	1,030
Downstream of Permanente Road	760	1,260	1,480	1,960
Downstream of Portland Avenue	1,340	2,050	2,050	2,050

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
Downstream of U.S. Highway 101	1,350	1,400 ^a	1,400 ^a	1,400 ^a
Upstream of confluence with Hale Creek	440 ^l	840 ^l	980 ^l	1,110 ^l
Upstream of Interstate Highway 280	1,250	2,160	2,570	3,480
Upstream of Portland Avenue	1,340	2,220	2,700	3,440
Upstream of Tributary, 700 feet upstream of Highway 280	860	1,460	1,720	2,310
Upstream of U.S. Highway 101	1,350	2,250 ^f	4,000 ^f	7,100 ^f
PERMANENTE DIVERSION				
At confluence with Stevens Creek	1,230	1,280	1,390	1,550
At Grant Road	1,200	1,240 ^a	1,340 ^a	1,490 ^a
Downstream of Carmel Terrace	1,075 ^a	1,075 ^a	1,075 ^a	1,075 ^a
Downstream of Diversion Structure	1,190	1,610	1,610	1,610
PROSPECT CREEK				
Upstream of confluence with Calabazas Creek	b	b	635	b
PURISSIMA CREEK				
At corporate limits	147	320	402	588
At Interstate Highway 280	37	82	104	153
At Viscaino Road	88	182	227	320
SAN FRANCISQUITO CREEK				
At Alma Street	4,350	7,050	8,280	9,850 ^a
At U.S. Geological Survey gage	4,050	6,700	7,860	10,500
Downstream of Chaucer Road	4,350	6,000 ^a	6,000 ^a	6,200 ^a
Downstream of Middlefield Road	4,350	6,350 ^a	6,690 ^a	7,410 ^a
Near Pasteur Drive	4,200	6,850	8,070	10,400
Upstream of Middlefield Road	4,350	7,100	8,330	9,850 ^a
SAN FRANCISQUITO CREEK - OVERFLOW				
At Chaucer Street	b	b	563	b
At Middlefield Road	b	b	752	b
Combined Middlefield/Chaucer Overflows	b	b	1,080	b
SAN THOMAS AQUINO CREEK				
At Cabrillo Avenue	2,560 ^f	2,920 ^f	2,920 ^f	2,920 ^f
At confluence with Saratoga Creek	5,900	8,300	9,100	11,000
At El Camino Real	3,570	3,610	3,610	3,610
At Homestead Road	3,450 ^f	3,450 ^f	3,450 ^f	3,450 ^f
At Pruneridge Avenue	3,460	3,820 ^f	3,820 ^f	3,820 ^f
At Saratoga and Los Gatos Roads	620	990	1,140	1,480
At Stevens Creek Boulevard	3,300	3,820 ^f	3,820 ^f	3,820 ^f
At U.S. Highway 101	5,900	8,300	9,100	11,000
At U.S. Highway 237	5,900	8,300	9,100	11,000
Downstream of Railroad	5,900	8,300	9,100	11,000
Upstream of Westmont Avenue	2,000	2,900	3,200	4,077 ^o
Near Bicknell and Quito Roads	670	1,050	1,230	1,580
Near Old Adobe and Quito Roads	730	1,150	1,350	1,720
SARATOGA CREEK				
At confluence with San Tomas Aquino Creek	2,700	3,750	4,100	4,800
At El Camino Road	2,700	3,750	4,100	4,800
At Herriman Avenue	1,550	3,020	3,750	4,630
At Homestead Road	2,700	3,750	4,100	4,800
At Kiely Boulevard	2,700	3,750	4,100	4,800

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
At Stevens Creek Boulevard	2,500	3,500	3,900	4,600
At U.S. Geological Survey gage at Springer	1,350	2,750	3,490	4,450
At Railroad	1,760	3,230	3,950	4,800
Downstream of Benton Street	2,700	3,750	4,100	4,800
Downstream of Kiely Boulevard	2,700	3,750	4,100	4,800
Downstream of Warburton Avenue	2,700	3,750	4,100	4,800
SILVER CREEK				
At confluence with Coyote Creek	2,550	2,650	2,670	2,750
At intersection of King and McKee Roads	2,000 ^a	2,000 ^a	2,000 ^a	2,000 ^a
At Interstate Highway 680	2,210	2,400	2,400	2,400
At Ocala Avenue	1,530	2,000 ^p	2,000 ^p	2,000 ^p
Downstream of confluence with Thompson Creek	2,080	3,200	3,600	4,300
Downstream of Cunningham Avenue	1,420 ^p	2,150 ^p	2,580 ^p	2,600 ^p
Downstream of confluence with Miguelita Creek	2,300	2,300	2,300	2,300
Downstream of confluence with North Babb Creek	1,500 ^a	1,500 ^a	1,500 ^a	1,500 ^a
Downstream of confluence with South Babb Creek	1,940	2,600	2,700	2,700
SMITH CREEK				
At Railroad	200	370	440	610
At Wedgewood Avenue	160	300	350	480
Below Smith Creek Drive	125	230	280	390
SOUTH BABB CREEK				
At Clayton Road	390	760	890	1,150
At confluence with Silver Creek	200 ^a	200 ^a	200 ^a	200 ^a
Downstream of White Road	390 ^a	390 ^a	390 ^a	390 ^a
Upstream of Clayton Road	b	b	890	b
Upstream of Lochner Drive	400	550 ^a	550 ^a	550 ^a
Upstream of White Road	400	570 ^a	570 ^a	570 ^a
SOUTH MOREY CREEK				
Upstream of Lions Creek	b	b	420	b
STEVENS CREEK				
At Crittenden Lane	2,350 ^g	2,350 ^g	2,350 ^g	2,350 ^g
At Homestead Road	1,110 ^m	4,530	5,570	7,470
At Interstate Highway 280	1,110 ^m	4,460	5,460	7,310
At Stevens Creek Boulevard	1,110 ^m	4,430 ^m	5,430	7,240
At U.S. Geological Survey gaging station No. 262	1,200	2,800	5,400	7,000
At U.S. Highway 101	3,030	5,550	5,750	5,950
Downstream of Interstate Highway 280	1,110	4,460	5,460	7,310
Downstream of Junipero Serra	1,550	3,200	5,580	7,650
Downstream of Stevens Creek Dam	1,140	4,440	5,280	6,940
Downstream of Railroad	2,750	5,350 ^g	5,350 ^g	5,350 ^g
Upstream of Junipero Serra	1,500	3,150	5,500	7,500
Upstream of Permanente Diversion	1,750	3,600	6,000	8,200
Upstream of Railroad	2,750	6,110	7,360	9,610
SUNNYVALE EAST CHANNEL				
Downstream of Caribbean Drive	b	b	1,100	b
SUNNYVALE WEST CHANNEL				
Downstream of Highway 237	b	b	360	b

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
TENNANT CREEK				
Approximately 1,250 feet upstream of Hill Avenue	b	b	420	b
Downstream of Maple Avenue	b	b	650	b
Upstream of confluence with East Little Llagas Creek	b	b	2,015	b
THOMPSON CREEK				
2,000 feet downstream of Aborn Road	1,440	2,550	3,000	3,700
At Aborn Road	1,440	2,350	2,700	3,250
At Quimby Road	1,480	1,900 ^a	1,900 ^a	1,900 ^a
Downstream of Yerba Buena Creek	1,060	1,750	1,950	2,400
UPPER PENITENCIA CREEK				
At Capitol Avenue	1,350 ^a	1,350 ^a	1,350 ^a	1,350 ^a
At confluence with Coyote Creek	1,110	1,110	1,110	1,110
At Gridley Street	1,460	3,050	3,600	4,950
Upstream of North Jackson Avenue	1,350 ^a	1,350 ^a	1,350 ^a	1,350 ^a
At King Road	960 ^a	960 ^a	960 ^a	960 ^b
At Mabury Avenue	1,050 ^a	1,050 ^a	1,050 ^a	1,050 ^a
At Upper Penitencia Road	1,460	2,810 ^a	2,950 ^a	2,950 ^a
At U.S. Geological survey gage at Dorel Road	1,400	2,940	3,600	5,170
UVAS CREEK				
At confluence with Bodfish Creek	b	b	10,910	b
At confluence with Little Arthur Creek	b	b	8,500	b
At downstream face of Watsonville Road Bridge	b	b	10,360	b
At Thomas Road	b	b	14,000	b
At Railroad	b	b	5,200 ³	b
At U.S. Highway 101	b	b	8,000 ³	b
At Uvas Road	b	b	7,800	b
Downstream of Hecker Pass Road	b	b	13,550	b
Downstream of Santa Teresa Boulevard	b	b	14,000	b
UVAS CREEK – EAST OVERBANK ABOVE HIGHWAY 101				
Approximately 1,200 feet above U.S. Highway 101	q	b	2,200	b
At U.S. Highway 101	q	b	1,100	b
UVAS CREEK – EAST OVERBANK ABOVE RAILROAD				
At downstream limit of flooding	q	b	3,200	b
At upstream limit of flooding	q	b	2,100	b
WATSON ROAD OVERFLOW AREA				
At convergence with Llagas Creek	b	b	447	b
At divergence from West Little Llagas Creek	b	b	97	b
WEST BRANCH LLAGAS CREEK				
Downstream of divergence from West Branch Llagas Creek – East Split	b	b	160	b
Upstream of divergence from West Branch Llagas Creek – East Split	b	b	1,400	b
WEST BRANCH LLAGAS CREEK – LOWER SPLIT				
At Day Road Interceptor (NRCS PL566)	q	b	1,200	b
WEST BRANCH LLAGAS CREEK – MIDDLE SPLIT				
Downstream of Highland Avenue	q	q	80	q
WEST BRANCH LLAGAS CREEK – UPPER SPLIT				
Upstream of Highland Avenue	q	q	200	q

Flooding Source and Location	Discharge (cubic feet/second)			
	10-year	50-Year	100-Year	500-Year
WEST LITTLE LLAGAS CREEK				
1,000 feet upstream of Wright Avenue	a	a	1882	a
At Fourth Street	a	a	9002	a
At U.S. Highway 101	a	a	1,080 ^b	a
Downstream of Edmundson Avenue	a	a	1,269	a
Downstream of Monterey Highway	a	a	8132	a
Downstream of Railroad	a	a	4602	a
Upstream of Llagas Avenue	a	a	1,702 ^b	a
Upstream of Monterey Highway	a	a	1,936	a
Upstream of Seymour Avenue	a	a	1,770 ^b	a
WILDCAT CREEK				
Above Portos Drive	480	810	960	1,230
At Saratoga and Los Gatos Roads	310	500	570	740
Below Douglas Lane	430	710	840	1,070
MAYFIELD SLOUGH				
At Embarcadero Road	10.00	a	10.5	10.8
SAN FRANCISCO BAY				
At confluence of Guadalupe Slough and Coyote Creek	b	b	10.8	b
At crossing of Railroad and Alviso Slough	b	b	11.3	b
At Milpitas	b	b	11.4	b
At Mountain View	10.2	b	10.7	11.0
At Palo Alto	9.9	b	10.5	10.8
At Sunnyvale	3.7	b	10.7	b

- a. Decrease in flow rate based on capacity restrictions
- b. Data not available/computed
- c. Discharge decrease due to Barron Creek Diversion
- d. Flow rate accounts for upstream channel spills
- e. Slow rate reflects upstream capacity restriction
- f. Flow influenced by spill from adjoining watercourse
- g. Flow reduction due to bridge or channel capacity restriction
- h. Increase in flow rate due to spills from neighboring subbasins
- i. Flow rate reduction due to attenuation in the floodplain
- j. Reduction in flood rate due to storage behind railroad

- k. Flow rate reduction due to attenuation in reservoirs
- l. High flows affected by Permanente Diversion
- m. Decrease in flow rate due to storage along channel
- n. High flows diverted to Stevens Creek
- o. Logarithm extrapolation
- p. Flow rate reduction due to storage in Lake Cunningham
- q. Flooding due to spill – drainage area not applicable

9.2.7 Warning Time

Potential warning time available to a community for response to a flooding threat depends on the time span between the first measurable rainfall and the first occurrence of flooding. The time duration necessary to recognize a flooding threat reduces potential warning time for a community that must take actions to protect lives and property. Another element that characterizes a community's flood threat is length of time floodwaters remain above flood stage.

Because of the sequential pattern of weather conditions needed to cause serious flooding, occurrence of a flood without warning is unusual. Warning times for floods can be between 24 and 48 hours. Flash flooding can be less predictable, but populations in potential hazard areas can be warned in advance of flash flooding danger. NWS issues watches and warnings when forecasts indicate rivers may approach bank-full levels. Flood extent or severity categories used by NWS include minor flooding, moderate flooding, and major flooding, based on property damage and public threat (NWS, 2011):

- Minor Flooding—Minimal or no property damage, but possibly some public threat or inconvenience.
- Moderate Flooding—Some inundation of structures and roads near streams. Some necessary evacuations of people and/or transfer of property to higher elevations.
- Major Flooding—Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

When a watch is issued, the public should prepare for the possibility of a flood. When a warning is issued, the public is advised to stay tuned to a local radio station for further information and be prepared to take quick action if needed. A warning means a flood is imminent, generally within 12 hours, or is occurring. Local media broadcast NWS warnings. Thresholds for flood warnings have been established on some of the major rivers in Santa Clara County, based on available stream gage information. Current stream flows are gathered from the following USGS stream gauges in the county (USGS, 2017b).

- USGS 11153000 Pacheco Creek, Dunneville, CA.
- USGS 11153650 Llagas Creek, Gilroy, CA.
- USGS 11164500 San Francisquito Creek, Stanford University.
- USGS 11166000 Matadero Creek, Palo Alto, CA.
- USGS 11169025 Guadalupe River along Highway 101, San José, CA.
- USGS 11169500 Saratoga Creek, Saratoga, CA.
- USGS 11169800 Coyote Creek, Gilroy, CA.
- USGS 11172715 Coyote Creek along Highway 237 at Milpitas, CA.
- USGS 11173200 Arroyo Hondo, San José CA.

9.3 SECONDARY HAZARDS

The most problematic secondary hazard for flooding is bank erosion, which in some cases can be more harmful than actual flooding. This is especially true in the upper courses of rivers with steep gradients, where floodwaters may pass quickly and without much damage, but scour the banks, edging properties closer to the floodplain or causing them to fall in. Flooding is also responsible for hazards such as landslides when high flows over-saturate soils on steep slopes, causing them to fail. Hazardous materials spills are also a secondary hazard of flooding if storage tanks rupture and spill into streams, rivers or storm sewers.

9.4 EXPOSURE

The Level 2 Hazus protocol was used to assess flood risk in the OA. The model used census data at the block level and FEMA floodplain data, which has a level of accuracy acceptable for planning purposes. Where possible, the Hazus default data was enhanced using local GIS data from local, state and federal sources.

9.4.1 Population

Population counts of those living in the floodplain within the OA were generated by estimating percent of residential buildings in each jurisdiction within the 1-percent-annual-chance flood hazard areas and multiplying this by total population within the OA. This approach yielded an estimated population in the OA of 112,894 living within the 100-year floodplain (5.9 percent of the total OA population). Table 9-6 lists population estimates by jurisdiction living in the 10-percent, 1-percent and 0.2-percent annual chance flood hazard areas.

Table 9-6. Population Within the 10-Percent, 1-Percent and 0.2-Percent Annual Chance Flood Hazard Areas

Jurisdiction	10-Percent Annual Chance Flood Hazard Area		1-Percent Annual Chance Flood Hazard Area		0.2-Percent Annual Chance Flood Hazard Area	
	Population Exposed ^a	% of Total Population	Population Exposed ^a	% of Total Population	Population Exposed ^a	% of Total Population
Campbell	0	0.0%	34	0.1%	50	0.1%
Cupertino	292	0.5%	310	0.5%	33,871	58.2%
Gilroy	4	0.0%	447	0.8%	40,630	73.6%
Los Altos	69	0.2%	228	0.7%	29,417	93.8%
Los Altos Hills	68	0.8%	106	1.2%	7,960	91.9%
Los Gatos	29	0.1%	35	0.1%	28,230	90.0%
Milpitas	4,758	6.3%	17,998	23.8%	45,594	60.4%
Monte Sereno	6	0.2%	6	0.2%	31	0.9%
Morgan Hill	1,794	4.1%	2,021	4.6%	40,149	92.0%
Mountain View	49	0.1%	2,122	2.7%	5,602	7.2%
Palo Alto	9,499	13.9%	17,186	25.2%	68,135	99.9%
San José	7,674	0.7%	56,606	5.4%	98,858	9.5%
Santa Clara (city)	0	0.0%	6,897	5.6%	100,893	81.5%
Saratoga	57	0.2%	66	0.2%	29,931	99.0%
Sunnyvale	4,151	2.8%	6,312	4.3%	111,924	75.4%
Unincorporated County	1,257	1.4%	2,519	2.9%	2,811	3.2%
Total	29,707	1.5%	112,894	5.9%	644,088	33.4%

a. Represents percent of residential buildings exposed multiplied by estimated 2016 population.

9.4.2 Property

Structures in the Floodplain

Table 9-7, Table 9-8, and Table 9-9 summarize the total area of the 10-, 1-, and 0.2-percent-annual-chance flood hazard areas and the number of structures in each. The Hazus model determined that there are 8,033 structures within the 10-percent-annual-chance flood hazard area, 28,236 structures within the 1-percent-annual-chance flood hazard area, and 167,415 structures within the 0.2-percent-annual-chance flood hazard area. In the 1-percent-annual-chance flood hazard area, about 92 percent are residential, and 8 percent are commercial, industrial or agricultural.

Exposed Value

Table 9-10, Table 9-11 and Table 9-12 and summarize the estimated value of exposed buildings in the OA. This methodology estimated \$16.8 billion worth of building-and-contents exposure to the 10-percent-annual-chance flood, representing 3.5 percent of the total replacement value of the OA, \$40.1 billion worth of building-and-contents exposure to the 1-percent-annual-chance flood, representing 8.4 percent of the total replacement value of the OA, and \$200.4 billion worth of building-and-contents exposure to the 0.2-percent-annual-chance flood, representing 42 percent of the total.

Table 9-7. Area and Structures in the 10-Percent Annual Chance Flood Hazard Area

Jurisdiction	Area in Floodplain (acres)	Number of Structures in the Flood Hazard Area							
		Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Campbell	1	0	0	0	0	0	0	0	0
Cupertino	148	80	2	0	0	0	0	0	82
Gilroy	887	1	23	67	2	0	0	0	93
Los Altos	34	23	0	0	0	0	0	0	23
Los Altos Hills	80	23	0	0	0	0	0	0	23
Los Gatos	152	9	0	0	0	0	0	0	9
Milpitas	317	1,096	28	0	0	1	0	0	1,125
Monte Sereno	3	2	0	0	0	0	0	0	2
Morgan Hill	498	466	102	5	3	3	1	0	580
Mountain View	677	11	25	27	0	0	0	0	63
Palo Alto	2,188	2,637	113	67	0	4	0	8	2,829
San José	12,160	1,668	111	29	0	9	0	3	1,820
Santa Clara (city)	103	0	2	0	0	0	0	0	2
Saratoga	68	20	1	0	0	0	0	0	21
Sunnyvale	3,131	851	53	114	1	1	0	0	1,020
Unincorporated County	6,170	271	17	3	41	5	4	0	341
Total	26,616	7,158	477	312	47	23	5	11	8,033

Table 9-8. Area and Structures in the 1-Percent Annual Chance Flood Hazard Area

Jurisdiction	Area in Floodplain (acres)	Number of Structures in Flood Hazard Area							
		Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Campbell	93	9	5	0	0	0	0	0	14
Cupertino	179	85	2	0	0	0	0	0	87
Gilroy	1,794	100	61	78	2	0	0	0	241
Los Altos	91	76	1	0	0	0	0	0	77
Los Altos Hills	104	36	0	0	0	0	0	0	36
Los Gatos	177	11	0	0	0	0	0	0	11
Milpitas	1,531	4,146	90	135	0	2	0	0	4,373
Monte Sereno	3	2	0	0	0	0	0	0	2
Morgan Hill	587	525	106	5	3	3	1	0	643
Mountain View	1,154	480	87	39	0	1	0	0	607
Palo Alto	3,112	4,771	137	69	0	8	0	9	4,994
San José	19,330	12,304	551	354	1	33	2	17	13,262
Santa Clara (city)	953	1,502	70	77	0	3	0	0	1,652
Saratoga	84	23	1	0	0	0	0	0	24
Sunnyvale	3,405	1,294	62	115	1	2	0	1	1,475
Unincorporated County	24,131	543	33	5	147	5	4	1	738
Total	56,727	25,907	1,206	877	154	57	7	28	28,236

Table 9-9. Area and Structures in the 0.2-Percent Annual Chance Flood Hazard Area

Jurisdiction	Area in Floodplain (acres)	Number of Structures in Flood Hazard Area							Total
		Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	
Campbell	104	13	5	0	0	0	0	0	18
Cupertino	4,993	9,275	366	10	0	19	4	3	9,677
Gilroy	6,214	9,096	518	147	7	24	7	8	9,807
Los Altos	3,845	9,803	503	1	0	19	1	5	10,332
Los Altos Hills	5,271	2,704	11	0	8	4	0	1	2,728
Los Gatos	5,485	8,794	542	10	2	19	3	30	9,400
Milpitas	5,225	10,503	433	287	0	13	4	1	11,241
Monte Sereno	19	11	0	0	0	0	0	0	11
Morgan Hill	7,053	10,427	376	182	49	13	7	4	11,058
Mountain View	2,092	1,267	126	43	0	3	0	0	1,439
Palo Alto	15,023	18,915	1026	158	5	52	6	22	20,184
San José	24,708	21,488	1141	618	3	38	10	20	23,318
Santa Clara (city)	7,836	21,972	670	299	1	33	2	26	23,003
Saratoga	7,540	10,492	196	0	8	17	1	3	10,717
Sunnyvale	9,637	22,945	530	152	2	26	4	7	23,666
Unincorporated County	26,221	606	38	5	156	5	4	2	816
Total	131,266	158,311	6,481	1,912	241	285	53	132	167,415

Table 9-10. Value of Structures in the 10-Percent Annual Chance Flood Hazard Area

Jurisdiction	Estimated Value within the Floodplain			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$0	\$0	\$0	0.0%
Cupertino	\$27,647,546	\$14,420,410	\$42,067,956	0.3%
Gilroy	\$566,223,042	\$716,782,132	\$1,283,005,174	9.6%
Los Altos	\$9,351,180	\$4,675,590	\$14,026,770	0.2%
Los Altos Hills	\$16,383,887	\$8,191,944	\$24,575,831	0.8%
Los Gatos	\$3,704,359	\$1,852,180	\$5,556,539	0.1%
Milpitas	\$281,341,173	\$173,296,707	\$454,637,880	2.4%
Monte Sereno	\$846,663	\$423,331	\$1,269,994	0.1%
Morgan Hill	\$328,112,270	\$259,388,932	\$587,501,203	5.3%
Mountain View	\$516,073,912	\$592,978,692	\$1,109,052,604	4.4%
Palo Alto	\$1,737,322,004	\$1,460,635,068	\$3,197,957,072	12.4%
San José	\$2,162,328,492	\$1,907,957,229	\$4,070,285,722	1.9%
Santa Clara (city)	\$33,273,884	\$33,273,884	\$66,547,769	0.2%
Saratoga	\$10,479,575	\$5,871,764	\$16,351,339	0.2%
Sunnyvale	\$2,603,248,582	\$2,809,224,975	\$5,412,473,557	12.6%
Unincorporated County	\$317,538,668	\$260,462,301	\$578,000,969	2.3%
Total	\$8,613,875,238	\$8,249,435,141	\$16,863,310,378	3.5%

Table 9-11. Value of Structures in the 1-Percent Annual Chance Flood Hazard Area

Jurisdiction	Estimated Value within the Floodplain			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$60,706,038	\$53,432,344	\$114,138,382	1.0%
Cupertino	\$29,853,614	\$15,523,445	\$45,377,059	0.3%
Gilroy	\$857,099,327	\$978,830,296	\$1,835,929,624	13.7%
Los Altos	\$47,522,858	\$32,368,309	\$79,891,167	0.9%
Los Altos Hills	\$23,030,568	\$11,515,284	\$34,545,851	1.1%
Los Gatos	\$4,750,797	\$2,375,399	\$7,126,196	0.1%
Milpitas	\$1,914,405,204	\$1,412,176,099	\$3,326,581,303	17.4%
Monte Sereno	\$846,663	\$423,331	\$1,269,994	0.1%
Morgan Hill	\$351,696,852	\$272,045,135	\$623,741,987	5.6%
Mountain View	\$863,391,510	\$891,948,249	\$1,755,339,759	7.0%
Palo Alto	\$2,634,825,080	\$1,974,405,542	\$4,609,230,622	17.9%
San José	\$9,823,110,379	\$8,298,299,926	\$18,121,410,305	8.5%
Santa Clara (city)	\$1,278,101,561	\$1,148,481,943	\$2,426,583,504	5.6%
Saratoga	\$11,266,355	\$6,265,154	\$17,531,509	0.2%
Sunnyvale	\$2,831,823,587	\$2,960,259,832	\$5,792,083,419	13.5%
Unincorporated County	\$713,062,623	\$608,794,293	\$1,321,856,917	5.2%
Total	\$21,445,493,017	\$18,667,144,581	\$40,112,637,598	8.4%

Table 9-12. Value of Structures in the 0.2-Percent Annual Chance Flood Hazard Area

Jurisdiction	Estimated Value within the Floodplain			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$61,554,595	\$53,856,622	\$115,411,217	1.0%
Cupertino	\$6,121,581,843	\$4,318,062,400	\$10,439,644,243	75.2%
Gilroy	\$5,817,785,372	\$4,568,044,111	\$10,385,829,483	77.5%
Los Altos	\$5,131,184,367	\$3,222,243,127	\$8,353,427,494	94.7%
Los Altos Hills	\$1,872,115,137	\$1,055,557,499	\$2,927,672,637	90.3%
Los Gatos	\$5,821,620,292	\$4,274,397,260	\$10,096,017,551	92.7%
Milpitas	\$8,419,488,654	\$7,360,099,766	\$15,779,588,420	82.4%
Monte Sereno	\$4,075,984	\$2,037,992	\$6,113,976	0.7%
Morgan Hill	\$6,037,072,687	\$4,442,854,817	\$10,479,927,505	93.9%
Mountain View	\$1,729,570,951	\$1,584,953,565	\$3,314,524,516	13.2%
Palo Alto	\$14,329,115,228	\$11,343,355,359	\$25,672,470,587	99.6%
San José	\$23,401,556,637	\$19,811,495,639	\$43,213,052,276	20.3%
Santa Clara (city)	\$14,681,795,650	\$12,183,150,968	\$26,864,946,619	61.9%
Saratoga	\$5,016,383,748	\$2,897,535,178	\$7,913,918,926	97.2%
Sunnyvale	\$13,736,062,646	\$9,589,591,988	\$23,325,654,634	54.4%
Unincorporated County	\$790,512,159	\$676,480,660	\$1,466,992,819	5.8%
Total	\$112,971,475,949	\$87,383,716,953	\$200,355,192,902	42.0%

Land Use in the Floodplain

Some land uses are more vulnerable to flooding, such as single-family homes, while others are less vulnerable, such as agricultural land or parks. Table 9-13 and Table 9-14 show the existing land use for unincorporated Santa Clara County parcels in the 1- and 0.2-percent-annual-chance flood hazard areas, including vacant parcels and those in public/open space uses, broken down for the unincorporated portion of the OA. Only 0.54 percent of the parcels in the 1-percent-annual-chance flood hazard area are zoned for agricultural uses. These are favorable, lower-risk uses for the floodplain. The amount of the floodplain that contains vacant, developable land is not known.

Table 9-13. Unincorporated Santa Clara County Land Use in the 1-Percent Annual Chance Flood Hazard Area

Type of Land Use	Area (acres)	Percentage of Total
Agricultural	13,680.3	54.69
General / Institutional	1,090.3	4.36
Open Space	8,444.8	33.76
Low Density Residential	1,799.1	7.19
High Density Residential	0.0	0.00
Commercial	0.0	0.00
Industrial	0.0	0.00
Total	25,014.5	100.00

Table 9-14. Unincorporated Santa Clara County Land Use in the 0.2-Percent Annual Chance Flood Hazard Area

Type of Land Use	Area (acres)	Percentage of Total
Agricultural	14,018.5	52.73
General / Institutional	1,122.4	4.22
Open Space	9,608.5	36.14
Low Density Residential	1,836.9	6.91
High Density Residential	0.5	0.00
Commercial	0.0	0.00
Industrial	0.0	0.00
Total	26,586.9	100.00

9.4.3 Critical Facilities and Infrastructure

Table 9-15, Table 9-16, and Table 9-17 summarize the critical facilities and infrastructure in the 10-, 1-, and 0.2-percent-annual-chance flood hazard areas. Details are provided in the following sections.

Toxic Release Inventory Reporting Facilities

Toxic Release Inventory (TRI) facilities are known to manufacture, process, store, or otherwise use certain chemicals above minimum thresholds. If damaged by a flood, these facilities could release chemicals that cause cancer or other human health effects, significant adverse acute human health effects, or significant adverse environmental effects (U.S. Environmental Protection Agency [EPA], 2015). During a flood event, containers holding these materials can rupture and leak into the surrounding area, disastrously affecting the environment and residents. Sixty-seven facilities within the 1-percent-annual-chance flood zone are TRI reporting facilities.

Table 9-15. Critical Facilities in the 10-Percent Annual Chance Flood Hazard Area

Jurisdiction	Number of Facilities in the Floodplain						Total
	Emergency Response / Public Health & Safety	Infra-structure Lifeline	Military Facilities	Recovery Facilities	Socio-economic Facilities	Hazardous Materials	
Campbell	0	0	0	0	0	0	0
Cupertino	0	5	0	0	1	0	6
Gilroy	1	5	0	0	0	4	10
Los Altos	0	6	0	0	0	0	6
Los Altos Hills	0	14	0	0	0	0	14
Los Gatos	0	8	0	0	0	0	8
Milpitas	1	3	0	0	5	0	9
Monte Sereno	0	0	0	0	0	0	0
Morgan Hill	0	6	0	0	7	0	13
Mountain View	0	7	0	0	0	2	9
Palo Alto	0	20	0	0	15	5	40
San José	2	70	0	0	6	1	79
Santa Clara (city)	0	17	0	0	0	0	17
Saratoga	0	9	0	0	0	0	9
Sunnyvale	1	3	0	0	1	7	12
Unincorporated County	1	42	0	0	1	0	44
Total	6	215	0	0	36	19	276

Table 9-16. Critical Facilities in the 1-Percent Annual Chance Flood Hazard Area

Jurisdiction	Number of Facilities in the Floodplain						Total
	Emergency Response / Public Health & Safety	Infra-structure Lifeline	Military Facilities	Recovery Facilities	Socio-economic Facilities	Hazardous Materials	
Campbell	0	6	0	0	0	0	6
Cupertino	0	15	0	0	1	0	16
Gilroy	2	15	0	0	0	4	21
Los Altos	0	15	0	0	2	0	17
Los Altos Hills	0	14	0	0	0	0	14
Los Gatos	0	10	0	0	0	0	10
Milpitas	2	17	0	0	11	11	41
Monte Sereno	0	0	0	0	0	0	0
Morgan Hill	1	6	0	0	7	0	14
Mountain View	2	34	0	0	0	3	39
Palo Alto	1	47	0	0	22	5	75
San José	9	265	0	0	44	25	343
Santa Clara (city)	1	50	0	0	4	13	68
Saratoga	0	13	0	0	0	0	13
Sunnyvale	1	20	0	0	5	8	34
Unincorporated County	1	102	0	0	3	0	106
Total	20	629	0	0	99	69	817

Table 9-17. Critical Facilities in the 0.2-Percent Annual Chance Flood Hazard Area

Jurisdiction	Number of Facilities in the Floodplain						Total
	Emergency Response / Public Health & Safety	Infrastructure Lifeline	Military Facilities	Recovery Facilities	Socio-economic Facilities	Hazardous Materials	
Campbell	0	6	0	0	1	0	7
Cupertino	6	30	0	0	34	3	73
Gilroy	15	36	0	1	40	5	97
Los Altos	6	28	0	0	36	0	70
Los Altos Hills	1	48	0	0	6	0	55
Los Gatos	14	39	0	0	22	1	76
Milpitas	9	65	0	0	33	42	149
Monte Sereno	0	0	0	0	0	0	0
Morgan Hill	9	12	0	0	37	7	65
Mountain View	3	41	0	0	6	5	55
Palo Alto	19	70	0	0	95	22	206
San José	16	312	0	0	66	52	446
Santa Clara (city)	13	63	0	0	85	43	204
Saratoga	7	33	0	0	30	0	70
Sunnyvale	11	39	0	0	73	16	139
Unincorporated County	1	106	0	0	3	0	110
Total	130	928	0	1	567	196	1822

Utilities and Infrastructure

It is important to determine who may be at risk if infrastructure is damaged by flooding. Roads or railroads that are blocked or damaged can isolate residents and can prevent access throughout the OA, including for emergency service providers needing to get to vulnerable populations or to make repairs. Bridges washed out or blocked by floods or debris also can cause isolation. Water and sewer systems can be flooded or backed up, causing health problems. Underground utilities can be damaged. Dikes can fail or be overtopped, inundating the land that they protect. The following sections describe specific types of critical infrastructure.

Roads

The following major roads in the OA pass through the 1-percent-annual-chance flood zone and thus are exposed to flooding:

- US 101
- Interstate 280
- Interstate 680
- Interstate 880
- State Route 9
- State Route 17
- State Route 82
- State Route 85
- State Route 87
- State Route 152
- State Route 237

Some of these roads are built above the flood level, and others function as levees to prevent flooding. Still, in severe flood events these roads can be blocked or damaged, preventing access to some areas.

Infrastructure Lifelines

Flooding events can significantly impact critical infrastructure lifelines such as highways, bridges, airports, water and wastewater facilities and communication facilities. An analysis showed that there are 629 infrastructure

lifelines (241 are bridges) that are in or cross over the 1-percent-annual-chance flood zone and 928 infrastructure lifelines in the 0.2-percent-annual-chance flood zone.

Water and Sewer Infrastructure

Water and sewer systems can be affected by flooding. Floodwaters can back up drainage systems, causing localized flooding. Culverts can be blocked by debris from flood events, also causing localized urban flooding. Floodwaters can get into drinking water supplies, causing contamination. Sewer systems can be backed up, causing wastewater to spill into homes, neighborhoods, rivers and streams.

Levees

SCVWD constructed flood protection levees in the north, central, and southern portions of the county, some of which provide 1-percent-annual-chance flood protection. The levees along Uvas Creek, King Creek, Lyons Creek, and Coyote Creek participate in Corps' Levee Program. Levees along the Guadalupe River do not participate. SCVWD does not believe the majority of levees could withstand intensities of a 1-percent annual chance flood. Additionally, coastal flooding from San Francisco Bay circumvents levees near the Bay. Moreover, current flood levels do not account for potential sea level rise, which would exacerbate vulnerability and further reduce the ability of the levees to prevent or reduce flooding.

The presence and effects of levee systems in the Santa Clara County OA are not reflected on the DFIRM, meaning that areas, structures, and populations vulnerable to failures of those levees cannot be determined. Levee failures could place large numbers of people and great amounts of property at risk. Unlike dams, levees do not serve any purpose beyond providing flood protection and (less frequently) recreational space for residents. A levee failure could be devastating, depending on severity of flooding and amount of land development present. In addition to damaging buildings, infrastructure, trees, and other large objects, levee failure can result in significant water quality and debris disposal issues. Severe erosion is also a consideration.

9.4.4 Environment

Flooding is a natural event, and floodplains provide many natural and beneficial functions. Nonetheless, flooding can impact the environment in negative ways. Migrating fish can wash into roads or over dikes into flooded fields, with no possibility of escape. Pollution from roads, such as oil, and hazardous materials can wash into rivers and streams. During floods, these can settle onto normally dry soils, polluting them for agricultural uses. Human development such as bridge abutments and levees, and logjams from timber harvesting can increase stream bank erosion, causing rivers and streams to migrate into non-natural courses.

9.5 VULNERABILITY

Many of the areas exposed to flooding may not experience serious flooding or flood damage. This section describes vulnerabilities in terms of population, property, infrastructure, crops and environment.

9.5.1 Population

Vulnerable Populations

A geographic analysis of demographics using the Hazus model identified populations vulnerable to the flood hazard as follows:

- **Economically Disadvantaged Populations**—It is estimated that 9.99 percent of the people within the 100-year floodplain are economically disadvantaged, defined as having household incomes of \$20,000 or less.

- **Population over 65 Years Old**—It is estimated that 11.3 percent of the population in the census blocks that intersect the 100-year floodplain are over 65 years old.
- **Population under 16 Years Old**—It is estimated that 24.0 percent of the population within census blocks located in or near the 100-year floodplain are under 16 years of age.

Additionally, it is estimated that on a normal work day 100,000 Santa Clara County residents commute out of the county and 200,000 non-residents commute in. These commuters are considered vulnerable to the flood hazard. Commuters whose workplaces or major transportation routes are in or near the 1-percent-annual-chance flood zone may be especially vulnerable.

Estimated Impacts on Persons and Households

Impacts on persons and households in the OA were estimated for the 10-, 1-, and 0.2-percent-annual-chance flood events through the Level 2 Hazus analysis. Table 9-18 summarizes the results.

Table 9-18. Estimated Flood Impact on Persons and Households

Jurisdiction	Number of Displaced Households			Number of Persons Requiring Short-Term Shelter		
	10% Annual Chance Flood	1% Annual Chance Flood	0.2% Annual Chance Flood	10% Annual Chance Flood	1% Annual Chance Flood	0.2% Annual Chance Flood
Campbell	0	3	4	0	2	2
Cupertino	41	34	26,940	37	28	26,552
Gilroy	0	96	37,365	0	80	36,429
Los Altos	5	21	27,996	1	11	27,548
Los Altos Hills	2	3	7,384	0	0	6,980
Los Gatos	3	3	25,104	2	2	24,167
Milpitas	1,466	7,895	38,643	1,407	7,563	38,147
Monte Sereno	0	0	1	0	0	0
Morgan Hill	547	572	37,516	490	510	36,590
Mountain View	7	315	1,554	2	251	1,390
Palo Alto	7,704	8,879	68,050	7,516	8,421	66,730
San José	2,081	1,925	44,795	1,913	1,796	42,637
Santa Clara (city)	0	2,127	93,108	0	1,966	91,881
Saratoga	3	3	29,602	1	1	28,997
Sunnyvale	2,809	2,982	11,430	2,693	2,845	11,325
Unincorporated County	231	503	563	130	315	361
Total	14,899	25,361	450,055	14,192	23,791	439,736

Public Health and Safety

Floods and their aftermath present numerous threats to public health and safety:

- **Unsafe food**—Floodwaters contain disease-causing bacteria, dirt, oil, human and animal waste, and farm and industrial chemicals. Their contact with food items, including food crops in agricultural lands, can make that food unsafe to eat. Refrigerated and frozen foods are affected during power outages caused by flooding. Foods in cardboard, plastic bags, jars, bottles, and paper packaging may be unhygienic with mold contamination.
- **Contaminated drinking and washing water and poor sanitation**—Flooding impairs clean water sources with pollutants. The pollutants also saturate into the groundwater. Flooded wastewater treatment plants

can be overloaded, resulting in backflows of raw sewage. Private wells can be contaminated by floodwaters. Private sewage disposal systems can become a cause of infection if they overflow.

- Mosquitoes and animals—Floods provide new breeding grounds for mosquitoes in wet areas and stagnant pools. The public should dispose of dead animals that can carry viruses and diseases only in accordance with guidelines issued by local animal control authorities. Leptospirosis—a bacterial disease associated predominantly with rats—often accompanies floods in developing countries, although the risk is low in industrialized regions unless cuts or wounds have direct contact with disease-contaminated floodwaters or animals.
- Mold and mildew—Excessive exposure to mold and mildew can cause flood victims—especially those with allergies and asthma—to contract upper respiratory diseases, triggering cold-like symptoms. Molds grow in as short a period as 24 to 48 hours in wet and damp areas of buildings and homes that have not been cleaned after flooding, such as water-infiltrated walls, floors, carpets, toilets and bathrooms. Very small mold spores can be easily inhaled by human bodies and, in large enough quantities, cause allergic reactions, asthma episodes, and other respiratory problems. Infants, children, elderly people and pregnant women are considered most vulnerable to mold-induced health problems.
- Carbon monoxide poisoning—In the event of power outages following floods, some people use alternative fuels for heating or cooking in enclosed or partly enclosed spaces, such as small gasoline engines, stoves, generators, lanterns, gas ranges, charcoal or wood. Built-up carbon monoxide from these sources can poison people and animals.
- Hazards when reentering and cleaning flooded homes and buildings—Flooded buildings can pose significant health hazards to people entering them. Electrical power systems can become hazardous. Gas leaks can trigger fire and explosion. Flood debris—such as broken bottles, wood, stones and walls—may cause injuries to those cleaning damaged buildings. Containers of hazardous chemicals may be buried under flood debris. Hazardous dust and mold can circulate through a building and be inhaled by those engaged in cleanup and restoration.
- Mental stress and fatigue—People who live through a devastating flood can experience long-term psychological impact. The expense and effort required to repair flood-damaged homes places severe financial and psychological burdens on the people affected. Post-flood recovery can cause, anxiety, anger, depression, lethargy, hyperactivity, and sleeplessness. There is also a long-term concern among the affected that their homes can be flooded again in the future.

Current loss estimation models such as Hazus are not equipped to measure public health impacts such as these. The best preparation for these effects includes awareness that they can occur, education of the public on prevention, and planning to deal with them during responses to flood events.

9.5.2 Property

Structures and Contents

Hazus calculates losses to structures from flooding by looking at depth of flooding and type of structure. Using historical flood insurance claim data, Hazus estimates the percentage of damage to structures and their contents by applying established damage functions to an inventory. For this analysis, local data on facilities was used instead of the default inventory data provided with Hazus. The analysis is summarized in Table 9-19, Table 9-20 and Table 9-21 for the 10-, 1-, and 0.2-percent-annual-chance flood events, respectively.

Table 9-19. Loss Estimates for 10-Percent-Annual-Chance Flood

Jurisdiction	Structures Impacted ^a	Estimated Loss Associated with Flood			% of Total Replacement Value
		Structure	Contents	Total	
Campbell	0	\$0	\$0	\$0	0.0%
Cupertino	3	\$11,144	\$7,429	\$18,573	0.0%
Gilroy	3	\$1,317,398	\$3,768,744	\$5,086,142	0.0%
Los Altos	2	\$105,619	\$53,714	\$159,333	0.0%
Los Altos Hills	2	\$68,121	\$42,876	\$110,998	0.0%
Los Gatos	0	\$0	\$0	\$0	0.0%
Milpitas	986	\$43,135,138	\$37,117,050	\$80,252,189	0.4%
Monte Sereno	1	\$47,268	\$29,165	\$76,433	0.0%
Morgan Hill	189	\$5,527,952	\$11,327,545	\$16,855,497	0.2%
Mountain View	25	\$4,868,005	\$8,260,107	\$13,128,112	0.1%
Palo Alto	2,025	\$199,314,582	\$245,524,051	\$444,838,633	1.7%
San José	966	\$136,449,482	\$236,308,663	\$372,758,145	0.2%
Santa Clara (city)	1	\$1,338,585	\$2,185,626	\$3,524,211	0.0%
Saratoga	1	\$39,746	\$14,453	\$54,199	0.0%
Sunnyvale	408	\$136,886,599	\$305,316,148	\$442,202,747	1.0%
Unincorporated County	91	\$4,367,410	\$6,513,733	\$10,881,143	0.0%
Total	4,703	\$533,477,050	\$856,469,306	\$1,389,946,356	0.3%

a. Impacted structures are those with finished floor elevations below the flood event water surface elevation. These structures are the most likely to receive significant damage in a flood event.

Note: Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Table 9-20. Loss Estimates for 1-Percent-Annual-Chance Flood

Jurisdiction	Structures Impacted ^a	Estimated Loss Associated with Flood			% of Total Replacement Value
		Structure	Contents	Total	
Campbell	3	\$16,926,865	\$29,428,799	\$46,355,665	0.4%
Cupertino	24	\$1,052,781	\$588,706	\$1,641,487	0.0%
Gilroy	30	\$6,689,735	\$15,161,388	\$21,851,123	0.2%
Los Altos	41	\$9,402,307	\$10,673,460	\$20,075,767	0.2%
Los Altos Hills	3	\$121,654	\$73,603	\$195,257	0.0%
Los Gatos	0	\$0	\$0	\$0	0.0%
Milpitas	1,803	\$51,494,330	\$46,269,246	\$97,763,576	0.5%
Monte Sereno	1	\$97,424	\$55,018	\$152,442	0.0%
Morgan Hill	207	\$7,087,165	\$13,899,757	\$20,986,921	0.2%
Mountain View	244	\$9,745,617	\$14,874,352	\$24,619,969	0.1%
Palo Alto	3,023	\$224,950,926	\$288,040,109	\$512,991,035	2.0%
San José	7,258	\$321,601,980	\$525,105,450	\$846,707,430	0.4%
Santa Clara (city)	844	\$13,146,658	\$17,557,461	\$30,704,119	0.1%
Saratoga	3	\$92,280	\$57,599	\$149,879	0.0%
Sunnyvale	794	\$150,768,106	\$320,868,331	\$471,636,438	1.1%
Unincorporated County	346	\$75,915,605	\$100,008,535	\$175,924,140	0.7%
Total	14,624	\$889,093,433	\$1,382,661,816	\$2,271,755,249	0.5%

a. Impacted structures are those with finished floor elevations below the flood event water surface elevation. These structures are the most likely to receive significant damage in a flood event.

Note: Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Table 9-21. Loss Estimates for 0.2-Percent-Annual-Chance Flood

Jurisdiction	Structures Impacted ^a	Estimated Loss Associated with Flood			% of Total Replacement Value
		Structure	Contents	Total	
Campbell	8	\$17,093,500	\$29,500,064	\$46,593,564	0.4%
Cupertino	5,398	\$1,022,251,503	\$952,596,401	\$1,974,847,904	14.2%
Gilroy	5,498	\$772,578,473	\$965,570,283	\$1,738,148,756	13.0%
Los Altos	4,047	\$467,470,569	\$405,893,093	\$873,363,662	9.9%
Los Altos Hills	889	\$365,547,411	\$225,030,872	\$590,578,283	18.2%
Los Gatos	5,626	\$1,809,407,428	\$1,694,708,840	\$3,504,116,269	32.2%
Milpitas	5,881	\$335,288,895	\$426,087,597	\$761,376,492	4.0%
Monte Sereno	5	\$174,826	\$102,546	\$277,371	0.0%
Morgan Hill	6,339	\$1,082,158,998	\$955,615,585	\$2,037,774,583	18.3%
Mountain View	751	\$40,575,174	\$47,979,623	\$88,554,797	0.4%
Palo Alto	15,514	\$2,297,621,503	\$2,682,440,183	\$4,980,061,686	19.3%
San José	12,992	\$824,133,410	\$1,140,183,083	\$1,964,316,492	0.9%
Santa Clara (city)	11,358	\$708,522,448	\$740,423,216	\$1,448,945,665	3.3%
Saratoga	3,235	\$846,879,388	\$555,760,836	\$1,402,640,224	17.2%
Sunnyvale	8,468	\$707,246,874	\$869,214,144	\$1,576,461,018	3.7%
Unincorporated County	607	\$101,251,522	\$127,422,897	\$228,674,420	0.9%
Total	86,616	\$11,398,201,921	\$11,818,529,265	\$23,216,731,186	4.9%

a. Impacted structures are those with finished floor elevations below the flood event water surface elevation. These structures are the most likely to receive significant damage in a flood event.

Note: Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Key results are as follows:

- There would be up to \$1.39 billion of flood loss from a 10-percent-annual-chance flood event in the OA. This represents 3.5 percent of the total exposure to that level of flood and 0.3 percent of the total replacement value for the OA.
- There would be up to \$2.27 billion of flood loss from a 1-percent-annual-chance flood event in the OA. This represents 8.4 percent of the total exposure to that level of flood and 0.5 percent of the total replacement value for the OA.
- There would be \$23.22 billion of flood loss from a 0.2-percent-annual-chance flood event in the OA. This represents 42 percent of the total exposure to a that level of flood and 4.9 percent of the total replacement value.

Flood-Caused Debris

The Hazus analysis estimated the amount of flood-caused debris within the OA generated by flooding, as summarized in Table 9-22.

Estimate of Crop Losses

According to the USDA's Risk Management Agency, the amount of claims paid for crop damage as a result of flood in Santa Clara County over a 14-year period was \$8,200,676. According to the 2016 California Insurance Profile from the USDA's Risk Management Agency, 54 percent of the insurable crops in California are insured with USDA Crop Insurance. To provide an adjusted estimate of losses accounting for insurable crops that are not insured, the 54 percent crop insurance coverage was factored in. According to this calculation, estimated annualized losses are almost \$1 million (see Table 9-23). Considering the value of crops from the 2012 Census of Agriculture as baseline crop exposure, the estimated annual loss from flood was determined to be low compared to the value of the insurable crops.

Table 9-22. Estimated Flood-Caused Debris

Jurisdiction	10% Annual-Chance Flood		1% Annual-Chance Flood		0.2% Annual-Chance Flood	
	Debris to Be Removed (tons) ^a	Estimated Number of Truckloads ^b	Debris to Be Removed (tons) ^a	Estimated Number of Truckloads ^b	Debris to Be Removed (tons) ^a	Estimated Number of Truckloads ^b
Campbell	0	0	2,958	118	3,051	122
Cupertino	201	8	1,258	50	186,456	7,458
Gilroy	246	10	1,317	53	46,923	1,877
Los Altos	118	5	998	40	82,064	3,283
Los Altos Hills	52	2	93	4	81,669	3,267
Los Gatos	130	5	1,934	77	553,516	22,141
Milpitas	4,977	199	9,638	386	17,375	695
Monte Sereno	11	0	14	1	100	4
Morgan Hill	1,072	43	1,480	59	143,514	5,741
Mountain View	129	5	1,867	75	3,190	128
Palo Alto	15,047	602	20,323	813	199,656	7,986
San José	23,022	921	79,315	3,173	96,082	3,843
Santa Clara (city)	216	9	10,367	415	63,338	2,534
Saratoga	420	17	678	27	217,199	8,688
Sunnyvale	1,223	49	3,386	135	42,176	1,687
Unincorporated County	1,113	45	8,721	349	13,384	535
Total	47,979	1,919	144,344	5,774	1,749,694	69,988

a. Debris generation estimates were based on updated general building stock dataset at a Census Block analysis level.

b. Hazus assumes 25 tons/trucks.

Note: Values shown are accurate for comparison of results in this plan. See Section 0 for discussion of data limitations.

Table 9-23. Estimated Insurable Annual Crop Loss Resulting From Flood

14-Year Flood Insurance Paid ^a	Adjusted 14-year Flood Losses (considering 54% insured)	Estimated Annualized Losses	2012 Value of Crops ^b
\$8,200,676	\$13,524,077	\$966,005	\$233,397,000

a. Crop insurance paid from USDA's Risk Management Agency for 2003-2016.

b. 2012 Census of Agriculture, Santa Clara County

Flood Insurance Statistics

Table 9-24 lists flood insurance statistics that help identify vulnerability in the OA. All 16 municipal planning partners participate in the NFIP, with 17,129 flood insurance policies providing \$4.5 billion in insurance coverage. According to FEMA statistics, 784 flood insurance claims were paid between January 1, 1978 and October 31, 2016, for a total of \$14.773 million, an average of \$18,843 per claim.

Properties constructed after a FIRM has been adopted are eligible for reduced flood insurance rates. Such structures are less vulnerable to flooding since they were constructed after regulations and codes were adopted to decrease vulnerability. Properties built before a FIRM is adopted are more vulnerable to flooding because they do not meet code or are located in hazardous areas. The first FIRMs in the OA were available in 1975.

Table 9-24. Flood Insurance Statistics

Jurisdiction	Date of Entry Initial FIRM Effective Date	# of Flood Insurance Policies as of 10/31/2016	Insurance In Force	Total Annual Premium	Claims, 11/1978 to 10/31/2016	Value of Claims paid, 11/1978 to 10/31/2016
Campbell	06/30/1976	81	\$22,646,000	\$44,916	0	\$0
Cupertino	04/18/1975	143	\$43,735,900	\$102,495	10	\$812,171
Gilroy	06/04/1976	205	\$75,006,900	\$243,840	22	\$302,117
Los Altos	09/24/1976	83	\$25,087,400	\$62,551	5	\$31,535
Los Altos Hills	11/26/1976	191	\$58,726,800	\$132,576	5	\$37,478
Los Gatos	02/27/1976	149	\$44,538,700	\$74,818	10	\$51,957
Milpitas	03/28/1975	1,592	\$403,981,100	\$1,663,220	20	\$75,336
Monte Sereno	05/18/2009	21	\$6,972,000	\$7,833	2	\$41,974
Morgan Hill	06/18/1980	557	\$159,125,300	\$506,690	43	\$482,726
Mountain View	09/19/1975	601	\$174,867,300	\$499,833	5	\$10,920
Palo Alto	09/06/1989	3,609	\$944,663,200	\$4,125,112	369	\$8,984,658
San José	04/09/1976	7,644	\$1,913,467,400	\$6,718,976	267	\$3,537,348
Santa Clara (city)	02/11/1977	995	\$291,146,100	\$736,663	14	\$309,753
Saratoga	11/28/1975	175	\$56,346,900	\$87,375	7	\$26,681
Sunnyvale	12/05/1975	1,083	\$280,813,500	\$998,078	5	\$68,655
Unincorporated County	06/20/1978	634	\$157,454,000	\$848,200	84	\$1,506,977
Total		17,129	\$4,501,124,500	\$16,004,976	784	\$14,773,309

The following information from flood insurance statistics is relevant to reducing flood risk:

- The use of flood insurance in the OA is above the national average. Sixty percent of insurable buildings in the OA are covered by flood insurance. According to an NFIP study, about 49 percent of single-family homes in special flood hazard areas are covered by flood insurance nationwide.
- The average claim paid in the OA represents less than 1 percent of the 2016 average replacement value of structures in the floodplain.
- The percentage of policies and claims outside a mapped floodplain suggests that not all of the flood risk in the OA is reflected in current mapping. Based on information from the NFIP, 94 percent of policies in the OA are on structures within an identified SFHA, and 6 percent are for structures outside such areas. Of total claims paid, 11 percent were for properties outside an identified 100-year floodplain.

Repetitive Loss and Severe Repetitive Loss

A repetitive loss property is defined by FEMA as an NFIP-insured property that has experienced any of the following since 1978, regardless of any changes in ownership:

- Four or more paid losses in excess of \$1,000.
- Two paid losses in excess of \$1,000 within any rolling 10-year period.
- Three or more paid losses that equal or exceed the current value of the insured property.

A severe repetitive loss property is further defined as follows:

- Four or more paid losses in excess of \$5,000 each, with the cumulative amount of such claim payments exceeding \$20,000.
- At least two separate claim payments made, with the cumulative amount of the building portion of such claims exceeding the market value of the building.

- At least two of the above referenced claims occurred within any rolling 10-year period and must be more than 10 days apart.

Repetitive loss properties make up only 1 to 2 percent of flood insurance policies in force nationally, yet they account for 40 percent of the nation's flood insurance claim payments. The government has instituted programs encouraging communities to identify and mitigate the causes of repetitive losses. A recent report on repetitive losses by the National Wildlife Federation found that 20 percent of these properties are outside any mapped 100-year floodplain. The key identifiers for repetitive loss properties are the existence of flood insurance policies and claims paid by the policies.

FEMA-sponsored programs, such as the CRS, require participating communities to identify repetitive loss areas. A repetitive loss area is the portion of a floodplain holding structures that FEMA has identified as meeting the definition of repetitive loss. Identifying repetitive loss areas helps to identify structures that are at risk but are not on FEMA's list of repetitive loss structures because no flood insurance policy was in force at the time of loss. Figure 9-3 shows the repetitive loss areas in the Santa Clara County OA. FEMA's list of repetitive loss properties identifies four such properties in the OA as of November 16, 2016. The breakdown of the properties by jurisdiction is presented in Table 9-25.

Table 9-25. Repetitive Loss Properties

Jurisdiction	Number of Repetitive Loss Properties	Number of Severe Repetitive Loss Properties
Morgan Hill	—	1
Palo Alto	1	—
San José	—	1
Unincorporated County	—	1
Total	1	3

Based on FEMA Region IX Report of Repetitive Losses, 11/16/2016

A review of the repetitive loss list indicated that none of the properties are outside the OA's special flood hazard area. The average claim paid for these four properties was \$19,741, which is approximately 2 percent of the median home value for Santa Clara County (\$982,500 according to Zillow.com as of 1/31/2017). This damage level would correlate to shallow flooding of less than 1 foot, which would appear appropriate for flood damage associated with stormwater or urban drainage issues. Although this suggests localized causes of repetitive flooding for the four properties, the fact that all four properties are in an identified special flood hazard area indicates that the flood risk is more than localized. With the potential for flood events annually, all of the mapped floodplain is considered to be susceptible to repetitive flooding.

9.5.3 Critical Facilities and Infrastructure

Hazus was used to estimate the flood loss potential to critical facilities exposed to the flood risk. Using depth/damage function curves to estimate the percent of damage to the building and contents of critical facilities, Hazus correlates these estimates into an estimate of functional down-time (the estimated time it will take to restore a facility to 100 percent of its functionality). This helps to gauge how long the OA could have limited usage of facilities deemed critical to flood response and recovery.

Figure Placeholder

Figure 9-3. Repetitive Loss Areas in the Operational Area

The Hazus critical facility results are as follows (see Table 9-26 through Table 9-28):

- 100-year flood event—On average, critical facilities would receive 6.36 percent damage to the structure and 23.35 percent damage to the contents during a 100-year flood event. The estimated time to restore these facilities to 100 percent of their functionality is 501 days.
- 500-year flood event—A 500-year flood event would damage the structures an average of 13.58 percent and the contents an average 28.93 percent. The estimated time to restore these facilities to 100 percent of their functionality after a 500-year event is 571 days.

Table 9-26. Estimated Damage to Critical Facilities and Infrastructure from the 10% Annual Chance Flood

Type of Critical Facility	Number of Facilities Affected	Average % of Total Value Damaged		Days to 100% Functionality
		Building	Contents	
Emergency Response / Public Health & Safety	2	12.36	43.03	555
Infrastructure Lifeline	83	0.63	33.58	N/A
Military Facilities	0	N/A	N/A	N/A
Recovery Facilities	0	N/A	N/A	N/A
Socioeconomic Facilities	28	14.26	38.92	494
Hazardous Materials	15	12.04	25.37	N/A
Total/Average	128	9.82	35.22	524

N/A = Not Applicable

Table 9-27. Estimated Damage to Critical Facilities and Infrastructure from the 1% Annual Chance Flood

Type of Critical Facility	Number of Facilities Affected	Average % of Total Value Damaged		Days to 100% Functionality
		Building	Contents	
Emergency Response / Public Health & Safety	4	10.89	30.94	518
Infrastructure Lifeline	248	0.65	27.77	N/A
Military Facilities	0	N/A	N/A	N/A
Recovery Facilities	0	N/A	N/A	N/A
Socioeconomic Facilities	78	8.61	25.46	484
Hazardous Materials	57	5.27	9.24	N/A
Total/Average	387	6.36	23.35	501

N/A = Not Applicable

Table 9-28. Estimated Damage to Critical Facilities and Infrastructure from the 0.2% Annual Chance Flood

Type of Critical Facility	Number of Facilities Affected	Average % of Total Value Damaged		Days to 100% Functionality
		Building	Contents	
Emergency Response / Public Health & Safety	52	22.55	42.40	574
Infrastructure Lifeline	359	1.14	21.81	N/A
Military Facilities	0	N/A	N/A	N/A
Recovery Facilities	1	15.52	24.33	N/A
Socioeconomic Facilities	342	19.37	39.98	568
Hazardous Materials	129	9.33	16.11	N/A
Total/Average	883	13.58	28.93	571

N/A = Not Applicable

9.5.4 Environment

The environment vulnerable to flood hazard is the same as the environment exposed to the hazard. Loss estimation platforms such as Hazus are not currently equipped to measure environmental impacts of flood hazards. The best gauge of vulnerability of the environment would be a review of damage from past flood events. Loss data that segregates damage to the environment was not available at the time of this plan. Capturing this data from future events could be beneficial in measuring the vulnerability of the environment for future updates.

Additionally, while the vulnerability assessment typically focuses on human vulnerability to flood events, the opposite is also worth noting. Floodplains have many natural and beneficial functions; however, due to negative impacts of floods, many structural and other measures have been devised to limit how far a floodplain can extend. Disruption of natural systems can have long-term consequences for entire regions; however, this potential impact has only recently been noted. Some well-known, water-related functions of floodplains (noted by FEMA) include:

- Natural flood and erosion control
- Provide flood storage and conveyance
- Reduce flood velocities
- Reduce flood peaks
- Reduce sedimentation
- Surface water quality maintenance
- Filter nutrients and impurities from runoff
- Process organic wastes
- Moderate temperatures of water
- Groundwater recharge
- Promote infiltration and aquifer recharge
- Reduce frequency and duration of low surface flows.

Areas within the floodplain that typically provide these natural functions are wetlands, riparian areas, sensitive areas, and habitats for rare and endangered species

9.5.5 Economic Impact

Locations of flooding will undergo heaviest economic impact. Within these areas, renovations of commercial buildings may be necessary, disrupting associated services. Additionally, significant damage within agricultural areas may occur with destruction of crops and other agricultural products. The tourism industry may also be affected by major flood events, as popular vacation areas tend to overlap flood hazard zones. Finally, flooding can cause extensive damage to public utilities and disruptions to delivery of services. Loss of power and communications may occur; and drinking water and wastewater treatment facilities may be temporarily out of operation.

9.6 FUTURE TRENDS IN DEVELOPMENT

Santa Clara County has been one of the state's fastest growing counties over the past 10 years, averaging a 1.21-percent increase in population per year from 2005 through 2015. The Silicon Valley job market continues to grow, and many young tech workers choose to live in an urban environment rather than commute from the suburbs.

The planning partners are equipped to handle future growth within flood hazard areas. All municipal planning partners have general plans that address frequently flooded areas in their safety elements. All partners have committed to linking their general plans to this hazard mitigation plan. This will create an opportunity for wise land use decisions as future growth impacts flood hazard areas.

Additionally, all municipal planning partners are participants in the NFIP and have adopted flood damage prevention ordinances in response to its requirements. With over 60 percent of communities in the OA participating in the CRS program, there is incentive to adopt consistent, appropriate, higher regulatory standards in communities with the highest degree of flood risk. All municipal planning partners have committed to

maintaining their good standing under the NFIP through actions identified in this plan. Communities participating or considering participation in the CRS program will be able to refine this commitment using CRS programs and templates as a guide.

Any areas of growth could be impacted by the flood hazard if located within the identified hazard areas. The SCVWD intends to discourage development within vulnerable areas and/or to encourage higher regulatory standards on the local level.

9.7 SCENARIO

Historically, floods have regularly affected the Santa Clara County OA. The OA can expect noteworthy flooding about once a year, with a flash flood every 2 to 3 years. Duration and intensity of heavy winter rains and atmospheric river events that cause flooding may increase due to climate change. The floodplains mapped and identified for the Santa Clara County OA will continue to take the brunt of these floods. OA residents prepare themselves for flooding by seeking and receiving information, and by pursuing mitigation. Impacts of flood events should decrease as the OA continues to promote and implement hazard mitigation and preparedness.

The worst-case scenario would be a series of heavy rains or storm events during an atmospheric river event, particularly if the rains also occur at high tide. These rains could flood numerous areas within a short time. This could overwhelm the response and floodplain management capability within the OA, as the OA would be subject immediately to flash flooding and coastal flooding, with subsequent influences on the County's streams. Major roads could be blocked, preventing critical access for many residents and critical functions. High in-channel flows could cause water courses to scour, possibly washing out roads and creating more isolation problems. In the event of multi-basin flooding, Santa Clara County would not be able to make repairs quickly enough to restore critical facilities and assets.

9.8 ISSUES

The Core Planning Group has identified the following flood-related issues relevant to the OA:

- The extent of the flood-protection currently provided by flood control facilities (dams, dikes and levees) is not known due to the lack of an established national policy on flood protection standards.
- The levee system within the OA is not consistently adequate to mitigate effects of a 1-percent annual chance flood.
- The risk associated with the flood hazard overlaps the risk associated with other hazards such as earthquake, landslide, mud slides and fishing losses. This provides an opportunity to seek mitigation alternatives with multiple objectives that can reduce risk for multiple hazards.
- There is no consistency of land-use practices and floodplain management scope within the OA.
- How climate change will affect flood conditions in the OA is uncertain.
- More information is needed on flood risk to support the concept of risk-based analysis of capital projects.
- There needs to be a sustained effort to gather historical damage data, such as high water marks on structures and damage reports, to measure the cost-effectiveness of future mitigation projects.
- Ongoing flood hazard mitigation will require funding from multiple sources.
- There needs to be a coordinated hazard mitigation effort between jurisdictions affected by flood hazards in the OA.
- Floodplain residents need to continue to be educated about flood preparedness and the resources available during and after floods.
- The concept of residual risk should be considered in the design of future capital flood control projects and should be communicated with residents living in the floodplain.

- The promotion of flood insurance as a means of protecting private property owners from the economic impacts of frequent flood events should continue.
- Existing floodplain-compatible uses such as agricultural and open space need to be maintained. There is constant pressure to convert these existing uses to more intense uses within the OA during times of moderate to high growth.
- The economy affects a jurisdiction's ability to manage its floodplains. Budget cuts and personnel losses can strain resources needed to support floodplain management.

10. LANDSLIDE/MASS MOVEMENT

10.1 GENERAL BACKGROUND

The U.S. Geological Survey defines landslides to include a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on an over-steepened slope is the primary reason for a landslide, there are other contributing factors.

Landslides and mudslides can be initiated by storms, earthquakes, fires, volcanic eruptions or human modification of the land. They can move rapidly down slopes or through channels, and can strike with little or no warning at avalanche speeds, posing a serious hazard to properties on or below hillsides.

When landslides occur—in response to such changes as increased water content, earthquake shaking, addition of load, or removal of downslope support—they deform and tilt the ground surface. The result can be destruction of foundations, offset of roads, breaking of underground pipes, or overriding of downslope property and structures.

The USGS defines land subsidence as the loss of surface elevation due to the removal of subsurface support. In California, the two principal causes for land subsidence are aquifer compaction due to excessive groundwater pumping and decomposition of wetland soils exposed to air after wetland conversion to farmland.

10.1.1 Landslide Types

Landslides are commonly categorized by the type of initial ground failure. Common types of slides are shown on Figure 10-1 through Figure 10-4 (Ecology, 2014). The most common is the shallow colluvial slide, occurring particularly in response to intense, short-duration storms. The largest and most destructive are deep-seated slides, although they are less common than other types.

Mudslides (or debris flows) are rivers of rock, earth, organic matter and other soil materials saturated with water. They develop in the soil overlying bedrock on sloping surfaces when water rapidly accumulates in the ground, such as during heavy rainfall or rapid snowmelt. Water pressure in the pore spaces of the material increases to the point that the internal strength of the soil is drastically weakened. The soil's reduced resistance can then easily be overcome by gravity, changing the earth into a flowing river of mud.

A debris avalanche (Figure 10-5) is a fast-moving debris flow that travels faster than about 10 miles per hour (mph). Speeds in excess of 20 mph are not uncommon, and speeds in excess of 100 mph, although rare, can occur. The slurry can travel miles from its source, growing as it descends, picking up trees, boulders, cars, and anything else in its path. Although these slides behave as fluids, they pack many times the hydraulic force of water due to the mass of material included in them. They can be among the most destructive events in nature.

DEFINITIONS

Landslide—The movement of masses of loosened rock and soil down a hillside or slope. Slope failures occur when the strength of the soils forming the slope is exceeded by the pressure, such as weight or saturation, acting upon them.

Mass Movement—A collective term for landslides, debris flows, and sinkholes.

Mudslide (or Debris Flow)—A river of rock, earth, organic matter and other materials saturated with water. Mudslides develop in the soil overlying bedrock on sloping surfaces when water rapidly accumulates in the ground, such as during heavy rainfall or rapid snowmelt. Water pressure in the pore spaces of the material increases to the point that the internal strength of the soil is drastically weakened. The soil's reduced resistance can then easily be overcome by gravity, changing the earth into a flowing river of mud or "slurry."

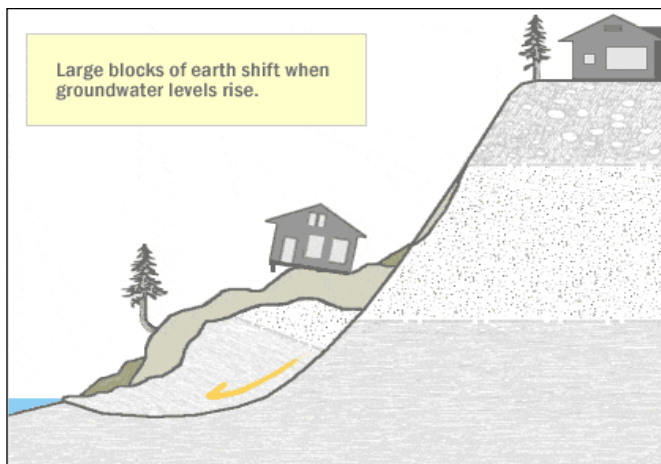


Figure 10-1. Deep Seated Slide

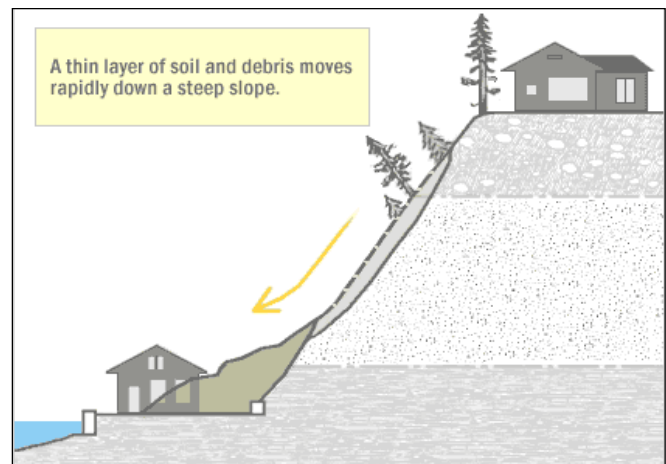


Figure 10-2. Shallow Colluvial Slide

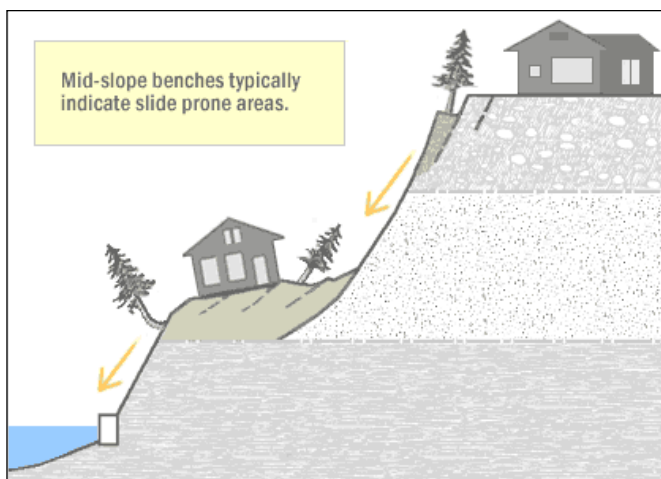


Figure 10-3. Bench Slide

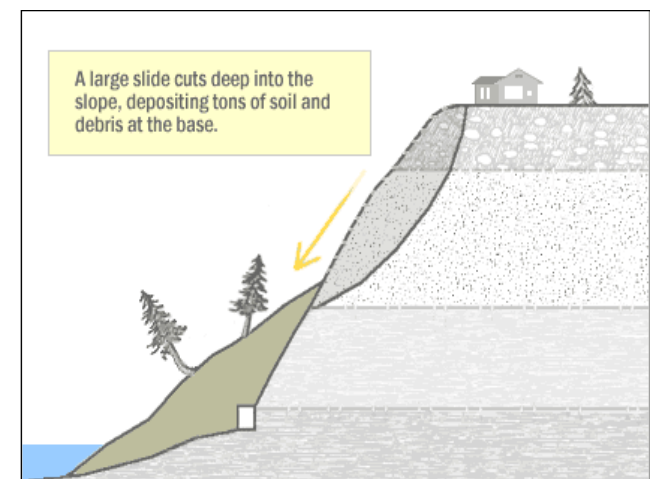


Figure 10-4. Large Slide

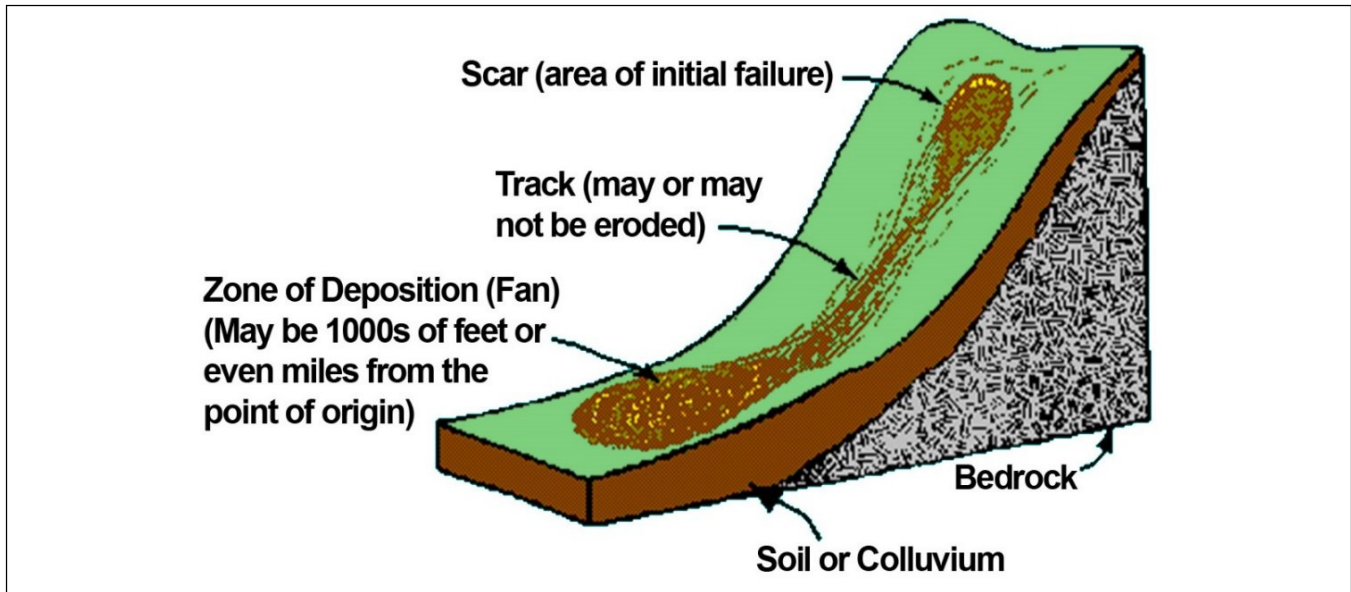


Figure 10-5. Typical Debris Avalanche Scar and Track

Landslides also include the following:

- Rock Falls—blocks of rock that fall away from a bedrock unit without a rotational component.
- Rock Topples—blocks of rock that fall away from a bedrock unit with a rotational component.
- Rotational Slumps—blocks of fine-grained sediment that rotate and move down slope.
- Transitional Slides—sediments that move along a flat surface without a rotational component.
- Earth Flows—fine-grained sediments that flow downhill and typically form a fan structure.
- Creep—a slow-moving landslide often only noticed through crooked trees and disturbed structures.
- Block Slides—blocks of rock that slide along a slip plane as a unit down a slope.

10.1.2 Landslide Modeling

Two characteristics are essential to conducting an accurate risk assessment of the landslide hazard:

- The type of initial ground failure that occurs, as described above.
- The post-failure movement of the loosened material (“run-out”), including travel distance and velocity.

All current landslide models—those in practical applications and those more recently developed—use simplified hypothetical descriptions of mass movement to simulate the complex behavior of actual flow. The models attempt to reproduce the general features of the moving mass of material through measurable factors, such as base shear, that define a system and determine its behavior. Due to the lack of experimental data and the limited current knowledge about the behavior of the moving flows, landslide models use simplified parameters to account for complex aspects that may not be defined. These simplified parameters are not related to specific physical processes that can be directly measured, and there is a great deal of uncertainty in their definition. Some, but not all, models provide estimates of the level of uncertainty associated with the modeling approach.

Run-out modeling is complicated because the movement of materials may change over the course of a landslide event, depending on the initial composition, the extent of saturation by water, the ground shape of the path traveled and whether there is additional material incorporated during the event (Savage and Hutter 1991; Rickenmann & Weber, 2000; Iverson, 2004).

10.1.3 Landslide Causes

Mass movements are caused by a combination of geological and climate conditions, as well as encroaching urbanization. Vulnerable natural conditions are affected by residential, agricultural, commercial, and industrial development and the infrastructure that supports it. The following factors can contribute to landslide: change in slope of the terrain, increased load on the land, shocks and vibrations, change in water content, groundwater movement, frost action, weathering of rocks, and removing or changing the type of vegetation covering slopes.

Excavation and Grading

Slope excavation is common in development of home sites or roads on sloping terrain. Grading can result in slopes that are steeper than the pre-existing natural slopes. These steeper slopes can be at an increased risk for landslides. The added weight of fill on slopes can also result in an increased landslide hazard. Small landslides can be fairly common along roads, in either the road cut or the road fill. Landslides below new construction sites are indicators of the potential impacts stemming from excavation.

Drainage and Groundwater Alterations

Water flowing through or above ground is often the trigger for landslides. Any activity that augments the amount of water flowing into landslide-prone slopes can increase landslide hazards. Broken or leaking water or sewer lines can be especially problematic, as can water retention facilities that direct water onto slopes. However, even lawn irrigation and minor alterations to small streams in landslide-prone locations can result in damaging landslides. Ineffective stormwater management and excess runoff can also cause erosion and increase the risk of landslide hazards. Drainage can be affected naturally by the geology and topography of an area. Development that results in an increase in impervious surface impairs the ability of the land to absorb water and may redirect water to other areas. Channels, streams, flooding, and erosion on slopes all indicate potential slope problems.

Road and driveway drains, gutters, downspouts, and other constructed drainage facilities can concentrate and accelerate flow. Ground saturation and concentrated velocity flow are major causes of slope problems and may trigger landslides.

Changes in Vegetation

Removing vegetation from very steep slopes can increase landslide hazards. Areas that have experienced wildfire and land clearing for development may experience long periods of increased landslide hazard. In addition, woody debris in stream channels (both natural and man-made from logging) may cause the impacts from debris flows to be more severe.

10.1.4 Landslide Management

While small landslides are frequently a result of human activity, the largest landslides are often naturally occurring phenomena with little or no human contribution. The sites of large landslides are typically areas of previous landslide movement that are periodically reactivated by significant precipitation or seismic events. These naturally occurring landslides can disrupt roadways and other infrastructure lifelines, destroy private property, and cause flooding, bank erosion, and rapid channel migration.

Landslides can create immediate, critical threats to public safety. Engineering solutions to protect structures on or adjacent to large active landslides are often extremely or prohibitively expensive.

In spite of their destructive potential, landslides can serve beneficial functions to the natural environment. They supply sediment and large wood to the channel network and can contribute to complexity and dynamic channel behavior critical for aquatic and riparian ecological diversity. Effective landslide management should include the following elements:

- Continuing investigation to identify natural landslides, understand their mechanics, assess their risk to public health and welfare, and understand their role in ecological systems.
- Regulation of development in or near existing landslides or areas of natural instability through the Santa Clara County Code and City ordinances.
- Preparation for emergency response to landslides to facilitate rapid, coordinated action among Santa Clara County, local cities, and state and federal agencies, and to provide emergency assistance to affected or at-risk citizens.
- Evaluation of options including landslide stabilization or structure relocation where landslides are identified that threaten critical public structures or infrastructure.

10.1.5 Land Subsidence Effects

Subsidence is one of the most diverse forms of ground failure, ranging from small or local collapses to broad regional lowering of the earth's surface. The causes of subsidence, mostly associated with human activities, are as diverse as the forms of failure, and include dewatering (oxidation) of peat or organic soils, dissolution in limestone aquifers, first-time wetting of moisture-deficient low-density soils, natural compaction, liquefaction, crustal deformation, subterranean mining, and withdrawal of fluids (groundwater, petroleum, geothermal).

The compaction of susceptible aquifer systems caused by excessive groundwater pumping is the single largest cause of subsidence in California, and the 5,200 square miles affected by subsidence in the San Joaquin Valley since the latter half of the 20th century has been identified as the single largest human alteration of the Earth's surface topography. The second largest cause of subsidence in California is the oxidation (decomposition) of organic soils (USGS, 2017c).

Aquifer Compaction

Aquifer compaction due to groundwater pumping affects both manmade infrastructures and natural systems. The greatest effects are on infrastructure that traverses a subsiding area. In the San Joaquin Valley, the main problems reported are related to water conveyance structures. Many water conveyance structures, including long stretches of the California Aqueduct, are gravity driven through the use of very small gradients; even minor changes in these gradients can cause reductions in designed flow capacity. Managers of the canals, such as the California Department of Water Resources, the San Luis Delta-Mendota Authority, the Bureau of Reclamation, and the Central California Irrigation District, have to repeatedly retrofit their canals to keep the water flowing, even at reduced amounts. Subsidence also affects roads, railways, bridges, pipelines, buildings, and wells.

Compaction of an aquifer system may permanently decrease the aquifer's capacity to store water. Even when water levels rise, sediments can remain compacted; most compaction that occurs as a result of historically low groundwater levels is irreversible.

Additionally, as the topography of the land changes by varying amounts in different places, low areas, such as wetlands, change size and shape, migrate to lower elevations, or even disappear. Rivers may change course or erosion/deposition patterns to reach a new equilibrium.

Decomposition of Wetland Soils

The Sacramento-San Joaquin Delta of California was once a great tidal freshwater marsh. It is blanketed by peat and peaty alluvium deposited where streams that originate in the Sierra Nevada, Coast Ranges, and South Cascade Range enter San Francisco Bay. In the late 1800s, levees were built along the stream channels, and the land thus protected from flooding was drained, cleared, and planted. The leveed tracts and islands help to protect water-export facilities in the southern Delta from saltwater intrusion by displacing water and maintaining favorable freshwater gradients. However, The decomposition of organic carbon in the peat soils causes land subsidence in the Delta and increases stresses on the levees. Ongoing subsidence behind the levees, where the

land has been drained, exposed to the atmosphere, and planted, increases stresses on the levee system, making it less stable. This threatens to damage agricultural and developed lands and degrade water quality in the massive water-transfer system.

10.2 HAZARD PROFILE

10.2.1 Past Events

Losses from landslides are typically lower than those from flooding. However, in the El Niño storms of early 1998, the USGS documented \$150 million in losses due to approximately 300 landslides in the Bay Area and Santa Clara County. The slides ranged from a 25-cubic-meter failure of engineered material to reactivation of the 13 million-cubic-meter Mission Peak earth flow complex in Alameda County.

Landslides have occurred in conjunction with earthquakes and heavy rains events in Santa Clara County. Table 10-1 lists known landslide events that affected Santa Clara County between 1980 and 2016. Two other landslides outside of Santa Clara County are also recorded in USGS archives. One occurred in 2012 and the other in 1970; both were about an hour's drive from the County but still near the Bay Area.

Table 10-1. Landslide Events in Santa Clara County

Dates of Event	Event Type	FEMA Declaration	Location	Losses/Impacts
12/19/1981 to 1/08/1982	Severe storms, flood, mudslides, high tide	651	San Francisco Bay area	Prolonged heavy rains and saturated soils caused numerous slope failures and mud flows on steep and unstable slopes throughout the San Francisco Bay area.
1/21/1983 to 3/30/1983	Coastal storms, floods, slides, tornadoes	677	San Francisco Bay area	A landslide restricted Clayton Road to one lane just east of the community of Alum Rock. Another, on the east side of Milpitas, resulted in vertical and horizontal offset of a roadway.
4/24/1984	Morgan Hill Earthquake		Calaveras fault east of San José.	This 6.2 magnitude earthquake caused minor landslides throughout the region.
10/17/1989	Loma Prieta Earthquake	845	San Andreas fault near Loma Prieta.	Landslides and rockslides in Santa Clara County on steep slopes in the Santa Cruz Mountains blocked roads, damaged structures, and caused at least two deaths.
1/03/1995 to 2/10/1995	Severe winter storms, flooding, landslides, mud flows	1044	San Francisco Bay area	Minor landslide damage in Santa Clara County was attributed to heavy rains and saturated soils.
2/13/1995 to 4/19/1995	Severe winter storms, flooding, landslides, mud flows	1046	San Francisco Bay area	Minor landslide damage in Santa Clara County was attributed to heavy rains and saturated soils.
2/02/1998 to 4/30/1998	Severe Winter Storms and El Niño Rainstorm	1203	San Francisco Bay region	\$7.6 million in Santa Clara County landslide damage occurred mostly in the northern county, along the range front of the Santa Clara Valley. \$6.1 million in damage was attributed to reactivation of three local landslides. The rest was attributed to small debris flows along road cuts or narrow canyon walls. In Alum Rock, the Penitencia Creek landslide caused extensive damage to water and sewer lines and closed roads. Another landslide closed Clayton Road east of Alum Rock area. The third, near Old Piedmont Road on the east side of Milpitas, had a displacement near the toe of about 20 cm.

Sources: ABAG, 2010; USGS 1984, 1987, 1989 and 1998; NOAA, 2017

According to the Santa Clara Valley Water District (SCVWD), Santa Clara County has experienced as much as 13 feet of subsidence caused by excessive pumping of groundwater in the early 1900s. The SCVWD was created in the early 1930s to protect groundwater resources and minimize land subsidence. To reduce the demand on groundwater and minimize subsidence, the SCVWD uses a combination of imported surface water (from the State Water Project and San Francisco's Hetch-Hetchy system) and groundwater. Figure 10-6 shows the history of land surface elevation, groundwater elevation, and the population of Santa Clara County from 1900 up to 2020. The SCVWD started importing water in the 1960s when the groundwater elevation reached its lowest elevation.

Source: SCVWD, 2016b

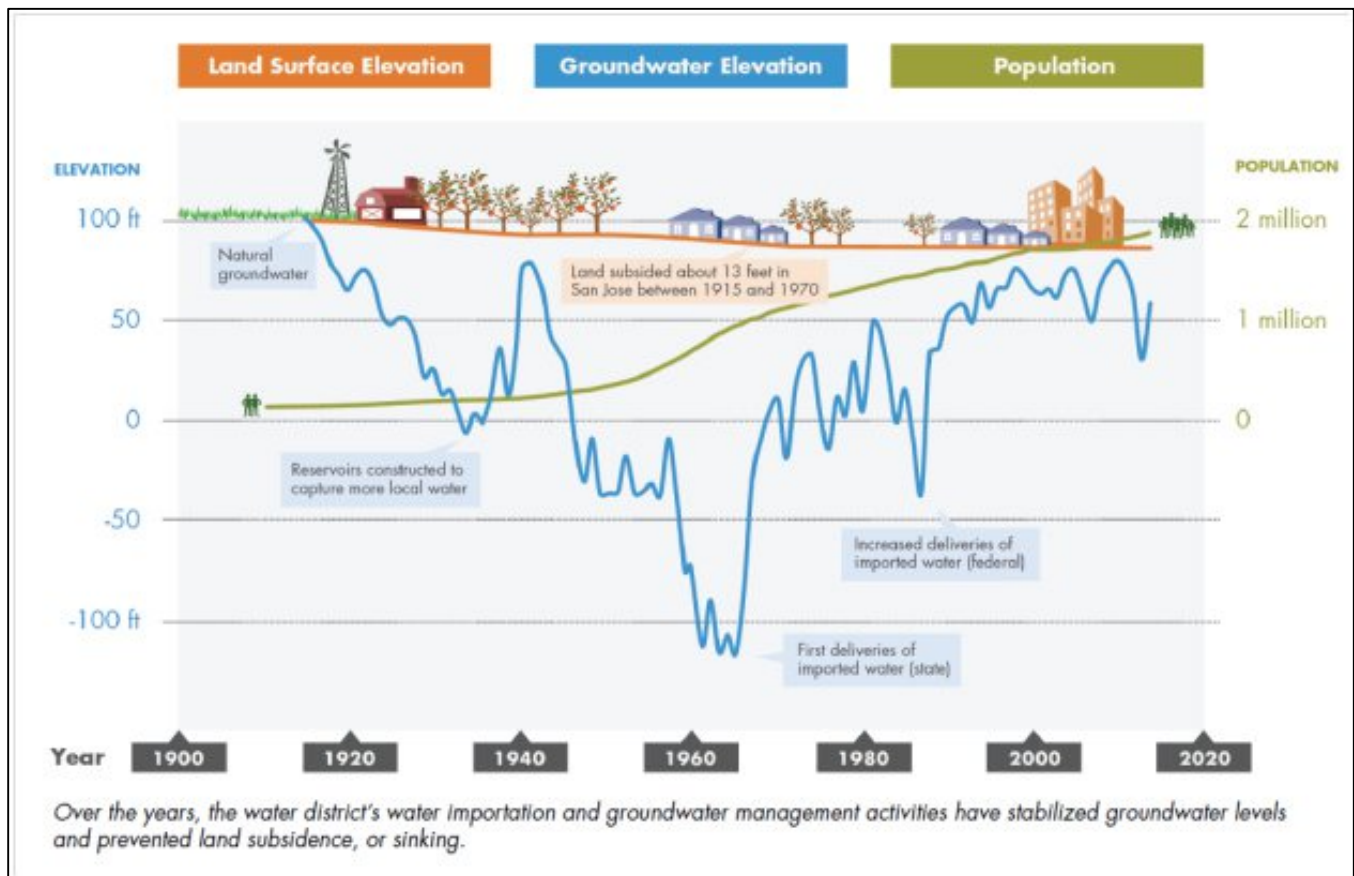


Figure 10-6. SCVWD Timeline of Water Importation and Groundwater Management

10.2.2 Location

In general, landslide hazard areas are where the land has characteristics that contribute to the risk of the downhill movement of material, such as the following:

- A slope greater than 33 percent.
- A history of landslide activity or movement during the last 10,000 years.
- Stream or wave activity, which has caused erosion, undercut a bank or cut into a bank to cause the surrounding land to be unstable.
- The presence of an alluvial fan, indicating vulnerability to the flow of debris or sediments.
- The presence of impermeable soils, such as silt or clay, which are mixed with granular soils such as sand and gravel.

The best available predictor of where movement of slides and earth flows might occur is the location of past movements. Past landslides can be recognized by their distinctive topographic shapes, which can remain in place for thousands of years. Most landslides recognizable in this fashion range from a few acres to several square miles. Most show no evidence of recent movement and are not currently active. A small proportion of them may become active in any given year, with movements concentrated within all or part of the landslide masses or around their edges.

The recognition of ancient dormant mass movement sites is important in the identification of areas susceptible to flows and slides because they can be reactivated by earthquakes or by exceptionally wet weather. Also, because they consist of broken materials and frequently involve disruption of groundwater flow, these dormant sites are vulnerable to construction-triggered sliding.

The California Landslide Hazard Identification Act directs the State Geologist to identify and map hazardous landslide areas for use by municipalities in planning and decision-making on grading and building permits. Three factors that characterize landslide hazard areas include significant slope, weak rocks, and heavy rains. This program focuses on urban areas and growth areas that exhibit these characteristics. Although the California Geological Survey provides access to many of these maps through its California Landslide Inventory, it does not offer them at the County level for Santa Clara County (California Geological Survey, 2016).

The Association of Bay Area Governments Resilience Program provides more detailed mapping for the Bay Area through use of USGS *Summary of Distribution of Slides and Earth Flows* (1997) and *Map Showing Principal Debris-Flow Source Areas* (1997). The County of Santa Clara overlaid these data on its jurisdictional boundaries to develop Figure 10-7. As shown, the OA includes both high- and low-risk landslide areas.

10.2.3 Frequency

Landslides are often triggered by other natural hazards such as earthquakes, heavy rain, floods or wildfires, so landslide frequency is often related to the frequency of these other hazards. In the OA, landslides typically occur where landslides and earth flows have occurred in the past. These previous locations may not show any evidence of recent movement and may not be currently active, but some portion of them may become active in any given year from natural hazard events. As shown in Table 10-1, damage from the El Niño rainstorm event in 1998 was mainly attributed to reactivation of landslide locations and because of sequential severe storms that saturated steep, vulnerable soils. Landslide events occurred during the severe storms of 1983, 1995, and 1998. Until better data is generated specifically for landslide hazards, this severe storm frequency is appropriate for the purpose of ranking risk associated with the landslide hazard.

10.2.4 Severity

Landslides destroy property and infrastructure and can take the lives of people. Slope failures in the United States result in an average of 25 lives lost per year and an annual cost to society of about \$1.5 billion. Landslides can pose a serious hazard to properties on or below hillsides. When landslides occur — in response to such changes as increased water content, earthquake shaking, addition of load, or removal of downslope support — they deform and tilt the ground surface. The result can be destruction of foundations, offset of roads, breaking of underground pipes, or overriding of downslope property and structures.

Figure Placeholder

Figure 10-7. Landslide Hazard Areas in the Operational Area

10.2.5 Warning Time

The speed of mass movements may range from inches per year to many feet per second, depending on slope, material and water content. Some monitoring methods can provide an idea of the type of movement and the amount of time prior to failure. It is also possible to determine what areas are at risk during general time periods. Assessing geology, vegetation and predicted precipitation can help in predictions. However, there is no practical warning system for individual landslides. The current standard operating procedure is to monitor situations case-by-case and respond after the event has occurred. Warning signs for landslide activity include the following:

- Springs, seeps, or saturated ground in areas that have not typically been wet before.
- New cracks or unusual bulges in the ground, street pavements or sidewalks.
- Soil moving away from foundations.
- Ancillary structures such as decks and patios tilting and/or moving relative to the main house.
- Tilting or cracking of concrete floors and foundations.
- Broken water lines and other underground utilities.
- Leaning telephone poles, trees, retaining walls or fences.
- Offset fence lines.
- Sunken or down-dropped road beds.
- Rapid increase in creek water levels, possibly accompanied by increased turbidity (soil content).
- Sudden decrease in creek water levels though rain is still falling or just recently stopped.
- Sticking doors and windows, and visible open spaces indicating jambs and frames out of plumb.
- A faint rumbling sound that increases in volume as the landslide nears.
- Unusual sounds, such as trees cracking or boulders knocking together.

10.3 SECONDARY HAZARDS

Landslides can cause secondary effects such as blocking access to roads, which can isolate residents and businesses and delay transportation. This could result in economic losses for businesses. Other potential problems resulting from landslides are power and communication failures. Vegetation or poles on slopes can be knocked over, resulting in possible losses to power and communication lines. Landslides also have the potential of destabilizing the foundation of structures, which may result in monetary loss for residents. They also can damage rivers or streams, potentially harming water quality, fisheries and spawning habitat.

10.4 EXPOSURE

10.4.1 Population

Population could not be examined by landslide hazard area because the boundaries of census block groups do not coincide with the hazard area boundaries. However, population was estimated using the residential building count in each mapped hazard area and multiplying by the 2016 estimated average population per household. Using this approach, the estimated population living in the “moderate landslides” risk area is 46,397, “high landslide” risk area is 113,137 and “very high landslide” risk area is 5,399.

10.4.2 Property

There are 28,196 structures on parcels in the high landslide risk areas, with an estimated value of \$27 billion. Table 10-2, Table 10-3, and Table 10-4 show the number and replacement value of structures exposed to the landslide risk. Over 96 percent of the exposed structures are dwellings. Table 10-5 shows the general land use of parcels exposed to moderate, high and very high landslide hazard in unincorporated portions of the OA. Lands zoned for agricultural uses are most vulnerable.

Table 10-2. Exposure and Value of Structures in Moderate Landslide Risk Areas

Jurisdiction	Estimated Value within the Landslide Risk Area			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$3,121,464	\$1,560,732	\$4,682,197	0.04%
Cupertino	\$190,106,812	\$95,053,406	\$285,160,218	2.05%
Gilroy	\$101,070,569	\$52,408,387	\$153,478,956	1.15%
Los Altos	\$264,701,185	\$179,480,420	\$444,181,605	5.03%
Los Altos Hills	\$803,549,564	\$472,373,076	\$1,275,922,640	39.35%
Los Gatos	\$933,001,058	\$673,980,710	\$1,606,981,768	14.75%
Milpitas	\$24,758,577	\$13,689,330	\$38,447,907	0.20%
Monte Sereno	\$234,411,610	\$117,205,805	\$351,617,415	40.28%
Morgan Hill	\$191,890,675	\$99,229,710	\$291,120,385	2.61%
Mountain View	\$0	\$0	\$0	0.00%
Palo Alto	\$751,245,482	\$956,455,304	\$1,707,700,785	6.62%
San José	\$2,036,605,070	\$1,142,138,929	\$3,178,743,999	1.49%
Santa Clara (city)	\$0	\$0	\$0	0.00%
Saratoga	\$547,819,024	\$323,476,706	\$871,295,730	10.70%
Sunnyvale	\$0	\$0	\$0	0.00%
Unincorporated County	\$1,157,206,472	\$784,286,519	\$1,941,492,991	7.66%
Total	\$7,239,487,564	\$4,911,339,034	\$12,150,826,598	2.55%

Table 10-3. Exposure and Value of Structures in High Landslide Risk Areas

Jurisdiction	Estimated Value within the Landslide Risk Area			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$217,596,648	\$200,013,738	\$417,610,386	3.73%
Cupertino	\$574,790,476	\$314,896,921	\$889,687,397	6.40%
Gilroy	\$377,351,372	\$206,965,219	\$584,316,591	4.36%
Los Altos	\$205,378,603	\$133,164,941	\$338,543,544	3.84%
Los Altos Hills	\$645,159,815	\$379,839,286	\$1,024,999,101	31.61%
Los Gatos	\$1,521,396,089	\$1,020,105,580	\$2,541,501,669	23.33%
Milpitas	\$249,861,269	\$127,101,096	\$376,962,365	1.97%
Monte Sereno	\$92,128,893	\$46,064,447	\$138,193,340	15.83%
Morgan Hill	\$553,617,617	\$284,963,481	\$838,581,098	7.51%
Mountain View	\$32,403,360	\$16,201,680	\$48,605,041	0.19%
Palo Alto	\$329,836,716	\$348,824,560	\$678,661,276	2.63%
San José	\$5,821,965,628	\$3,605,488,466	\$9,427,454,094	4.42%
Santa Clara (city)	\$61,122,866	\$34,772,456	\$95,895,321	0.22%
Saratoga	\$1,310,161,174	\$838,992,857	\$2,149,154,031	26.39%
Sunnyvale	\$114,604,443	\$91,046,922	\$205,651,365	0.48%
Unincorporated County	\$4,489,169,151	\$3,457,377,079	\$7,946,546,230	31.34%
Total	\$16,596,544,120	\$11,105,818,729	\$27,702,362,849	5.81%

Table 10-4. Exposure and Value of Structures in Very High Landslide Risk Areas

Jurisdiction	Estimated Value within the Landslide Risk Area			% of Total Replacement Value
	Structure	Contents	Total	
Campbell	\$3,818,063	\$4,993,432	\$8,811,495	0.08%
Cupertino	\$27,999,100	\$13,999,550	\$41,998,650	0.30%
Gilroy	\$4,905,422	\$2,452,711	\$7,358,133	0.05%
Los Altos	\$0	\$0	\$0	0.00%
Los Altos Hills	\$8,007,971	\$4,003,986	\$12,011,957	0.37%
Los Gatos	\$71,791,878	\$50,946,143	\$122,738,022	1.13%
Milpitas	\$10,633,625	\$7,189,915	\$17,823,539	0.09%
Monte Sereno	\$1,755,292	\$877,646	\$2,632,937	0.30%
Morgan Hill	\$41,830,817	\$20,915,409	\$62,746,226	0.56%
Mountain View	\$0	\$0	\$0	0.00%
Palo Alto	\$0	\$0	\$0	0.00%
San José	\$78,112,632	\$48,583,546	\$126,696,178	0.06%
Santa Clara (city)	\$0	\$0	\$0	0.00%
Saratoga	\$76,852,694	\$46,507,153	\$123,359,847	1.51%
Sunnyvale	\$0	\$0	\$0	0.00%
Unincorporated County	\$935,016,390	\$819,337,451	\$1,754,353,841	6.92%
Total	\$1,260,723,884	\$1,019,806,941	\$2,280,530,826	0.48%

Table 10-5. Land Use in Landslide Hazard Areas

Type of Land Use	Moderate		High		Very High	
	Area (acres)	% of total	Area (acres)	% of total	Area (acres)	% of total
Agricultural	2,575.4	1.46	1,025.6	0.38	150.2	0.36
General / Institutional	519.6	0.30	200.9	0.07	29.5	0.07
Open Space	169,535.7	96.28	268,021.3	98.91	41,357.9	98.16
Low Density Residential	3,275.8	1.86	1,573.2	0.58	435.0	1.03
High Density Residential	14.3	0.01	2.9	0.00	0.0	0.00
Commercial	161.8	0.09	161.8	0.06	161.8	0.38
Industrial	0.9	0.00	0.1	0.00	0.0	0.00
Total	176,083.5	100%	270,985.8	100%	42,134.5	100%

10.4.3 Critical Facilities and Infrastructure

Table 10-6, Table 10-7, and Table 10-8 summarizes critical facilities exposed to the landslide hazard in moderate, high, and very high risk areas. No loss estimation of these facilities was performed due to the lack of established damage functions for the landslide hazard. A significant amount of infrastructure, under the Infrastructure Lifeline category, can be exposed to mass movements:

- **Roads**—Access to major roads is crucial after a disaster event. Landslides can block roads, causing neighborhood isolation and transportation delays. This can result in economic losses for businesses.
- **Bridges**—Landslides can damage road bridges. Mass movements can knock out bridge abutments or significantly weaken the soil supporting them, making them hazardous for use.
- **Power Lines**—Power lines are generally elevated above steep slopes; but the towers supporting them can be subject to landslides. A landslide could trigger failure of the soil underneath a tower, causing it to collapse and ripping down the lines.

Table 10-6. Critical Facilities and Infrastructure in Moderate Landslide Risk Areas

Jurisdiction	Emergency Response / Public Health & Safety	Infrastructure Lifeline	Military Facilities	Recovery Facilities	Socioeconomic Facilities	Hazardous Materials	Total
Campbell	0	1	0	0	0	0	1
Cupertino	1	0	0	0	0	0	1
Gilroy	0	0	0	0	2	0	2
Los Altos	0	0	0	0	2	0	2
Los Altos Hills	0	9	0	0	3	0	12
Los Gatos	0	1	0	0	0	0	1
Milpitas	0	1	0	0	0	0	1
Monte Sereno	0	1	0	0	1	0	2
Morgan Hill	0	0	0	0	0	0	0
Mountain View	0	0	0	0	0	0	0
Palo Alto	0	0	0	0	0	3	3
San José	2	8	0	0	5	0	15
Santa Clara (city)	0	0	0	0	0	0	0
Saratoga	1	0	0	0	0	0	1
Sunnyvale	0	0	0	0	0	0	0
Unincorporated County	1	21	0	0	2	0	24
Total	5	42	0	0	15	3	65

Table 10-7. Critical Facilities and Infrastructure in High Landslide Risk Areas

Jurisdiction	Emergency Response / Public Health & Safety	Infrastructure Lifeline	Military Facilities	Recovery Facilities	Socioeconomic Facilities	Hazardous Materials	Total
Campbell	0	9	0	0	0	0	9
Cupertino	0	8	0	0	2	1	11
Gilroy	0	3	0	0	0	0	3
Los Altos	0	14	0	0	1	0	15
Los Altos Hills	1	15	0	0	0	0	16
Los Gatos	1	12	0	0	5	0	18
Milpitas	0	3	0	0	0	0	3
Monte Sereno	0	1	0	0	0	0	1
Morgan Hill	2	0	0	0	5	0	7
Mountain View	0	4	0	0	0	0	4
Palo Alto	0	9	0	0	0	0	9
San José	4	108	0	0	10	1	123
Santa Clara (city)	0	8	0	0	0	0	8
Saratoga	1	10	0	0	2	0	13
Sunnyvale	0	2	0	0	1	0	3
Unincorporated County	5	71	0	0	8	1	85
Total	14	277	0	0	34	3	328

Table 10-8. Critical Facilities and Infrastructure in Very High Landslide Risk Areas

Jurisdiction	Emergency Response / Public Health & Safety	Infrastructure Lifeline	Military Facilities	Recovery Facilities	Socioeconomic Facilities	Hazardous Materials	Total
Campbell	0	0	0	0	0	0	0
Cupertino	0	0	0	0	0	0	0
Gilroy	0	0	0	0	0	0	0
Los Altos	0	0	0	0	0	0	0
Los Altos Hills	0	0	0	0	0	0	0
Los Gatos	0	0	0	0	0	0	0
Milpitas	0	0	0	0	0	0	0
Monte Sereno	0	0	0	0	0	0	0
Morgan Hill	0	0	0	0	0	0	0
Mountain View	0	0	0	0	0	0	0
Palo Alto	0	0	0	0	0	0	0
San José	0	1	0	0	0	0	1
Santa Clara (city)	0	0	0	0	0	0	0
Saratoga	0	0	0	0	0	0	0
Sunnyvale	0	0	0	0	0	0	0
Unincorporated County	0	4	0	0	0	0	4
Total	0	5	0	0	0	0	5

10.4.4 Environment

Environmental problems as a result of mass movements can be numerous. Landslides that fall into streams may significantly impact fish and wildlife habitat, as well as affecting water quality. Hillsides that provide wildlife habitat can be lost for prolonged periods of time due to landslides.

10.5 VULNERABILITY

10.5.1 Population

All of the estimated 113,137 persons exposed to high landslide risk areas are considered to be vulnerable. Increasing population and the fact that many homes are built on view property atop or below bluffs and on steep slopes subject to mass movement, increases the number of lives endangered by this hazard.

10.5.2 Property

Although complete historical documentation of the landslide threat in the OA is lacking, the mountainous terrain surrounding the Santa Clara Valley indicates potential for landslides. Loss estimations for the landslide hazard are not based on modeling utilizing damage functions, because no such damage functions have been generated. Instead, loss estimates were developed representing 10 percent, 30 percent and 50 percent of the replacement value of exposed structures. This allows emergency managers to select a range of economic impact based on an estimate of the percent of damage to the general building stock. Damage in excess of 50 percent is considered to be substantial by most building codes and typically requires total reconstruction of the structure. Table 10-9 shows the general building stock loss estimates in the aggregate of all landslide risk areas.

Table 10-9. Loss Potential (based on all building Stock in aggregated landslide areas)

Jurisdiction	Exposed Value	Estimated Loss Potential from Landslide		
		10% Damage	30% Damage	50% Damage
Campbell	\$431,104,078	43,110,408	129,331,223	215,552,039
Cupertino	\$1,216,846,265	121,684,627	365,053,880	608,423,133
Gilroy	\$745,153,680	74,515,368	223,546,104	372,576,840
Los Altos	\$782,725,150	78,272,515	234,817,545	391,362,575
Los Altos Hills	\$2,312,933,698	231,293,370	693,880,110	1,156,466,849
Los Gatos	\$4,271,221,458	427,122,146	1,281,366,437	2,135,610,729
Milpitas	\$433,233,811	43,323,381	129,970,143	216,616,906
Monte Sereno	\$492,443,692	49,244,369	147,733,108	246,221,846
Morgan Hill	\$1,192,447,709	119,244,771	357,734,313	596,223,855
Mountain View	\$48,605,041	4,860,504	14,581,512	24,302,520
Palo Alto	\$2,386,362,061	238,636,206	715,908,618	1,193,181,030
San José	\$12,732,894,271	1,273,289,427	3,819,868,281	6,366,447,135
Santa Clara (city)	\$95,895,321	9,589,532	28,768,596	47,947,661
Saratoga	\$3,143,809,608	314,380,961	943,142,882	1,571,904,804
Sunnyvale	\$205,651,365	20,565,137	61,695,410	102,825,683
Unincorporated County	\$431,104,078	43,110,408	129,331,223	215,552,039
Total	\$30,491,327,209	3,049,132,721	9,147,398,163	15,245,663,604

10.5.3 Critical Facilities and Infrastructure

There are 398 critical facilities exposed to the landslide hazard to some degree. A more in-depth analysis of the mitigation measures taken by these facilities to prevent damage from mass movements should be done to determine if they could withstand impacts of a mass movement.

Several types of infrastructure are exposed to mass movements, including transportation, water and sewer and power infrastructure. Highly susceptible areas of the OA include mountain roads and transportation infrastructure. At this time all infrastructure and transportation corridors identified as exposed to the landslide hazard are considered vulnerable until more information becomes available.

10.5.4 Environment

The environment vulnerable to landslide hazard is the same as the environment exposed to the hazard.

10.6 FUTURE TRENDS IN DEVELOPMENT

Santa Clara County has been one of the state's fastest growing counties over the past 10 years, averaging a 1.21-percent increase in population per year from 2005 through 2015. The planning partners are equipped to handle future growth within landslide hazard areas. Landslide risk areas are addressed in the safety elements of local general plans. All planning partners have committed to linking their general plans to this hazard mitigation plan. This will create an opportunity for wise land use decisions as future growth impacts landslide hazard areas.

Additionally, the State of California has adopted the International Building Code (IBC) by reference in its California Building Standards Code. The IBC includes provisions for geotechnical analyses in steep slope areas that have soil types considered susceptible to landslide hazards. These provisions assure that new construction is built to standards that reduce the vulnerability to landslide risk.

10.7 SCENARIO

Major landslides in the OA occur as a result of reactivation of previous landslides and soil conditions that have been affected by severe storms, groundwater or human development. The worst-case scenario for landslide hazards in the OA would generally correspond to a severe storm that had heavy rain and caused flooding. Landslides are most likely during late winter when the water table is high. After heavy rains from November to December, soils become saturated with water. As water seeps downward through upper soils that may consist of permeable sands and gravels and accumulates on impermeable silt, it will cause weakness and destabilization in the slope. A short intense storm could cause saturated soil to move, resulting in landslides. As rains continue, the groundwater table rises, adding to the weakening of the slope. Gravity, poor drainage, a rising groundwater table and poor soil exacerbate hazardous conditions.

Mass movements are becoming more of a concern as development moves outside of urban centers and into areas less developed in terms of infrastructure. Most mass movements would be isolated events affecting specific areas. It is probable that private and public property, including infrastructure, will be affected. Mass movements could affect bridges that pass over landslide prone ravines and knock out rail service through the OA. Road obstructions caused by mass movements would create isolation problems for residents and businesses in sparsely developed areas. Property owners exposed to steep slopes may suffer damage to property or structures. Landslides carrying vegetation such as shrubs and trees may cause a break in utility lines, cutting off power and communication access to residents.

Continued heavy rains and flooding will complicate the problem further. As emergency response resources are applied to problems with flooding, it is possible they will be unavailable to assist with landslides occurring all over the OA.

10.8 ISSUES

Important issues associated with landslides in the OA include the following:

- There are existing homes in landslide risk areas throughout the OA. The degree of vulnerability of these structures depends on the codes and standards the structures were constructed to. Information to this level of detail is not currently available.
- Future development could lead to more homes in landslide risk areas.
- Mapping and assessment of landslide hazards are constantly evolving. As new data and science become available, assessments of landslide risk should be reevaluated.
- The impact of climate change on landslides is uncertain. If climate change impacts atmospheric conditions, then exposure to landslide risks is likely to increase.
- Landslides may cause negative environmental consequences, including water quality degradation.
- The risk associated with the landslide hazard overlaps the risk associated with other hazards such as earthquake, flood and wildfire. This provides an opportunity to seek mitigation alternatives with multiple objectives that can reduce risk for multiple hazards.

11. SEVERE WEATHER

11.1 GENERAL BACKGROUND

Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. Severe weather can be categorized into two groups: systems that form over wide geographic areas are classified as general severe weather; those with a more limited geographic area are classified as localized severe weather. Severe weather, technically, is not the same as extreme weather, which refers to unusual weather events at the extremes of the historical distribution for a given area.

The most common severe weather events that impact the Santa Clara County OA are heavy rains/atmospheric rivers, extreme temperatures, high wind, and space weather. Extreme cold weather has not been profiled for the Santa Clara County OA as its frequency and severity do not warrant assessment (the California State Hazard Mitigation Plan also omitted extreme cold weather as an identified hazard of concern). These types of severe weather are described in the following sections. Flooding issues associated with severe weather are discussed in Chapter 9.

11.1.1 Heavy Rain/Atmospheric River

Most severe storms in the Santa Clara County OA consist of atmospheric rivers, heavy rains or thunderstorms. Heavy rain refers to events where the amount of rain exceeds normal levels. The amount of precipitation needed to qualify as heavy rain varies with location and season.

Heavy rain is distinct from climate change analyses on increasing precipitation. It does not mean that the total amount of precipitation at a location has increased, just that the rain is occurring in a more intense event. More frequent heavy rain events, however, can serve as indicators of changing precipitation levels. Heavy rain is most frequently measured by tracking the frequency of events, analyzing the mean return period, and measuring the amount of precipitation in a certain period (most typically inches of rain within a 24-hour period) (EPA, 2015).

A relatively common weather pattern that brings southwest winds and heavy rain to California is often referred to as an atmospheric river. Atmospheric rivers are long, narrow regions in the atmosphere that transport most of the water vapor carried away from the tropics. These columns of vapor move with the weather, carrying large amounts of water vapor and strong winds. When the atmospheric rivers make landfall, they often release this water vapor in the form of rain or snow, causing flooding and mudslide vents.

DEFINITIONS

Atmospheric River—A long, narrow region in the atmosphere that transports most of the water vapor outside of the tropics. These columns of vapor move with the weather, carrying large amounts of water vapor and strong winds. When atmospheric rivers make landfall, they release this vapor in the form of rain or snow, causing flooding and mudslide vents.

Extreme Cold—Temperatures that are below normal that may lead to serious health problems. Extreme cold is a dangerous situation that can bring on health emergencies.

Extreme Heat—Temperatures that hover 10°F or more above the average high temperature for a region and last for several weeks. Humid or muggy conditions occur when a “dome” of high atmospheric pressure traps hazy, damp air near the ground. Extremely dry and hot conditions can provoke dust storms and low visibility.

Severe Local Storm—Small atmospheric systems, including tornadoes, thunderstorms, windstorms, ice storms and snowstorms. Typically, major impacts from a severe storm are on transportation infrastructure and utilities. These storms may cause a great deal of destruction and even death, but their impact is generally confined to a small area.

Space Weather—Variations in the space environment between the sun and earth. It can influence the performance of technology used on Earth.

Windstorm—A storm featuring violent winds. Windstorms are generally short-duration events involving straight-line winds or gusts of over 50 mph, strong enough to cause property damage.

A thunderstorm is a rain event that includes thunder and lightning. A thunderstorm is classified as “severe” when it contains one or more of the following: hail with a diameter of three-quarter inch or greater, winds gusting in excess of 50 knots (57.5 mph), or tornado.

Three factors cause thunderstorms to form: moisture, rising unstable air (air that keeps rising when disturbed), and a lifting mechanism to provide the disturbance. The sun heats the surface of the earth, which warms the air above it. If this warm surface air is forced to rise (hills or mountains can cause rising motion, as can the interaction of warm air and cold air or wet air and dry air) it will continue to rise as long as it weighs less and stays warmer than the air around it. As the air rises, it transfers heat from the surface of the earth to the upper levels of the atmosphere (the process of convection). The water vapor it contains begins to cool and it condenses into a cloud. The cloud eventually grows upward into areas where the temperature is below freezing. Some of the water vapor turns to ice and some of it turns into water droplets. Both have electrical charges. Ice particles usually have positive charges, and rain droplets usually have negative charges. When the charges build up enough, they are discharged in a bolt of lightning, which causes the sound waves we hear as thunder. Thunderstorms have three stages (see Figure 11-1):

- The developing stage of a thunderstorm is marked by a cumulus cloud that is being pushed upward by a rising column of air (updraft). The cumulus cloud soon looks like a tower (called towering cumulus) as the updraft continues to develop. There is little to no rain during this stage but occasional lightning. The developing stage lasts about 10 minutes.
- The thunderstorm enters the mature stage when the updraft continues to feed the storm, but precipitation begins to fall out of the storm, and a downdraft begins (a column of air pushing downward). When the downdraft and rain-cooled air spread out along the ground, they form a gust front, or a line of gusty winds. The mature stage is the most likely time for hail, heavy rain, frequent lightning, strong winds, and tornadoes. The storm occasionally has a black or dark green appearance.
- Eventually, a large amount of precipitation is produced and the updraft is overcome by the downdraft beginning the dissipating stage. At the ground, the gust front moves out a long distance from the storm and cuts off the warm moist air that was feeding the thunderstorm. Rainfall decreases in intensity, but lightning remains a danger.

Source: NOAA, 2015

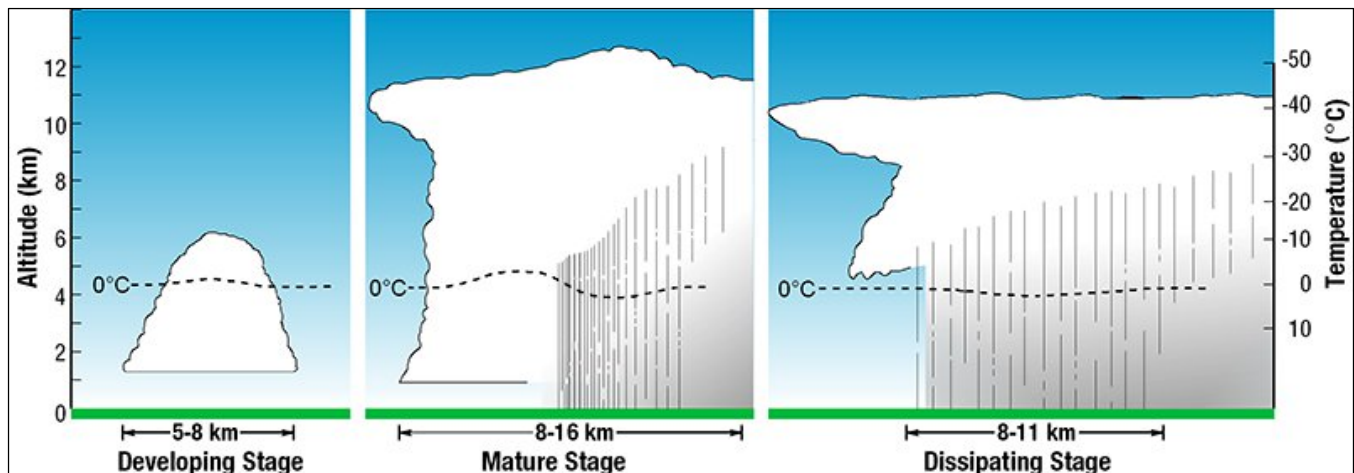


Figure 11-1. The Thunderstorm Life Cycle

There are four types of thunderstorms:

- **Single-Cell Thunderstorms**—Single-cell thunderstorms usually last 20 to 30 minutes. A true single-cell storm is rare, because the gust front of one cell often triggers the growth of another. Most single-cell storms are not usually severe, but a single-cell storm can produce a brief severe weather event. When this happens, it is called a pulse severe storm.
- **Multi-Cell Cluster Storm**—A multi-cell cluster is the most common type of thunderstorm. It consists of a group of cells, moving as one unit, with each cell in a different phase of the thunderstorm life cycle. It is usually more intense than a single cell storm. Mature cells are usually at the center of the cluster and dissipating cells at the downwind edge. These storms can produce moderate-size hail, flash floods and weak tornadoes. Each cell lasts only about 20 minutes, but the cluster may persist for several hours.
- **Multi-Cell Squall Line**—A multi-cell line storm, or squall line, consists of a long line of storms with a continuous well-developed gust front at the leading edge. The line of storms can be solid, or there can be gaps and breaks in the line. Squall lines can produce hail up to golf-ball size, heavy rainfall, and weak tornadoes, but they are best known as the producers of strong downdrafts. Occasionally, a strong downburst will accelerate a portion of the squall line ahead of the rest of the line. This produces what is called a bow echo. Bow echoes can develop with isolated cells as well as squall lines. Bow echoes are easily detected on radar but are difficult to observe visually.
- **Super-Cell Storm**—A super-cell is a highly organized thunderstorm. It is similar to a single-cell storm in that it has one main updraft, but the updraft is extremely strong, reaching speeds of 150 to 175 miles per hour. Super-cells are rare. The main characteristic that sets them apart from other thunderstorms is the presence of rotation. The rotating updraft of a super-cell (called a mesocyclone when visible on radar) helps the super-cell to produce extreme weather events, such as giant hail (more than 2 inches in diameter), strong downbursts of 80 miles an hour or more, and strong to violent tornadoes.

NOAA classifies a thunderstorm as a storm with lightning and thunder produced by cumulonimbus clouds, usually producing gusty winds, heavy rain, and sometimes hail. Thunderstorms are usually short in duration (seldom more than two hours). Heavy rains associated with thunderstorms can lead to flash flooding during the wet or dry season. According to the American Meteorological Society *Glossary of Meteorology*, thunderstorms are reported as light, medium, or heavy according to the following characteristics:

- Nature of the lightning and thunder.
- Type and intensity of the precipitation, if any.
- Speed and gustiness of the wind.
- Appearance of the clouds.
- Effect on surface temperature.

11.1.2 Extreme Temperatures

Extreme temperatures are unexpected, unusual, or unseasonal temperatures—cold or hot—that can create dangerous situations. Extreme cold temperatures are below normal temperatures that may lead to serious health problems. Exposure to the extreme cold can lead to hypothermia and frostbite in people exposed to the weather without adequate clothing protection. It may result in death if it exacerbates preexisting chronic conditions.

Extreme heat is defined as temperatures that hover 10°F or more above the average high temperatures for the region for several weeks. Ambient air temperature and relative humidity are components of heat conditions, together defining the “apparent temperature,” as shown in Figure 11-2. Extreme heat is the primary weather-related cause of death in the U.S. In a 30-year average of weather fatalities across the nation from 1986-2015, excessive heat claimed more lives each year than floods, lightning, tornadoes, and hurricanes. In 2015, heat claimed 45 lives, though none of them were in California (NWS, 2016b).

Source: NWS, 2016

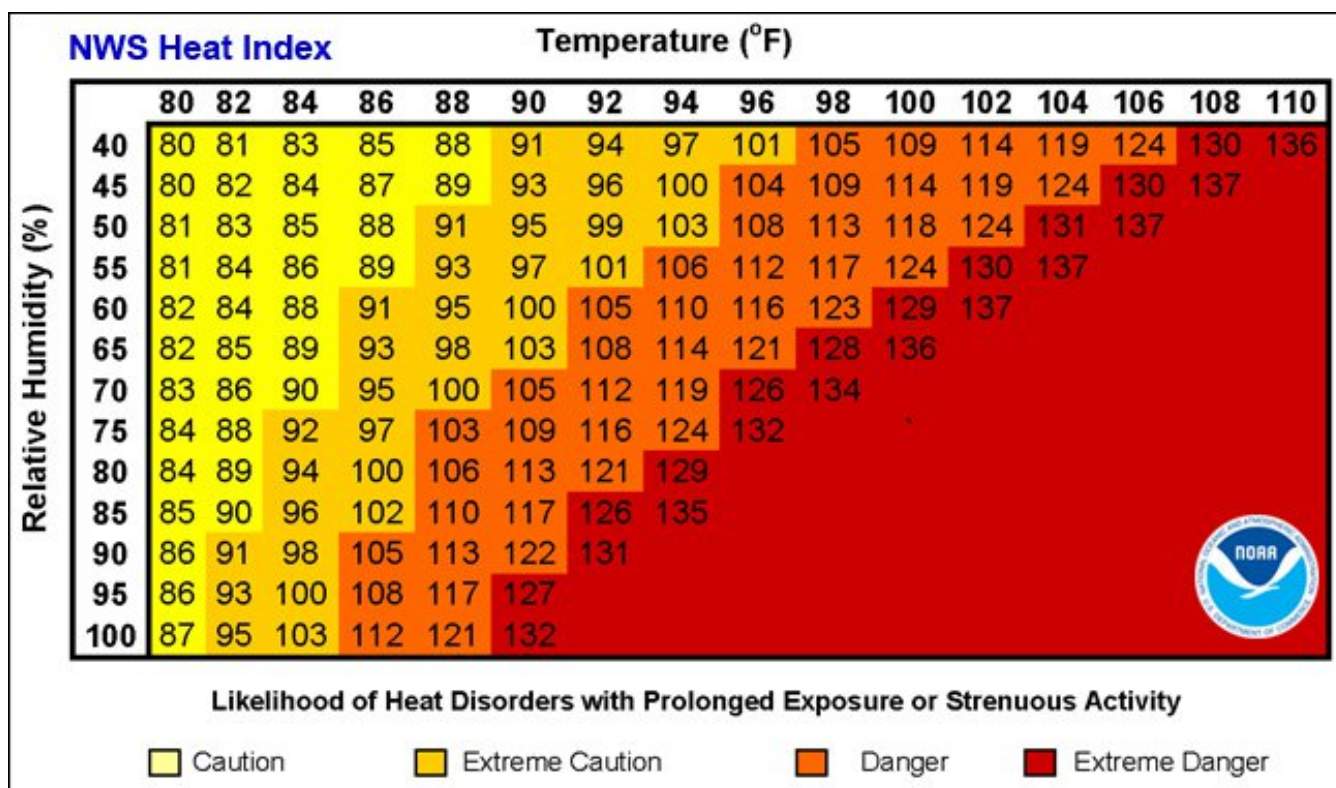


Figure 11-2. NWS Heat Index

11.1.3 High Winds

High Winds are generally short-duration events involving straight-line winds or gusts of over 50 mph, strong enough to cause property damage. High winds or a windstorm are especially dangerous in areas with significant tree stands and areas with exposed property, poorly constructed buildings, mobile homes (manufactured housing units), major infrastructure, and above-ground utility lines. A windstorm can topple trees and power lines, cause damage to residential, commercial and critical facilities, and leave tons of debris in its wake.

Damaging winds are classified as those exceeding 60 mph. Damage from such winds accounts for half of all severe weather reports in the lower 48 states and is more common than damage from tornadoes. Wind speeds can reach up to 100 mph and can produce a damage path extending for hundreds of miles. There are seven types of damaging winds:

- Straight-line winds—Any thunderstorm wind that is not associated with rotation; this term is used mainly to differentiate from tornado winds. Most thunderstorms produce some straight-line winds as a result of outflow generated by the thunderstorm downdraft.
- Downdrafts—A small-scale column of air that rapidly sinks toward the ground.
- Downbursts—A strong downdraft with horizontal dimensions larger than 2.5 miles resulting in an outward burst or damaging winds on or near the ground. Downburst winds may begin as a microburst and spread out over a wider area, sometimes producing damage similar to a strong tornado. Although usually associated with thunderstorms, downbursts can occur with showers too weak to produce thunder.
- Microbursts—A small concentrated downburst that produces an outward burst of damaging winds at the surface. Microbursts are generally less than 2.5 miles across and short-lived, lasting only 5 to 10 minutes,

with maximum wind speeds up to 168 mph. There are two kinds of microbursts: wet and dry. A wet microburst is accompanied by heavy precipitation at the surface. Dry microbursts, common in places like the high plains and the intermountain west, occur with little or no precipitation reaching the ground.

- **Gust front**—A gust front is the leading edge of rain-cooled air that clashes with warmer thunderstorm inflow. Gust fronts are characterized by a wind shift, temperature drop, and gusty winds out ahead of a thunderstorm. Sometimes the winds push up air above them, forming a shelf cloud or detached roll cloud.
- **Derecho**—A derecho is a widespread thunderstorm wind caused when new thunderstorms form along the leading edge of an outflow boundary (the boundary formed by horizontal spreading of thunderstorm-cooled air). The word “derecho” is of Spanish origin and means “straight ahead.” Thunderstorms feed on the boundary and continue to reproduce. Derechos typically occur in summer when complexes of thunderstorms form over plains, producing heavy rain and severe wind. The damaging winds can last a long time and cover a large area.
- **Bow Echo**—A bow echo is a linear wind front bent outward in a bow shape. Damaging straight-line winds often occur near the center of a bow echo. Bow echoes can be 200 miles long, last for several hours, and produce extensive wind damage at the ground.

11.1.4 Space Weather

All weather on Earth, from the surface of the planet out into space, is influenced by the small changes the sun undergoes during its solar cycle. These variations are referred to as space weather. Sudden bursts of plasma and magnetic field structures from the sun’s atmosphere—called coronal mass ejections—together with sudden bursts of radiation, or solar flares, all cause weather effects here on Earth. Extreme space weather can cause damage to critical infrastructure, especially the electric grid. It can produce electromagnetic fields that induce extreme currents in wires, disrupting power lines, and even causing wide-spread blackouts. In severe cases, it produces solar energetic particles, which can damage satellites used for commercial communications, global positioning, intelligence gathering, and weather forecasting.

NOAA’s Space Weather Prediction Center has developed space weather scales. Descriptions of three general NOAA classifications of space weather—geomagnetic storms, solar radiation storms and radio blackouts—are included in Figure 11-3. NOAA studies have determined that different types of space weather may occur separately.

The most important impact the sun has on Earth is related to its brightness or irradiance. The sun produces energy in the form of photons of light. The variability of the sun’s output is wavelength dependent:

- Most of the energy from the sun is emitted in the visible wavelengths. The output from the sun in these wavelengths is nearly constant and changes by only 0.1 percent over the course of the 11-year solar cycle.
- At ultraviolet or UV wavelengths, solar irradiance is more variable, with changes up to 15 percent over the course of the 11-year solar cycle. This has a significant impact on the absorption of energy by ozone and in the stratosphere.
- At still shorter wavelengths, like extreme ultraviolet, solar irradiance changes by 30 to 300 percent over a period of minutes. These wavelengths are absorbed in the upper atmosphere, so they have minimal impact on the climate of Earth.
- At the other end of the light spectrum, at infrared wavelengths, solar irradiance is very stable and only changes by a percent or less over the solar cycle.

Other types of space weather can impact the atmosphere. Energetic particles penetrating into the atmosphere can change chemical constituents. These changes in minor species such as nitrous oxide (NO) can have long lasting consequences in the upper and middle atmosphere; however, it has not been determined if these have a major impact on the Earth’s climate.

NOAA Space Weather Scales			
NOTE: Each type of space weather may occur separately. Descriptions of all three types of space weather warnings are here combined into one table merely to conserve space.			
HF means high frequency (radio waves), but other radio frequencies may also be affected by these events. LF means low frequency (radio waves). F: refers to event frequency.			
Category Labels	Geomagnetic Storms (effect & frequency)	Solar Radiation Storms (effect & frequency)	Radio Blackouts (effect & frequency)
Minor			
G1 S1 R1	G1 events can cause weak power grid fluctuations, minor impacts on satellite operations, effects on migratory animals, and widely visible auroras seen in Northern Michigan. F: about 900 days per solar cycle.	S1 events result in minor impacts on HF radio in polar regions. F: about 50 such events per solar cycle, each of which can last more than 1 day.	R1 events cause weak or minor degradation of HF radio communication on the sunlit side of Earth, and occasional loss of radio contact. LF navigation signals used by maritime and general aviation systems may be degraded for brief intervals. F: about 950 days per solar cycle.
Moderate			
G2 S2 R2	G2 events can cause high-latitude power systems to experience voltage alarms. Long-duration storms may cause transformer damage. Corrections to satellite orientation and orbital drag prediction may be required. HF radio propagation can fade at higher latitudes. Auroras may be visible throughout Michigan. F: about 360 days per solar cycle.	S2 events may expose persons in high-flying aircraft to an elevated radiation risk* in areas of high latitude. Infrequent single-event upsets of satellite operations are possible. Possible effects on HF propagation and navigation through polar regions. F: about 25 events per solar cycle, each of which can last more than 1 day.	R2 events cause a limited blackout of HF radio communications on the sunlit side of Earth, and loss of radio contact for tens of minutes. LF navigation signals may also be degraded for tens of minutes. F: about 300 days per solar cycle.
Strong			
G3 S3 R3	G3 events may require voltage corrections at power systems and may trigger false alarms on their protection devices. Satellite orientation problems may need correction. Increased atmospheric drag and component surface charging may occur. Intermittent LF radio navigation problems may occur. F: 130 days per solar cycle.	S3 events can expose persons in high-flying aircraft to a radiation risk* in areas of high latitude. Satellite operations may experience single-event upsets, imaging system noise, and slight solar panel inefficiencies. Degraded HF radio propagation in polar regions. Navigation position errors are likely. F: about 10 events per cycle (each can exceed 1 day).	R3 events cause a wide area blackout of HF radio communication and loss of radio contact for about an hour on the sunlit side of Earth. LF navigation signals may be degraded for about an hour. F: about 140 days per solar cycle.
Severe			
G4 S4 R4	G4 events may cause widespread voltage control problems for power systems, and mistaken exclusion of key assets from a power grid by some protective systems. Satellites may experience surface charging, tracking and orientation problems that may need correction. Pipelines may experience induced currents. HF radio propagation sporadic. LF radio disrupted. Satellite-based navigation may be degraded for hours. F: about 60 days per solar cycle.	S4 events can expose persons in high-flying aircraft to a radiation risk* in areas of high latitude. Satellites may experience memory device problems, imaging systems noise, orientation problems, and degraded solar panel efficiency. A blackout of HF radio communications is likely through the polar regions. Increased navigation errors over several days are likely. F: about 3 events per solar cycle (each can exceed 1 day).	R4 events cause an HF radio communication blackout on most of the sunlit side of Earth for 1 to 2 hours, with HF radio contact lost during this time. LF navigation signals cause increased errors in positioning for 1 to 2 hours. Minor disruptions of satellite navigation are possible on the sunlit side of Earth. F: about 8 days per solar cycle.
Extreme			
G5 S5 R5	G5 events may cause widespread voltage control and protective system problems in power systems, with some grid systems completely blacking out or collapsing, and possible damage to transformers. Satellites may experience extensive surface charging, orientation, tracking, and linkage problems. Pipelines may receive induced currents reaching hundreds of amps. HF radio may be out for 1 to 2 days in many areas. LF may be out for hours. Satellite-based navigation may be degraded for days. Bright auroral lights visible at night. F: about 4 days per solar cycle.	S5 events can expose persons in high-flying aircraft to a radiation risk* in areas of high latitude. Satellites may be rendered useless, may receive permanent solar panel damage, or may experience memory problems, loss of control, serious imaging data noise, and navigation problems. Complete HF radio communications blackouts are possible throughout the polar regions. Navigation operations will be extremely difficult and error-laden. F: less than 1 event per solar cycle should occur, although an event may exceed 1 day in duration.	R5 events cause a complete HF radio blackout on the entire sunlit side of Earth for a number of hours. No HF radio contact with mariners and aviators in this sector. LF navigation signals experience outages for many hours on the sunlit side of Earth, causing loss in positioning. Satellite navigation errors in positioning increase for several hours on the sunlit side and may spread into the night side of the Earth. F: fewer than 1 event per cycle.
* Pregnant women are particularly susceptible to radiation risk.			

Figure 11-3. NOAA Space Weather Scales

11.2 HAZARD PROFILE

11.2.1 Past Events

Table 11-1 summarizes severe weather events in the OA since 1970, as recorded by the NOAA National Centers for Environmental Information Storm Events Database and FEMA disaster declarations. Space weather events that affected North America are also included. Santa Clara County has been included in eight FEMA declarations for severe weather events.

Table 11-1. Past Severe Weather Events Impacting OA

Date of Event	Event Type	FEMA Declaration Number	Location	Description
December 19, 1981 – January 8, 1982	Severe storms, flood, mudslides & high tide	DR-651	Bay Area including Santa Clara County	\$273 million in damage; 256 homes and 41 businesses destroyed; 6,259 homes and 1,276 businesses damaged.
January 21 – March 30, 1983	Coastal storms, floods, slides and tornadoes	DR-677	Bay Area including Santa Clara County	Heavy rains, high winds, flooding and levee breaks caused \$523 million in public, private, and agricultural damage.
February 12– March 10, 1986	Severe storms & flooding	DR-758	Bay Area including Santa Clara County	\$407 million; 1,382 homes and 185 businesses destroyed; 12,447 homes and 967 businesses damaged.
March 13, 1989	Space weather storm	N/A	Quebec, Canada	A space weather storm disrupted the hydroelectric power grid in Quebec, Canada. This system-wide outage lasted for nine hours and left six million people without power.
December 19, 1990 – January 3, 1991	Severe freeze	DR-894	Bay Area including Santa Clara County	Very cold air blew through the San Joaquin Valley, east through the Coachella and Imperial valley, and down the coastal valleys of the Santa Paula district. The freeze caused joblessness and hunger among farm workers. Total damage was \$856 million from public buildings, utilities, and crop damage, 500 broken pipes affecting 5,400 homes.
January 3 – February 10, 1995	Severe winter storms, flooding, landslides, mud flows	DR-1044	Bay Area including Santa Clara County	Severe winter storms, flooding, landslides and mudflows. Over 100 stations recorded their greatest 1-day rainfall in history. Most of the storms hit Sacramento River Basin, which resulted in small stream flooding due to drainage system failures. \$741 million total; 11 deaths
February 13 – April 19, 1995	Severe winter storms, flooding landslides, mud flow	DR-1046	Bay Area including Santa Clara County	Approx. \$1.1 billion total; damage to homes: major 1,322; minor 2,299; destroyed 267.
December 28, 1996 – April 1, 1997	Severe storms, flooding, mud and landslides	DR-1155	48 counties including Santa Clara County	300 square miles in California were flooded including the Yosemite Valley. Over 12,000 people were evacuated in northern California. Several levee breaks were reported across the Sacramento and San Joaquin Valleys. Over 23,000 homes and business, agricultural lands, bridges, and roads were damaged. Eight deaths resulted from this event. Overall, the state had \$1.8 billion in damage.
February 2 – April 30, 1998	Severe winter storms and flooding	DR-1203	41 counties including Santa Clara County	\$550 million; 17 deaths from El Niño causing widespread heavy rains, flooding, and landslides throughout the Bay Area. Record flooding in Santa Clara County.
December 15, 2002	Heavy rain	—	Santa Clara County	Two to four inches of rain fell over the OA.

Date of Event	Event Type	FEMA Declaration Number	Location	Description
October 2003	Space weather	—	Parts of the Europe and the United States	This event was a series of solar flares that impacted satellite-based systems and communications. A one-hour long power outage occurred in Sweden as a result of the solar activity. Aurorae were observed as far south as Texas and the Mediterranean countries of Europe.
December 1, 2005	High winds	—	Bay area	Strong winter storm brought winds gusts up to 74 mph.
February 27, 2006	High winds	—	Bay area	Strong winter storm brought winds gusts up to 77 mph.
July 20-25, 2006	Heat	—	Santa Clara Valley	Very hot weather yielded an extended period of high temperatures over 100 degrees and lows in the 70s. South areas in southern Santa Clara County reached 115 degrees during the day and fell only to around 80 degrees at night. One death was reported in San José.
December 2006	Geomagnetic storms and solar flares	—	United States	This event disabled Global Positioning System (GPS) signal acquisition over the United States.
December 27, 2006	High winds	—	Bay area	A strong storm system swept across the area, knocking out power to thousands of homes and businesses.
January 6, 2007	Frost/freeze	—	Santa Clara Valley	Record cold wave settled upon the area with some morning lows in the 20s. Crop damage in Santa Clara County totaled approximately \$50,000.
January 4, 2008	High winds	—	San Francisco and Monterey Bay Areas	A strong cyclone made landfall bringing flooding rains and high winds. The high winds left hundreds of thousands of residences and businesses without power, property damage due to falling trees hitting cars and structures as well as damage to roads due to heavy rains throughout the areas.
December 17, 2008	Frost/freeze	—	Bay area	A cold low pressure system produced winter storm conditions caused several minor traffic accidents with icy conditions.
February 15, 2009	High winds	—	Bay area	An Eastern Pacific storm produced strong wind and heavy rain causing power outages and knocking down numerous trees.
April 14, 2009	High winds	—	Santa Clara Valley	Downed trees crushed cars in San José and clogged major intersections. Power outages also occurred as trees brought power lines to the ground with 4,600 customers losing power in San José.
May 2, 2009	Dense fog	—	Santa Cruz Mountains	Mountain fog caused a chain-reaction automobile collision.
May 17, 2009	Heat	—	Santa Clara Valley	Temperatures rose into the 90s to just over 100°F in the valleys of Santa Clara County. Cooling centers were open across the area to mitigate heat related illnesses.
October 13, 2009	High winds	—	Santa Clara Valley	A strong low pressure system made its way through Northern and Central California accompanied by deep tropical moisture and very strong winds. Heavy rain combined with the wind caused numerous tree, tree limbs, and electrical poles to fall throughout the area.
December 8, 2009	Freeze	—	Santa Clara Valley	A storm moved across northern and central California leaving a cold air mass in its wake. The cold air mass led to overnight temperatures dropping below freezing. Black ice and unsafe speeds led to a fatality car crash, connector highway ramps from Highway 101 to Interstate 280 closed for 90 miles due to severe ice on roadway, and airport delays reported.
January 20, 2010	Strong winds	—	Santa Clara County	Strong wind brought a number of trees and limbs down across San José. On Cherry Lane an 80-foot cedar tree toppled over, taking down a telephone pole and two transformers. The tree fell across the street damaging a vehicle on the other side. In Los Gatos, trees fell on Shady Lane.

Date of Event	Event Type	FEMA Declaration Number	Location	Description
November 30, 2011	Strong winds	—	Bay area	Wind gusted up to 70 mph throughout the area downing trees and power lines.
November 30, 2012	Heavy rains	—	Santa Clara County	A series of significant winter storms impacted the district during late November and early December 2012. Minor urban and small stream flooding was observed across Santa Clara County due to the heavy rainfall.
May 1, 2013	High winds	—	Bay area	Hot weather followed by increasingly strong northeast winds lead to critical fire weather conditions.
October 4, 2013	Strong winds	—	Bay area	Strong winds moved through the area that caused downed trees and powerlines and causing several wildfires to ignite.
February 28, 2014	Strong winds	—	Bay area	A Pacific storm system moved across the area and dropped several inches of rainfall with gusty winds. This resulted in flooding of urban areas, small streams and creeks, and damage to power lines and trees as well as a few localized mud and rockslides.
December 10-11, 2014	Heavy rains and high winds	—	Bay area	Heavy rains and gusty winds impacted the Bay Area for several days. Rainfall rates of 1.5 to 2 inches an hour were reported. A flash flood warning was issued for many municipalities including the Cities of Union City and Newark. Many areas around the Bay Area experienced flooding of streets, highways and creeks. In addition to the heavy rain, strong wind gusts were recorded with some reaching 83 mph. Overall rainfall totals ranged from 5.78 inches to 7.24 inches. This event led to power outages throughout the Bay Area. Rainfall totals in Union City were 3.28 inches.
February 6, 2015	Strong winds	—	Santa Clara Valley	A strong winter storm brought heavy rain, gusty winds, and damage to trees and power lines along with some minor flooding of urban areas. Rainfall amounts were heaviest in the mountains with 5 to 10 inches or more occurring. Generally 1 to 3.5 inches fell in low elevation areas and urban spots. Tree blown down onto powerlines near Los Gatos.
February 9, 2015	Heavy rain	—	Santa Clara County	A stream gauge in Uvas Canyon County Park measured a 72 hour rainfall total of 8.74 inches.
December 13, 2015	Strong winds	—	Bay area	A cold front swept across the Bay Area with strong winds. Several large trees were blown down, some onto homes and automobiles.

Sources: NOAA, 2017; FEMA, 2017; ABAG, 2010

According to the USDA's Risk Management Agency, Santa Clara County received \$4,958,724 in payments for insured crop losses over 2,243 affected acres as a result of heat, excess wind, frost, and cold wet weather events between 2003 and 2016 (see Table 11-2). The highest damaging year was 2015 for heat events.

11.2.2 Location

Severe weather events have the potential to happen anywhere in the Santa Clara County OA. Communities in low-lying areas next to streams are more susceptible to flooding. Regions near San Francisco Bay are more likely to experience fog. Wind events are most damaging to areas that are heavily wooded.

Table 11-2. Crop Insurance Claims Paid from Heat, Excess Wind, Frost, and Cold Wet Weather, 2003-2016

Crop Year	Commodity	Damage Cause	Acres Affected	Indemnity Amount
2003	All Crops	Heat	127	\$73,315
2003	All Crops	Cold Wet Weather	86	\$9,896
2004	All Crops	Heat	62	\$9,093
2005	None	None	None	None
2006	None	None	None	None
2007	All Crops	Heat	60	\$9,633
2008	All Crops	Heat	90	\$27,751
2008	All Crops	Frost	72	\$15,919
2009	None	None	None	None
2010	None	None	None	None
2011	Cherries, Processing Apricots	Cold Wet Weather, Freeze	64	\$278,610
2012	Cherries	Frost	13	\$11,000
2013	Cherries	Cold Wet Weather	196	\$456,697
2013	All Other Crops	Heat	3	\$100
2013	All Other Crops	Excess Wind	22	\$2,667
2014	Cherries	Heat	665	\$852,523
2015	Cherries, Processing Apricots, All Other Crops	Heat	1,230	\$3,354,322
2015	All Other Crops	Frost	50	\$2,805
2016	None	None	None	None
Total			2,243	\$4,958,724

Source: USDA, 2016

Atmospheric River, Heavy Rains, and Thunderstorms

The entire Santa Clara County OA is vulnerable to heavy rainfall and atmospheric river events as they make landfall in the Bay Area. These events can drop up to 12 inches of rain over a couple days and cause widespread flooding and disruption to road and air travel.

Thunderstorms affect relatively small localized areas, rather than large regions like winter storms and hurricane events. It is estimated that there are as many as 40,000 thunderstorms each day worldwide. Thunderstorms can strike in all regions of the United States; however, they are most common in the central and southern states. Figure 11-4 shows the annual number of thunderstorms in the United States. According to this figure, the OA can experience around five thunderstorms each year (NWS, 2016).

Extreme Temperatures

Extreme temperatures can occur anywhere in the OA. Extreme heat is a concern to people, animals and pets as well as local nursery crops, cut flowers, and vegetable crops. Extreme cold is usually frost and freeze damage that adversely affects local nursery crops, cut flowers, and vegetable crops.

High Winds

The entire OA is subject to high winds from thunderstorms and other severe weather events. Figure 11-5 indicates how the frequency and strength of windstorms impacts the United States and the general location of the most wind activity. The OA is located in FEMA's Wind Zone I, where wind speeds can reach up to 130 mph.

Source: NWS, 2016a

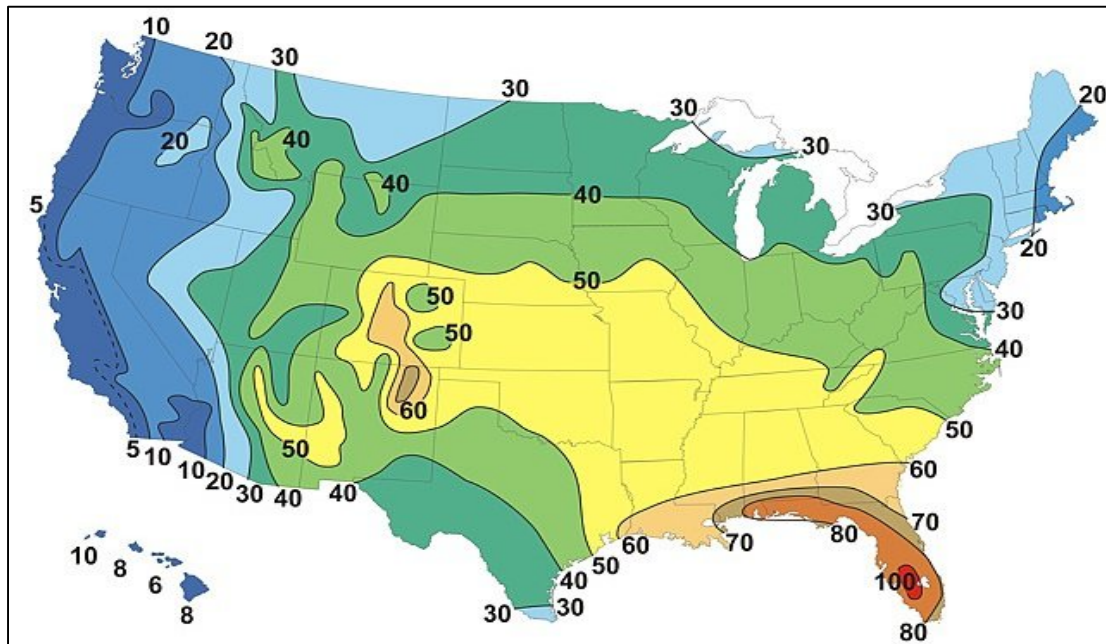
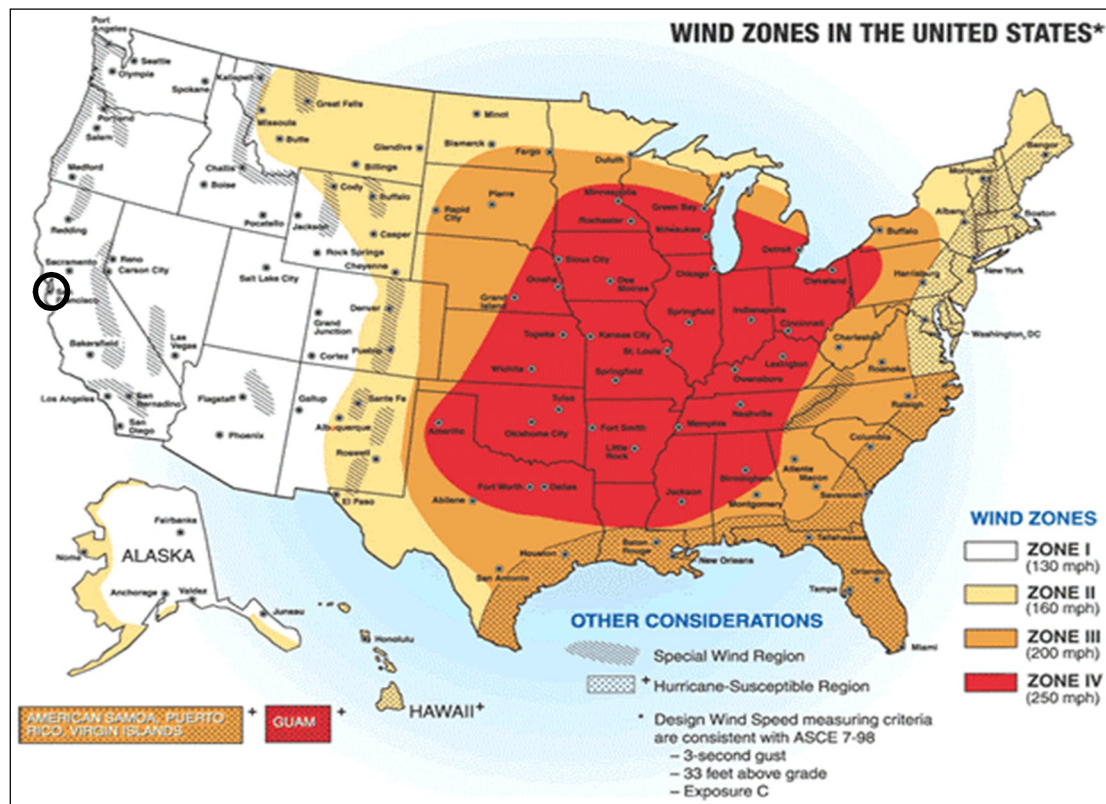


Figure 11-4. Annual Number of Thunderstorms in the United States

Source: FEMA, 2010



Note: The black circle indicates the approximate vicinity of the OA.

Figure 11-5. Wind Zones in the United States

Space Weather

A solar flare occurs when magnetic energy that has built up in the solar atmosphere is suddenly released. The flare ejects clouds of electrons, ions, and atoms through the corona of the sun into space. These clouds typically reach earth a day or two after the event and can disrupt the power grid anywhere in the world (Global Resilience Network, 2016; NASA, 2016b).

11.2.3 Frequency

Predicting the frequency of severe weather events in a constantly changing climate is a difficult task. The OA can expect to experience exposure to and adverse impacts from some type of severe weather event at least annually.

11.2.4 Severity

The most common problems associated with severe storms are immobility and loss of utilities. Fatalities are uncommon, but can occur. Roads may become impassable due to flooding, downed trees, ice or snow, or a landslide. Power lines may be downed due to high winds, and services such as water or phone may not be able to operate without power.

Windstorms can be a frequent problem in the OA and have been known to cause damage to utilities. The predicted wind speed given in wind warnings issued by the National Weather Service is for a one-minute average; gusts may be 25 to 30 percent higher.

Heavy precipitation, which in the OA almost always takes the form of rain, can have significant impacts, including crop damage, flash flooding, and landslides. Stormwater runoff from heavy rains can also impair water quality by washing pollutants into water bodies (EPA, 2015). Thunderstorms carry the same risks as heavy precipitation events, and depending on the type of storm, they can also serve as breeding grounds for tornados, lightning, and heavy winds, increasing risk of injury and property damage (Keller, 2008).

Extreme heat is defined as temperatures that generally remain 10 °F or more above the average high temperatures for the region for several weeks. In 2016, the highest average high temperatures occurred in July and August at 84 °F. Therefore, extreme temperatures would be considered any temperature over 95 °F for an extended time. In 2016, temperatures were recorded above 95 °F for a total of 37 days from April through October.

11.2.5 Warning Time

Meteorologists can often predict the likelihood of a severe storm or other severe weather event. This can give several days of warning time. However, meteorologists cannot predict the exact time of onset or severity of the storm. Some storms may come on more quickly and have only a few hours of warning time. The San Francisco Bay Area Weather Forecast Office of the NWS monitors weather stations and issue watches and warnings when appropriate to alert government agencies and the public of possible or impending weather events. The watches and warnings are broadcast over NOAA weather radio and are forwarded to the local media for retransmission using the Emergency Alert System.

Space weather prediction services in the United States are provided primarily by NOAA's Space Weather Prediction Center and the U.S. Air Force's Weather Agency, which work closely together to address the needs of their civilian and military user communities. The Space Weather Prediction Center draws on a variety of data sources, both space and ground-based, to provide forecasts, watches, warnings, alerts, and summaries as well as operational space weather products to civilian and commercial users.

11.3 SECONDARY HAZARDS

The most significant secondary hazards associated with severe local storms are floods, falling and downed trees, landslides and downed power lines. Rapidly melting snow combined with heavy rain can overwhelm both natural and man-made drainage systems, causing overflow and property destruction. Landslides occur when the soil on slopes becomes oversaturated and fails.

With fog, the secondary impacts are car crashes, with injuries and fatalities caused by traveling at high speeds with low visibility on highways and interstates, as well as air travel delays and diversions.

Possibly the most likely secondary impact of space weather on residents, businesses and visitors to OA is disruption to the electric power grid. Space weather can have an impact on advanced technologies, which has a direct impact on daily life.

11.4 EXPOSURE

11.4.1 Population

A lack of data separating severe weather damage from flooding and landslide damage prevented a detailed analysis for exposure and vulnerability. However, it can be assumed that the entire OA is exposed to some extent to severe weather events. Certain areas are more exposed due to geographic location and local weather patterns. Populations living at higher elevations with large stands of trees or power lines may be more susceptible to wind damage and black out, while populations in low-lying areas are at risk for possible flooding. Power outages can be life threatening to those dependent on electricity for life support. Isolation of these populations is a significant concern.

11.4.2 Property

According to the County Assessor, there are 464,223 buildings within the census tracts that define the OA. The majority of these buildings are residential. It is estimated that 20 percent of the residential structures were built without the influence of a structure building code with provisions for wind loads. All of these buildings are considered to be exposed to the severe weather hazard, but structures in poor condition or in particularly vulnerable locations (located on hilltops or exposed open areas) may risk the most damage. The frequency and degree of damage will depend on specific locations. It is unlikely that the impacts of space weather would have a negative impact on the structures themselves.

11.4.3 Critical Facilities and Infrastructure

All critical facilities exposed to flooding (Section 9.4.3) are also likely exposed to severe weather. Additional facilities on higher ground may also be exposed to wind damage or damage from falling trees. The most common problems associated with severe weather are loss of utilities. Downed power lines can cause blackouts, leaving large areas isolated. Phone, water and sewer systems may not function. Roads may become impassable due to fog or from secondary hazards such as landslides.

11.4.4 Environment

The environment is highly exposed to severe weather events. Natural habitats such as streams and trees are exposed to the elements during a severe storm and risk major damage and destruction. Prolonged rains can saturate soils and lead to slope failure. Flooding events caused by severe weather or snowmelt can produce river channel migration or damage riparian habitat. Storm surges can erode beachfront bluffs and redistribute sediment loads.

11.5 VULNERABILITY

11.5.1 Population

Vulnerable populations are the elderly, low income or linguistically isolated populations, people with life-threatening illnesses, and residents living in areas that are isolated from major roads. Power outages can be life threatening to those dependent on electricity for life support. Isolation of these populations is a significant concern. These populations face isolation and exposure during severe weather events and could suffer more secondary effects of the hazard.

11.5.2 Property

All property is vulnerable during severe weather events, but properties in poor condition or in particularly vulnerable locations may risk the most damage. Those in higher elevations and on ridges may be more prone to wind damage. Those that are located under or near overhead lines or near large trees may be vulnerable to falling ice or may be damaged in the event of a collapse.

Loss estimations for the severe weather hazard are not based on damage functions, because no such damage functions have been generated. Instead, loss estimates were developed representing 10 percent, 30 percent and 50 percent of the replacement value of exposed structures. This allows emergency managers to select a range of potential economic impact based on an estimate of the percent of damage to the general building stock. Damage in excess of 50 percent is considered to be substantial by most building codes and typically requires total reconstruction of the structure. Table 11-3 lists the loss estimates.

Table 11-3. Loss Potential for Severe Weather

Jurisdiction	Exposed Value	Estimated Loss Potential from Severe Weather		
		10% Damage	30% Damage	50% Damage
Campbell	\$11,181,660,749	\$1,118,166,075	\$3,354,498,225	\$5,590,830,374
Cupertino	\$13,890,786,985	\$1,389,078,699	\$4,167,236,096	\$6,945,393,493
Gilroy	\$13,401,505,586	\$1,340,150,559	\$4,020,451,676	\$6,700,752,793
Los Altos	\$8,825,187,782	\$882,518,778	\$2,647,556,335	\$4,412,593,891
Los Altos Hills	\$3,242,710,721	\$324,271,072	\$972,813,216	\$1,621,355,360
Los Gatos	\$10,893,322,460	\$1,089,332,246	\$3,267,996,738	\$5,446,661,230
Milpitas	\$19,146,882,365	\$1,914,688,237	\$5,744,064,710	\$9,573,441,183
Monte Sereno	\$872,909,228	\$87,290,923	\$261,872,768	\$436,454,614
Morgan Hill	\$11,160,393,427	\$1,116,039,343	\$3,348,118,028	\$5,580,196,713
Mountain View	\$25,062,452,472	\$2,506,245,247	\$7,518,735,742	\$12,531,226,236
Palo Alto	\$25,777,115,586	\$2,577,711,559	\$7,733,134,676	\$12,888,557,793
San José	\$213,377,474,752	\$21,337,747,475	\$64,013,242,426	\$106,688,737,376
Santa Clara (city)	\$43,398,577,930	\$4,339,857,793	\$13,019,573,379	\$21,699,288,965
Saratoga	\$8,143,761,638	\$814,376,164	\$2,443,128,491	\$4,071,880,819
Sunnyvale	\$42,852,045,398	\$4,285,204,540	\$12,855,613,620	\$21,426,022,699
Unincorporated County	\$25,352,649,992	\$2,535,264,999	\$7,605,794,998	\$12,676,324,996
Total	\$476,579,437,071	\$47,657,943,707	\$142,973,831,121	\$238,289,718,536

Estimate of Crop Losses

According to the USDA's Risk Management Agency, the amount of claims paid for crop damage as a result of severe weather in Santa Clara County over a 14-year period was \$4,958,724. According to the 2016 California

Insurance Profile from the USDA's Risk Management Agency, 54 percent of the insurable crops in California are insured with USDA Crop Insurance. To provide an adjusted estimate of losses accounting for insurable crops that are not insured, the 54 percent crop insurance coverage was factored in. According to this calculation, estimated annualized losses are \$655,916 (see Table 11-4). Considering the value of crops from the 2012 Census of Agriculture as baseline crop exposure, the estimated annual losses from flood was determined to be low compared to the value of the insurable crops.

Table 11-4. Estimated Insurable Annual Crop Loss Resulting From Severe Weather

14-Year Flood Insurance Paid ^a	Adjusted 14-year Flood Losses (considering 54% insured)	Estimated Annualized Losses	2012 Value of Crops ^b
\$4,958,724	\$9,182,822	\$655,916	\$233,397,000

a. Crop insurance paid from USDA's Risk Management Agency for 2003-2016.

b. 2012 Census of Agriculture, Santa Clara County

11.5.3 Critical Facilities and Infrastructure

Incapacity and loss of roads are the primary transportation failures resulting from severe weather, mostly associated with secondary hazards. Landslides caused by heavy prolonged rains can block roads. High winds can cause significant damage to trees and power lines, blocking roads with debris, incapacitating transportation, isolating population, and disrupting ingress and egress. Of particular concern are roads providing access to isolated areas and to the elderly.

Prolonged obstruction of major routes due to landslides, debris or floodwaters can disrupt the shipment of goods and other commerce. Large, prolonged storms can have negative economic impacts for an entire region.

Severe windstorms, downed trees, and ice can create serious impacts on power and above-ground communication lines. Loss of electricity and phone connection would leave certain populations isolated because residents would be unable to call for assistance.

11.5.4 Environment

The vulnerability of the environment to severe weather is the same as the exposure.

11.6 FUTURE TRENDS IN DEVELOPMENT

All future development will be affected by severe storms, extreme temperatures, fog, high winds, and space weather. The ability to withstand impacts lies in sound land use practices and consistent enforcement of codes and regulations for new construction. The planning partners have adopted the International Building Code in response to California mandates. This code is equipped to deal with the impacts of severe weather events. Land use policies identified in general plans within the OA also address many of the secondary impacts (flood and landslide) of the severe weather hazard. With these tools, the planning partners are well equipped to deal with future growth and the associated impacts of severe weather.

11.7 SCENARIO

Although severe local storms are infrequent, impacts can be significant, particularly when secondary hazards of flood and landslide occur. A worst-case event would involve prolonged high winds during a winter storm accompanied by an atmospheric river event. Such an event would have both short-term and longer-term effects. Initially, schools and roads would be closed due to power outages caused by high winds and downed tree obstructions. In more rural areas, some subdivisions could experience limited ingress and egress. Prolonged rain

could produce flooding, overtopped culverts with ponded water on roads, and landslides on steep slopes. Flooding and landslides could further obstruct roads and bridges, further isolating residents.

11.8 ISSUES

Important issues associated with a severe weather in the OA include the following:

- Older building stock in the OA is built to low code standards or none at all. These structures could be highly vulnerable to severe weather events such as windstorms.
- Cities may need to open cooling/warming stations during extreme temperature events.
- Redundancy of power supply must be evaluated.
- The capacity for backup power generation is limited.
- Dead or dying trees as a result of drought conditions are more susceptible to falling during severe storm events.
- Public education on dealing with the impacts of severe weather needs to continue to be provided so that citizens can be better informed and prepared for severe weather events. In particular, fog should be considered, since fog may be downplayed despite its potential for transportation accidents.
- Debris management (downed trees, etc.) must be addressed, because debris can impact the severity of severe weather events, requires coordination efforts, and may require additional funding.
- The effects of climate change may result in an increase of heavy rain or more atmospheric storm events, and will likely lead to increased temperatures and changes in overall precipitation amounts.

12. TSUNAMI

12.1 GENERAL BACKGROUND

12.1.1 Tsunami

A tsunami consists of a series of high-energy waves that radiate outward like pond ripples from an area where a generating event occurs. Earthquakes may produce displacements of the sea floor that can set the overlying column of water in motion, initiating a tsunami, depending on the magnitude of the earthquake and the type of faulting.

Tsunamis are typically classified as local or distant. Locally generated tsunamis have minimal warning times, leaving few options except to run to high ground. They may be accompanied by damage resulting from the triggering earthquake due to ground shaking, surface faulting, liquefaction or landslides.

Distant tsunamis may travel for hours before striking a coastline, giving a community a chance to implement evacuation plans. In the open ocean, a tsunami may be only a few inches or feet high, but it can travel with speeds approaching 600 miles per hour. Tsunami waves arrive at shorelines over an extended period. Figure 12-1 shows likely travel times across the Pacific Ocean for a tsunami generated along the California coastline near the San Francisco Bay Area.

As a tsunami enters the shoaling waters near a coastline, its speed diminishes, its wavelength decreases, and its height increases greatly. The first wave usually is not the largest. Several larger and more destructive waves often follow the first one. As tsunamis reach the shoreline, they may take the form of a fast-rising tide, a cresting wave, or a bore (a large, turbulent wall-like wave). The bore phenomenon resembles a step-like change in the water level that advances rapidly (from 10 to 60 miles per hour).

The configuration of the coastline, the shape of the ocean floor, and the characteristics of advancing waves play important roles in the destructiveness of the waves. Offshore canyons can focus tsunami wave energy and islands can filter the energy. The orientation of the coastline determines whether the waves strike head-on or are refracted from other parts of the coastline. A wave may be small at one point on a coast and much larger at other points. Bays, sounds, inlets, rivers, streams, offshore canyons, islands, and flood control channels may cause various effects that alter the level of damage. It has been estimated, for example, that a tsunami wave entering a flood control channel could reach a mile or more inland, especially if it enters at high tide.

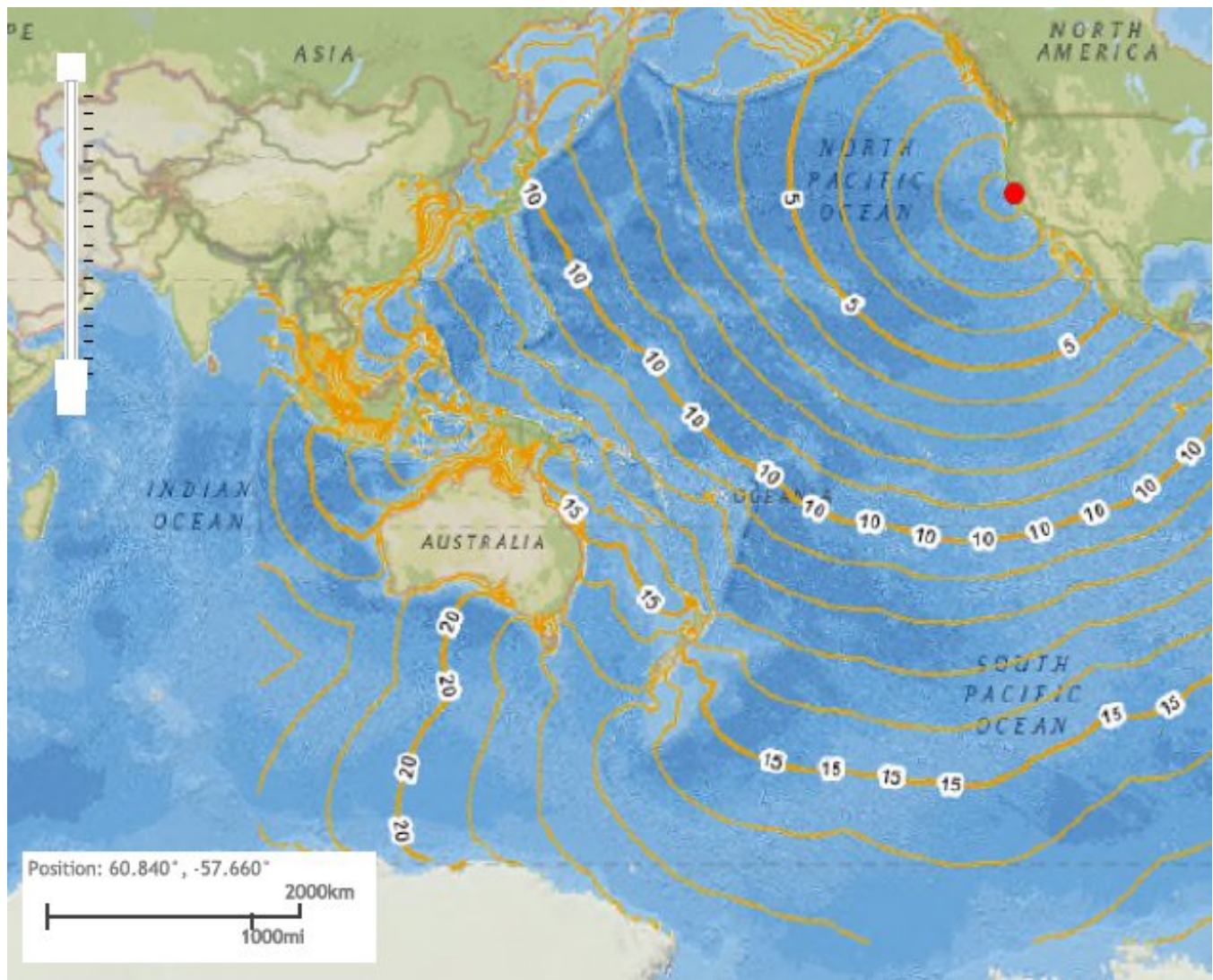
The first visible indication of an approaching tsunami may be recession of water (draw down) caused by the trough preceding the advancing, large inbound wave crest. Rapid draw down can create strong currents in harbor inlets and channels that can severely damage coastal structures due to erosive scour around piers and pilings. As the water's surface drops, piers can be damaged by boats or ships straining at or breaking their mooring lines. The vessels can overturn or sink due to strong currents, collisions with other objects, or impact with the harbor bottom.

DEFINITIONS

Tsunami—A series of traveling ocean waves of extremely long wavelength usually caused by displacement of the ocean floor and typically generated by seismic or volcanic activity or by underwater landslides.

Seiche—A standing wave in an enclosed or partially enclosed body of water such as bays and lakes. Seiches are typically caused when strong winds and rapid changes in atmospheric pressure or an earthquake push water from one end of a body of water to the other.

Source: NOAA, 2016

**Figure 12-1. Potential Tsunami Travel Times in the Pacific Ocean, in Hours**

Conversely, the first indication of a tsunami may be a rise in water level. The advancing tsunami may initially resemble a strong surge increasing the sea level like the rising tide, but the tsunami surge rises faster and does not stop at the shoreline. Even if the wave height appears to be small, 3 to 6 feet for example, the strength of the accompanying surge can be deadly. Waist-high surges can cause strong currents that float cars, small structures, and other debris. Boats and debris are often carried inland by the surge and left stranded when the water recedes.

At some locations, the advancing turbulent wave front will be the most destructive part of the wave. In other situations, the greatest damage will be caused by the outflow of water back to the sea between crests, sweeping all before it and undermining roads, buildings, bulkheads, and other structures. This outflow action can carry enormous amounts of highly damaging debris with it, resulting in further destruction. Ships and boats, unless moved away from shore, may be dashed against breakwaters, wharves, and other craft, or be washed ashore and left grounded after the withdrawal of the seawater.

12.1.2 Seiche

A seiche is a standing wave in an enclosed or partially enclosed body of water, such as San Francisco Bay. Seiches are typically caused when strong winds and rapid changes in atmospheric pressure or an earthquake push water from one end of a body of water to the other. The largest seiche that was ever measured in the San Francisco Bay, following the 1906 earthquake, was 4 inches high. The Bay Area has not been adversely affected by seiches (U.S. Army Corps of Engineers, 2016).

12.2 HAZARD PROFILE

12.2.1 Past Events

According to the National Centers for Environmental Information, the California coastline has been impacted by tsunami wave events on four dates since 2005: November 15, 2006, February 27, 2010, March 11, 2011, and September 16, 2015. Together these events caused approximately \$45 million in property damage. The Santa Clara County OA has never been impacted by a tsunami. The closest tsunami to affect the OA was the tsunami event on March 10, 2011 that occurred in Japan and traveled across the Pacific Ocean to create wave surges that damaged coastal areas in nearby Santa Cruz and Monterey Counties. These counties were included in FEMA-1968-DR-CA declaration.

12.2.2 Location

The most likely site of tsunami impacts in the Santa Clara County OA is along area creeks that would rise with floodwaters from a San Francisco Bay tsunami caused by a local earthquake. Figure 12-2 shows tsunami inundation mapping for areas on the southern portion of the San Francisco Bay and Coyote Creek (the northern portion of the Santa Clara County OA) prepared by the California Department of Conservation.

12.2.3 Frequency

The frequency of tsunamis is related to the frequency of the events that cause them, so it is similar to the frequency of seismic or volcanic activities or landslides. Generally four or five tsunamis occur every year in the Pacific Basin, and those that are most damaging are generated in the Pacific waters off South America rather than in the northern Pacific.

12.2.4 Severity

Tsunamis are a threat to life and property to anyone living near the ocean. From 1950 to 2007, 478 tsunamis were recorded globally. Fifty-one of these events caused fatalities, to a total of over 308,000 coastal residents. The overwhelming majority of these events occurred in the Pacific basin. Recent tsunamis have struck Nicaragua, Indonesia, and Japan, killing several thousand people. Property damage due to these waves was nearly \$1 billion. Historically, tsunamis originating in the northern Pacific and along the west coast of South America have caused more damage on the west coast of the United States than tsunamis originating in Japan and the Southwest Pacific.

It is general consensus that the Santa Clara County OA would not likely see significant impacts from a tsunami originating in the Pacific Ocean, given the area's inland location. However, the OA would likely see minor tsunami impacts on creeks from a local earthquake event, with any floodwaters flowing up creeks impacting people visiting the creeks. A local earthquake tsunami can occur any time, and the resulting floodwater waves can carry damaging debris.

Figure Placeholder

Figure 12-2. Tsunami Inundation Area

12.2.5 Warning Time

Typical signs of a tsunami hazard are earthquakes and/or sudden and unexpected rise or fall in coastal water. The large waves are often preceded by coastal flooding and followed by a quick recession of the water. Tsunamis are difficult to detect in the open ocean; with waves less than 3 feet high. The tsunami's size and speed, as well as the coastal area's form and depth, affect the impact of a tsunami; wave heights of 50 feet are not uncommon. In general, scientists believe it requires an earthquake of at least a magnitude 7 to produce a tsunami.

The Pacific tsunami warning system evolved from a program initiated in 1946. It is a cooperative effort involving 26 countries along with numerous seismic stations, water level stations and information distribution centers. The National Weather Service operates two regional information distribution centers. One is located in Ewa Beach, Hawaii, and the other is in Palmer, Alaska. The Ewa Beach center also serves as an administrative hub for the Pacific warning system.

The warning system only begins to function when a Pacific basin earthquake of magnitude 6.5 or greater triggers an earthquake alarm. When this occurs, the following sequence of actions occurs:

- Data is interpolated to determine epicenter and magnitude of the event.
- If the event is magnitude 7.5 or greater and located at sea, a TSUNAMI WATCH is issued.
- Participating tide stations in the earthquake area are requested to monitor their gages. If unusual tide levels are noted, the tsunami watch is upgraded to a TSUNAMI WARNING.
- Tsunami travel times are calculated, and the warning is transmitted to the disseminating agencies and thus relayed to the public.
- The Ewa Beach center will cancel the watch or warning if reports from the stations indicate that no tsunami was generated or that the tsunami was inconsequential.

This system is not considered to be effective for communities located close to the tsunami because the first wave would arrive before the data were processed and analyzed. In this case, strong ground shaking would provide the first warning of a potential tsunami.

12.3 SECONDARY HAZARDS

By the time a tsunami wave reaches the Santa Clara County OA, it may carry floating debris that can cause damage to any affected areas.

12.4 EXPOSURE AND VULNERABILITY

12.4.1 Population

The population of the Santa Clara County OA is located outside of a tsunami inundation area, therefore, no population exposure exists for the tsunami hazard.

12.4.2 Property

No buildings are located in the tsunami inundation area in the OA, so no property exposure based on building stock exists for the tsunami hazard.

12.4.3 Critical Facilities and Infrastructure

Critical facilities and infrastructure in the Santa Clara County OA are located outside of the tsunami inundation area, so no such exposure exists for the tsunami hazard.

12.4.4 Environment

Waterways originating from southern portion of San Francisco Bay would be exposed to the effects of a tsunami or seiche; inundation of water and introduction of foreign debris could be hazardous to the environment. All wildlife inhabiting the area is exposed. The vulnerability of aquatic habit and associated ecosystems would be highest in low-lying areas close to the southern portion of San Francisco Bay coastline.

Tsunami waves and seiches can carry destructive debris and pollutants that can have devastating impacts on all facets of the environment. Millions of dollars spent on habitat restoration and conservation in the OA could be wiped out by one significant tsunami. There are currently no tools available to measure these impacts. However, it is conceivable that the potential financial impact of a tsunami or seiche event on the environment could equal or exceed the impact on property. Community planners and emergency managers should take this into account when preparing for the tsunami hazard and considering future development.

12.5 FUTURE TRENDS IN DEVELOPMENT

Tsunami inundation areas in the OA are within flood hazard areas that are already regulated under floodplain management regulations.

12.6 SCENARIO

The worst-case scenario for the OA is a local tsunami or seiche event originating in the San Francisco Bay triggered by a seismic event. This can occur anytime and the series of floodwater waves can carry damaging debris and cause environmental impacts.

12.7 ISSUES

The Core Planning Group has identified the following issues related to the tsunami hazard for the OA:

- As tsunami warning technologies evolve, the tsunami warning capability within the OA will need to be enhanced to provide the highest degree of warning.
- With the possibility of climate change, the issue of sea level rise may become an important consideration as probable tsunami inundation areas are identified through future studies.
- Special attention will need to be focused on the vulnerable communities in the tsunami zone and on hazard mitigation through public education and outreach.

13. WILDFIRE

13.1 GENERAL BACKGROUND

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by lightning or by human activity such as smoking, campfires, equipment use, and arson.

Fire hazards present a considerable risk to vegetation and wildlife habitats. Short-term loss caused by a wildfire can include the destruction of timber, wildlife habitat, scenic vistas, and watersheds. Long-term effects include smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural and economic resources and community infrastructure. Vulnerability to flooding increases due to the destruction of watersheds. The potential for significant damage to life and property exists in areas designated as “wildland urban interface areas,” where development is adjacent to densely vegetated areas.

13.2 HAZARD PROFILE

13.2.1 Past Events

According to the *State of California Multi-Hazard Mitigation Plan* and the California Department of Forestry and Fire Protection, the Santa Clara County OA experiences wildfires every two to three years. There have been two federal disaster declarations for wildfires since 1950. The following are wildfires of over 10 acres that have been recorded in or near the OA (CAL FIRE, 2016):

- June 26 – July 19, 1985; “Lexington Fire” (FEMA-739-DR-CA)—This federal wildfire disaster included six counties. In Santa Clara County, the worst of the fires affected the Santa Cruz Mountains south of San José, threatening at least 2,000 homes and forcing the evacuation of more than 4,500 people (L.A. Times, 2016).
- October 25 – 26, 2006, Felter Fire—Burned 200 acres.
- August 30 – September 2, 2007, Stevens Fire—Burned 151 acres near Stevens Canyon Reservoir.
- September 3 – 11, 2007, Lick Fire—Burned 47,760 acres at Henry Coe State Park, with four residences and 20 outbuildings destroyed.
- May 22 – 30, 2008, Summit Fire (FEMA-2766-FM-CA)—Burned 4,270 acres along with 35 residences, 64 outbuildings at Summit Road and Maymen Flats, south of the Town of Loma Prieta.
- June 21 – 26, 2008, Whitehurst/Hummingbird Fires—Burned 794 acres at Hummingbird and 200 acres at Whitehurst.
- August 29 – 30, 2009, Pacheco Fire—Burned 1,650 acres.
- September 23 – October 5, 2002, “Croy Fire” (FM-2465)—13,128 acres burned.
- July 21, 2011, McDonald Fire—Burned 27 acres east of Morgan Hill below Anderson Lake.
- July 12, 2013, Uvas Fire—Burned 50 acres along Uvas Road and Casa Loma Road, near Calero County Park and west of Morgan Hill.

DEFINITIONS

Interface Area—An area susceptible to wildfires and where wildland vegetation and urban or suburban development occur together. An example would be smaller urban areas and dispersed rural housing in forested areas.

Wildfire—Fires that result in uncontrolled destruction of forests, brush, field crops, grasslands, and real and personal property in non-urban areas. Because of their distance from firefighting resources, they can be difficult to contain and can cause a great deal of destruction.

- June 30 – July 1, 2014, Curie Fire—Burned 125 acres off Curie Drive south of San José.
- August 28 – 31, 2014, Casa Fire—Burned 80 acres along Highway 152 at Casa De Fruta.
- June 30 – 3, 2015, Highway Fire—Burned 42 acres off Highway 101 near Monterey Frontage Road, south of the City of Gilroy.
- September 9 – 10, 2015, Pacheco Fire—Burned 215 acres off Highway 152 at Dinosaur Point, 3 miles west of San Luis Reservoir.
- July 30 – 31, 2016, Sierra Fire—Burned 114 acres off Sierra Road and Calaveras Road.
- August 17 – 18, 2016, Bailey Fire—Burned 100 acres off Highway 101 and Bailey Road.
- September 1 – 2, 2016, Oak Fire—Burned 25 acres off Oak Glen Avenue, 2 miles west of Morgan Hill.
- September 26 – October 12, 2016, Loma Fire—Burned 4,474 acres and destroyed 12 residences and 16 outbuildings off Loma Prieta Road and Loma Chiquita Road, 10 miles northwest of Morgan Hill.

13.2.2 Location

CAL FIRE’s Fire and Resource Assessment Program has modeled and mapped wildfire hazard zones using a science-based and field-tested computer model that assigns a fire hazard severity zone (FHSZ) of moderate, high or very high. The FHSZ model is built from existing CAL FIRE data and hazard information based on factors such as the following:

- Fuel—Fuel may include living and dead vegetation on the ground, along the surface as brush and small trees, and above the ground in tree canopies. Lighter fuels such as grasses, leaves and needles quickly expel moisture and burn rapidly, while heavier fuels such as tree branches, logs and trunks take longer to warm and ignite. Trees killed or defoliated by forest insects and diseases are more susceptible to wildfire.
- Weather—Relevant weather conditions include temperature, relative humidity, wind speed and direction, cloud cover, precipitation amount and duration, and the stability of the atmosphere. Of particular importance for wildfire activity are wind and thunderstorms:
 - ❖ Strong, dry winds produce extreme fire conditions. Such winds generally reach peak velocities during the night and early morning hours.
 - ❖ The thunderstorm season typically begins in June with wet storms, and turns dry with little or no precipitation reaching the ground as the season progresses into July and August.
- Terrain—Topography includes slope and elevation. The topography of a region influences the amount and moisture of fuel; the impact of weather conditions such as temperature and wind; potential barriers to fire spread, such as highways and lakes; and elevation and slope of land forms (fire spreads more easily uphill than downhill).
- Probability of Future Occurrence—The likelihood of an area burning over a 30- to 50-year time period, based on history and other factors.

The model also is based on frequency of fire weather, ignition patterns, and expected rate-of spread. It accounts for flying ember production, which is the principal driver of the wildfire hazard in densely developed areas. A related concern in built-out areas is the relative density of vegetative fuels that can serve as sites for new spot fires within the urban core and spread to adjacent structures. The model refines the zones to characterize fire exposure mechanisms that cause ignitions to structures. Significant land-use changes need to be accounted for through periodic model updates.

Figure 13-1 shows the FHSZ mapping for the Santa Clara County OA. Table 13-1 lists the total area mapped in each zone. Most of the mapped zones are in the unincorporated county.

Figure Placeholder

Figure 13-1. Wildfire Severity Zones and Historical Perimeters

Table 13-1. Record of Fire Affecting OA

Fire Hazard Severity Zone (FHSZ)	Total Area in Wildfire Severity Zone (acres)	Area Burned, 1878 – 2015	
		Acres	Percent of Total
Moderate FHSZ	33,593	693	2.1
High FHSZ	372,359	35,026	9.4
Very High FHSZ	161,211	76,521	47.5
Total	567,163	112,240	19.8

13.2.3 Frequency

Wildfire frequency can be assessed through review of the portion of an area burned in previous wildfire events. Table 13-1 includes a summary of CAL FIRE records of fires over the 137 years from 1878 to 2015. About 20 percent of the mapped wildfire risk zones in the Santa Clara County OA have burned in that period.

13.2.4 Severity

Potential losses from wildfire include human life, structures and other improvements, and natural resources. There are no recorded incidents of loss of life from wildfires in the OA. There have been multiple destructive wildfires in the OA destroying residents, thousands of acres, and evacuating people. Given the immediate response times to reported fires, the likelihood of injuries and casualties is minimal.

Smoke and air pollution from wildfires can be a health hazard, especially for sensitive populations including children, the elderly and those with respiratory and cardiovascular diseases. Wildfire also threatens those fighting the fires. First responders are exposed to the dangers from the initial incident and after-effects from smoke inhalation and heat stroke.

13.2.5 Warning Time

Wildfires are often caused by humans, intentionally or accidentally. There is no way to predict when one might break out. Since fireworks often cause brush fires, extra diligence is warranted around the Fourth of July when the use of fireworks is highest. Dry seasons and droughts are factors that greatly increase fire likelihood. Dry lightning may trigger wildfires. Severe weather can be predicted, so special attention can be paid during weather events that may include lightning. Reliable National Weather Service lightning warnings are available on average 24 to 48 hours prior to a significant electrical storm.

If a fire does break out and spread rapidly, residents may need to evacuate within days or hours. A fire's peak burning period generally is between 1 p.m. and 6 p.m. Once a fire has started, fire alerting is reasonably rapid in most cases. The rapid spread of cellular phone and two-way radio communications in recent years has further contributed to a significant improvement in warning time.

13.3 SECONDARY HAZARDS

Wildfires can generate a range of secondary effects, which in some cases may cause more widespread and prolonged damage than the fire itself. Fires can cause direct economic losses in the reduction of harvestable timber and indirect economic losses in reduced tourism. Wildfires cause the contamination of reservoirs, destroy transmission lines and contribute to flooding. They strip slopes of vegetation, exposing them to greater amounts of runoff. This in turn can weaken soils and cause failures on slopes. Major landslides can occur several years after a wildfire. Most wildfires burn hot and for long durations that can bake soils, especially those high in clay content, thus increasing the imperviousness of the ground. This increases the runoff generated by storm events, thus increasing the chance of flooding.

13.4 EXPOSURE

13.4.1 Population

Population could not be examined by FHSZ because the boundaries of census block groups do not coincide with the zone boundaries. However, population was estimated using the residential building count in each mapped FHSZ and multiplying by the 2016 estimated average population per household. Table 13-2 presents the results.

Table 13-2. Population Within Wildfire Hazard Areas

Jurisdiction	Moderate FHSZ			High FHSZ			Very High FHSZ		
	Buildings	Population		Buildings			Buildings	Population	
		Number	% of Total		Number	% of Total		Number	% of total
Campbell	0	0	0.0%	0	0	0.0%	0	0	0.0%
Cupertino	0	0	0.0%	1	4	0.0%	8	29	0.1%
Gilroy	0	0	0.0%	3	4	0.0%	0	0	0.0%
Los Altos	0	0	0.0%	0	0	0.0%	0	0	0.0%
Los Altos Hills	34	100	1.2%	2	6	0.1%	0	0	0.0%
Los Gatos	0	0	0.0%	21	55	0.2%	2,456	7,582	24.2%
Milpitas	0	0	0.0%	0	0	0.0%	0	0	0.0%
Monte Sereno	0	0	0.0%	0	0	0.0%	410	1,171	33.7%
Morgan Hill	0	0	0.0%	0	0	0.0%	1,752	6,630	15.2%
Mountain View	0	0	0.0%	0	0	0.0%	0	0	0.0%
Palo Alto	0	0	0.0%	0	0	0.0%	1	4	0.0%
San José	2	9	0.0%	123	552	0.1%	109	492	0.0%
Santa Clara (city)	0	0	0.0%	0	0	0.0%	0	0	0.0%
Saratoga	0	0	0.0%	4	11	0.0%	2,071	5,657	18.7%
Sunnyvale	0	0	0.0%	0	0	0.0%	0	0	0.0%
Unincorporated County	959	3,604	4.1%	2,445	8,990	10.3%	2,740	11,601	13.3%
Total	995	3,714	0.2%	2,599	9,622	0.5%	9,547	33,167	1.7%

13.4.2 Property

Property damage from wildfires can significantly alter entire communities. The number of structures in each FHSZ within the OA and their values are summarized in Table 13-3 through Table 13-5. Table 13-6 shows the general land use of parcels exposed to the wildfire hazard in unincorporated areas of the OA.

13.4.3 Critical Facilities and Infrastructure

Table 13-7 identifies critical facilities exposed to the wildfire hazard in the OA. In the event of wildfire, there would likely be little damage to the majority of infrastructure. Most road and railroads would be without damage except in the worst scenarios. Power lines are the most at risk to wildfire because most are made of wood and susceptible to burning. In the event of a wildfire, pipelines could provide a source of fuel and lead to a catastrophic explosion.

Table 13-3. Exposure and Value of Structures in Very High Wildfire Hazard Areas

Jurisdiction	Buildings Exposed	Value Exposed			% of Total Replacement Value
		Structure	Contents	Total	
Campbell	0	\$0	\$0	\$0	0.0%
Cupertino	8	\$4,430,735	\$2,215,367	\$6,646,102	0.0%
Gilroy	0	\$0	\$0	\$0	0.0%
Los Altos	0	\$0	\$0	\$0	0.0%
Los Altos Hills	0	\$0	\$0	\$0	0.0%
Los Gatos	2,456	\$2,020,032,294	\$1,481,843,045	\$3,501,875,339	32.1%
Milpitas	0	\$0	\$0	\$0	0.0%
Monte Sereno	410	\$214,752,042	\$107,376,021	\$322,128,063	36.9%
Morgan Hill	1,752	\$718,520,327	\$374,497,669	\$1,093,017,996	9.8%
Mountain View	0	\$0	\$0	\$0	0.0%
Palo Alto	1	\$103,393	\$51,697	\$155,090	0.0%
San José	109	\$48,455,379	\$32,806,811	\$81,262,190	0.0%
Santa Clara (city)	0	\$0	\$0	\$0	0.0%
Saratoga	2,071	\$1,352,630,982	\$863,254,769	\$2,215,885,752	27.2%
Sunnyvale	0	\$0	\$0	\$0	0.0%
Unincorporated County	2,740	\$3,050,159,884	\$2,320,634,488	\$5,370,794,371	21.2%
Total	9,547	\$7,409,085,035	\$5,182,679,866	\$12,591,764,902	2.6%

Table 13-4. Exposure and Value of Structures in High Wildfire Hazard Areas

Jurisdiction	Buildings Exposed	Value Exposed			% of Total Replacement Value
		Structure	Contents	Total	
Campbell	0	\$0	\$0	\$0	0.0%
Cupertino	1	\$299,414	\$149,707	\$449,120	0.0%
Gilroy	3	\$5,388,313	\$5,211,943	\$10,600,256	0.1%
Los Altos	0	\$0	\$0	\$0	0.0%
Los Altos Hills	2	\$1,712,545	\$856,272	\$2,568,817	0.1%
Los Gatos	21	\$17,090,786	\$11,984,620	\$29,075,407	0.3%
Milpitas	0	\$0	\$0	\$0	0.0%
Monte Sereno	0	\$0	\$0	\$0	0.0%
Morgan Hill	0	\$0	\$0	\$0	0.0%
Mountain View	0	\$0	\$0	\$0	0.0%
Palo Alto	0	\$0	\$0	\$0	0.0%
San José	123	\$101,534,540	\$75,587,110	\$177,121,649	0.1%
Santa Clara (city)	0	\$0	\$0	\$0	0.0%
Saratoga	4	\$1,395,833	\$697,916	\$2,093,749	0.0%
Sunnyvale	0	\$0	\$0	\$0	0.0%
Unincorporated County	2,445	\$2,762,305,929	\$2,293,960,965	\$5,056,266,893	19.9%
Total	2,599	\$2,889,727,358	\$2,388,448,533	\$5,278,175,892	1.1%

Table 13-5. Exposure and Value of Structures in Moderate Wildfire Hazard Areas

Jurisdiction	Buildings Exposed	Value Exposed			% of Total Replacement Value
		Structure	Contents	Total	
Campbell	0	\$0	\$0	\$0	0.0%
Cupertino	0	\$0	\$0	\$0	0.0%
Gilroy	0	\$0	\$0	\$0	0.0%
Los Altos	0	\$0	\$0	\$0	0.0%
Los Altos Hills	34	\$20,249,594	\$10,124,797	\$30,374,391	0.9%
Los Gatos	0	\$0	\$0	\$0	0.0%
Milpitas	0	\$0	\$0	\$0	0.0%
Monte Sereno	0	\$0	\$0	\$0	0.0%
Morgan Hill	0	\$0	\$0	\$0	0.0%
Mountain View	0	\$0	\$0	\$0	0.0%
Palo Alto	0	\$0	\$0	\$0	0.0%
San José	2	\$607,153	\$303,576	\$910,729	0.0%
Santa Clara (city)	0	\$0	\$0	\$0	0.0%
Saratoga	0	\$0	\$0	\$0	0.0%
Sunnyvale	0	\$0	\$0	\$0	0.0%
Unincorporated County	959	\$610,543,345	\$433,143,162	\$1,043,686,507	4.1%
Total	995	\$631,400,091	\$443,571,535	\$1,074,971,627	0.2%

Table 13-6. Land Use Within the Wildfire Hazard Areas

Type of Land Use	Moderate Severity Zone		High Severity Zone		Very High Severity Zone	
	Area (acres)	% of total	Area (acres)	% of total	Area (acres)	% of total
Agricultural	32,38.4	9.73	2,144.1	0.58	576.3	0.39
General / Institutional	0.0	0.00	202.1	0.05	19.9	0.01
Open Space	28,491.3	85.58	365,560.4	98.73	145,633.9	98.17
Low Density Residential	1,561.4	4.69	2,366.4	0.64	2,122.6	1.43
High Density Residential	0.0	0.00	0.0	0.00	0.0	0.00
Commercial	0.0	0.00	0.0	0.00	0.0	0.00
Industrial	0.0	0.00	0.0	0.00	0.0	0.00
Total	33,291.2	100%	370,273.1	100%	148,352.6	100%

Table 13-7. Critical Facilities and Infrastructure in Wildfire Hazard Areas

Type of Critical Facility	Number of Critical Facilities in Hazard Zone		
	Moderate	High	Very High
Emergency Response / Public Health & Safety	2	6	6
Infrastructure Lifeline	31	74	55
Military Facilities	0	0	0
Recovery Facilities	0	0	0
Socioeconomic Facilities	1	5	11
Hazardous Materials	0	2	0
Total	34	87	72

There are registered hazardous material containment sites in wildfire risk zones in the OA. During a wildfire, containers for these materials could rupture due to excessive heat and act as fuel for the fire, causing rapid spreading and escalating the fire to unmanageable levels. In addition they could leak into surrounding areas, saturating soils and seeping into surface waters, and have a disastrous effect on the environment.

13.4.4 Environment

Fire is a natural and critical ecosystem process in most terrestrial ecosystems, dictating in part the types, structure, and spatial extent of native vegetation. However, wildfires can cause severe environmental impacts:

- **Damaged Fisheries**—Critical fisheries can suffer from increased water temperatures, sedimentation, and changes in water quality.
- **Soil Erosion**—The protective covering provided by foliage and dead organic matter is removed, leaving the soil fully exposed to wind and water erosion. Accelerated soil erosion occurs, causing landslides and threatening aquatic habitats.
- **Spread of Invasive Plant Species**—Non-native woody plant species frequently invade burned areas. When weeds become established, they can dominate the plant cover over broad landscapes, and become difficult and costly to control.
- **Disease and Insect Infestations**—Unless diseased or insect-infested trees are swiftly removed, infestations and disease can spread to healthy forests and private lands. Timely active management actions are needed to remove diseased or infested trees.
- **Destroyed Endangered Species Habitat**—Catastrophic fires can have devastating consequences for endangered species.
- **Soil Sterilization**—Topsoil exposed to extreme heat can become water repellant, and soil nutrients may be lost. It can take decades or even centuries for ecosystems to recover from a fire. Some fires burn so hot that they can sterilize the soil.

Many ecosystems are adapted to historical patterns of fire occurrence. These patterns, called “fire regimes,” include temporal attributes (e.g., frequency and seasonality), spatial attributes (e.g., size and spatial complexity), and magnitude attributes (e.g., intensity and severity), each of which have ranges of natural variability. Ecosystem stability is threatened when any of the attributes for a given fire regime diverge from its range of natural variability.

13.5 VULNERABILITY

Structures, above-ground infrastructure, critical facilities and natural environments are all vulnerable to the wildfire hazard. There is currently no validated damage function available to support wildfire mitigation planning. Except as discussed in this section, vulnerable populations, property, infrastructure and environment are assumed to be the same as described in the section on exposure.

13.5.1 Population

There are no recorded incidents of loss of life from wildfires within the OA. Given the immediate response times to reported fires, the likelihood of injuries and casualties is minimal; therefore, injuries and casualties were not estimated for the wildfire hazard.

Smoke and air pollution from wildfires can be a severe health hazard, especially for sensitive populations, including children, the elderly and those with respiratory and cardiovascular diseases. Smoke generated by wildfire consists of visible and invisible emissions that contain particulate matter (soot, tar, water vapor, and minerals), gases (carbon monoxide, carbon dioxide, nitrogen oxides), and toxics (formaldehyde, benzene). Emissions from wildfires depend on the type of fuel, the moisture content of the fuel, the efficiency (or

temperature) of combustion, and the weather. Public health impacts associated with wildfire include difficulty in breathing, odor, and reduction in visibility.

Wildfire may also threaten the health and safety of those fighting the fires. First responders are exposed to the dangers from the initial incident and after-effects from smoke inhalation and heat stroke.

13.5.2 Property

Loss estimations for the wildfire hazard are not based on damage functions, because no such damage functions have been generated. Instead, loss estimates were developed representing 10 percent, 30 percent and 50 percent of the replacement value of exposed structures. This allows emergency managers to select a range of economic impact based on an estimate of the percent of damage to the general building stock. Damage in excess of 50 percent is considered to be substantial by most building codes and typically requires total reconstruction of the structure. Table 13-8 lists the loss estimates for the general building stock for jurisdictions that have an exposure to a fire hazard severity zone (the aggregate of the 3 zones assessed).

Table 13-8. Loss Estimates for Wildfire (Aggregate of all Fire Severity zones assessed)

Jurisdiction	Exposed Value	Estimated Loss Potential from Wildfire		
		10% Damage	30% Damage	50% Damage
Campbell	\$0	\$0	\$0	\$0
Cupertino	\$7,095,222	\$709,522	\$2,128,567	\$3,547,611
Gilroy	\$10,600,256	\$1,060,026	\$3,180,077	\$5,300,128
Los Altos	\$0	\$0	\$0	\$0
Los Altos Hills	\$32,943,208	\$3,294,321	\$9,882,962	\$16,471,604
Los Gatos	\$3,530,950,746	\$353,095,075	\$1,059,285,224	\$1,765,475,373
Milpitas	\$0	\$0	\$0	\$0
Monte Sereno	\$322,128,063	\$32,212,806	\$96,638,419	\$161,064,031
Morgan Hill	\$1,093,017,996	\$109,301,800	\$327,905,399	\$546,508,998
Mountain View	\$0	\$0	\$0	\$0
Palo Alto	\$155,090	\$15,509	\$46,527	\$77,545
San José	\$259,294,568	\$25,929,457	\$77,788,370	\$129,647,284
Santa Clara (city)	\$0	\$0	\$0	\$0
Saratoga	\$2,217,979,501	\$221,797,950	\$665,393,850	\$1,108,989,750
Sunnyvale	\$0	\$0	\$0	\$0
Unincorporated County	\$11,470,747,772	\$1,147,074,777	\$3,441,224,331	\$5,735,373,886
Total	\$18,944,912,420	\$1,894,491,242	\$5,683,473,726	\$9,472,456,210

13.5.3 Critical Facilities and Infrastructure

Critical facilities of wood frame construction are especially vulnerable during wildfire events. In the event of wildfire, there would likely be little damage to most infrastructure. Most roads and railroads would be without damage except in the worst scenarios. Power lines are the most at risk from wildfire because most poles are made of wood and susceptible to burning. Fires can create conditions that block or prevent access and can isolate residents and emergency service providers. Wildfire typically does not have a major direct impact on bridges, but it can create conditions in which bridges are obstructed. Many bridges in areas of high to moderate fire risk are important because they provide the only ingress and egress to large areas and in some cases to isolated neighborhoods.

13.6 FUTURE TRENDS IN DEVELOPMENT

Santa Clara County has been one of the state's fastest growing counties over the past 10 years, averaging a 1.21-percent increase in population per year from 2005 through 2015. The highly urbanized portions of the OA have little or no wildfire risk exposure. However, ongoing development can create the potential for the expansion of urbanized areas into wildland areas. The expansion of the wildland urban interface can be managed with strong land use and building codes. The OA is well equipped with these tools and this planning process has assessed capabilities with regards to the tools. As the OA experiences future growth, it is anticipated that the exposure to this hazard will remain as assessed or even decrease over time due to these capabilities.

13.7 SCENARIO

A major wildfire in the OA might begin with a water shortage causing tinder-like wildlands and “Red Flag” conditions occurring, indicating a combination of higher than normal temperatures, low humidity and winds blowing from the east across California to the ocean. Lightning strikes or human carelessness with combustible materials could trigger a multitude of small isolated fires.

The embers from these smaller fires could be carried miles by hot, dry winds. Fires that start in flat areas move slower, but wind still pushes them. It is not unusual for a wildfire pushed by wind to burn the ground fuel and later climb into the crown and reverse its track. This is one of many ways that fires can escape containment, typically during periods when response capabilities are overwhelmed. These new small fires would most likely merge. Suppression resources would be redirected from protecting the natural resources to saving more remote subdivisions.

The worst-case scenario would include an active fire season throughout the American west, spreading resources thin. Firefighting teams would be exhausted or unavailable. Many federal assets would be responding to other fires that started earlier in the season.

To further complicate the problem, heavy rains could follow, causing flooding and landslides and releasing tons of sediment into rivers, permanently changing floodplains and damaging sensitive habitat and riparian areas. Such a fire followed by rain could release millions of cubic yards of sediment into streams for years, creating new floodplains and changing existing ones. With the vegetation removed from the watershed, stream flows could easily double. Floods that could be expected every 50 years may occur every couple of years. With the streambeds unable to carry the increased discharge because of increased sediment, the floodplains and floodplain elevations would increase.

13.8 ISSUES

The major issues for wildfire are the following:

- Public education and outreach to people living in or near the fire hazard zones should include information about and assistance with mitigation activities such as defensible space, and advance identification of evacuation routes and safe zones.
- The OA has been under multi-year drought conditions and mandatory water rations.
- Wildfires could cause landslides as a secondary natural hazard.
- Climate change could affect the wildfire hazard.
- Future growth into interface areas should continue to be managed.
- Area fire districts need to continue to train on wildland-urban interface events.
- Vegetation management activities. This would include enhancement through expansion of the target areas as well as additional resources.

- Regional consistency of higher building code standards such as residential sprinkler requirements and prohibitive combustible roof standards.
- Fire department water supply in high risk wildfire areas.
- Expand certifications and qualifications for fire department personnel. Ensure that all firefighters are trained in basic wildfire behavior, basic fire weather, and that all company officers and chief level officers are trained in the wildland command and strike team leader level.

14. CLIMATE CHANGE

14.1 GENERAL BACKGROUND

14.1.1 What is Climate Change?

Climate, consisting of patterns of temperature, precipitation, humidity, wind and seasons, plays a fundamental role in shaping natural ecosystems and the human economies and cultures that depend on them. “Climate change” refers to changes over a long period of time. Worldwide, average temperatures have increased 1.78°F since 1880 (NASA, 2017). Although this change may seem small, it can lead to large changes in climate and weather.

The warming trend and its related impacts are caused by increasing concentrations of carbon dioxide and other greenhouse gases in the earth’s atmosphere. Greenhouse gases are gases that trap heat in the atmosphere, resulting in a warming effect. Carbon dioxide is the most commonly known greenhouse gas; however, methane, nitrous oxide and fluorinated gases also contribute to warming. Emissions of these gases come from a variety of sources, such as the combustion of fossil fuels, agricultural production, changes in land use and volcanic eruptions. According to the U.S. Environmental Protection Agency (EPA), carbon dioxide concentrations measured about 280 parts per million before the industrial era began in the late 1700s and reached 401 parts per million in 2015 (EPA, 2016) (see Figure 14-1). In addition, the concentration of methane has almost doubled and nitrous oxide is being measured at a record high of 328 parts per billion (EPA, 2016a). In the United States, electricity generation is the largest source of these emission, followed by transportation (EPA, 2016b).

Scientists are able to place this rise in carbon dioxide in a longer historical context through the measurement of carbon dioxide in ice cores. According to these records, carbon dioxide concentrations in the atmosphere are the highest that they have been in 650,000 years (NASA, 2016). According to NASA, most of this trend is very likely human-induced and it is proceeding at an unprecedented rate (NASA, 2016). There is broad scientific consensus (97 percent of scientists) that climate-warming trends are very likely due to human activities (NASA, 2016). Unless emissions of greenhouse gases are substantially reduced, this warming trend is expected to continue.

Climate change will affect the people, property, economy and ecosystems of the Santa Clara County OA in a variety of ways. Climate change impacts are most frequently associated with negative consequences, such as increased flood vulnerability or increased heat-related illnesses/public health concerns; however, other changes may present opportunities. The most important effect for the development of this plan is that climate change will have a measurable impact on the occurrence and severity of natural hazards.

14.1.2 How Climate Change Affects Hazard Mitigation

An essential aspect of hazard mitigation is predicting the likelihood of hazard events. Typically, predictions are based on statistical projections from records of past events. This approach assumes that the likelihood of hazard events remains essentially unchanged over time. Thus, averages based on the past frequencies of, for example, floods are used to estimate future frequencies: if a river has flooded an average of once every 5 years for the past 100 years, then it can be expected to continue to flood an average of once every 5 years.

Source: EPA, 2016

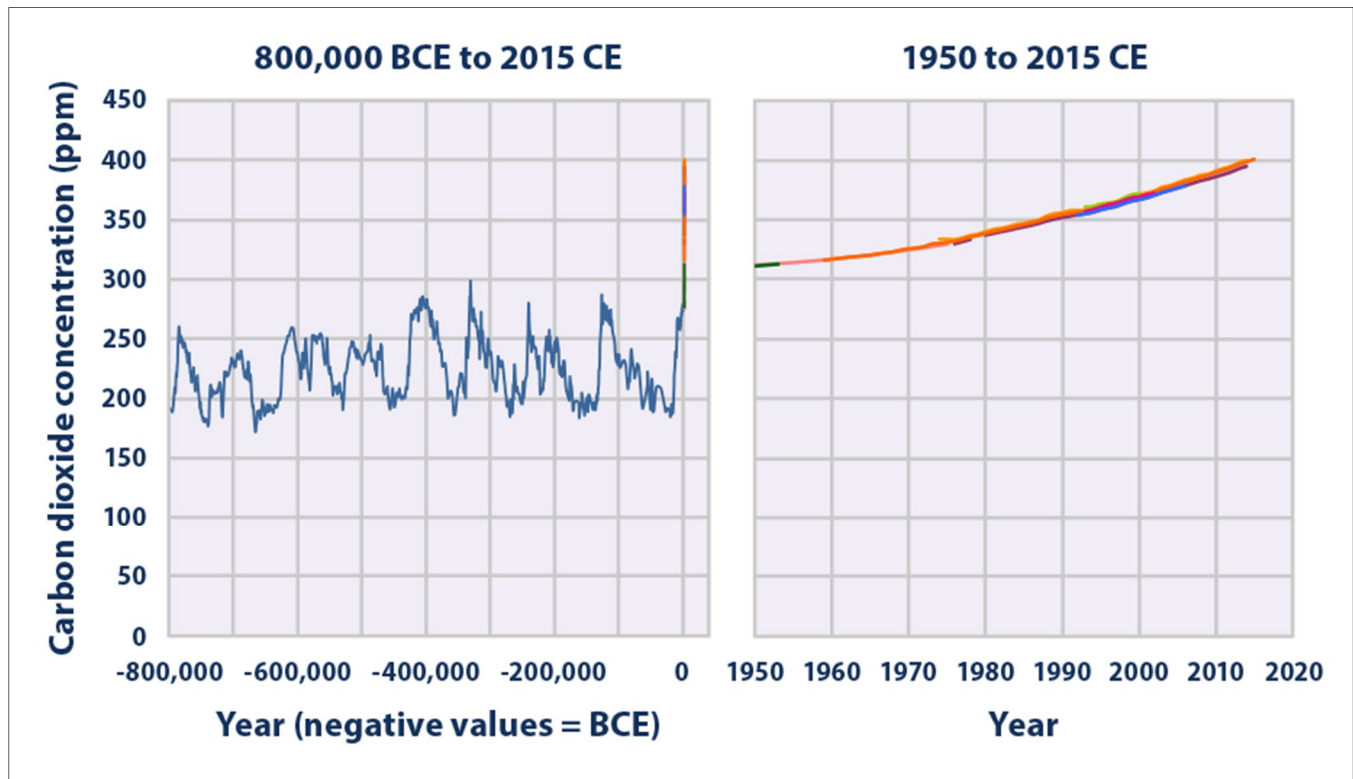


Figure 14-1. Global Carbon Dioxide Concentrations Over Time

For hazards that are affected by climate conditions, the assumption that future behavior will be equivalent to past behavior is not valid if climate conditions are changing. As flooding is generally associated with precipitation frequency and quantity, for example, the frequency of flooding will not remain constant if broad precipitation patterns change over time. Specifically, as hydrology changes, storms currently considered to be a 1-percent-annual-chance event (100-year flood) might strike more often, leaving many communities at greater risk. The risks of landslide, severe storms, extreme heat and wildfire are all affected by climate patterns as well. For this reason, an understanding of climate change is pertinent to efforts to mitigate natural hazards. Information about how climate patterns are changing provides insight on the reliability of future hazard projections used in mitigation analysis. This chapter summarizes current understandings about climate change in order to provide a context for the recommendation and implementation of hazard mitigation measures.

14.1.3 Current Indicators of Climate Change

The major scientific agencies of the United States and the world—including NASA, NOAA and the Intergovernmental Panel on Climate Change (IPCC)—agree that climate change is occurring. Multiple temperature records from all over the world have shown a warming trend. The IPCC has stated that the warming of the climate system is unequivocal (IPCC, 2014). Sixteen of the 17 warmest years on record occurred since 2001, and 2015 was the warmest year on record (NASA, 2017).

Rising global temperatures have been accompanied by other changes in weather and climate. Many places have experienced changes in rainfall resulting in more intense rain, as well as more frequent and severe heat waves (IPCC, 2014). The planet's oceans and glaciers have also experienced changes: oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising (NASA, 2016). Global sea level has risen approximately 6.7 inches, on average, in the last 100 years (NASA, 2016). This has already put some coastal

homes, beaches, roads, bridges, and wildlife at risk (USGCRP, 2009). At the time of the development of this plan, NASA reports the following trends (NASA, 2016):

- Carbon Dioxide—Increasing trend, currently at 405.6 parts per million.
- Global Temperature—Increasing trend, increase of 1.7°F since 1880.
- Arctic Ice Minimum—Decreasing trend, 13.3 percent per decade.
- Land Ice—Decreasing trend, 281.0 gigatonnes per year.
- Sea Level—Increasing trend, 3.4 millimeters (0.04 inches) per year.

14.1.4 Projected Future Impacts

The *Third National Climate Assessment Report for the United States* indicates that impacts resulting from climate change will continue through the 21st century and beyond. Although not all changes are understood at this time and the impacts of those changes will depend on global emissions of greenhouse gases and sensitivity in human and natural systems, the following impacts are expected in the United States (NASA, 2016):

- Temperatures will continue to rise.
- Growing seasons will lengthen.
- Precipitation patterns will change.
- Droughts and heat waves will increase.
- Hurricanes will become stronger and more intense.
- Sea level will rise 1-4 feet by 2100.
- The Arctic may become ice free.

The *California Climate Adaptation Planning Guide* outlines the following climate change impact concerns for the Bay Area Region communities (Cal EMA et al., 2012):

- Increased temperature.
- Reduced precipitation.
- Sea level rise – coastal inundation and erosion.
- Public health – heat and air pollution.
- Reduced agricultural productivity.
- Inland flooding.
- Reduced tourism.

Some of these changes are direct or primary climatic changes, such as increased temperature, while others are indirect climatic changes or secondary impacts resulting from these direct changes, such as heat and air pollution. Some direct changes may interact with one another to create unique secondary impacts. These primary and secondary impacts may then result in impacts on human and natural systems. The primary and secondary impacts likely to effect the OA are summarized in Table 14-1.

Climate change projections contain inherent uncertainty, largely derived from the fact that they depend on future greenhouse gas emission scenarios. Generally, the uncertainty in greenhouse gas emissions is addressed by the presentation of differing scenarios: low-emissions or high-emissions scenarios. In low-emissions scenarios, greenhouse gas emissions are reduced substantially from current levels. In high-emissions scenarios, greenhouse gas emissions generally increase or continue at current levels. Uncertainty in outcomes is generally addressed by averaging a variety of model outcomes.

Table 14-1. Summary of Primary and Secondary Impacts Likely to Affect the OA

Primary Impact	Secondary Impact	Example Human and Natural System Impacts
Increased temperature	Heat wave	<ul style="list-style-type: none"> Increased frequency of illness and death Increased stress on mechanical systems, such as HVAC systems
Increased temperature and changes in precipitation	Changed seasonal patterns	<ul style="list-style-type: none"> Reduced agricultural productivity Reduced tourism
Increased temperature and/or reduced precipitation	Drought	<ul style="list-style-type: none"> Reduced agricultural productivity Decreased water supply
	Reduced Snowpack	<ul style="list-style-type: none"> Decreased water supply Reduced tourism
Sea level rise	Permanent inundation of previously dry land	<ul style="list-style-type: none"> Loss of assets and tax base Loss of coastal habitat
	Larger area impacted by extreme high tide	<ul style="list-style-type: none"> More people and structures impacted by storms
	Increased coastal erosion	<ul style="list-style-type: none"> Loss of assets and tax base
	Saltwater intrusion into freshwater systems	<ul style="list-style-type: none"> Decreased water supply Ecosystem disruption
Changes in wind patterns	Increased extreme events, including severe storms and fires	<ul style="list-style-type: none"> More frequent disruption to systems resulting from severe storms
Ocean acidification		<ul style="list-style-type: none"> Decreased biodiversity in marine ecosystems

Adapted and expanded from California Adaptation Planning Guide: Planning for Adaptive Communities

Despite this uncertainty, climate change projections present valuable information to help guide decision-making for possible future conditions. The following sections summarize information developed for the Santa Clara County OA by Cal-Adapt, a resource for public information on how climate change might impact local communities, based on the most current data available.

Temperature

The historical (1961-1990) average temperature in Santa Clara County is 60.2°F. By 2090, the average temperature is expected to increase above this baseline by 3.4°F and 5.8°F in the low- and high-emissions scenarios, respectively (see Figure 14-2).

Extreme Heat

The extreme heat day temperature threshold for the OA is 91°F. The historical average number of extreme heat days is four. The number of extreme heat days, the number of warm nights (62°F threshold), the number of heat waves and the duration of heat waves are all expected to increase over the next century (see Figure 14-3).

Precipitation

Precipitation projections for California remain uncertain. Models show differing impacts from slightly wetter winters to slightly drier winters, with the potential for a 10- to 20-percent decrease in total annual precipitation. Changes in precipitation patterns, coupled with warmer temperatures, may lead to significant changes in hydrology. In high-emissions scenarios, more precipitation may fall as rain rather than snow and this snow may melt earlier in the season, thus impacting the timing of changes in stream flow and flooding (Cal-Adapt, 2016).

Snow Pack

While there are no snow water equivalency measurements for the OA, Cal-Adapt indicates that parts of California should expect snow pack levels to be reduced by up to 25 inches from the baseline (1961-1990) by 2090.

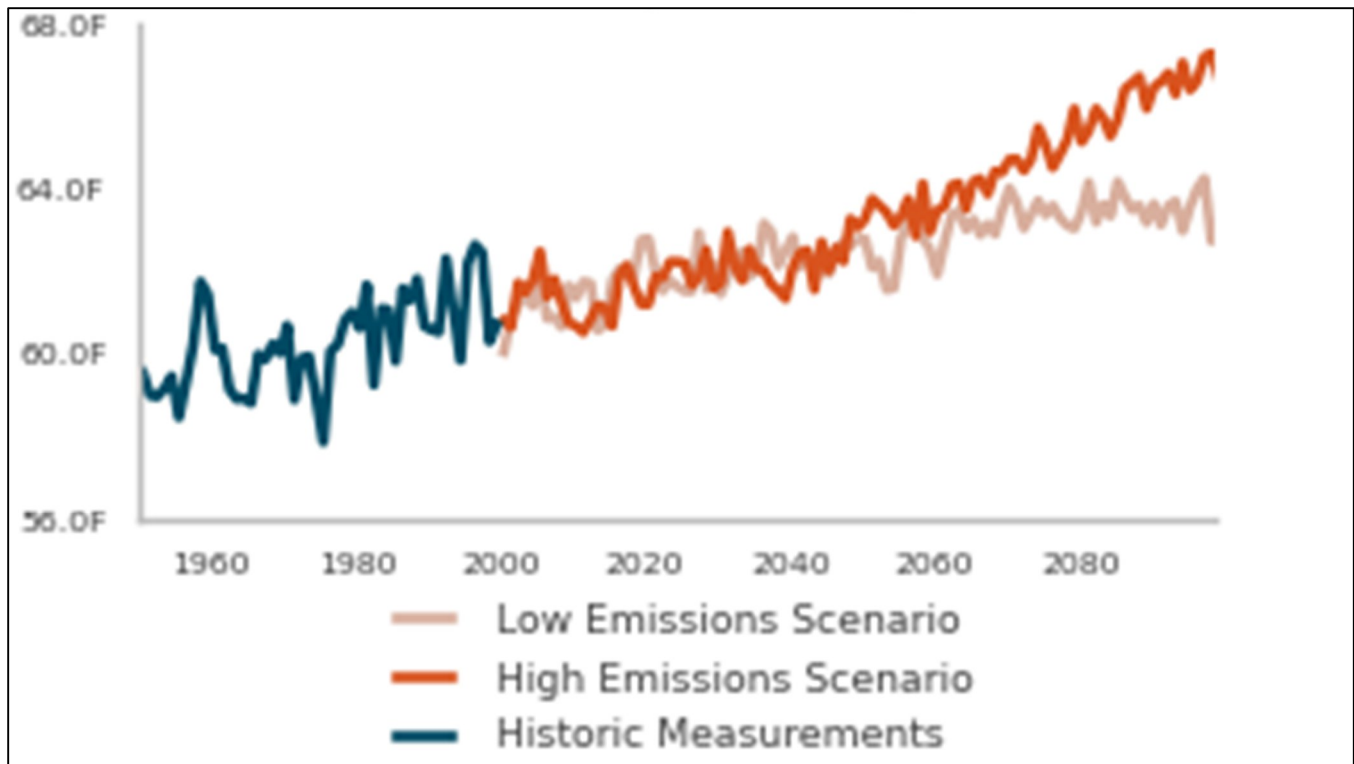


Figure 14-2. Observed and Projected Average Temperatures in Santa Clara County

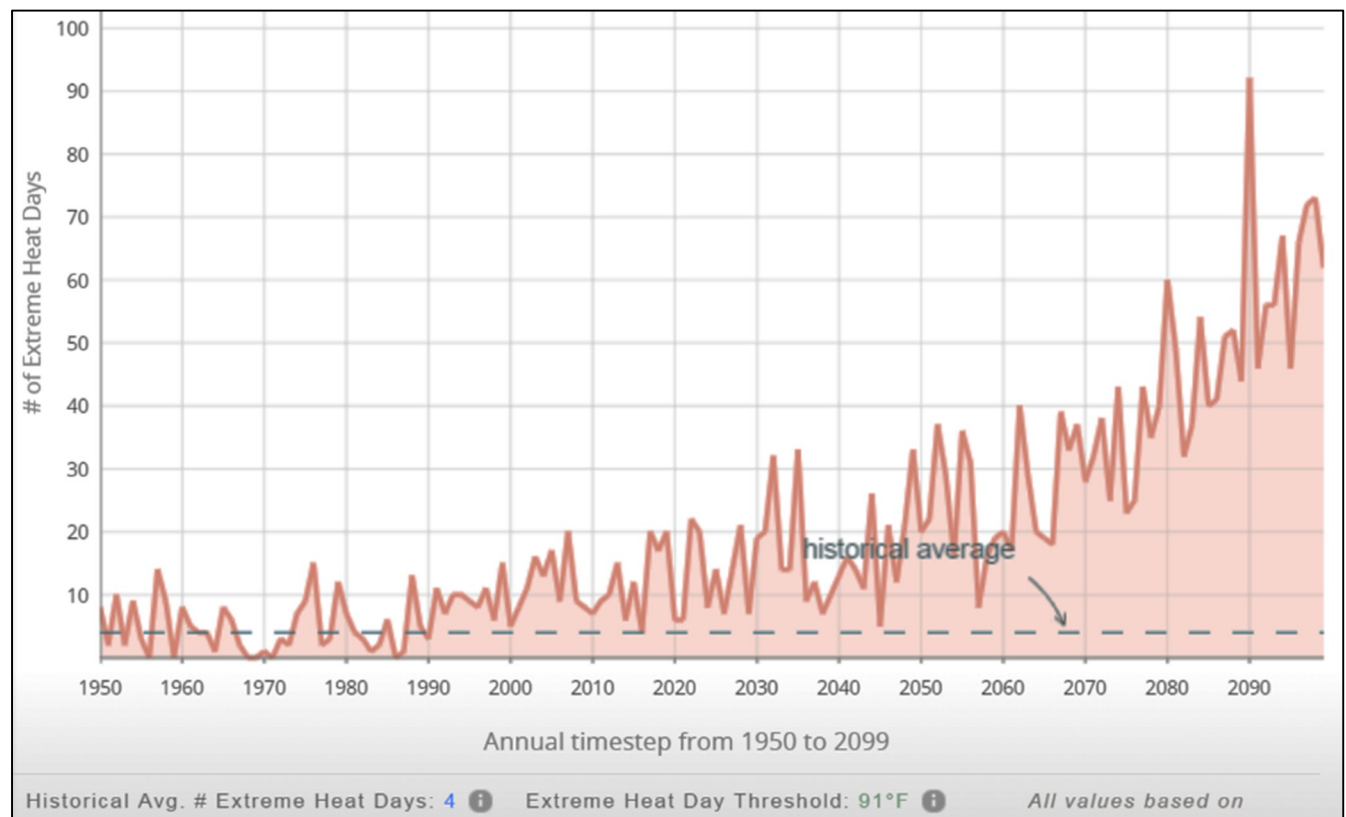


Figure 14-3. Projected Number of Extreme Heat Days by Year for OA

Wildfire

Wildfire risk is expected to change in the coming decades (see Figure 14-4). Under both high- and low-emissions scenarios, the change in area burned in Santa Clara County may slightly increase or remain about the same until 2050 and then decrease by 10 to 20 percent by 2085.

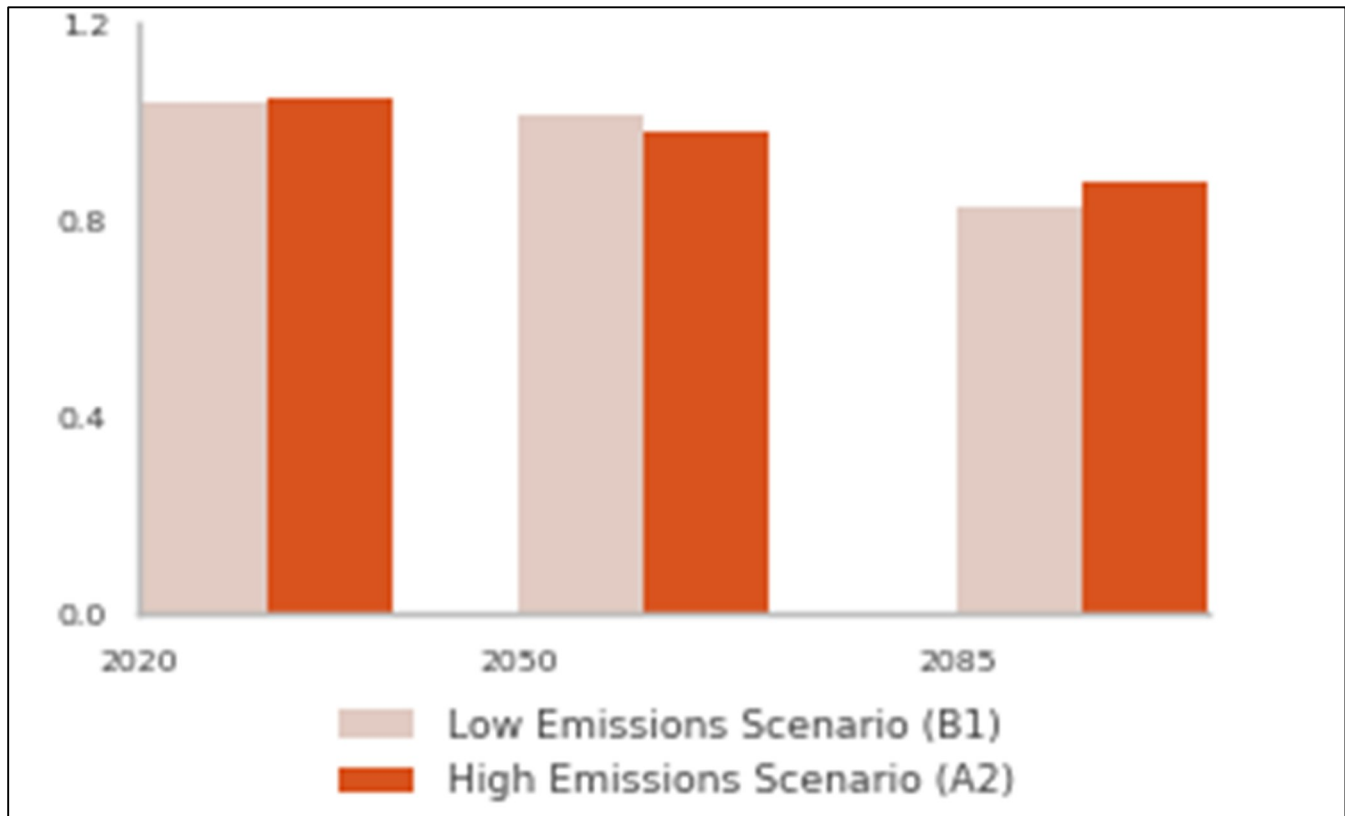


Figure 14-4. Projected Changes in Fire Risk in Santa Clara County, Relative to 2010 Levels

14.1.5 Responses to Climate Change

Communities and governments worldwide are working to address, evaluate and prepare for climate changes that are likely to impact communities in coming decades. Generally, climate change discussions encompass two separate but inter-related considerations: mitigation and adaptation. The term “mitigation” can be confusing, because its meaning changes across disciplines:

- Mitigation in restoration ecology and related fields generally refers to policies, programs or actions that are intended to reduce or to offset the negative impacts of human activities on natural systems. Generally, mitigation can be understood as avoiding, minimizing, rectifying, reducing or eliminating, or compensating for known impacts (CEQ, 1978).
- Mitigation in climate change discussions is defined as “a human intervention to reduce the impact on the climate system.” It includes strategies to reduce greenhouse gas sources and emissions and enhance greenhouse gas sinks (EPA, 2013).
- Mitigation in emergency management is typically defined as the effort to reduce loss of life and property by lessening the impact of disasters (FEMA, 2013).

In this chapter, mitigation is used as defined by the climate change community. In the other chapters of this plan, mitigation is primarily used in an emergency management context.

The IPCC defines adaptation as “the process of adjustment to actual or expected climate and its effects.” Mitigation and adaptation are related, as the world’s ability to reduce greenhouse gas emissions will affect the degree of adaptation that will be necessary. Moreover, some initiatives and actions can both reduce greenhouse gas emissions and support adaptation to likely future conditions. The ability to adapt to changing conditions is often referred to as adaptive capacity, which is “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences” (IPCC, 2014).

Societies across the world are facing the need to adapt to changing conditions and to identify ways to increase their adaptive capacity. Some efforts are already underway. Farmers are altering crops and agricultural methods to deal with changing rainfall and rising temperature; architects and engineers are redesigning buildings; planners are looking at managing water supplies to deal with droughts or flooding.

Adaptive capacity goes beyond human systems, as some ecosystems show a remarkable ability to adapt to change and to buffer surrounding areas from the impacts of change. Forests can bind soils and hold large volumes of water during times of plenty, releasing it through the year; floodplains can absorb vast volumes of water during peak flows; coastal ecosystems can hold out against storms, attenuating waves and reducing erosion. Other ecosystem services—such as food provision, timber, materials, medicines and recreation—can provide a buffer to societies in the face of changing conditions. Ecosystem-based adaptation is the use of biodiversity and ecosystem services as part of an overall strategy to help people adapt to the adverse effects of climate change. This includes the sustainable management, conservation and restoration of specific ecosystems that provide key services.

Assessment of the current efforts and adaptive capacity of the planning partners participating in this hazard mitigation plan are included in the jurisdiction-specific annexes in Volume 2.

14.2 VULNERABILITY ASSESSMENT— HAZARDS OF CONCERN

The following sections provide information on how each identified hazard of concern for this planning process may be impacted by climate change and how these impacts may alter current exposure and vulnerability to these hazards for the people, property, critical facilities and the environment in the OA.

14.2.1 Dam and Levee Failure

Climate Change Impacts on the Hazard

On average, changes in California’s annual precipitation levels are not expected to be dramatic; however, small changes may have significant impacts for water resource systems, including dams and levees. Dams and levees are designed partly based on assumptions about a river’s flow behavior, expressed as hydrographs. Changes in weather patterns can have significant effects on the hydrograph used for the design of a dam or levee. If the hydrograph changes, it is conceivable that the dam or levee can lose some or all of its designed margin of safety, also known as freeboard.

In the case of dams, if freeboard is reduced, dam operators may be forced to release increased volumes earlier in a storm cycle in order to maintain the required margins of safety. Such early releases of increased volumes can increase flood potential downstream. According to the California Department of Water Resources, flood flows on many California rivers have been record-setting since the 1950s. This means that water infrastructure, such as dams, have been forced to manage flows for which they were not designed (DWR, 2007). The California Division of Dam Safety has indicated that climate change may result in the need for increased safety precautions to address higher winter runoff, frequent fluctuations of water levels, and increased potential for sedimentation and debris accumulation from changing erosion patterns and increases in wildfires. According to the Division, climate change also will impact the ability of dam operators to estimate extreme flood events (DWR, 2008).

Dams are constructed with safety features known as “spillways.” Spillways are put in place on dams as a safety measure in the event of the reservoir filling too quickly. Spillway overflow events, often referred to as “design failures,” result in increased discharges downstream and increased flooding potential. Although climate change will not increase the probability of catastrophic dam failure, it may increase the probability of design failures.

In the case of levees, a reduction in freeboard caused by a changing hydrograph means that a levee may no longer protect an area against the design-storm standard for which it was originally built (for example 1-percent-annual chance). This means that risk to the area that a levee is protecting from inundation will increase. Levee accreditation may be rescinded, resulting in currently protected areas being mapped within a flood hazard area.

Exposure, Sensitivity and Vulnerability

Population

Population exposure and vulnerability to the dam and levee failure hazard are unlikely to change as a result of climate change.

Property

Property exposure and vulnerability to the dam failure hazard are unlikely to change as a result of climate change. However, if areas previously protected by accredited levees are mapped in a special flood hazard area, the assets considered to be exposed to the flood hazard may increase.

Critical facilities

The exposure and vulnerability of critical facilities are unlikely to change as result of climate change. Dam owners and operators are sensitive to the risk and may need to alter maintenance and operations to account for changes in the hydrograph and increased sedimentation. Critical facility owners and operators in levee failure inundation areas should always be aware of residual risk from flood events that may overtop the levee system.

Environment

The exposure and vulnerability of the environment to dam and levee failure are unlikely to change as a result of climate change. Ecosystem services may be used to mitigate some factors that could increase the risk of design failures, such as increasing the natural water storage capacity in watersheds above dams.

Economy

Changes in the dam failure hazard related to climate change are unlikely to affect the local economy. Economic impacts may result from changes to the levee failure hazard if accreditation is lost.

14.2.2 Drought

Climate Change Impacts on the Hazard

The long-term effects of climate change on regional water resources are unknown, but global water resources are already experiencing the following stresses without climate change:

- Growing populations.
- Increased competition for available water.
- Poor water quality.
- Environmental claims.
- Uncertain reserved water rights.

- Groundwater overdraft.
- Aging urban water infrastructure.

With a warmer climate, droughts could become more frequent, more severe, and longer-lasting. According to the National Climate Assessment, “higher surface temperatures brought about by global warming increase the potential for drought. Evaporation and the higher rate at which plants lose moisture through their leaves both increase with temperature. Unless higher evapotranspiration rates are matched by increases in precipitation, environments will tend to dry, promoting drought conditions” (Globalchange.gov, 2014).

Because expected changes in precipitation patterns are still uncertain, the potential impacts and likelihood of drought are uncertain. DWR has noted impacts of climate change on statewide water resources by charting changes in snowpack, sea level, and river flow. As temperatures rise and more precipitation comes in the form of rain instead of snow, these changes will likely continue or grow even more significant. DWR estimates that the Sierra Nevada snowpack, which provides a large amount of the water supply for the Santa Clara County OA and other parts of the state, will experience a 48- to 65-percent loss by the end of the century compared to historical averages (DWR, 2016b). Increasing temperatures may also increase net evaporation from reservoirs by 15 to 37 percent (DWR, 2013). In addition to snowpack resources, the OA’s water supply is derived from groundwater and surface water resources. Increased incidence of drought may cause a drawdown in groundwater resources without allowing for the opportunity for aquifer recharge.

Exposure, Sensitivity and Vulnerability

Population

Population exposure and vulnerability to drought are unlikely to increase as a result of climate change. While greater numbers of people may need to engage in behavior change, such as water saving efforts, significant life or health impacts are unlikely.

Property

Property exposure and vulnerability may increase as a result of increased drought resulting from climate change, although this would most likely occur in non-structural property such as crops and landscaping. It is unlikely that structure exposure and vulnerability would increase as a direct result of drought, although secondary impacts of drought, such as wildfire, may increase and threaten structures.

Critical facilities

Critical facility exposure and vulnerability are unlikely to increase as a result of increased drought resulting from climate change; however, critical facility operators may be sensitive to changes and need to alter standard management practices and actively manage resources, particularly in water-related service sectors.

Environment

The vulnerability of the environment may increase as a result of increased drought resulting from climate change. Ecosystems and biodiversity in the Bay Area are already under stress from development and water diversion activities. Prolonged or more frequent drought resulting from climate change may further stress the ecosystems in the region, which include many special status species.

Economy

Increased incidence of drought could increase the potential for impacts on the local economy. Increased drought may impact the wine industry and related tourism activities.

14.2.3 Earthquake

Climate Change Impacts on the Hazard

The impacts of global climate change on earthquake probability are unknown. Some scientists say that melting glaciers could induce tectonic activity. As ice melts and water runs off, tremendous amounts of weight are shifted on the earth's crust. As newly freed crust returns to its original, pre-glacier shape, it could cause seismic plates to slip and stimulate volcanic activity, according to research into prehistoric earthquakes and volcanic activity. NASA and USGS scientists found that retreating glaciers in southern Alaska may be opening the way for future earthquakes (NASA, 2004).

Secondary impacts of earthquakes could be magnified by climate change. Soils saturated by repetitive storms or heavy precipitation could experience liquefaction or an increased propensity for slides during seismic activity due to the increased saturation. Dams storing increased volumes of water due to changes in the hydrograph could fail during seismic events.

Exposure, Sensitivity and Vulnerability

Because impacts on the earthquake hazard are not well understood, increases in exposure and vulnerability of the local resources are not able to be determined.

14.2.4 Flood

Climate Change Impacts on the Hazard

Use of historical hydrologic data has long been the standard of practice for designing and operating water supply and flood protection projects. For example, historical data are used for flood forecasting models and to forecast snowmelt runoff for water supply. This method of forecasting assumes that the climate of the future will be similar to that of the period of historical record. However, the hydrologic record cannot be used to predict changes in frequency and severity of extreme climate events such as floods. Scientists project greater storm intensity with climate change, resulting in more direct runoff and flooding. High frequency flood events (e.g. 10-year floods) in particular will likely increase with a changing climate. What is currently considered a 1-percent-annual-chance (100-year flood) also may strike more often, leaving many communities at greater risk. Going forward, model calibration must happen more frequently, new forecast-based tools must be developed, and a standard of practice that explicitly considers climate change must be adopted.

Climate change is already impacting water resources, and resource managers have observed the following:

- Historical hydrologic patterns can no longer be solely relied upon to forecast the water future.
- Precipitation and runoff patterns are changing, increasing the uncertainty for water supply and quality, flood management and ecosystem functions.
- Extreme climatic events will become more frequent, necessitating improvement in flood protection, drought preparedness and emergency response.

The amount of snow is critical for water supply and environmental needs, but so is the timing of snowmelt runoff into rivers and streams. Rising snowlines caused by climate change will allow more mountain areas, such as the Sierra Nevada watersheds, to contribute to peak storm runoff. Changes in watershed vegetation and soil moisture conditions will likewise change runoff and recharge patterns. As stream flows and velocities change, erosion patterns will also change, altering channel shapes and depths, possibly increasing sedimentation behind dams, and affecting habitat and water quality. With potential increases in the frequency and intensity of wildfires due to climate change, there is potential for more floods following fire, which increase sediment loads and water quality impacts.

Exposure, Sensitivity and Vulnerability

Population and Property

Population and property exposure and vulnerability may increase as a result of climate change impacts on the flood hazard. Runoff patterns may change, resulting in flooding in areas where it has not previously occurred.

Critical Facilities

Critical facility exposure and vulnerability may increase as a result of climate change impacts on the flood hazard. Runoff patterns may change, resulting in risk to facilities that have not historically been at risk from flooding. Additionally, changes in the management and design of flood protection critical facilities may be needed as additional stress is placed on these systems. Planners will need to factor a new level of safety into the design, operation, and regulation of flood protection facilities such as dams, bypass channels and levees, as well as the design of local sewers and storm drains.

Environment

The exposure and vulnerability of the environment may increase as a result of climate change impacts on the flood hazard. Changes in the timing and frequency of flood events may have broader ecosystem impacts that alter the ability of already stressed species to survive.

Economy

If flooding becomes more frequent, there may be impacts on the local economy. More resources may need to be directed to response and recovery efforts, and businesses may need to close more frequently due to loss of service or access during flood events.

14.2.5 Landslide

Climate Change Impacts on the Hazard

Climate change may impact storm patterns, increasing the probability of more frequent, intense storms with varying duration. Increase in global temperature is likely to affect the snowpack and its ability to hold and store water. Warming temperatures also could increase the occurrence and duration of droughts, which would increase the probability of wildfire, reducing the vegetation that helps to support steep slopes. All of these factors would increase the probability for landslide occurrences.

Exposure, Sensitivity and Vulnerability

Population and Property

Population and property exposure and vulnerability would be unlikely to increase as a result of climate change impacts on the landslide hazard. Landslide events may occur more frequently, but the extent and location should be contained within mapped hazard areas or recently burned areas.

Critical facilities

Critical facility exposure and vulnerability would be unlikely to increase as a result of climate change impacts on the landslide hazard; however, critical facility owners and operators may experience more frequent disruption to service provision as a result of landslide hazards. For example, transportation systems may experience more frequent delays if slides blocking these systems occur more frequently. In addition, increased sedimentation resulting from landslides may negatively impact flood control facilities, such as dams.

Environment

Exposure and vulnerability of the environment would be unlikely to increase as a result of climate change, but more frequent slides in river systems may impact water quality and have negative impacts on stressed species.

Economy

Changes to the landslide hazard resulting from climate change are unlikely to result in impacts on the local economy.

14.2.6 Severe Weather

Climate Change Impacts on the Hazard

Climate change presents a challenge for risk management associated with severe weather. The number of weather-related disasters during the 1990s was four times that of the 1950s and led to 14 times as much in economic losses. The science for linking the severity of specific severe weather events to climate change is still evolving; however, a number of trends provide some indication of how climate change may be impacting these events. According to the *U.S. National Climate Change Assessment* (2014), there were more than twice as many high temperature records as low temperature records broken between 2001 and 2012, and heavy rainfall events are becoming more frequent and more severe.

The increase in average surface temperatures can also lead to more intense heat waves that can be exacerbated in urbanized areas by what is known as the urban heat island effect. Evidence suggests that heat waves are already increasing, especially in western states. Extreme heat days in the OA are likely to increase.

Climate change impacts on other severe weather events such as thunderstorms and fog are still not well understood.

Exposure, Sensitivity and Vulnerability

Population and Property

Population and property exposure and vulnerability would be unlikely to increase as a direct result of climate change impacts on the severe weather hazard. Severe weather events may occur more frequently, but exposure and vulnerability will remain the same. Secondary impacts, such as the extent of localized flooding, may increase, impacting greater numbers of people and structures.

Critical Facilities

Critical facility exposure and vulnerability would be unlikely to increase as a result of climate change impacts on the severe weather hazard; however, critical facility owners and operators may experience more frequent disruption to service provision. For example, more frequent and intense storms may cause more frequent disruptions in power service.

Environment

Exposure and vulnerability of the environment would be unlikely to increase; however, more frequent storms and heat events and more intense rainfall may place additional stressors on already stressed systems.

Economy

Climate change impacts on the severe weather hazard may impact the local economy through more frequent disruption to services, such as power outages.

14.2.7 Tsunami

Climate Change Impacts on the Hazard

The impacts of global climate change on tsunami probability are unknown. Some scientists say that melting glaciers could induce tectonic activity, inducing earthquakes. Other scientists have indicated that underwater avalanches (also caused by melting glaciers), may also result in tsunamis. Even if climate change does not increase the frequency with which tsunamis occur, it may result in more destructive waves. As sea levels continue to rise, tsunami inundation areas would likely reach further into communities than current mapping indicates.

Exposure, Sensitivity and Vulnerability

As land area likely to be inundated by tsunami waves increases, exposure and vulnerability to the tsunami hazard may increase for population, property, critical facilities and the environment.

Changes to the tsunami hazard from climate change may result in more direct economic impacts on a greater number of businesses and economic centers, as well as the infrastructure systems that support those businesses.

14.2.8 Wildfire

Climate Change Impacts on the Hazard

Wildfire is determined by climate variability, local topography, and human intervention. Climate change has the potential to affect multiple elements of the wildfire system: fire behavior, ignitions, fire management, and vegetation fuels. Hot dry spells create the highest fire risk. Increased temperatures may intensify wildfire danger by warming and drying out vegetation.

Changes in climate patterns may impact the distribution and perseverance of insect outbreaks that create dead trees (increase fuel). When climate alters fuel loads and fuel moisture, forest susceptibility to wildfires changes. Climate change also may increase winds that spread fires. Faster fires are harder to contain, and thus are more likely to expand into residential neighborhoods.

Exposure, Sensitivity and Vulnerability

Population

According to Cal-Adapt projections, wildfire risk in the areas surrounding the OA may actually decrease over the next century. Other areas of California and the western United States are expected to have increased risk to wildfire, with increases in annual acres burned. Although OA residents may not experience increased risk to wildfire directly, secondary impacts, such as poor air quality may increase.

Property and Critical Facilities

If wildfire risk decreases, the exposure and vulnerability of property and critical facilities would remain the same.

Environment

It is possible that the exposure and vulnerability of the environment will be impacted by changes in wildfire risk due to climate change. Natural fire regimes may change, resulting in more or less frequent or higher intensity burns. These impacts may alter the composition of the ecosystems in areas in and surrounding the OA.

Economy

As the risk from wildfire is currently projected to decrease, direct impacts on the economy would not be likely.

14.3 VULNERABILITY ASSESSMENT—SEA LEVEL RISE

14.3.1 Climate Change Impacts on the Hazard

In addition to impacts on the identified hazards of concern, climate change presents risks related to sea level rise. Sea level rise will cause currently dry areas to be permanently inundated; temporary inundation from extreme tide events and storm surge also will change. Unlike many other impacts resulting from climate change, sea level rise will have a defined extent and location. Although the extent and timing of sea level rise is still uncertain, conducting an assessment of potential areas at risk provides information appropriate for planning purposes.

14.3.2 Exposure, Sensitivity and Vulnerability

The following assessment was conducted using data provided by the San Francisco Bay Conservation and Development Commission. A sea level rise of 77 inches above current mean higher high water was assumed.

Population

Sea level rise will increase the population exposed to both permanent and temporary inundation. Currently, approximately 1.2 percent of the OA population is estimated to reside in areas subject to sea level rise impacts. The vast majority of these individuals reside in Palo Alto. Table 14-2 shows exposed population by jurisdiction.

Table 14-2. Estimated Population Residing in Sea Level Rise Inundation Areas

Jurisdiction	Estimated Population	Estimated Population Exposed	% of Population Exposed
Campbell	42,584	0	0.0%
Cupertino	58,185	0	0.0%
Gilroy	55,170	0	0.0%
Los Altos	31,353	0	0.0%
Los Altos Hills	8,658	0	0.0%
Los Gatos	31,376	0	0.0%
Milpitas	75,521	2,691	3.6%
Monte Sereno	3,475	0	0.0%
Morgan Hill	43,645	0	0.0%
Mountain View	77,925	27	0.0%
Palo Alto	68,207	13,685	20.1%
San José	1,042,094	3,529	0.3%
Santa Clara (city)	123,752	1,791	1.4%
Saratoga	30,219	0	0.0%
Sunnyvale	148,372	634	0.4%
Unincorporated County	87,352	5	0.0%
Total	1,927,888	22,361	1.2%

Property

There are 6,469 structures within the sea level rise inundation areas, about 88 percent of them residential. This represents about 4 percent of the OA's total replacement value. Table 14-3 shows the distribution of structure types exposed and Table 14-4 shows the estimated replacement value of exposed structures. The majority of these assets are in Sunnyvale, San José and Palo Alto.

Table 14-3. Structure Type in Sea Level Rise Inundation Areas

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Religious	Government	Education	Total
Campbell	0	0	0	0	0	0	0	0
Cupertino	0	0	0	0	0	0	0	0
Gilroy	0	0	0	0	0	0	0	0
Los Altos	0	0	0	0	0	0	0	0
Los Altos Hills	0	0	0	0	0	0	0	0
Los Gatos	0	0	0	0	0	0	0	0
Milpitas	620	10	4	0	1	0	0	635
Monte Sereno	0	0	0	0	0	0	0	0
Morgan Hill	0	0	0	0	0	0	0	0
Mountain View	6	53	42	0	0	1	0	102
Palo Alto	3,799	129	71	0	7	0	8	4,014
San José	767	111	26	0	6	0	2	912
Santa Clara (city)	390	32	28	0	0	0	0	450
Saratoga	0	0	0	0	0	0	0	0
Sunnyvale	130	66	157	1	1	0	0	355
Unincorporated County	1	0	0	0	0	0	0	1
Total	5,713	401	328	1	15	1	10	6,469

Table 14-4. Structure and Contents Value in Sea Level Rise Inundation Areas

Jurisdiction	Structures Exposed	Estimated Value of Exposed Structures	Estimated Value of Exposed Contents	Estimated Total Value	% of Total Replacement Value
Campbell	0	\$0	\$0	\$0	0.0%
Cupertino	0	\$0	\$0	\$0	0.0%
Gilroy	0	\$0	\$0	\$0	0.0%
Los Altos	0	\$0	\$0	\$0	0.0%
Los Altos Hills	0	\$0	\$0	\$0	0.0%
Los Gatos	0	\$0	\$0	\$0	0.0%
Milpitas	635	\$468,554,661	\$386,407,648	\$854,962,309	4.5%
Monte Sereno	0	\$0	\$0	\$0	0.0%
Morgan Hill	0	\$0	\$0	\$0	0.0%
Mountain View	102	\$1,012,240,021	\$1,110,560,396	\$2,122,800,417	8.5%
Palo Alto	4,014	\$2,069,879,805	\$1,642,022,511	\$3,711,902,316	14.4%
San José	912	\$2,573,152,965	\$2,275,265,284	\$4,848,418,248	2.3%
Santa Clara (city)	450	\$1,273,778,027	\$1,228,024,465	\$2,501,802,492	5.8%
Saratoga	0	\$0	\$0	\$0	0.0%
Sunnyvale	355	\$2,632,745,163	\$3,074,816,827	\$5,707,561,990	13.3%
Unincorporated County	1	\$262,260	\$131,130	\$393,390	0.0%
Total	6,469	\$10,030,612,900	\$9,717,228,260	\$19,747,841,162	4.1%

Critical Facilities

There are 185 critical facilities (5 percent of the total) located in OA areas subject to impacts from sea level rise. The majority of these facilities are infrastructure lifeline related facilities (65 percent) in Table 14-5.

Table 14-5. Critical Facilities in Sea Level Rise Inundation Areas

Jurisdiction	Emergency Response / Public Health & Safety	Infrastructure Lifeline	Military Facilities	Recovery Facilities	Socioeconomic Facilities	Hazardous Materials	Total
Campbell	0	0	0	0	0	0	0
Cupertino	0	0	0	0	0	0	0
Gilroy	0	0	0	0	0	0	0
Los Altos	0	0	0	0	0	0	0
Los Altos Hills	0	0	0	0	0	0	0
Los Gatos	0	0	0	0	0	0	0
Milpitas	0	15	0	0	2	1	18
Monte Sereno	0	0	0	0	0	0	0
Morgan Hill	0	0	0	0	0	0	0
Mountain View	1	13	0	0	0	2	16
Palo Alto	0	30	0	0	15	5	50
San José	2	25	0	0	5	7	39
Santa Clara (city)	0	19	0	0	4	8	31
Saratoga	0	0	0	0	0	0	0
Sunnyvale	1	18	0	0	0	10	29
Unincorporated County	0	1	0	0	0	1	2
Total	4	121	0	0	26	34	185

Environment

All sea level rise inundation areas are exposed and vulnerable to impacts. Important coastal habitat may be lost as sea level rise permanently inundates areas, or it may be damaged due to extreme tide and storm surge events. Saltwater intrusion into freshwater resources may occur, further altering habitat and ecosystems. Protective ecosystem services may be lost as land area and wetlands are permanently inundated.

Economy

Sea level rise will impact the local economy. The tourism industry may be impacted as historic coastal properties are inundated. Critical facilities and other important assets may be damaged by temporary inundation, resulting in loss of services such as power or wastewater treatment. Coastal businesses may relocate to other areas rather than face high costs from increased risk to storm surge and costs associated with managed retreat. Local tax revenue may decline as areas that were previously occupied by houses and businesses are permanently inundated.

Future Development

The land area of the OA will be reduced as sea level rise permanently inundates areas. This will have significant impacts on land use and planning in local communities. Local general plans in the OA will guide this future development.

14.4 ISSUES

The major issues for climate change are the following:

- Planning for climate change related impacts can be difficult due to inherent uncertainties in projection methodologies.
- Average temperatures are expected to continue to increase in the OA, which may lead to a host of primary and secondary impacts, such as an increased incidence of heat waves.
- Expected changes in precipitation patterns are still poorly understood and could have significant impacts on the water supply and flooding in the OA.
- Some impacts of climate change are poorly understood such as potential impacts on the frequency and severity of earthquakes, thunderstorms and tsunamis.
- Heavy rain events may result in inland stormwater flooding after stormwater management systems are overwhelmed.
- Permanent and temporary inundation resulting from sea level rise has the potential to impact significant portions of the population and assets in the OA.

15. OTHER HAZARDS OF INTEREST

15.1 GENERAL BACKGROUND

In addition to the hazards of concern presented in the preceding chapters, four other hazards of interest were identified for inclusion in this plan:

- Intentional criminal, malicious acts, including acts of terrorism, cyber threats, and active threats.
- Technological incidents that arise accidentally from human activities such as the manufacture, transportation, storage and use of hazardous materials; transportation accidents; pipeline failure and release; and utility failure.
- Epidemics and pandemics of human disease.
- Fog

Although the DMA does not require an assessment of these hazards, the Working Group decided to include them in this hazard mitigation plan for the following reasons:

- This plan takes a proactive approach to disaster preparedness to protect the public safety of all citizens.
- Preparation for and response to an event involving these hazards of interest will involve many of the same staff, critical decisions, and commitment of resources as a natural hazard.
- The multi-hazard mitigation planning effort is an opportunity to inform the public about all hazards, including those beyond the natural hazards of concern.
- The likelihood of an event involving one of these hazards of interest in the Santa Clara County OA is greater than some of the identified natural hazards in this plan.
- The planning partners participate with the Bay Area Urban Area Security Initiative, ensuring a regional capacity to prevent, protect against, respond to, and recover from terrorist activities. The Santa Clara County Sheriff's Department is a member agency of the South Bay Terrorism Early Warning Group (TEWG) to interdict terrorism in local communities.

This chapter summarizes available information on the identified hazards of interest. It profiles them, but they are not fully assessed and ranked like the primary hazards of concern. Mitigation actions for these hazards are not mandatory under 44 CFR Section §201.6(c)(2)(i).

DEFINITIONS

Terrorism—The unlawful use or threatened use of force or violence against people or property with the intention of intimidating or coercing societies or governments. Terrorism is either foreign or domestic, depending on the origin, base, and objectives of the terrorist or organization.

Technological Hazards—Hazards from accidents associated with human activities such as the manufacture, transportation, storage and use of hazardous materials.

Weapons of Mass Destruction—Chemical, biological, radiological, nuclear, and explosive weapons associated with terrorism.

Hazardous Material—A substance or combination of substances that, because of quantity, concentration, physical, chemical, or infectious characteristics, may cause or contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or pose a present or potential hazard to human life, property, or the environment.

Fog—Visible cloud water droplets that are low-lying and influenced by nearby bodies of water, topography, and wind conditions.

15.1.1 Intentional Hazards

Terrorism and Weapons of Mass Destruction

Terrorist activities are those that involve an illegal use of force, are intended to intimidate or coerce, and are committed in support of political or social objectives. FEMA defines terrorism as the use of weapons of mass destruction, including biological, chemical, nuclear and radiological weapons; arson, incendiary, explosive and armed attacks; industrial sabotage and intentional hazardous materials releases; agro-terrorism; and cyber-terrorism (FEMA 386-7). The following are potential methods used by terrorists that could affect the OA as a direct target or collaterally:

- | | |
|--|--|
| • Bombings; improvised explosive devices | • Conventional firearms/mass shootings |
| • Suicide attacks | • Secondary attacks |
| • Chemical or biological weapons | • Cyber-terrorism |
| • Radiological dispersal device | • Agro-terrorism |
| • Vehicle/aircraft attacks | • Kidnappings/assassinations |
| • Incendiary devices/arson | • Nuclear weapons (fission or thermonuclear) |

Three important considerations distinguish terrorism hazards from other types of hazards:

- Terrorism evokes very strong emotional reactions, ranging from anxiety, to fear, to anger, to despair, to depression, which must be taken into consideration for planning.
- There is limited scientific understanding of how some terrorist weapons, such as biological and radiological agents, affect the population at large.
- In the case of biological and radiological agents, their presence may not be immediately obvious, making it difficult to determine when and where they may have been released, who has been exposed, and what danger is present for first responders and emergency medical technicians.

The Federal Bureau of Investigation (FBI) categorizes two types of terrorism in the United States:

- Domestic terrorism involves groups or individuals whose terrorist activities are directed at elements of our government or population without foreign direction. The bombing of the Alfred P. Murrah federal building in Oklahoma City is an example of domestic terrorism. The FBI is the primary response agency for domestic terrorism. The FBI coordinates domestic preparedness programs and activities of the United States to limit acts posed by terrorists including the use of weapons of mass destruction (WMDs).
- International terrorism involves groups or individuals whose activities are foreign-based or directed by groups outside the United States, or whose activities transcend national boundaries. Examples include the 1993 bombing of the World Trade Center, the U.S. Capitol, and Mobil Oil's corporate headquarters and the attacks of September 11, 2001 at the World Trade Center and the Pentagon.

Those involved with terrorism response, including law enforcement, fire and rescue, public health and public information staff, are trained to deal with the public's emotional reaction swiftly as response to the event occurs. The area of the event must be clearly identified in all emergency alert messages to prevent those not affected by the incident from overwhelming local emergency rooms and response resources therefore reducing service to those actually affected. The public will be informed clearly and frequently about what government agencies are doing to mitigate the impacts of the event. The public will also be given clear directions on how to protect the health of individuals and families.

Table 15-1 provides a hazard profile summary for terrorism-related hazards. Most terrorist events in the United States have been involved detonated and undetonated explosive devices, tear gas, pipe bombs, and firebombs.

Table 15-1. Event Profiles for Terrorism

Hazard	Application Mode ^a	Hazard Duration ^b	Static/Dynamic Characteristics ^c	Mitigating and Exacerbating Conditions ^d
Conventional Bomb	Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.	Instantaneous; additional secondary devices, or diversionary activities may be used, lengthening the duration of the hazard until the attack site is determined to be clear.	Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.	Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers and shielding; poor construction; and ease of concealment of device.
Chemical Agent	Liquid/aerosol contaminants dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/containers; or munitions.	Hours to weeks, depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water, and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device, accelerant, and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device, and undetected initiation of a fire. Non-compliance with fire and building codes, as well as failure to maintain existing fire protection systems, can substantially increase the effectiveness of a fire weapon.
Armed Attack	Tactical assault or sniping from remote location, or random attack based on fear, emotion, or mental instability.	Generally minutes to days.	Varies based on the perpetrators' intent and capabilities.	Inadequate security can allow easy access to target, easy concealment of weapons, and undetected initiation of an attack.

Hazard	Application Mode ^a	Hazard Duration ^b	Static/Dynamic Characteristics ^c	Mitigating and Exacerbating Conditions ^d
Biological Agent	Liquid or solid contaminants dispersed using sprayers/ aerosol generators or by point or line sources such as munitions, covert deposits, and moving sprayers.	Hours to years, depending on the agent and the conditions in which it exists.	Depending on the agent used and the effectiveness with which it is deployed, contamination can be spread via wind and water. Infection can spread via humans or animals.	Altitude of release above ground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to moderate wind will disperse agents but higher winds can break up aerosol clouds; the micro-meteorological effects of buildings and terrain can influence aerosolization and travel of agents.
Agro-terrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months.	Varies by type of incident. Food contamination events may be limited to specific distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent	Radioactive contaminants dispersed using sprayers/ aerosol generators, or by point or line sources such as munitions.	Seconds to years, depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.
Nuclear Bomb	Detonation of nuclear device underground, at the surface, in the air, or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high-altitude detonation lasts for seconds and affects only unprotected electronic systems.	Initial light, heat, and blast effects of a subsurface, ground or air burst are static and determined by the device's characteristics and employment; fallout of radioactive contaminants may be dynamic, depending on meteorological conditions.	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat, and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting radiation and radioactive contaminants.

Hazard	Application Mode ^a	Hazard Duration ^b	Static/Dynamic Characteristics ^c	Mitigating and Exacerbating Conditions ^d
Intentional Hazardous Material Release (fixed facility or transportation)	Solid, liquid, and/or gaseous contaminants released from fixed or mobile containers	Hours to days.	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water and wind.	Weather conditions directly affect how the hazard develops. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes, as well as failure to maintain existing fire protection and containment features, can substantially increase the damage from a hazardous materials release.

- a. Application Mode—application mode describes the human acts or unintended events necessary to cause the hazard to occur.
- b. Duration—duration is the length of time the hazard is present. For example, a chemical warfare agent such as mustard gas, if unremediated, can persist for hours or weeks under the right conditions.
- c. Dynamic or Static Characteristics—these characteristics of a hazard describe its tendency, or that of its effects, to either expand, contract, or remain confined in time, magnitude, and space. For example, the physical destruction caused by an earthquake is generally confined to the place in which it occurs, and it does not usually get worse unless aftershocks or other cascading failures occur; in contrast, a cloud of chlorine gas leaking from a storage tank can change location by drifting with the wind and can diminish in danger by dissipating over time.
- d. Mitigation and Exacerbating Conditions—mitigating conditions are characteristics of the target and its physical environment that can reduce the effects of a hazard. For example, earthen berms can provide protection from bombs; exposure to sunlight can render some biological agents ineffective; and effective perimeter lighting and surveillance can minimize the likelihood of someone approaching a target unseen. In contrast, exacerbating conditions are characteristics that can enhance or magnify the effects of a hazard. For example, depressions or low areas in terrain can trap heavy vapors, and a proliferation of street furniture (trash receptacles, newspaper vending machines, mail boxes, etc.) can provide hiding places for explosive devices.

Source: FEMA 386-7

The effects of terrorism can include injuries, loss of life, property damage, or disruption of services such as electricity, water supplies, transportation, or communications. Effects may be immediate or delayed. Terrorists often choose targets that offer limited danger to themselves and areas with relatively easy public access. Foreign terrorists look for visible targets where they can avoid detection before and after an attack, such as international airports, large cities, major special events, and high-profile landmarks.

In dealing with terrorism, the unpredictability of human beings must be considered. People with a desire to perform such acts may seek out targets of opportunity that may not fall into established lists of critical areas or facilities. First responders in the Santa Clara County OA train to respond not only to organized terrorism events, but also to random acts by individuals who may choose to harm others and destroy property. While education, heightened awareness, and early warning of unusual circumstances may deter terrorism, intentional acts that harm people and property are possible at any time. Public safety entities must react to the threat, locating, isolating, and neutralizing further damage and investigating potential scenes and suspects to bring criminals to justice.

Cyber Threats

A cyber threat is an intentional and malicious crime that compromises the digital infrastructure of a person or organization, often for financial or terror-related reasons. Such attacks vary in nature and are perpetrated using digital mediums or sometimes social engineering to target human operators. Generally, attacks last minutes to days, but large-scale events and their impacts can last much longer. As information technology continues to grow in capability and interconnectivity, cyber threats become increasingly frequent and destructive. In 2014, internet

security teams at Symantec and Verizon indicated that nearly 1 million new pieces of malware—malicious code designed to steal or destroy information—were created every day (Harrison, 2015).

Cyber threats differ by motive, attack type and perpetrator profile. Motives range from the pursuit of financial gain to political or social aims. Cyber threats are difficult to identify and comprehend. Types of threats include using viruses to erase entire systems, breaking into systems and altering files, using someone’s personal computer to attack others, or stealing confidential information. The spectrum of cyber risks is limitless, with threats having a wide-range of effects on the individual, community, organizational, and national threat (FEMA, 2013).

This risk assessment includes cyber-attacks and cyberterrorism. The terms often are used interchangeably, though they are not the same. While all cyberterrorism is a form of cyber-attack, not all cyber-attacks are cyberterrorism.

Cyber-Attacks

Public and private computer systems are subject to a variety of cyber-attacks, from blanket malware infection to targeted attacks on system capabilities. Cyber-attacks seek to breach IT security measures designed to protect an individual or organization. The initial attack is followed by more severe attacks for the purpose of causing harm, stealing data, or financial gain. Organizations are prone to attacks that can be either automated or targeted. Table 15-2 describes the most common cyber-attack mechanisms faced by organizations today.

Table 15-2. Common Mechanisms for Cyber Attacks

Type	Description
Socially Engineered Trojans	Programs designed to mimic legitimate processes (e.g. updating software, running fake antivirus software) with the end goal of human-interaction caused infection. When the victim runs the fake process, the Trojan is installed on the system.
Unpatched Software	Nearly all software has weak points that may be exploited by malware. Most common software exploitations occur with Java, Adobe Reader, and Adobe Flash. These vulnerabilities are often exploited as small amounts of malicious code are often downloaded via drive-by download.
Phishing	Malicious email messages that ask users to click a link or download a program. Phishing attacks may appear as legitimate emails from trusted third parties.
Password Attacks	Third party attempts to crack a user’s password and subsequently gain access to a system. Password attacks do not typically require malware, but rather stem from software applications on the attacker’s system. These applications may use a variety of methods to gain access, including generating large numbers of generated guesses, or dictionary attacks, in which passwords are systematically tested against all of the words in a dictionary.
Drive-by Downloads	Malware is downloaded unknowingly by the victims when they visit an infected site.
Denial of Service Attacks	Attacks that focus on disrupting service to a network in which attackers send high volumes of data until the network becomes overloaded and can no longer function.
Man in the Middle	Man-in-the-Middle attacks mirror victims and endpoints for online information exchange. In this type of attack, the attacker communicates with the victims, who believe they are interacting with a legitimate endpoint website. The attacker is also communicating with the actual endpoint website by impersonating the victim. As the process goes through, the attacker obtains entered and received information from both the victim and endpoint.
Malvertising	Malware downloaded to a system when the victim clicks on an affected ad.
Advanced Persistent Threat (APT)	An attack in which the attacker gains access to a network and remains undetected. APT attacks are designed to steal data instead of cause damage.

Source: Danielson, 2015

With millions of threats created each day, the importance of protection against cyber-attacks becomes a necessary function of everyday operations for individuals, government facilities, and businesses. The increasing dependency

on technology for vital information storage and the often automated method of infection means higher stakes for the success of measurable protection and education.

Since 2013, a new type of cyber-attack is becoming increasingly common against individuals and small- and medium-sized organizations. This attack is called cyber ransom. Cyber ransom occurs when an individual downloads ransom malware, or ransomware, often through phishing or drive-by download, and the subsequent execution of code results in encryption of all data and personal files stored on the system. The victim then receives a message that demands a fee in the form of electronic currency or cryptocurrency, such as Bitcoin, for the decryption code (see Figure 15-1). In October 2015, the FBI said that commonly used ransomware is so difficult to override, that victims should pay the ransom to retrieve their data (Danielson, 2015).



Figure 15-1. Pop-Up Message Indicating Ransomware Infection

Cyberterrorism

Cyberterrorism is the use of computers and information, particularly over the Internet, to recruit others to an organization's cause, cause physical or financial harm, or cause a severe disruption of infrastructure service. Such

disruptions can be driven by religious, political, or other motives. Like traditional terrorism tactics, cyberterrorism seeks to evoke very strong emotional reactions, but it does so through information technology rather than a physically violent or disruptive action. Cyberterrorism has three main types of objectives (Kostadinov, 2012):

- **Organizational**— cyberterrorism with an organizational objective includes specific functions outside of or in addition to a typical cyber-attack. Terrorist groups today use the internet on a daily basis. This daily use may include recruitment, training, fundraising, communication, or planning. Organizational cyberterrorism can use platforms such as social media as a tool to spread a message beyond country borders and instigate physical forms of terrorism. Additionally, organizational goals may use systematic attacks as a tool for training new members of a faction in cyber warfare.
- **Undermining**— cyberterrorism with undermining as an objective seeks to hinder the normal functioning of computer systems, services, or websites. Such methods include defacing, denying, and exposing information. While undermining tactics are typically used due to high dependence on online structures to support vital operational functions, they typically do not result in grave consequences unless undertaken as part of a larger attack. Undermining attacks on computers include the following (Waldron, 2011):
 - ❖ Directing conventional kinetic weapons against computer equipment, a computer facility, or transmission lines to create a physical attack that disrupts the reliability of equipment.
 - ❖ Using electromagnetic energy, most commonly in the form of an electromagnetic pulse, to create an electronic attack against computer equipment or data transmissions. By overheating circuitry or jamming communications, an electronic attack disrupts the reliability of equipment and the integrity of data.
 - ❖ Using malicious code directed against computer processing code, instruction logic, or data. The code can generate a stream of malicious network packets that disrupt data or logic by exploiting vulnerability in computer software, or a weakness in computer security practices. This type of cyber-attack can disrupt the reliability of equipment, the integrity of data, and the confidentiality of communications (Wilson, 2008).
- **Destructive**— the destructive objective for cyberterrorism is what organizations fear most. Through the use of computer technology and the Internet, the terrorists seek to inflict destruction or damage on tangible property or assets, and even death or injury to individuals. There are no cases of pure cyberterrorism as of the date of this plan.

Active Threats

Active Shooter

Active shooter attacks are typically motivated by the desire to maximize human casualties. They are differentiated from other attack types by the indiscriminate nature of the victims, who often are targets of opportunity. Active shooter attacks range from “lone wolf” shooters who act alone and without any organizational affiliation to organized groups acting in concert to achieve a specific objective. Active shooter tactics sometimes employ a blend of lone shooters and multi-person teams as part of a larger assault.

Active shooters may use small arms, light weapons, or a combination of the two depending on the type of attack. Small arms are revolvers, automatic pistols, rifles, shotguns, assault rifles, light machine guns, etc. Light weapons are medium caliber and explosive ordinance, grenade launchers, rocket propelled grenades, etc. Attackers can increase their likelihood of success by using a wider array of weapons, including improvised explosive devices.

Biological Threats

Biological hazards include disease-causing microorganisms and pathogens, such as bacteria and viruses, that multiply within a host and cause an infection. Some bacteria and viruses can spread from one individual to another. Infections typically occur as a result of airborne exposure, skin contact, or ingestion. In general, exposure to bacteria and viruses can occur through inhalation (as is the case with airborne *B. anthracis* spores, which cause anthrax), ingestion of contaminated food or water (the case with *E. coli*, which causes gastrointestinal infection), contact with infected individuals, or contact with contaminated surfaces (which may be harboring, for example, viruses that cause influenza). Domestic and transnational threat groups have considered targeting heating, ventilation, and air conditioning systems of large commercial buildings.

Anthrax has been used as a weapon for nearly 100 years and is one of the most likely agents to be used in a biological threat. Its spores are easily found in nature, can be produced in a lab, and can last for a long time. It can be released quietly and without anyone knowing. Microscopic spores can be put into powders, sprays, food, and water. Due to their size, victims may not be able to see, smell or taste them (CDC, 2016). Terrorists may release anthrax spores in public places. In 2001, letters containing powdered anthrax spores were sent through the U.S. mail, causing skin and lung anthrax in 22 people. Five people died, all due to lung anthrax (San Francisco Department of Health, 2016).

If a biological attack were to occur in the Santa Clara County OA, a large number of personnel could be impacted. Buildings in the impacted area and transportation infrastructure might be closed for investigation and cleanup. These areas would not be accessible until cleanup is completed, which would impact the businesses. Hospitals could become overwhelmed with people coming in fearing contamination. Residents and businesses may need to shelter in place in the area of the attack.

Chemical Threats

Chemical weapons are poisonous vapors, aerosols, liquids, and solids that have toxic effects on humans, animals, and plants. Exposure pathways include inhalation, skin contact, ingestion or injection. Depending on the severity of exposure, impacts may include temporary illness or injury, permanent medical conditions, or death. An attack using chemical threats can come without warning. Signs of a chemical release include difficulty breathing; eye irritation; losing coordination; nausea; or a burning sensation in the nose, throat and lungs (Ready.gov, 2016b). Harmful chemicals that could be used in an attack include the following (U.S. Department of Homeland Security, 2004):

- Chemical weapons developed for military use (warfare agents).
- Toxic industrial and commercial chemicals that are produced, transported, and stored in the making of petroleum, textiles, plastics, fertilizers, paper, foods, pesticides, household cleaners, and other products.
- Chemical toxins of biological origin such as ricin.

Recently, there have been reports of chlorine found in explosive devices, mortars, rockets, and missiles. Chlorine has been used in the past, mainly in blunt, terrorist-style attacks. Some experts believe that groups are trying to advance their technology for deploying the chemical in combat operations (Tilghman, 2015). Chlorine is an acutely toxic industrial compound that can cause severe coughing, pulmonary, eye and skin irritation, and even death at higher concentrations (USACHPPM, 2015).

A chemical release in the Santa Clara County OA could lead to closure of streets and major transportation routes (including bridges) for extended periods of time, causing transportation delays and traffic. Many homes and businesses would also be impacted as they would need to be evacuated for an extended period of time. There could also be impact on the environment and/or natural resources that would require cleanup. Hazardous material response teams and fire-rescue would be needed to respond to the incident and coordinate cleanup efforts.

Explosive Devices

Improvised explosive device (IED) attacks are a favored method of terrorist groups around the world. The evolution in explosive materials and firing devices and their ease of concealment and delivery have increased the effectiveness of this hazard. IED attacks are typically motivated by the desire to maximize human casualties. Explosive incidents account for 70 percent of all terrorist attacks worldwide. These types of attacks range from small-scale letter bombs to large-scale attacks on specific buildings. According to the FBI, 172 improvised explosive devices were reported in the United States between October 2012 and April 2013.

IEDs generally consist of TNT equivalent explosives (e.g. black or smokeless powder) in a container (e.g. galvanized pipe, paint can, etc.). These propellants are easily purchased on the commercial market. IEDs may also contain added shrapnel to induce greater casualties or shaped charges that direct the force of the explosive toward the target. Devices may be hidden in everyday objects such as briefcases, flowerpots or garbage cans, or on the person of the attacker in the case of suicide bombers. The most commonly used container is galvanized pipe, followed by PVC pipe. When shrapnel is added to the device, the type of shrapnel varies—BBs and other small pieces of hardware are common, as are glass and gravel.

An attack using IEDs or other explosive device in the Santa Clara County OA has potential large-scale consequences that may require multi-agency and multi-jurisdictional coordination. Depending on the location of the attack, businesses and other venues may be closed for investigation and due to damage. If the attack occurred in or near residences, evacuations and/or sheltering may occur.

Fire as a Weapon

The use of fire for criminal, gang, and terrorist activities, as well as targeting first responders, is not new. The World Health Organization estimates that 195,000 people die each year from fire. According to the Global Terrorism Database, an average of 7,258 people die annually from terrorism, and that includes deaths in conflict zones such as Afghanistan and Iraq (Stewart, 2013).

15.1.2 Technological Hazards

Technological hazards are associated with human activities such as the manufacture, transportation, storage and the use of hazardous materials. Incidents related to these hazards are assumed to be accidental with unintended consequences. Technological hazards can be categorized as follows:

- Hazardous materials incidents.
- Transportation incidents.
- Pipeline and tank hazards.
- Utility failure.

Hazardous Materials Incidents

A hazardous material is any substance that is flammable, combustible, corrosive, poisonous, toxic, explosive or radioactive. Hazardous materials are present across the United States in facilities that produce, store, or use them. For example, water treatment plants use chlorine on-site to eliminate bacterial contaminants, and dry cleaning businesses may use solvents that contain perchloroethylene. Even the natural gas used in homes and businesses is a dangerous substance when a leak occurs. Hazardous materials are transported along interstate highways and railways daily. The following are the most common types of hazardous material incidents:

- Fixed-Facility Hazardous Materials Incident—This is the uncontrolled release of materials from a fixed site capable of posing a risk to health, safety and property. It is possible to identify and prepare for a

fixed-site incident because laws require those facilities to notify state and local authorities about what is being used or produced at the site.

- **Hazardous Materials Transportation Incident**—This is any event resulting in uncontrolled release during transport of materials that can pose a risk to health, safety, and property. Transportation incidents are difficult to prepare for because there is little if any notice about what materials could be involved should an accident happen. These incidents can occur anywhere, although most occur on major federal or state highways or major rail lines. In addition to materials such as chlorine that are shipped throughout the country by rail, thousands of shipments of radiological materials (mostly medical materials and low-level radioactive waste) take place via ground transportation across the United States. Many incidents occur in sparsely populated areas and affect few people. However, hazardous materials have been involved in accidents in areas with much higher population densities, such as the January 6, 2005 train accident in Graniteville, South Carolina that released chlorine gas killing nine, injuring 500, and causing the evacuation of 5,400 residents.
- **Pipeline Hazardous Materials Incident**—Numerous natural gas pipelines, heating oil, and petroleum pipelines run through the Santa Clara County OA and surroundings. These are used to provide these products to utilities in the region and to transport the materials from production facilities to end users.

Federal regulations govern the transportation of hazardous materials in all modes of transportation: air, highway, rail and water (Title 49, Code of Federal Regulations; Transportation, Code of Federal Regulations, Hazardous Materials Regulations). Title 49 CFR lists thousands of hazardous materials, including gasoline, insecticides, household cleaning products, and radioactive materials. California regulated substances that have the greatest probability of adversely impacting the community are listed in state code (Title 19, Division 2, Chapter 4.5, Sections 2735-2785; Hazardous Material Management Plan/Hazardous Material Inventory).

Santa Clara County has four Certified Unified Program Agencies that administer hazardous materials, hazardous waste and underground storage tank programs within their jurisdictions.

- Hazardous Materials Compliance Division of the Santa Clara County Department of Environmental Health (for all areas of Santa Clara County other than the cities of Santa Clara, Gilroy, and Sunnyvale).
- Santa Clara City Fire Department.
- Gilroy Building, Life and Environmental Safety.
- Sunnyvale Department of Public Safety.

Participating Agencies are local fire agencies that coordinate their activities under a memorandum of understanding with Santa Clara County Department of Environmental Health:

- Milpitas Fire Department.
- Mountain View Fire Department.
- Palo Alto Fire Department.
- Santa Clara County Fire Department.

Transportation Incidents

Transportation incidents are those involving air, road or rail travelers resulting in death or serious injury. The potential for transportation accidents that block movement through the OA is significant, as is the likelihood of hazardous material incidents resulting from a traffic or rail accident.

The Bay Area has a number of airports, including the San Francisco International Airport, Oakland International Airport, and San José International Airport, as well as San Martin Airport and Reid Hillview Airport, which are smaller municipal airports that enhance the potential for an air disaster. Major transportation routes in the OA include the following:

- Major highways include Interstates 880 (Nimitz Freeway) and 280; U.S. Highway 101 and Highway 237; and State Routes 87, 85, and 17.
- 42.2 miles of light rail serving Santa Clara County is operated by the Santa Clara Valley Transportation Authority (VTA), which oversees public transit services in the county. The Santa Clara VTA is continuing development for Phase II of its BART Silicon Valley Extension. The project planning includes a 5.1-mile-long subway tunnel through downtown San José and four additional stations, at Alum Rock, Downtown San José, Diridon, and Santa Clara. Construction of Phase II is anticipated to begin as additional funding is secured in 2019, based on the preliminary schedule (Santa Clara VTA, 2017).
- Amtrak has a train station in San José at Santa Clara University.
- The Santa Clara Depot, in the City of Santa Clara, is served by the Caltrain from San Francisco and the Altamont Corridor Express from Stockton.
- The Great America station in the City of Santa Clara hosts Amtrak's *Capitol Corridor* trains and Altamont Corridor Express trains. The station is close to Levi's Stadium and California's Great America.
- There are 15 Caltrain stations in the OA. Caltrain is a commuter rail between San Francisco, San Mateo and Santa Clara counties.
- The Santa Fe railroad has a right of way that parallels U.S. Highway 101 through the eastern edge of the county.
- Daily commuter traffic is very high in the OA due to Silicon Valley's dense-employment population.

Pipeline Hazards

Pipeline Systems and Risks

Around 1945, the United States invested in the development of a nation-wide system of pipelines for the purpose of transporting natural gas and petroleum products. The majority of these materials are moved by hazardous liquid and gas transport operators through a system of pipelines ranging in diameter from 20 to 42 inches. These pipes reach from the material origin wells to their final destination in refineries that further process the material for use and transport over 50 percent of the United States' energy supply. Although pipelines are the safest and most reliable way to transport natural gas, crude oil, liquid petroleum products, and chemical products, there is still an inherent risk due to the nature of the hazardous materials.

Transmission pipelines are those that transport raw material for further refinement. These pipes are large and far reaching, operating under high pressure. Distribution pipelines are those that provide processed materials to end users. These are smaller in diameter, some as small as a half an inch, and operate under lower pressure. Failures of distribution and transmission pipelines can occur when pipes corrode, are damaged during excavation, are incorrectly operated, or are damaged by other forces. More serious accidents occur on distribution pipelines than on any other type due to their number, intricate networking, and location in highly populated areas.

The greatest risk to the public regarding pipelines is the unintended release of a material being transported through the system. These materials are hazardous and have the capability to severely impact the surrounding environment, population, and property. These impacts may lead to severe injury or death. Combustible material transported through these pipelines may ignite or explode. Hazardous liquids may contaminate water systems. Families that rely on the transported material to heat their households may experience disruption of service. Pipeline failures also have the potential to negatively impact the economy, causing business interruptions or severely damaging vital infrastructure.

Depending on the pipeline material, age of the system, and transported product, pipelines may experience one or more general types of corrosion. Table 15-3 identifies corrosion types and a description of each.

Table 15-3. Corrosion Types

Corrosion Type	Description
External	External corrosion occurs due to environmental conditions on the outside of the pipe.
Internal	Corrosion on the internal wall of a natural gas pipeline can occur when the pipe wall is exposed to water and contaminants in the gas, such as O ₂ , H ₂ S, CO ₂ , or chlorides.
Atmospheric	Atmospheric corrosion occurs on a steel surface in a thin wet film created by the humidity in the air in combination with impurities.
Stress Cracking	Stress corrosion cracking is the initiation of cracks and their propagation, possibly up to complete failure of a component, due to the combined action of tensile mechanical loading and a corrosive medium.

Source: PHMSA, 2011

Pipeline material plays an important role in the possibility of experiencing a pipeline failure. Between 2006 and 2010, for both hazardous liquid and gas transmission pipelines, the main causes for failure were corrosion, material or welding failure, or damage due to excavation (PHMSA, 2011). Plastic pipes installed for natural gas distribution systems from the 1960s through the early 1980s may be vulnerable to cracking, resulting in gas leakage and potential hazards to the public. Hundreds of thousands of miles of plastic pipe have been installed, with a significant amount installed prior to the mid-1980s. While distribution systems may widely vary in terms of construction material, nearly all transmission pipeline systems are constructed from high-strength steel treated with an anti-corrosive chemical (PHMSA, date unknown).

Pipelines are monitored by system control and data acquisition systems that measure flow rate, temperature and pressure. These systems transfer real-time data via satellite from the pipelines to a control center where valves, pumps, and motors are remotely operated. If tampering with a pipeline occurs, an alarm sounds. The ensuing valve reaction is instantaneous, with the alarm system isolating any rupture and setting off a chain reaction that shuts down pipeline pumps and alerts pipeline operators within seconds.

Pipeline Oversight

Pipelines are regulated in California by the Office of the State Fire Marshal Pipeline Safety Division. CERCLA, the Emergency Planning and Community Right-to-Know Act, and California law require responsible parties to report hazardous material releases if certain criteria are met. CERCLA requires that all releases of hazardous substances exceeding reportable quantities be reported by the responsible party to the National Response Center. If an accidental chemical release exceeds the Right-to-Know Act applicable minimal reportable quantity, the facility must notify state emergency response commissions and local emergency planning committees for any area likely to be affected by the release, and provide a detailed written follow-up as soon as practicable. Information about accidental chemical releases must be made available to the public.

The California Public Utilities Commission (CPUC) serves as the state regulation authority regarding pipeline operations. The CPUC conducts operation and maintenance compliance inspections and accident investigations. It reviews utilities' reports and records, conducts construction inspections, conducts special studies, and takes action in response to complaints and inquiries from the public on issues regarding gas pipeline safety. The CPUC also endorses the system safety approach embodied in federal government regulations.

The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) is responsible for providing federal regulatory oversight of transmission pipelines. The agency's Integrity Management Program is a transmission pipeline program started in 2000. This program focuses on regulations for transmission pipeline in high consequence areas, such as pipelines passing through high population centers or

particularly sensitive ecological areas. The Integrity Management Program specifies how pipeline operators must identify, prioritize, assess, repair, and validate the integrity of their pipelines through comprehensive analysis.

PHMSA's 2005 *Distribution Integrity Management Program Phase One* report found a lack of risk-based assessment in managing distribution pipeline systems. A guidance document was developed to assist operators in deciding what actions are needed to comply with standards of the distribution integrity management program (PHMSA, no date).

In 2002, PHMSA released control guidelines for gas leakage. The guidelines included a regulatory classification for leakage severity, as shown in Table 15-4.

Table 15-4. Leak Classification			
Grade	Description	Examples	Action Criteria
1	A leak that represents an existing or probable hazard to persons or property and requires immediate repair or continuous action until the conditions are no longer hazardous.	<ul style="list-style-type: none"> Any leak which, in the judgment of operating personnel at the scene is regarded as an immediate hazard Escaping gas that has ignited Any indication of gas which has migrated into or under a building or into a tunnel Any reading at the outside wall of a building or where gas would likely migrate to an outside wall of a building Any leak that can be seen, heard, or felt and which is in any location that may endanger the general public or property 	<p>Requires prompt action to protect life and property. Action may require one or more of the following:</p> <ul style="list-style-type: none"> Implementing a company emergency plan Evacuating premises Blocking off an area Rerouting traffic Eliminating sources of ignition Venting the area Stopping the flow of gas by closing valves or other means Notifying police and fire departments
2	A leak that is recognized as being non-hazardous at the time of detection, but requires scheduled repair based on probable future hazard.	<ul style="list-style-type: none"> Any leak which, under frozen or other adverse soil conditions, would likely migrate to the outside wall of a building (Note: This type of Grade 2 leak must be repaired ahead of seasonal freeze/thaw conditions) Any leak which, in the judgment of operating personnel at the scene, is of sufficient magnitude to justify scheduled repair 	<p>Leaks should be repaired or cleared within one calendar year but no later than 15 months from the date they were reported. In determining the repair priority, criteria such as the following should be considered:</p> <ul style="list-style-type: none"> Amount and migration of gas Proximity of gas to buildings and subsurface elements Extent of pavement Soil type and soil conditions such as frost cap, moisture and natural venting
3	A leak that is non-hazardous at the time of detection and can be reasonably expected to remain non-hazardous. Because petroleum gas is heavier than air and will collect in low areas instead of dissipating, few leaks can safely be classified as Grade 3.	<ul style="list-style-type: none"> Any reading under a street in areas without wall-to-wall paving where it is unlikely the gas could migrate to the outside wall of a building 	<p>These leaks should be re-evaluated during the next scheduled survey, or within 15 months of the date reported, whichever occurs first, until the leak is re-graded or no longer results in a reading.</p>

Source: PHMSA, 2002

Pipeline Locations

Approximately 300,000 miles of gas transmission pipelines and 170,000 miles of hazardous liquid pipelines move their products throughout the United States every day. Transmission pipelines connect urban areas, and only

occasionally traverse highly populated areas. Nearly all distribution pipelines, however, are concentrated in highly populated areas.

Distribution pipelines serve homes and businesses and thus are located where people live and work. Because of the extensive reach of the distribution system, incidents have the potential to be far reaching. For example, a pipeline leak may release material into a migration pathway, such as a sewer line, and reach an ignition source far from the location of the actual leak. Due to the far-reaching underground and unpredictable nature of the pipeline failure hazard, it is difficult to gauge the extent to which the hazard affects the Santa Clara County OA. Minor pipe leaks may remain undetected for years until identified during renovation, excavation, or maintenance. In some scenarios, such leaks may go undetected until the severity has increased, resulting in a noticeable smell or, in the worst case scenario, an explosion.

Utility Failure

Utility failure is defined as any interruption or loss of utility service due to disruption of service transmission caused by accident, sabotage, natural hazards, or equipment failure. A significant utility failure is defined as any incident of a long duration, which would require the involvement of the local and/or state emergency management organizations to coordinate provision of food, water, heating, cooling, and shelter. Widespread outages can occur without warning or as a result of a forecasted event. Generally, warning times are short in the case of utility failure. In cases where a failure is caused by natural hazards, greater warning time is possible.

Except for the cities of Palo Alto and Santa Clara, Pacific Gas and Electric (PG&E) is responsible for operating and maintaining the electrical transmission and distribution system in the OA. The utility supplies electricity to an approximate population of 1.7 million residential and business customers in 1,260 square miles of the OA. PG&E has both overhead and underground lines throughout the OA. The County of Santa Clara Board of Supervisors recently approved joining the Silicon Valley Clean Energy Authority, creating a local Community Choice Energy Authority that will offer competitive electricity rates and greener electricity sources as early as 2017.

Wastewater and potable water utility restoration are essential to community continuity and recovery. Interruption of these services may have cascading economic and environmental impacts.

Utility failure can cause secondary hazards:

- Chemical accidents can occur after power is restored to industrial facilities. Power interruptions at chemical handling plants are of particular concern because of the potential for a chemical spill during restart (EPA, 2001).
- Without proper procedures for backup of data and systems, the loss of data, systems, and telecommunications is a risk incurred by utility failure. Data and telecommunications provide a primary method for service to the community by the government and the private sector. A loss of data or a system could result in loss of emergency dispatch capabilities, emergency planning services, infrastructure monitoring capabilities, access to statistical data, and loss of financial and personnel records. Loss of communication capability by first responders could have negative impacts on public safety. Backup systems such as amateur radio operators may be required during disaster to augment communications capabilities. Power outages can also lead to instances of civil disturbance, including looting.

15.1.3 Epidemic and Pandemic

An outbreak or an epidemic exists when there are more cases of a particular disease than expected in a given area, or among a specific group of people, over a particular period of time. In an outbreak or epidemic, it is presumed that the cases are related to one another or that they have a common cause (CDC, 2011).

The Santa Clara County Department of Public Health is responsible to protect and improve the health of the community within the OA. The public health department responds to public health related emergencies and disasters and supports field responders at medical and rescue incidents. The OA has numerous health care facilities within its borders, including the following:

- The Stanford Health Care-Stanford Hospital in Stanford.
- El Camino Hospital in Mountain View.
- Santa Clara Medical Center, in Santa Clara.
- Good Samaritan Hospital in San José.
- Kaiser Permanente San José Medical Center.
- Lucile Packard Children's Hospital at Stanford.

The following sections describe commonly recognized human health hazards that are a concern in the OA.

Influenza

Epidemics of the flu typically occur in the fall and winter. Because flu seasons fluctuate in length and severity, a single estimate cannot be used to summarize influenza-associated deaths. The U.S. Centers for Disease Control (CDC) estimates that from 2010-2011 to 2013-2014, influenza-associated deaths in the United States ranged from 12,000 (during 2011-2012) to 56,000 (during 2012-2013).

H1N1

In April 2009, the World Health Organization (WHO) issued a health advisory on an outbreak of influenza-like illness caused by a new subtype of influenza A (A/H1N1) in Mexico and the United States. The disease spread rapidly, and in June the WHO declared an H1N1 pandemic, marking the first global pandemic since the 1968 Hong Kong flu. In October, the U.S. declared H1N1 a national emergency. In August 2010, the WHO declared an end to the pandemic globally. H1N1 viruses and seasonal influenza viruses are co-circulating in many parts of the world. It is likely that the 2009 H1N1 virus will continue to spread for years to come, like a regular seasonal influenza virus.

H5N1/H7N9

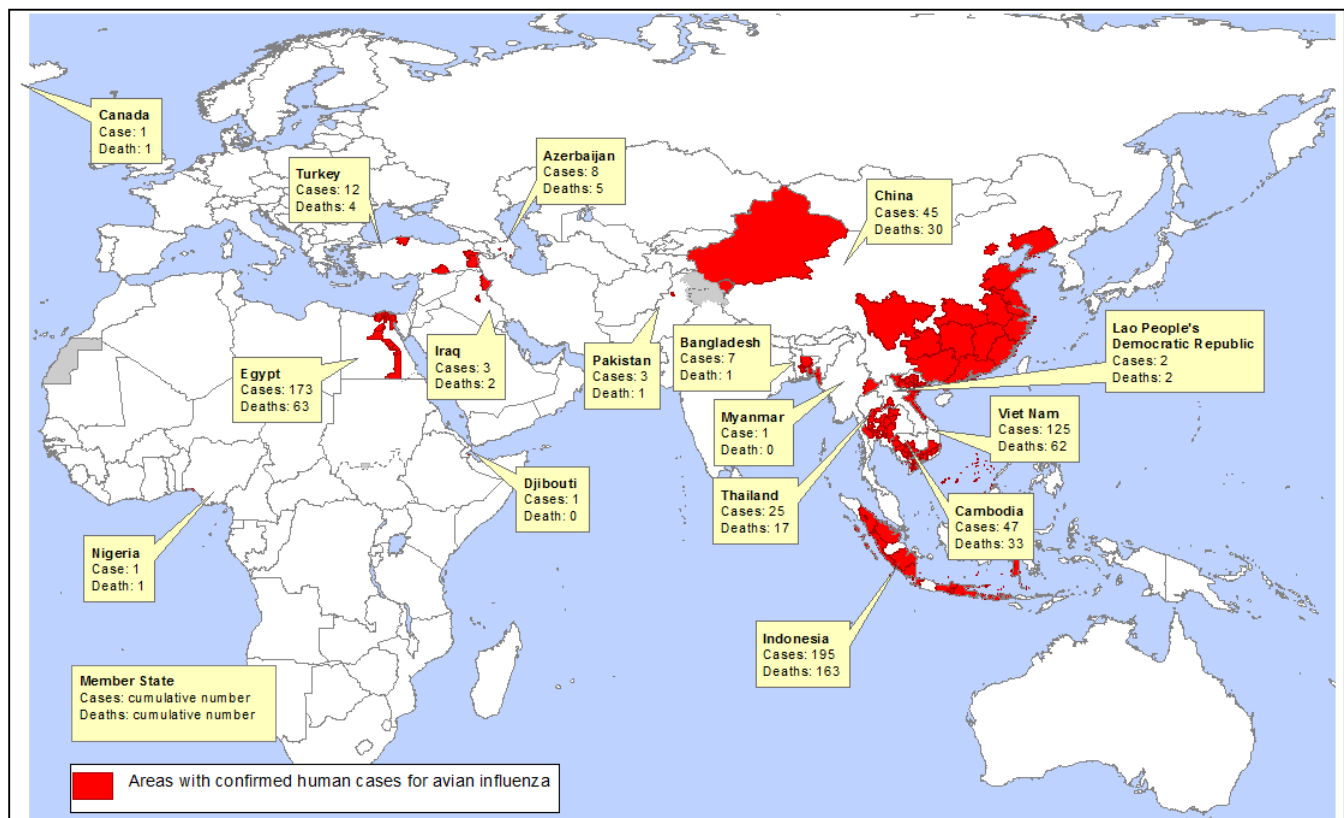
The highly pathogenic H5N1 avian influenza virus is an influenza A subtype that occurs mainly in birds, causing high mortality among birds and domestic poultry. Outbreaks of highly pathogenic H5N1 among poultry and wild birds are ongoing in a number of countries.

H5N1 virus infections of humans are rare and most cases have been associated with direct poultry contact during poultry outbreaks. Rare cases of limited human-to-human spread of H5N1 virus may have occurred, but there is no evidence of sustained human-to-human transmission. Nonetheless, because all influenza viruses have the ability to change and mutate, scientists are concerned that H5N1 viruses one day could be able to infect humans more easily and spread more easily from one person to another, potentially causing another pandemic.

While the H5N1 virus does not now infect people easily, infection in humans is much more serious when it occurs than is infection with H1N1. More than half of people reported infected with H5N1 have died. Figure 15-2 summarizes human cases of the virus through 2013.

Infections in humans and poultry by a new avian influenza A virus (H7N9) continue to be reported in China. While mild illness in human cases has been seen, most patients have had severe respiratory illness and some have died. The only case identified outside of China was recently reported in Malaysia.

Source: World Health Organization, 2013

**Figure 15-2. Areas with Confirmed Human Cases of H5N1 2003-2013**

Source investigation by Chinese authorities is ongoing. Many of the people infected with H7N9 reportedly have had contact with poultry. However some cases reportedly have not had such contact. Close contacts of confirmed H7N9 patients are being followed to determine whether any human-to-human spread of H7N9 is occurring. No sustained person-to-person spread of the H7N9 virus has been found at this time. However, based on previous experience with avian flu viruses, some limited human-to-human spread of this the virus would not be surprising.

As of the publication of this document, H5N1 and the new H7N9 virus have not been detected in people or birds in the United States.

Smallpox

Smallpox is a sometimes fatal infectious disease. There is no specific treatment, and the only prevention is vaccination. Symptoms include raised bumps on the face and body of an infected person. The oldest evidence of smallpox was found on the body of Pharaoh Ramses V of Egypt who died in 1157 BC.

Outbreaks have occurred from time to time for thousands of years, but the disease is now eradicated after a successful worldwide vaccination program. The last case of smallpox in the United States was in 1949. The last naturally occurring case in the world was in Somalia in 1977. As of the publication of this document, there are no cases of smallpox in the world. Currently only two locations in the world have samples of smallpox: the CDC in Atlanta and the Ivanovsky Institute of Virology in Russia.

After the disease was eliminated, routine vaccination among the general public was stopped. Therefore, any cases of smallpox in the world would be considered an immediate international emergency. In 2003, the Wisconsin

Division of Public Health conducted an investigation of state residents who became ill after having contact with prairie dogs. The cases appeared in May and June of 2003, and symptoms in the human cases included fever, cough, pox-like rash and swollen lymph nodes. CDC laboratory test results indicated that the cause of the human illness was Monkeypox, an orthopox virus that could be transmitted by prairie dogs. This outbreak, and the potential use of smallpox as a weapon of bioterrorism, brought the fear of smallpox back to the forefront of the population. A detailed nationwide smallpox response plan created at the end of 2002 is designed to quickly contain a potential outbreak and vaccinate the population.

Viral Hemorrhagic Fevers

Viral hemorrhagic fevers (VHFs) are a group of illnesses caused by several distinct families of viruses. VHF describes a multisystem syndrome (multiple systems in the body are affected). Characteristically, the overall vascular system is damaged and the body's ability to regulate itself is impaired. These symptoms are often accompanied by hemorrhage (bleeding); however, the bleeding itself is rarely life-threatening. While some types of hemorrhagic fever viruses can cause relatively mild illnesses, many cause severe, life-threatening disease.

The viruses that cause VHFs are distributed over much of the globe. However, because each virus is associated with one or more particular host species, the virus and the disease it causes are usually seen only where the host species live. Some hosts, such as the rodent species carrying several of the New World arenaviruses, live in geographically restricted areas. Therefore, the risk of getting VHFs caused by these viruses is restricted to those areas. Other hosts range over continents, such as the rodents that carry viruses that cause the Hantavirus pulmonary syndrome in North and South America, or the rodents that carry viruses that cause hemorrhagic fever with renal syndrome in Europe and Asia.

Ebola

The 2014 Ebola virus outbreak was unprecedented in geographical reach and impact on health care systems across the globe. This was the largest and deadliest Ebola virus outbreak ever recorded. It was the first time the West African countries of Guinea, Liberia, Sierra Leone, Nigeria, Mali, and Senegal saw the virus. Ebola is more common in Central African countries, such as the Democratic Republic of Congo and Sudan, where it was first discovered in 1976. It was also the first time that Ebola made it to the United States and Europe, prompting world-wide preparedness and response efforts. Figure 15-3 shows areas that ultimately were affected. The outbreak was closely monitored and traveler screenings were developed for those returning from West Africa.

In August 2014 two U.S. healthcare workers returned to the United States for treatment for Ebola. The case that most impacted the health care system in the United States was a patient diagnosed with Ebola in Dallas, Texas who died due to Ebola in October 2014. The nurse who provided care for him later tested positive for Ebola. This caused responses across the country from hospitals, emergency medical teams, fire departments and public health agencies to enhance isolation precautions, develop emergency policies, train with personal protective equipment and conduct multi-agency emergency exercises in case the spread of Ebola became a pandemic.

Before the 2014 outbreak, only 2,200 cases of Ebola had been recorded and 68 percent were fatal. Twenty percent of new Ebola infections were linked to burial traditions in which family and community members wash and touch dead bodies before burial. In Guinea, 60 percent of Ebola infections were linked to traditional burial practices.

Plague

Plague is a potentially fatal infectious disease of animals and humans caused by the *Yersinia pestis* bacterium. People usually get plague from being bitten by a flea that is carrying the plague bacterium or by handling an infected animal. Today, modern antibiotics are effective against plague, but if an infected person is not treated promptly, the disease is likely to cause illness or death.

Source: World Health Organization, 2014

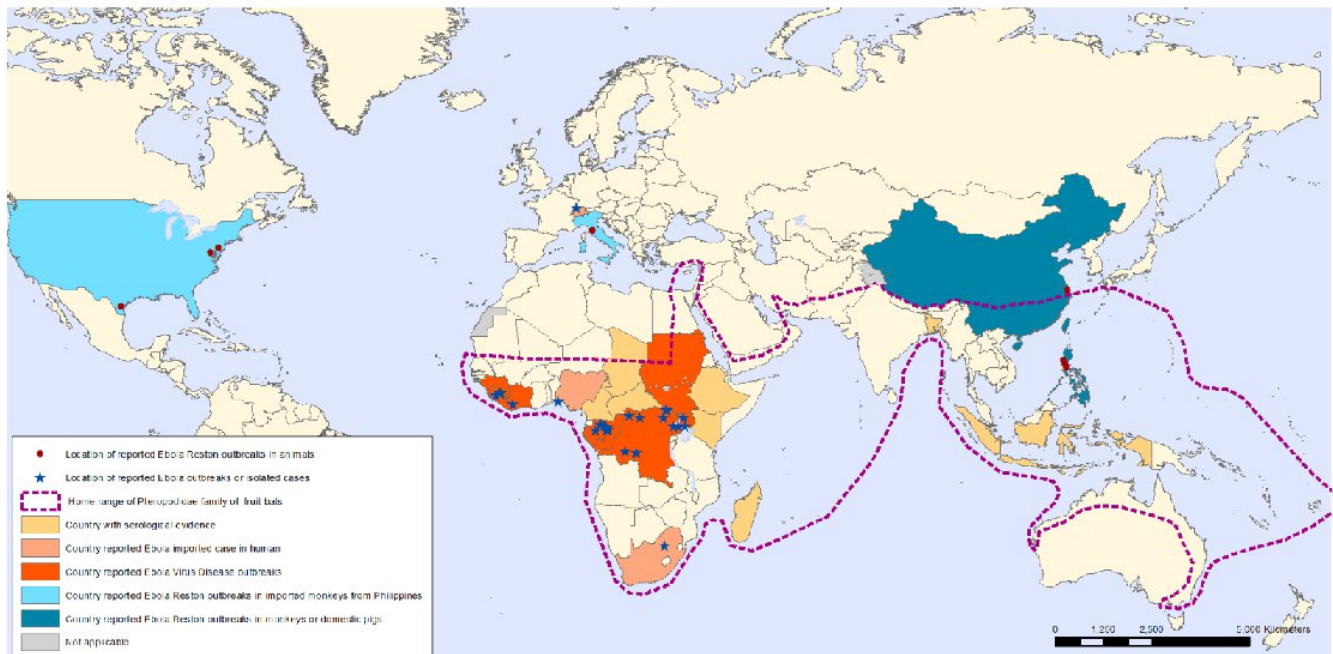


Figure 15-3. 2014 Distribution of Ebola Virus Outbreaks in Humans and Animals

Plague is an ancient disease but outbreaks throughout the world continue. Major plague epidemics occurred in the middle of the sixth century in Egypt, Europe and Asia; during the 14th century in Europe, following caravan routes; in the 18th century in Austria and the Balkans; and in the late 19th century worldwide (but mostly in China and India). Manchuria in 1910–1911 witnessed about 60,000 deaths due to pneumonic plague with a repeat in 1920–1921. A minor outbreak occurred as recently as the summer of 1994 in Surat, India, closely following an earthquake in September 1993. Globally, the WHO reports 1,000 to 3,000 cases of plague every year.

In North America, plague is found in certain animals and their fleas from the Pacific Coast to the Great Plains, and from southwestern Canada to Mexico. The last urban plague epidemic in the United States occurred in Los Angeles in 1924–25. Since then, human plague in the U.S. has occurred as mostly scattered cases in rural areas (an average of 10 to 15 persons each year per the CDC). Most human cases in the United States occur in northern New Mexico, northern Arizona, southern Colorado, California, southern Oregon, and far western Nevada.

Zika Virus

Zika is a disease transmitted by yellow fever mosquito (*Aedes aegypti*) and the Asian tiger mosquito (*Aedes albopictus*). An *Aedes* mosquito can only transmit Zika virus after it bites a person who has this virus in their blood. The most common symptoms of Zika are fever, rash, joint pain, and conjunctivitis (red eyes). The illness is usually mild, with symptoms lasting for several days to a week after being bitten by an infected mosquito. People usually do not get sick enough to go to the hospital, and they rarely die from the Zika virus. For this reason, many people might not realize they have been infected. However, Zika virus infection during pregnancy can cause a serious birth defect called microcephaly (abnormally small head and brain), as well as other severe fetal brain defects. Once a person has been infected, he or she is likely to be protected from future infections. Zika virus is not spread through casual contact, but can be spread by infected men to their sexual partners. There is a growing association between Zika and Guillain-Barré Syndrome, a disease affecting the nervous system.

The mosquitoes that carry Zika are not native to California, but infestations have been reported in multiple counties in California. In April 2016, both Santa Clara and San Mateo counties reported Zika virus cases. The counties

recorded one case each, both linked to individuals who contracted the mosquito-borne virus while traveling outside the United States. Thus far in California, Zika virus infections have been documented only in people who were infected while traveling outside the United States or through sexual contact with an infected traveler. From 2015 to the publishing of this document, there has been no local mosquito-borne transmission of Zika virus in California (Mercury News, April 1, 2016).

Severe Acute Respiratory Syndrome

Severe Acute Respiratory Syndrome (SARS) is a viral respiratory illness caused by a coronavirus (SARS-CoV). SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the global outbreak was contained. According to the WHO, 8,098 people worldwide became sick with SARS during the 2003 outbreak and 774 died. In the United States, only eight people had laboratory evidence of SARS-CoV infection. All of these people had traveled to parts of the world where SARS was present. SARS did not spread more widely in the United States.

In general, SARS begins with a high fever, headache, an overall feeling of discomfort and body aches. Some people also have mild respiratory symptoms at the outset. About 10 percent to 20 percent of patients have diarrhea. After two to seven days, SARS patients may develop a dry cough. Most patients develop pneumonia.

The main way that SARS seems to spread is by close person-to-person contact. The virus that causes SARS is thought to be transmitted most readily by respiratory droplets produced when an infected person coughs or sneezes. Droplet spread can happen when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches his or her mouth, nose, or eyes. It is also possible that the SARS virus might spread more broadly through the air or by other ways that are not now known.

As of May 2005, according to the CDC, there was no remaining sustained SARS transmission anywhere in the world. However, CDC has developed recommendations and guidelines to help public health and healthcare officials plan for and respond quickly to the reappearance of SARS if it occurs again. Lessons learned from the SARS outbreak helped healthcare facilities and communities successfully plan and respond to the 2009 H1N1 pandemic.

15.1.4 Fog

Fog is a cloud near the ground. It forms when air close to the ground can no longer hold all the moisture it contains. This occurs either when air is cooled to its dew point or the amount of moisture in the air increases. Heavy fog is particularly hazardous because it can restrict surface visibility. Severe fog incidents can close roads, cause vehicle accidents, cause airport delays, and impair the effectiveness of emergency response. Financial losses associated with transportation delays caused by fog have not been calculated in the United States, but it is known to be substantial. Fog can occur almost anywhere during any season and is classified based on how it forms, which is related to where it forms. Certain seasons are more likely to have foggy days or nights based on a number of factors, including topography, nearby bodies of water, and wind conditions.

Fog in the Santa Clara County OA has different origins depending on the time of year. In summer, the area is characterized by cool marine air and persistent coastal stratus and fog. In winter, fog typically originates from the Great Valley. Radiation (ground) fog forms in the moist regions of the Sacramento River Delta and arrives to the region via Suisun and San Pablo Bays and San Francisco Bays on cool easterly winds. While this type of fog is less frequent than summer fogs, it is typically denser and more likely to lead to significantly reduced visibility (Golden Gate Weather Services, 2009). Although fog seems like a minor hazard, it can have significant impacts.

The California Highway Patrol has records of at least four officers whose deaths were indirectly caused by or exacerbated by dense fog and poor visibility (California Highway Patrol, 2016).

15.2 HAZARD PROFILE

15.2.1 Past Events

State of California

Intentional Hazards

According to the CalOES Terrorism Response Plan, California has had a long history of defending the public against domestic and foreign terrorists. Domestic terrorist groups in California have been focused on political or social issues, while the limited internationally based incidents have targeted the state's immigrant communities due to foreign disputes. Advanced technologies and communication have allowed these groups to become more sophisticated and better organized, with remote members linked electronically. Since 2000, the following terrorist activities have occurred in California:

- On December 2, 2015, 16 people were killed and 22 were seriously injured in an Islamic terrorist attack at the Inland Regional Center in San Bernardino, which consisted of a mass shooting with a semi-automatic pistol and rifle, and an attempted pipe bombing.
- On November 4, 2015, one person was killed and four were injured as the result of a student stabbing two students and two staff at the University of California, Merced; the attacker was shot and killed by police.
- On November 1, 2013, one person was killed and seven were injured in a shooting attack at Los Angeles International Airport; one TSA officer was killed, two TSA officers and several civilians were injured.
- On February 28, 2008, one person was injured in Los Angeles by animal rights activists attempting a home invasion of a biomedical researcher.
- On November 29, 2005, four people in Santa Cruz were injured from incendiary attacks by suspected animal rights activists.
- On August 1, 2012, four men in Riverside were arrested for plotting attacks on American military staff and bases overseas (Almendrala, 2012).
- On July 4, 2002, two people were killed and four were injured by an Egyptian gunman at the El Al ticket counter at the Los Angeles International Airport (CNN.2003).

Technological Hazards

No comprehensive source exists for technological hazard incidents in California. Given the complex system of transportation networks, the large population, and the number of businesses in California, incidents occur on a regular basis throughout the state, as reported by the news media.

Epidemic/Pandemic

The most recent data for influenza in the State of California is for the 2014-2015 flu season. The CDPH received 42,812 reports of cases tested positive for influenza. California was impacted by the Enterovirus D68 outbreak in 2014. By October 2014, there were 32 reported cases in the state. Five of those cases were reported in Santa Clara County (Bay City News, 2016). In 2015, California experienced a norovirus outbreak. Between October and December, there were 32 confirmed cases of norovirus (CDPH, 2015b).

Regional

Intentional Hazards

Terrorism Incidents

The South Bay Area has not experienced a major regional terrorism event. Santa Clara County recently hosted the 2016 Super Bowl, which may have increased exposure of the area for potential future terrorist events. Other past events in the region include the following:

- Eco-terrorism—In 2006, three suspected Earth Liberation Front members were arrested in connection with an alleged plot to blow up U.S. Forest Service facilities, cellular phone towers and power-generating stations at various locations in Northern California. The Los Angeles Times reported the FBI and U.S. attorney's office declined to provide details about the alleged evidence against the three, but stated they believe their investigation foiled attacks on a number of sites (Krikorian, 2006).
- Domestic terrorism—On December 3, 1999, the FBI arrested two anti-government militia members who planned a bomb attack at the Suburban Propane facility in Elk Grove, CA. The alleged plot involved a plan to blow up the Suburban Propane site, which stores about 24 million gallons of liquefied propane and is located a mile from residential homes. According to the Sacramento Bee, the plot resulted in heightened on-site security and a year-long investigation resulting in the two arrests.

Cyber Incidents

- In December 2015, the University of California at Berkeley experienced a massive cyber-attack that left upwards of 80,000 people exposed to cyber-crime. The university is one of the largest employers in the Bay Area, and this cyber-attack reached beyond jurisdictional and county lines to affect the entire Bay Area (Bay City News, 2015).
- In August 2015, the FBI stated that San Francisco's Bay Area had suffered more than a dozen attacks on its fiber optic infrastructure in the preceding year. The attacks resulted in slow Internet service and disruption of financial transactions and emergency phone calls. The incidents occurred in clusters on single nights around the East Bay and in San José, at the heart of Silicon Valley. This led officials to believe the attacks were intentional. Beyond that, officials had yet to find a motive, or any suspects (Fitzgerald, 2015).
- On December 1, 2014, a global cyber-attack shut down web access to agenda, minutes, and video for many Bay Area government agencies, including Alameda County. The San Francisco-based company Granicus, which provides web services for government agencies nationwide, reported the outage (Johnson, 2014).

Technological Incidents

Transportation Incidents

The Bay Area has not experienced an aircraft accident that caused widespread devastation throughout the region. Aircraft accidents have been localized and somewhat contained.

Hazardous Materials Incidents

The Bay Area has not experienced a hazardous materials release event with a regional affect. Hazardous material releases are often localized due to the limited release of such events.

Pipeline Incidents

The Bay Area has not experienced a regional pipeline event, but on September 9, 2010, a PG&E 30-inch natural gas line exploded in a neighborhood of San Bruno, approximately 30 miles from the Santa Clara County OA, killing eight people and injuring 58. The fires from the explosion incinerated 38 homes.

Utility Failure

The Bay Area has not experienced a regional widespread utility failure event, as utility failure is often localized.

Local

Intentional Incidents

Terrorism Incidents

In 2014 at PG&E Corporation's Metcalf transmission substation in San José, an unknown person entered an underground vault and cut telephone cables. Within half an hour, snipers opened fire on a nearby electrical substation. Shooting for 19 minutes, the persons were able to knock out 17 giant transformers that funnel power to Silicon Valley. Electric-grid officials were able to reroute power around the site and requested power plants in Silicon Valley to produce more electricity, but it took utility workers 27 days to conduct repairs and make the substation functional. The Wall Street Journal reported the incident has been called "the most significant incident of domestic terrorism involving the grid that has ever occurred." There have been no arrests or persons charged for the incident (Smith, 2014).

Cyber Incidents

On April 9, 2009, fiber-optic cable lines belonging to AT&T at two locations were intentionally cut, knocking out phones and access to 911 emergency services to thousands of residential customers and businesses in southern Santa Clara County, in Santa Cruz and San Benito counties and along the Peninsula, (SF Gate, 2009).

Technological Incidents

Transportation Incidents

The Santa Clara County OA has not experienced a crash of a commercial aircraft or large private plane. However, a number of general aviation aircraft incidents have occurred at Reid-Hillview Airport and Mineta San José International Airport. These incidents are typically localized and contained.

On March 21, 2008, at approximately 7:10 p.m., a southbound two-car light rail train derailed just north of the Virginia station in San José. Four people, including the train operator, were injured, and the train was heavily damaged. The East Bay Times reported that, at the time of the accident, trains were operating on a single track through the area because of construction at three nearby light rail stations. The train involved was attempting to switch between tracks when it derailed. Another partial derailment occurred on July 15, 2013, with 12 passengers aboard. CBS San Francisco report there were no deaths or injuries from the accident.

There have been occasional single vehicle and pedestrian fatality accidents in Santa Clara County.

Hazardous Materials Incidents

Santa Clara county and its incorporated cities have experienced many localized accidental hazardous materials incidents. Four major highways in the OA provide vehicle routes for the transportation of large quantities of hazardous materials: U.S.101, I-880, I-680, and I-280. U.S. 101 and I-880 are the most heavily traveled in terms of truck traffic and are the most frequent location of hazardous materials spills on major roads.

Pipeline Incidents

According to PHMSA, the OA has experienced the following incidents related to pipeline failure:

- In 2011, PG&E had a natural gas leak due to material weld equipment failure in Santa Clara County.
- In 2012, PG&E had a natural gas leak due to excavation damage to a pipe in Santa Clara County.
- In 2014, PG&E had a natural gas leak due to corrosion of a pipe in Santa Clara County.

Between 2000 and 2016, the County of Santa Clara experienced 339 pipeline incidents with 0 injuries and 0 fatalities (PHMSA, 2016). In addition, at any given time, pipelines may experience small leaks that are remain unnoticed until discovered by a utilities company or member of the public.

Utility Failure

The Santa Clara County OA has not experienced an emergency level utility failure, but does regularly experience smaller inconvenient outages.

Epidemic/Pandemic

In Santa Clara County, during the 2009 H1N1 influenza pandemic, there were 91 severe cases, 87 intensive care cases, and 21 deaths (CDPH, 2011). Between January 1, 2010 and April 4, 2011, 560 confirmed, probable, or suspect cases of pertussis were reported to the Santa Clara County Public Health Department, with 30 hospitalizations and no pertussis-related deaths.

In April 2016, Santa Clara was one of the first counties to report a Zika virus case. Santa Clara and San Mateo recorded one case each, both linked to individuals who contracted the mosquito-borne virus while traveling outside the United States. From 2015 through April 2016 there has been no local mosquito-borne transmission of Zika virus in California (Mercury News, April 1, 2016).

15.2.2 Location

Intentional Incidents

Terrorism

The State of California, Office of Homeland Security, and local governments have identified high profile targets for potential terrorists within their jurisdictions. Large business centers, high visibility tourist attractions, transportation providers, and critical infrastructure in Santa Clara County may become a target for terrorism and can present security challenges of an ongoing nature. Multiple incidents can happen simultaneously, and typically require a multi-agency, multi-jurisdictional response (California Department of Toxic Substances Control, 2016).

Cyber Threats

Municipalities and private businesses within the Santa Clara County OA are susceptible to the most current and common cyber-attacks, such as socially engineered Trojans, unpatched software, phishing attacks, network-traveling worms, and advanced persistent threats. Many of these attacks are engineered to automatically seek technological vulnerabilities. Possible cyberterrorist targets include the banking industry, power plants, air traffic control centers, and water systems.

Technological Incidents

Transportation Hazard

Established truck routes in many jurisdictions in the OA may have a higher potential for hazardous material incidents as a result of traffic accidents. The following transportation corridors and infrastructures have the potential for transportation incidents:

- Interstates 880 (Nimitz Freeway) and 280.
- U.S. Highway 101 and Highway 237.
- State Routes 87, 85, and 17.
- The Mineta San José International Airport, which serves approximately 27,000 passengers daily; the airport is served by 12 major airlines, with direct flights to 30 cities and service to more than 180 destinations.
- The Reid-Hillview and South County general aviation airports.
- Public transit regional hub facilities in San José.
- Three major Bay Area rail lines serving approximately 40,000 riders every weekday from Diridon Station in San José: CalTrain; Capitol Corridor (Amtrak); and Altamont Commuter Express.
- Two VTA light rail lines serving 62 stations in the OA over 42 miles.
- 73 VTA bus routes in the OA that collectively serve 144,000 average weekday riders.
- Feb. 17, 2010, a twin-engine Cessna taking off moments earlier from Palo Alto Airport in dense fog struck a PG&E transformer tower, then plummeted toward Beech Street in Palo Alto, shearing off a wing on the roof before bursting into flames. All three of the plane's passengers were killed instantly.

Hazardous Materials

Hazardous materials are stored before and after they are transported to their intended use. This may include service stations that store gasoline and diesel fuel in underground storage tanks; hospitals that store radioactive materials, flammable materials and other hazardous substances; or manufacturers, processors, distributors, and recycling plants for chemical industries that store a variety of chemicals on site (FEMA, 2013). Fixed sites include buildings or property where hazardous materials are manufactured or stored.

The Toxic Substances Control Act of 1976 (TSCA) provides the EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including food, drugs, cosmetics, and pesticides. TSCA addresses the production, importation, use, and disposal of specific chemicals, including polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint. No TSCA facilities are identified in the Santa Clara County area.

Hazardous waste information is contained in the Resource Conservation and Recovery Act Information databases (RCRA Info), a national program management and inventory system about hazardous waste handlers. In general, entities that generate, transport, treat, store, and dispose of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies pass on the information to regional and national EPA offices. This regulation is governed by the RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984. There are 576 RCRA facilities in the San José and Palo Alto areas of the county.

The following are associated with specific risks related to hazardous materials:

- Business and Industrial Areas—Manufacturing, business, and light industrial firms that make semiconductor devices, satellite equipment and systems, computers-electronics manufacturers, semiconductor manufacturing equipment, computer peripherals, government offices, and e-commerce are major employers in the Santa Clara County OA. These businesses are concentrated in San José,

Sunnyvale, Cupertino, Santa Clara, Mountain View, and Palo Alto, which could be areas of concern for hazardous materials. Each business is required to file a detailed, confidential plan with the local fire department regarding materials on-site and safety measures taken to protect the public.

- **Agricultural**—Agricultural crops in the OA are primarily nursery crops, mushrooms, bell peppers, spinach and wine grapes. While the use of pesticides is regulated, accidental releases of pesticides, fertilizers, and other agricultural chemicals may be harmful to humans and the environment. Agricultural pesticides are transported daily in and around the Santa Clara County OA en-route to their destination in rural areas of the county.
- **Illegal Drug Operations**—Illegal operations such as laboratories for methamphetamine pose a significant threat. Laboratory residues are often dumped along roadways or left in rented hotel rooms, creating a serious health threat to unsuspecting individuals and to the environment.
- **Illegal Dumping**—Hazardous wastes such as used motor oil, solvents, or paint are occasionally dumped in remote areas of the Santa Clara County OA or along roadways, creating a potential health threat to unsuspecting individuals and to the environment.
- **Radioactive Materials**—Licensed carriers transport radioactive materials along several transportation routes (Interstate 880 and 280, Highways 101 and 237) through the OA. Cities within the OA are notified in advance of these shipments and commit resources as a standby measure should an accident occur.

Pipeline Hazard

Figure 15-4 is a map of gas transmission and hazardous liquid pipelines in the Santa Clara County OA. The primary operators for the gas transmission pipelines are Chevron Pipeline Company, Kinder Morgan, PG&E, and Wickland Oil Company.

Source: National Pipeline Mapping System, 2016

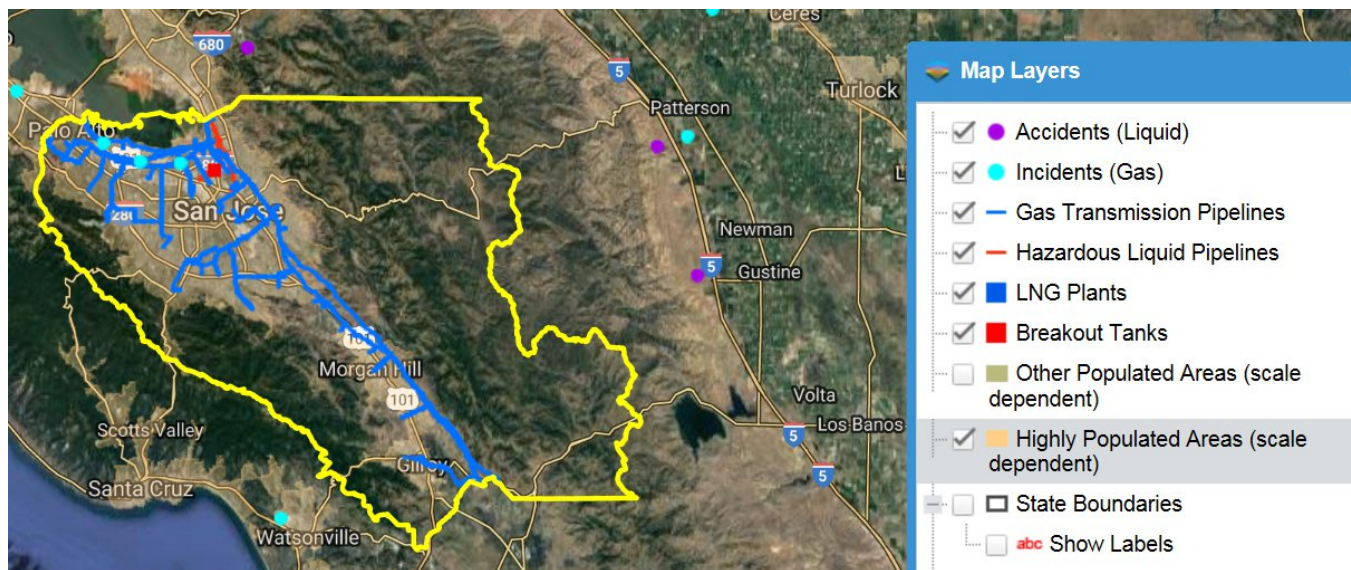


Figure 15-4. Transmission and Hazardous Liquid Pipelines

Pipelines in the OA include the following:

- The San José Terminal, owned by Kinder Morgan—A break-out tank in the City of San José.
- The Bay Area Pipeline, owned by Chevron Pipeline Co.—A 7.85-mile hazardous liquid pipeline used for transporting gasoline, diesel, or jet fuel.
- The SJC pipeline, owned by Wickland Oil Company—A 1.98-mile hazardous liquid pipeline that transports jet fuel to the airport.

- The SFPP Concord-San José pipeline, owned by Kinder Morgan—A 5.64-mile hazardous liquid pipeline that transport multi-products.
- Nine additional PG&E natural gas lines across the length of the OA.

Utility Failure

Utility failure or loss of utility service can be caused by accident, sabotage, natural hazards, or equipment failure, although loss of utilities across the entire county are atypical.

Epidemic/Pandemic

The epidemic/pandemic hazard has not geographic-specific aspect within the Santa Clara County OA. People throughout the entire OA are susceptible to contagious disease.

Fog

The Pacific, Atlantic Canada, and New England coastlines, along with the valleys and hills in the Appalachian Mountains, are the areas most prone to fog on the North American continent (Keller, 2008). The Santa Clara County OA, therefore, is more likely to experience fog than many other parts of the country.

The Bay Area, including the Santa Clara County OA, has a unique topography that, when combined with the California climate and nearby bay/maritime resources, creates multiple microclimates. Microclimates are small but distinct climates within a larger area. Temperature differences of as much as 10°F to 20°F can be found only miles apart in the Bay Area, and those differences can grow significantly from one end of the region to another. In spring 2001, Half Moon Bay documented temperatures in the 50s while Antioch in Contra Costa County had temperatures of around 100°F (SF Gate, 2001).

Microclimates are significant in the case of fog, as certain cities in the OA may experience fog while clear skies predominate only a few miles away. Westerly breezes may bring fog from the ocean, but it will be blocked from passing certain points by mountainous ridges. Even the type of fog in microclimates may vary; some regions are more prone to experience radiation fog, while others only receive a canopy of high fog. This is usually based on the proximity of the location to mountains, ridges, fault lines, and water sources, among other factors.

15.2.3 Frequency, Exposure, Vulnerability

Frequency, exposure, and vulnerability to the identified hazards of interest and response priorities to such hazards are described in detail in the following plans:

- Santa Clara County Operational Area Emergency Operations Plan and Annexes—The Santa Clara County OA Emergency Operations Plan is an all hazards document describing the OA's Emergency Operations organization, compliance with relevant legal statutes, other guidelines, and critical components of the Emergency Response System. The Emergency Operations Plan consists of threat summaries based on a Santa Clara County OA hazard analysis. This hazard analysis was conducted by Santa Clara County OES staff, providing a description of the local area, risk factors and the anticipated nature of situations that could occur in the Santa Clara County OA. The Emergency Operations Plan is activated during extraordinary emergency situations associated with large-scale disasters affecting the Santa Clara County OA.
- Countywide Medical Response System—This Santa Clara County Public Health Department plan outlines the efforts to prepare for response to a disaster that has a medical/health component. The Countywide Medical Response System plan is focused on the goal of terrorism preparedness, and addresses topics such as risk communications, decontamination, personal protective equipment, mass prophylaxis, education, training and exercises. Each topic identifies participating agencies, including fire,

law enforcement, hospitals, emergency management, schools, the medical examiner, mental health services, and many others. The plan further enumerates a list of responsibilities to the Countywide Medical Response System for each identified agency, as well as a list of public health commitments through the system that will assist those agencies.

- **Hazardous Materials Business Plans**—Hazardous materials business plans are implemented by Certified Unified Program Agencies within their jurisdictions, along with local fire departments to protect human health and the environment from hazardous materials incidents.
- **Fog**—The fog typical for the San Francisco Bay Area is known as advection fog. This type of fog forms when warm, moist and stable air is blown across a cooler surface (land or water). The air temperature falls until the dew point is reached and condensation occurs. Fog typically occurs in the Bay Area in the June, July and August. It is usually foggy in the morning, with fog burning off as the temperatures rise. There is currently no available data on the number of fog days observed over a time frame for Santa Clara County. However, there are on average 257 sunny days per year in Santa Clara County (www.bestplaces.net/climate/city/california/san_jose). This leaves an average of 108 days a year when fog may occur within the OA.

15.3 IDENTIFIED NEEDS

This assessment of the hazards of interest led to identification of the following needs throughout the OA:

- Continue regular and redundant emergency preparedness training for field level responders (police, fire, and public works) and public information staff in order to respond quickly in the event of a disaster associated with the identified hazards of interest. Enhance awareness training for all local government employees to recognize threats or suspicious activity in order to prevent an incident from occurring.
- Continue all facets of hazardous materials team training and response through commitment of resources from the Environmental Health Department, local fire departments, and potential funding through homeland security budgets.
- Continue to improve response times for public safety throughout the OA so as to reduce exposure to human-caused incidents. Maintain appropriate staffing levels of public safety personnel to address vulnerabilities identified in this chapter.
- Continue to implement the hazardous materials business plan with enhancements, as warranted by the type of uses in the OA and new technologies in preventing hazardous materials incidents.
- Continue to work proactively with industrial businesses regarding placards and labeling of containers, emergency plans and coordination, standardized response procedures, and notification of the types of materials being transported through the Santa Clara County OA. On at least an annual basis, conduct random inspections of transporters as allowed by the business; install mitigating techniques at critical locations; implement routine hazard communication initiatives; enhance security along the transportation corridors; and continuously look to the use of safer alternative products to conduct all business and transportation operations.
- Participate in regional, state and federal efforts to gather terrorism information at all levels and keep public safety officials briefed at all times regarding any local threats. Further develop response capabilities based on emerging threats.
- Commit support to the Bay Area Urban Area Security Initiative by dedicating fire, emergency medical services, emergency management grant managers, and police personnel to the program as funded with Homeland Security grants.
- Participate in the CalOES Disaster Resistant California annual conference and other training sessions sponsored by regional, state and federal agencies.
- Use Crime Prevention Through Environmental Design in future planning efforts as well as enhancing existing infrastructure and buildings to prevent or mitigate human-cause incidents. Crime Prevention

Through Environmental Design is an urban planning design process that integrates crime prevention with neighborhood design and community development. The process is based on the theory that the proper design and effective use of the built environment can reduce crime and the fear of crime and improve the quality of life. It creates an environment where the physical characteristics, building layout, and site planning allow inhabitants to become key agents in ensuring their own security.

- Participate in regional training exercises per the requirements of Homeland Security Presidential Directive #8 in support of national preparedness. These training exercises may be sponsored by the U.S. Department of Homeland Security San José office, the Bay Area Urban Area Security Initiative, local government offices of homeland security, grant funds through CalOES, or FEMA. Training exercises test and evaluate the ability to coordinate the activities of local and state government first responders, volunteer organizations and the private sector in responding to terrorism and technological hazards. The trainings enhance interagency coordination, provide training to staff, test response and recovery capabilities, and implement the Standardized Emergency Management System, the National Incident Management System, and the California and national mutual aid systems.
- Work with the private sector to enhance and create business continuity plans to be followed in the event of an emergency.
- Review existing automatic aid and mutual aid agreements with other public safety agencies to identify opportunities for enhancement.
- Identify, relocate or construct a redundant Emergency Operations Center in a location away from hazards.
- Maintain an emergency services information line that the public can contact 24 hours a day during an emergency to ask questions of emergency staff.
- Coordinate with all school districts in the OA and individual cities to ensure that their emergency preparedness plans include preparation for human-caused incidents.
- Encourage local businesses to adopt information technology and telecommunications recovery plans.
- Promote 72-hour self-sufficiency through the United Neighborhoods of Santa Clara County and other neighborhood associations, emergency preparedness efforts through local governments, emergency preparedness websites of local governments, civic organizations and the private sector, public outreach, and other means. Ensure inclusion of program information for people with disabilities and others with access and functional needs.
- Prepare and present the human-caused hazard risk and preparedness program to the public through meetings, town hall gatherings, and preparedness fairs and outreach.
- Maintain any and all citizen advisory groups and periodically e-mail emergency preparedness information including human-caused hazard preparedness instructions and reminders.
- Support disease prevention through vaccination and personal emergency and disaster preparation to help reduce the impacts of human health hazards.
- Integrate medical and response personnel in a unified command to provide care when needed in response to human health hazards.
- Adequately train and supply medical and response personnel.
- Carry out up-to-date and functional all-hazard contingency planning.
- Develop a system for informing the public with a unified message about the human health hazard.
- Provide health agencies and facilities with surge capacity management and adaptation to the rising number and needs of the region.

Santa Clara County Operational Area Hazard Mitigation Plan

PART 3—MITIGATION STRATEGY

16. GOALS AND OBJECTIVES

Hazard mitigation plans must identify goals for reducing long-term vulnerabilities to identified hazards (44 CFR Section 201.6(c)(3)(i)). The Core Planning Group established a guiding principle, a set of goals and measurable objectives for this plan, based on data from the preliminary risk assessment and the results of the public involvement strategy. The guiding principle, goals, objectives and actions in this plan all support each other. Goals were selected to support the guiding principle. Objectives were selected that met multiple goals. Actions were prioritized based on the action meeting multiple objectives.

16.1 GUIDING PRINCIPLE

A guiding principle focuses the range of objectives and actions to be considered. This is not a goal because it does not describe a hazard mitigation outcome, and it is broader than a hazard-specific objective. The guiding principle for this hazard mitigation plan is as follows:

Carefully plan for the maintenance and enhancement of a disaster-resistant Operational Area by reducing the current and future potential loss of life, property damage, and environmental degradation from various hazards, while accelerating economic recovery from those hazards.

16.2 GOALS

The following are the mitigation goals for this plan:

1. Actively develop community awareness, understanding, and interest in hazard mitigation and empower the Operational Area to engage in the shaping of associated mitigation policies and programs.
2. Minimize potential for loss of life, injury, social impacts, and dislocation due to hazards.
3. Minimize potential for damage to property, economic impacts, and unusual public expense due to hazards.
4. Provide essential information to the whole community that promotes personal preparedness and includes advice to reduce personal vulnerability to hazards.
5. Encourage programs and projects that promote community resiliency by maintaining the functionality of critical Operational Area resources, facilities, and infrastructure.
6. Promote an adaptive and resilient Operational Area that proactively anticipates the impacts of climate change.

The effectiveness of a mitigation strategy is assessed by determining how well these goals are achieved.

16.3 OBJECTIVES

Each selected objective meets multiple goals, serving as a stand-alone measurement of the effectiveness of a mitigation action, rather than as a subset of a goal. The objectives also are used to help establish priorities. The objectives are as follows:

1. Develop and provide updated information about threats, hazards, vulnerabilities, and mitigation strategies to state, regional, and local agencies, as well as private sector groups.
2. Improve understanding of the locations, potential impacts, and linkages among threats, hazards, vulnerability, and measures needed to protect life.
3. Encourage the incorporation of mitigation best management measures into plans, codes, and other regulatory standards for public, private, and non-governmental entities within the Operational Area.
4. Inform the public on the risk exposure to natural hazards and ways to increase the public's capability to prevent, prepare, respond, recover, and mitigate impacts of these events.
5. Establish and maintain partnerships in the identification and implementation of mitigation measures in the Operational Area.
6. Advance community and natural environment sustainability and resilience to future impacts through preparation and implementation of state, regional, and local projects.
7. Reduce repetitive property losses from all hazards.
8. Where feasible and cost-effective, encourage property protection measures for vulnerable structures located in hazard areas.
9. Improve systems that provide warning and emergency communications.

17. MITIGATION ALTERNATIVES

Catalogs of natural hazard mitigation alternatives were developed that present a broad range of alternatives to be considered for use in the OA, in compliance with 44 CFR (Section 201.6(c)(3)(ii)). One catalog was developed for each natural hazard of concern evaluated in this plan. The catalogs present alternatives that are categorized in two ways:

- By who would have responsibility for implementation:
 - ❖ Individuals (personal scale).
 - ❖ Businesses (corporate scale).
 - ❖ Government (government scale).
- By what the alternative would do:
 - ❖ Manipulate the flooding hazard.
 - ❖ Reduce exposure to the flooding hazard.
 - ❖ Reduce vulnerability to the flooding hazard.
 - ❖ Increase the ability to respond to or be prepared for the flooding hazard.

Hazard mitigation actions recommended in this plan were selected from among the alternatives presented in the catalogs. The catalogs provide a baseline of mitigation alternatives that are backed by a planning process, are consistent with the established goals and objectives, and are within the capabilities of the planning partners to implement. Some of these actions may not be feasible based on the selection criteria identified for this plan. The purpose of the catalog was to provide a list of what could be considered to reduce risk of the flood hazard within the OA. Actions in the catalog that are not included for the partnership's action plan were not selected for one or more of the following reasons:

- The action is not feasible.
- The action is already being implemented.
- There is an apparently more cost-effective alternative.
- The action does not have public or political support.

The following sections present the catalogs for each hazard are presented in Table 17-1 through Table 17-8.

Table 17-1. Alternatives to Mitigate the Dam and Levee Failure Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Relocate out of dam failure inundation areas. Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Elevate home to appropriate levels. Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Learn about risk reduction for the dam failure hazard. ❖ Learn the evacuation routes for a dam failure event. ❖ Educate yourself on early warning systems and the dissemination of warnings. 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ Remove dams. ❖ Remove levees. ❖ Harden dams. Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Replace earthen dams with hardened structures. Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Flood-proof facilities within dam failure inundation areas. Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Educate employees on the probable impacts of a dam failure. ❖ Develop a continuity of operations plan. 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ Remove dams. ❖ Remove levees. ❖ Harden dams. Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Replace earthen dams with hardened structures ❖ Relocate critical facilities out of dam failure inundation areas. ❖ Consider open space land use in designated dam failure inundation areas. Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Adopt higher floodplain standards in mapped dam failure inundation areas. ❖ Retrofit critical facilities within dam failure inundation areas. Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Map dam failure inundation areas. ❖ Enhance emergency operations plan to include a dam failure component. ❖ Institute monthly communications checks with dam operators. ❖ Inform the public on risk reduction techniques ❖ Adopt real-estate disclosure requirements for the re-sale of property located within dam failure inundation areas. ❖ Consider the probable impacts of climate in assessing the risk associated with the dam failure hazard. ❖ Establish early warning capability downstream of listed high hazard dams. ❖ Consider the residual risk associated with protection provided by dams in future land use decisions.

Table 17-2. Alternatives to Mitigate the Drought Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ None Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Drought-resistant landscapes ❖ Reduce water system losses ❖ Modify plumbing systems (through water saving kits) Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Practice active water conservation 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ None Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Drought-resistant landscapes ❖ Reduce private water system losses Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Practice active water conservation 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ Groundwater recharge through stormwater management Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Identify and create groundwater backup sources Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Water use conflict regulations ❖ Reduce water system losses ❖ Distribute water saving kits Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Public education on drought resistance ❖ Identify alternative water supplies for times of drought; mutual aid agreements with alternative suppliers ❖ Develop drought contingency plan ❖ Develop criteria "triggers" for drought-related actions ❖ Improve accuracy of water supply forecasts ❖ Modify rate structure to influence active water conservation techniques

Table 17-3. Alternatives to Mitigate the Earthquake Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate outside of hazard area (off soft soils) Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Retrofit structure (anchor house structure to foundation) ❖ Secure household items that can cause injury or damage (such as water heaters, bookcases, and other appliances) ❖ Build to higher design Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Practice “drop, cover, and hold” ❖ Develop household mitigation plan, such as creating a retrofit savings account, communication capability with outside, 72-hour self-sufficiency during an event ❖ Keep cash reserves for reconstruction ❖ Become informed on the hazard and risk reduction alternatives available. ❖ Develop a post-disaster action plan for your household 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate or relocate mission-critical functions outside hazard area where possible Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Build redundancy for critical functions and facilities ❖ Retrofit critical buildings and areas housing mission-critical functions Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Adopt higher standard for new construction; consider “performance-based design” when building new structures ❖ Keep cash reserves for reconstruction ❖ Inform your employees on the possible impacts of earthquake and how to deal with them at your work facility. ❖ Develop a continuity of operations plan 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate critical facilities or functions outside hazard area where possible Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Harden infrastructure ❖ Provide redundancy for critical functions ❖ Adopt higher regulatory standards Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Provide better hazard maps ❖ Provide technical information and guidance ❖ Enact tools to help manage development in hazard areas (e.g., tax incentives, information) ❖ Include retrofitting and replacement of critical system elements in capital improvement plan ❖ Develop strategy to take advantage of post-disaster opportunities ❖ Warehouse critical infrastructure components such as pipe, power line, and road repair materials ❖ Develop and adopt a continuity of operations plan ❖ Initiate triggers guiding improvements (such as <50% substantial damage or improvements) ❖ Further enhance seismic risk assessment to target high hazard buildings for mitigation opportunities. ❖ Develop a post-disaster action plan that includes grant funding and debris removal components.

Table 17-4. Alternatives to Mitigate the Flooding Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ Clear storm drains and culverts ❖ Use low-impact development techniques Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate outside of hazard area ❖ Elevate utilities above base flood elevation ❖ Use low-impact development techniques Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Raise structures above base flood elevation ❖ Elevate items within house above base flood elevation ❖ Build new homes above base flood elevation ❖ Flood-proof structures Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Buy flood insurance ❖ Develop household plan, such as retrofit savings, communication with outside, 72-hour self-sufficiency during and after an event 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ Clear storm drains and culverts ❖ Use low-impact development techniques Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate critical facilities or functions outside hazard area ❖ Use low-impact development techniques Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Build redundancy for critical functions or retrofit critical buildings ❖ Provide flood-proofing when new critical infrastructure must be located in floodplains Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Keep cash reserves for reconstruction ❖ Support and implement hazard disclosure for sale of property in risk zones. ❖ Solicit cost-sharing through partnerships with others on projects with multiple benefits. 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ Maintain drainage system ❖ Institute low-impact development techniques on property ❖ Dredging, levee construction, and providing regional retention areas ❖ Structural flood control, levees, channelization, or revetments. ❖ Stormwater management regulations and master planning ❖ Acquire vacant land or promote open space uses in developing watersheds to control increases in runoff Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate or relocate critical facilities outside of hazard area ❖ Acquire or relocate identified repetitive loss properties ❖ Promote open space uses in identified high hazard areas via techniques such as: planned unit developments, easements, setbacks, greenways, sensitive area tracks. ❖ Adopt land development criteria such as planned unit developments, density transfers, clustering ❖ Institute low impact development techniques on property ❖ Acquire vacant land or promote open space uses in developing watersheds to control increases in runoff Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Harden infrastructure, bridge replacement program ❖ Provide redundancy for critical functions and infrastructure ❖ Adopt regulatory standards such as freeboard standards, cumulative substantial improvement or damage, lower substantial damage threshold; compensatory storage, non-conversion deed restrictions. ❖ Stormwater management regulations and master planning. ❖ Adopt "no-adverse impact" floodplain management policies that strive to not increase the flood risk on downstream communities. Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Produce better hazard maps ❖ Provide technical information and guidance ❖ Enact tools to help manage development in hazard areas (stronger controls, tax incentives, and information) ❖ Incorporate retrofitting or replacement of critical system elements in capital improvement plan ❖ Develop strategy to take advantage of post-disaster opportunities ❖ Warehouse critical infrastructure components ❖ Develop and adopt a continuity of operations plan ❖ Consider participation in the Community Rating System ❖ Maintain and collect data to define risks and vulnerability ❖ Train emergency responders ❖ Create an elevation inventory of structures in the floodplain ❖ Develop and implement a public information strategy ❖ Charge a hazard mitigation fee ❖ Integrate floodplain management policies into other planning mechanisms within the OA. ❖ Consider the probable impacts of climate change on the risk associated with the flood hazard ❖ Consider the residual risk associated with structural flood control in future land use decisions ❖ Enforce National Flood Insurance Program ❖ Adopt a Stormwater Management Master Plan

Table 17-5. Alternatives to Mitigate the Landslide/Mass Movement Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ Stabilize slope (dewater, armor toe) ❖ Reduce weight on top of slope ❖ Minimize vegetation removal and the addition of impervious surfaces. • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate structures outside of hazard area (off unstable land and away from slide-run out area) • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Retrofit home • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Institute warning system, and develop evacuation plan ❖ Keep cash reserves for reconstruction ❖ Educate yourself on risk reduction techniques for landslide hazards 	<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ Stabilize slope (dewater, armor toe) ❖ Reduce weight on top of slope • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate structures outside of hazard area (off unstable land and away from slide-run out area) • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Retrofit at-risk facilities • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Institute warning system, and develop evacuation plan ❖ Keep cash reserves for reconstruction ❖ Develop a continuity of operations plan ❖ Educate employees on the potential exposure to landslide hazards and emergency response protocol. 	<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ Stabilize slope (dewater, armor toe) ❖ Reduce weight on top of slope • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Acquire properties in high-risk landslide areas. ❖ Adopt land use policies that prohibit the placement of habitable structures in high-risk landslide areas. • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Adopt higher regulatory standards for new development within unstable slope areas. ❖ Armor/retrofit critical infrastructure against the impact of landslides. • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Produce better hazard maps ❖ Provide technical information and guidance ❖ Enact tools to help manage development in hazard areas: better land controls, tax incentives, information ❖ Develop strategy to take advantage of post-disaster opportunities ❖ Warehouse critical infrastructure components ❖ Develop and adopt a continuity of operations plan ❖ Educate the public on the landslide hazard and appropriate risk reduction alternatives.

Table 17-6. Alternatives to Mitigate the Severe Weather Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ None Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Insulate house ❖ Provide redundant heat and power ❖ Insulate structure ❖ Plant appropriate trees near home and power lines ("Right tree, right place" National Arbor Day Foundation Program) Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Trim or remove trees that could affect power lines ❖ Promote 72-hour self-sufficiency ❖ Obtain a NOAA weather radio. ❖ Obtain an emergency generator. 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ None Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Relocate critical infrastructure (such as power lines) underground ❖ Reinforce or relocate critical infrastructure such as power lines to meet performance expectations ❖ Install tree wire Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Trim or remove trees that could affect power lines ❖ Create redundancy ❖ Equip facilities with a NOAA weather radio ❖ Equip vital facilities with emergency power sources. 	<ul style="list-style-type: none"> Manipulate the hazard: <ul style="list-style-type: none"> ❖ None Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ None Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Harden infrastructure such as locating utilities underground ❖ Trim trees back from power lines Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Support programs such as "Tree Watch" that proactively manage problem areas through use of selective removal of hazardous trees, tree replacement, etc. ❖ Increase communication alternatives ❖ Modify land use and environmental regulations to support vegetation management activities that improve reliability in utility corridors. ❖ Modify landscape and other ordinances to encourage appropriate planting near overhead power, cable, and phone lines ❖ Provide NOAA weather radios to the public

Table 17-7. Alternatives to Mitigate the Tsunami Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ None • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate outside of hazard area • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Apply personal property mitigation techniques to your home such as anchoring your foundation and foundation openings to allow flow through • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Develop and practice a household evacuation plan. ❖ Support/participate in the Redwood Coast Tsunami Working Group. ❖ Educate yourself on the risk exposure from the tsunami hazard and ways to minimize that risk. 	<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ None • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate structure or mission critical functions outside of hazard area whenever possible • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Mitigate personal property for the impacts of tsunami • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Develop and practice a corporate evacuation plan. ❖ Support/participate in the Redwood Coast Tsunami Working Group. ❖ Educate employees on the risk exposure from the tsunami hazard and ways to minimize that risk 	<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ Build wave abatement structures (e.g. the “Jacks” looking structure designed by the Japanese) • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Locate structure or functions outside of hazard area whenever possible. ❖ Harden infrastructure for tsunami impacts. ❖ Relocate identified critical facilities located in tsunami high hazard areas. • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Adopt higher regulatory standards that will provide higher levels of protection to structures built in a tsunami inundation area. ❖ Utilize tsunami mapping once available, to guide development away from high risk areas through land use planning • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Create a probabilistic tsunami map for the OA. ❖ Provide incentives to guide development away from hazard areas. ❖ Develop a tsunami warning and response system. ❖ Provide residents with tsunami inundation maps ❖ Join NOAA's Tsunami Ready program ❖ Develop and communicate evacuation routes ❖ Enhance the public information program to include risk reduction options for the tsunami hazard

Table 17-8. Alternatives to Mitigate the Wildfire Hazard

Personal-Scale	Corporate-Scale	Government-Scale
<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ Clear potential fuels on property such as dry overgrown underbrush and diseased trees • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Create and maintain defensible space around structures ❖ Locate outside of hazard area ❖ Mow regularly • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Create and maintain defensible space around structures and provide water on site ❖ Use fire-retardant building materials ❖ Create defensible spaces around home • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Employ techniques from the National Fire Protection Association's Firewise Communities program to safeguard home ❖ Identify alternative water supplies for fire fighting ❖ Install/replace roofing material with non-combustible roofing materials. 	<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ Clear potential fuels on property such as dry underbrush and diseased trees • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Create and maintain defensible space around structures and infrastructure ❖ Locate outside of hazard area • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Create and maintain defensible space around structures and infrastructure and provide water on site ❖ Use fire-retardant building materials ❖ Use fire-resistant plantings in buffer areas of high wildfire threat. • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ Support Firewise community initiatives. ❖ Create /establish stored water supplies to be utilized for firefighting. 	<ul style="list-style-type: none"> • Manipulate the hazard: <ul style="list-style-type: none"> ❖ Clear potential fuels on property such as dry underbrush and diseased trees ❖ Implement best management practices on public lands. • Reduce exposure to the hazard: <ul style="list-style-type: none"> ❖ Create and maintain defensible space around structures and infrastructure ❖ Locate outside of hazard area ❖ Enhance building code to include use of fire resistant materials in high hazard area. • Reduce vulnerability to the hazard: <ul style="list-style-type: none"> ❖ Create and maintain defensible space around structures and infrastructure ❖ Use fire-retardant building materials ❖ Use fire-resistant plantings in buffer areas of high wildfire threat. ❖ Consider higher regulatory standards (such as Class A roofing) ❖ Establish biomass reclamation initiatives • Increase the ability to respond to or be prepared for the hazard: <ul style="list-style-type: none"> ❖ More public outreach and education efforts, including an active Firewise program ❖ Possible weapons of mass destruction funds available to enhance fire capability in high-risk areas ❖ Identify fire response and alternative evacuation routes ❖ Seek alternative water supplies ❖ Become a Firewise community ❖ Use academia to study impacts/solutions to wildfire risk ❖ Establish/maintain mutual aid agreements between fire service agencies. ❖ Create/implement fire plans ❖ Consider the probable impacts of climate change on the risk associated with the wildfire hazard in future land use decisions

18. AREA-WIDE ACTION PLAN AND IMPLEMENTATION

The Working Group reviewed the catalogs of hazard mitigation alternatives and selected area-wide actions to be included in a hazard mitigation action plan. The selection of area-wide actions was based on the risk assessment of identified hazards of concern and the defined hazard mitigation goals and objectives. Table 18-1 lists the recommended hazard mitigation actions that make up the action plan. The timeframe indicated in the table is defined as follows:

- Short Term = to be completed in 1 to 5 years.
- Long Term = to be completed in greater than 5 years.
- Ongoing = currently being funded and implemented under existing programs.

Table 18-1. Santa Clara County Operational Area Action Plan

Hazards Addressed	Objectives Met	Lead Agency	Funding Options	Timeframe
Action SCOA-1—Continue to maintain a website that will house the operational-area hazard mitigation plan, its progress reports, and all components of the plan's maintenance strategy to provide the planning partners and public ongoing access to the plan and its implementation.				
All	1, 2, 3, 4, 5, 6, 9	Santa Clara County OES	Santa Clara County OES Operating Budget	Ongoing
Action SCOA-2—Continue to leverage, support and enhance ongoing, regional public education and awareness programs as a method to educate the public on risk, risk reduction and community resilience.				
All	1, 2, 4, 9	Santa Clara County OES and all planning partners	Local	Ongoing
Action SCOA-3—Continue ongoing communication and coordination in the implementation of the Santa Clara County Operational Area Hazard Mitigation Plan.				
All	1, 2, 3, 4, 5, 6, 7, 8, 9	Santa Clara County OES and all planning partners	Local	Ongoing
Action SCOA-4—Continue to support the use, development and enhancement of a regional crisis communications system				
All	1, 4, 5, 9	Santa Clara County OES and all planning partners	Local, possible grant funding (FEMA, DHS, NWS, NOAA)	Ongoing
Action SCOA-5—Strive to capture time-sensitive, perishable data—such as high water marks, extent and location of hazard, and loss information—following hazard events to support future updates to the risk assessment.				
All	2, 3, 6	Santa Clara County OES and all planning partners	Local, FEMA (PA)	Short-term
Action SCOA-6—Identify new and comprehensive hazard datasets to improve and augment future updates to the risk assessment				
All	2, 3, 5, 6, 7, 8	Santa Clara County OES and all planning partners	Local	Ongoing

18.1.1 Benefit-Cost Review

The action plan must be prioritized according to a benefit/cost analysis of the proposed projects and their associated costs (44 CFR, Section 201.6(c)(3)(iii)). The benefits of proposed projects were weighed against estimated costs as part of the project prioritization process. The benefit/cost analysis was not of the detailed variety required by FEMA for project grant eligibility under Hazard Mitigation Assistance grants. A less formal approach was used because some projects may not be implemented for up to 10 years, and associated costs and benefits could change dramatically in that time. Therefore, a review of the apparent benefits versus the apparent cost of each project was performed. Parameters were established for assigning subjective ratings (high, medium, and low) to the costs and benefits of these projects.

Cost ratings were defined as follows:

- High—Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).
- Medium—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- Low—The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.

Benefit ratings were defined as follows:

- High—Project will provide an immediate reduction of risk exposure for life and property.
- Medium—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
- Low—Long-term benefits of the project are difficult to quantify in the short term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly.

For many of the strategies identified in this action plan, financial assistance may be available through Hazard Mitigation Assistance grants, all of which require detailed benefit/cost analyses. These analyses will be performed on projects at the time of application using the FEMA benefit-cost model. For projects not seeking financial assistance from grant programs that require detailed analysis, “benefits” can be defined according to parameters that meet the goals and objectives of this plan.

18.1.2 Area-Wide Action Plan Prioritization

Table 18-2 lists the priority of each area-wide action.

Table 18-2. Prioritization of Operational Area-Wide Mitigation Actions

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is project Grant Eligible?	Can Project be Funded under Existing Programs/ Budgets?	Priority (High, Med., Low)
SCOA-1	7	Medium	Low	Yes	No	Yes	High
SCOA-2	4	High	Medium	Yes	Yes	Yes	High
SCOA-3	9	High	Medium	Yes	Yes	Yes	High
SCOA-4	4	Medium	Medium	Yes	Yes	Yes	High
SCOA-5	3	Medium	Medium	Yes	Yes	No	High
SCOA-6	6	High	Medium	Yes	Yes	Yes	High

A qualitative benefit-cost review was performed for each of these actions. The priorities are defined as follows:

- **High Priority**—A project that meets multiple objectives (i.e., multiple hazards), has benefits that exceed cost, has funding secured or is an ongoing project and meets eligibility requirements for Hazard Mitigation Assistance grants. High priority projects can be completed in the short term (1 to 5 years).
- **Medium Priority**—A project that meets goals and objectives, that has benefits that exceed costs, and for which funding has not been secured but that is grant eligible under Hazard Mitigation Assistance grants or other grant programs. Project can be completed in the short term, once funding is secured. Medium priority projects will become high priority projects once funding is secured.
- **Low Priority**—A project that will mitigate the risk of a hazard, that has benefits that do not exceed the costs or are difficult to quantify, for which funding has not been secured, that is not eligible for Hazard Mitigation Assistance grant funding, and for which the time line for completion is long term (1 to 10 years). Low priority projects may be eligible for other sources of grant funding from other programs.

18.1.3 Analysis of Area-Wide Mitigation Actions

Each recommended action was classified based on the hazard it addresses and the type of mitigation it involves. Table 18-3 shows the classification based on this analysis.

Table 18-3. Analysis of Mitigation Actions

Hazard Event	Actions That Address the Hazard, by Mitigation Type						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient
Dam/Levee Failure	SCOA-3, SCOA-6	SCOA-5	SCOA-1, SCOA-2, SCOA-3, SCOA-4	SCOA-6	SCOA-4, SCOA-6		SCOA-2, SCOA-5
Drought	SCOA-3	SCOA-5	SCOA-1, SCOA-2, SCOA-3, SCOA-4	SCOA-6	SCOA-4, SCOA-6		SCOA-2
Earthquake	SCOA-3	SCOA-5	SCOA-1, SCOA-2, SCOA-3, SCOA-4	SCOA-6	SCOA-4, SCOA-6		SCOA-2
Flooding	SCOA-3, SCOA-5	SCOA-5	SCOA-1, SCOA-2, SCOA-3, SCOA-4	SCOA-6	SCOA-4, SCOA-6		SCOA-2, SCOA-5
Landslide/Mass Movement	SCOA-3	SCOA-5	SCOA-1, SCOA-2, SCOA-3, SCOA-4	SCOA-6	SCOA-4, SCOA-6		SCOA-2, SCOA-5
Severe Weather	SCOA-3	SCOA-5	SCOA-1, SCOA-2, SCOA-3, SCOA-4	SCOA-6	SCOA-4, SCOA-6		SCOA-2
Wildfire	SCOA-3	SCOA-5	SCOA-1, SCOA-2, SCOA-3, SCOA-4	SCOA-6	SCOA-4, SCOA-6		SCOA-2, SCOA-5

Mitigation types used for this categorization are as follows:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.

- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Climate Resilient**—Actions that minimize the impacts of climate change via an aquifer storage and recovery system to increase water supply for drought mitigation and a flood diversion and storage project to reduce flood risk.

18.2 PLAN ADOPTION

A hazard mitigation plan must document that it has been formally adopted by the governing bodies of the jurisdictions requesting federal approval of the plan (44 CFR Section 201.6(c)(5)). For multi-jurisdictional plans, each jurisdiction requesting approval must document that it has been formally adopted. This plan will be submitted for a pre-adoption review to CalOES and FEMA Region IX prior to adoption. Once pre-adoption approval has been provided, all planning partners will formally adopt the plan. DMA compliance and its benefits cannot be achieved until the plan is adopted. Copies of the resolutions adopting this plan for all planning partners can be found in Appendix C of this volume.

18.3 PLAN MAINTENANCE STRATEGY

A hazard mitigation plan must present a plan maintenance process that includes the following (44 CFR Section 201.6(c)(4)):

- A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan over a 5-year cycle.
- A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate.
- A discussion on how the community will continue public participation in the plan maintenance process.

This section details the formal process that will ensure that the Hazard Mitigation Plan remains an active and relevant document and that the planning partners maintain their eligibility for applicable funding sources. The plan maintenance process includes a schedule for monitoring and evaluating the plan annually and producing an updated plan every five years. This chapter also describes how public participation will be integrated throughout the plan maintenance and implementation process. It also explains how the mitigation strategies outlined in this Plan will be incorporated into existing planning mechanisms and programs, such as comprehensive land-use planning processes, capital improvement planning, and building code enforcement and implementation. The Plan's format allows sections to be reviewed and updated when new data become available, resulting in a plan that will remain current and relevant.

Pursuant to 44CFR 201.6(c)(4)(i), the plan maintenance matrix shown in Table 18-4 provides a synopsis of responsibilities for plan monitoring, evaluation, and update, which are discussed in further detail in the sections below.

Table 18-4. Plan Maintenance Matrix

Task	Approach	Timeline	Lead Responsibility	Support Responsibility
Monitoring	Preparation of status updates and action implementation tracking as part of submission for Annual Progress Report.	January to February or upon comprehensive update to General Plan or major disaster	Jurisdictional points of contact identified in Volume 2 annexes	Jurisdictional implementation lead identified in Volume 2 annexes
Evaluation	Review the status of previous actions as submitted by the monitoring task lead and support to assess the effectiveness of the plan; compile and finalize the Annual Progress Report	Finalized progress report completed by March 1 of each year	Core Planning Group (via Santa Clara County OES); Plan Maintenance element	Jurisdictional points of contacts identified in Volume 2 annexes
Update	Reconvene the planning partners, at a minimum, every 5 years to guide a comprehensive update to review and revise the plan.	Every 5 years or upon comprehensive update to General Plan or major disaster	Core Planning Group (via Santa Clara County OES); Plan Maintenance element	Jurisdictional points of contacts identified in Volume 2 annexes

18.3.1 Plan Implementation

The effectiveness of the hazard mitigation plan depends on its implementation and incorporation of its action items into existing local plans, policies and programs. Together, the action items in the Plan provide a framework for activities that the planning partners can implement over the next 5 years. The Working Group has established goals and objectives and have prioritized mitigation actions that will be implemented through existing plans, policies, and programs.

The Core Planning Group, in coordination with the Working Group, will have lead responsibility for overseeing the overall plan implementation and maintenance strategy. Plan implementation and evaluation will be a shared responsibility among all planning partners and agencies identified as lead agencies in the mitigation action plans and according to local governing protocols (see planning partner annexes in Volume 2 of this plan).

18.3.2 Plan Maintenance Element

The Working Group is a total volunteer body that oversaw the development of the Plan and made recommendations on key elements of the plan, including the maintenance strategy. It was the Working Group's position that an oversight committee with representation similar to that of the Working Group should have an active role in the plan maintenance strategy. Therefore, it is recommended that a Plan Maintenance element remain a viable body involved in key elements of the plan maintenance strategy. The Plan Maintenance element should include representation from all planning partners and other stakeholders in the OA.

The principal role of the Plan Maintenance element will be to review the annual progress report and provide input to the Core Planning Group (via Santa Clara County OES) and the Emergency Operational Area Council (EOAC) on possible enhancements to be considered at the next update. Future plan updates may be overseen by a new working group, similar to the one that participated in this update. Keeping an interim Plan Maintenance element intact will therefore provide a head start on future updates. Data compilation for the progress report is the responsibility of each planning partner, not the responsibility of the Plan Maintenance element. The Plan Maintenance element's role will simply be to review the progress report in order to identify issues needing to be addressed by future plan updates.

18.3.3 Annual Progress Report Requirement

The minimum task of each planning partner will be the evaluation of the progress of its individual action plan during a 12-month performance period. This review will include the following:

- Summary of any hazard events that occurred during the performance period and the impact these events had on the OA.
- Review of mitigation success stories.
- Review of continuing public involvement.
- Brief discussion about why targeted strategies were not completed.
- Re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended (such as changing a long-term project to a short-term one because of new funding).
- Recommendations for new projects.
- Changes in or potential for new funding options (grant opportunities).
- Impact of any other planning programs or actions that involve hazard mitigation.

The Core Planning Group has created a streamlined approach for preparing a progress report. A template for future progress reports is provided in Appendix B of this volume. The Plan Maintenance element will provide feedback to the Core Planning Group on items included in the template. The Core Planning Group will then prepare a formal annual report on the progress of the plan. This report should be used as follows:

- Posted on the Santa Clara County OES website page dedicated to the hazard mitigation plan.
- Provided to the local media through a press release.
- Presented to planning partner governing bodies to inform them of the progress of actions implemented during the reporting period.
- Conducted between January and February of each year to position the Operational Area for Pre-Disaster Mitigation funding opportunities beginning March 1.

Annual progress reporting is not a requirement specified under 44 CFR, but is a requirement for credit under the CRS program activity 510. However, it may enhance the planning partners' opportunities for funding. While failure to implement this component of the plan maintenance strategy will not jeopardize a planning partner's compliance under the DMA, it may jeopardize its opportunity to partner and leverage funding opportunities with the other partners. Each planning partner was informed of these protocols at the beginning of this planning process (in the "Planning Partner Expectations" package provided at the start of the process), and each partner acknowledged these expectations with submittal of a letter of intent to participate in this process.

18.3.4 Twice-Yearly Progress Report Option

During the planning process, the Core Planning Group and Working Group identified an added benefit for twice-yearly progress reporting during the plan performance period. Twice-yearly progress reporting, while not mandated as part of this plan maintenance procedure, can provide added benefit in the following areas:

- Community Rating System (CRS) recertification preparation for CRS communities.
- Streamlined coordination and assessment to pursue grant funds following a disaster declaration.
- Continuity of knowledge to prevent plan maintenance lapse due to staff turnover.

Community Rating System

Twice-yearly progress reporting will serve a primary benefit to communities participating in CRS. As part of annual recertification for the CRS program with no formal audit, CRS communities are required to report on the status of their mitigation initiatives. These re-certifications occur on October 1 of each year, approximately six months after the annual progress reporting period that will be led by the Core Planning Group. As such, twice-yearly reporting is recommended to capture any additional progress achieved since the annual progress report development. To meet this recertification timeline, the CRS communities should strive to complete twice-yearly progress reports between August and September each year.

It is understood by the CRS participating communities within the OA that a formal progress report is to be submitted with its annual recertification once a community receives credit for planning under CRS activity 510. If there has been no change in status of any action during the period for the initial progress reporting and the due date for the CRS annual recertification (October 1), then submittal of the initial report will suffice for CRS progress reporting requirements. However, a community can receive additional credit points under CRS activity 510 for fully committing to twice-yearly progress reporting.

Post-Disaster Funding

Once a major disaster occurs in the OA, Hazard Mitigation Grant Program funds may become available on a competitive basis. Planning partners may choose to update their progress on their selected strategies for the purpose of identifying appropriate projects for which to pursue HMGP funds. Additionally, planning partners may identify appropriate multi-jurisdictional initiatives specific to the hazard and damage experienced, in order to tailor their grant submissions for maximum benefit. The occurrence of a presidentially declared disaster in the OA that triggers grant funding may also trigger a formal update to this hazard mitigation plan, as described below.

Staff Turnover

During any given year, staff turnover may disrupt normal operations of participation planning partners. If key points of contact leave, knowledge for action plan progress or standard practices may be lost. By conducting a twice-yearly progress report prior to a major staff change, jurisdictions provide a road map for knowledge transfer between outgoing and incoming staff.

Twice-Yearly Progress Reporting Assistance

Santa Clara County OES will provide assistance to jurisdictions seeking to conduct a progress report outside of the annual progress reporting period. This assistance may include providing a copy of the most recently completed annual progress report and guidance on how to review and report on the mitigation action list, recommendations on prioritization.

18.3.5 Plan Update

Local hazard mitigation plans must be reviewed, revised if appropriate, and resubmitted for approval in order to remain eligible for benefits under the DMA (44 CFR, Section 201.6(d)(3)). The planning partners intend to update the hazard mitigation plan on a 5-year cycle from the date of initial plan adoption. This cycle may be accelerated to less than 5 years based on the following triggers:

- A Presidential Disaster Declaration that impacts the OA.
- A hazard event that causes loss of life.
- A comprehensive update of a planning partner's general plan.

It will not be the intent of future updates to develop a complete new hazard mitigation plan for the OA. The update will, at a minimum, include the following elements:

- The update process will be convened through a new Working Group.
- The hazard risk assessment will be reviewed and, if necessary, updated using best available information and technologies.
- The action plans will be reviewed and revised to account for any actions completed, dropped, or changed and to account for changes in the risk assessment or new policies identified under other planning mechanisms (such as the general plan).
- The draft update will be sent to appropriate agencies and organizations for comment.
- The public will be given an opportunity to comment on the update prior to adoption.

- Planning partner governing bodies will adopt the updated plan.

18.3.6 Grant Monitoring and Coordination

The Working Group recognized the importance of having an annual coordination period that helps each planning partner become aware of upcoming mitigation grant opportunities identifies multi-jurisdiction projects to pursue. Grant monitoring will be the responsibility of the Core Planning Group (via Santa Clara County OES) as part of the annual progress report coordination responsibilities. Santa Clara County OES will keep the planning partners apprised of Hazard Mitigation Assistance grant openings and provide technical guidance and expertise in developing the HMA sub-applicant package. In cases where jurisdictions wish to pursue funding for multi-jurisdiction initiatives, Santa Clara County OES will provide each participating jurisdiction with the guidance needed to complete a joint sub-applicant package.

Santa Clara County OES intends to be a resource to the planning partnership in the support of project grant writing and development. The degree of this support will depend on the level of assistance requested by the partnership during open windows for grant applications. It is not Santa Clara County OES's intent to lead any grant application effort for any specific planning partner requesting assistance. It will be the role of Santa Clara County OES staff to provide support to a lead jurisdiction by providing or identifying resources for project development, scoping, feasibility, grant writing, environmental/historic preservation application, and benefit/cost analyses. As part of grant monitoring and coordination, Santa Clara County OES agrees to provide the following:

- Notification to planning partners about impending grant opportunities.
- A current list of eligible, jurisdiction-specific projects for funding pursuit consideration.
- Notification about mitigation priorities for the fiscal year to assist the planning partners in the selection of appropriate projects.
- Training on the FEMA benefit-cost analysis tool upon request.
- Training on the sub-applicant system (eGrants) upon request.
- Grant writing technical assistance upon request.
- Technical review of the completed sub-applicant package upon request.

Grant monitoring and coordination is expected to occur on an annual basis in coordination with the annual progress report or as needed based on the availability of non-HMA or post-disaster funding opportunities.

18.3.7 Continuing Public Involvement

The public will continue to be apprised of the plan's progress through the Santa Clara County OES website and by providing copies of annual progress reports to the media. Each planning partner has agreed to provide links to the hazard mitigation plan website on their individual jurisdictional websites to increase avenues of public access to the plan. Santa Clara County OES has agreed to maintain the hazard mitigation plan website. This site will not only house the final plan, it will become the one-stop shop for information regarding the plan, the partnership and plan implementation. Upon initiation of future update processes, a new public involvement strategy will be initiated based on guidance from a new working group. This strategy will be based on the needs and capabilities of the planning partnership at the time of the update. At a minimum, this strategy will include the use of local media outlets within the OA.

Through this planning process, the Working Group recognized a need to develop a crisis communication strategy. The Working Group identified the benefit of a sole-source outlet for providing public information. During the planning process, the Santa Clara County Fire Department's public information officer provided guidance to jurisdictional public information officers in regards to messaging and public response via social media. During the performance period, a single messaging system to be designated by Santa Clara County OES will be established on behalf of the whole partnership.

18.3.8 Incorporation into Other Planning Mechanisms

The information on hazard, risk, vulnerability, and mitigation contained in this plan is based on the best science and technology available at the time this plan was prepared. The general plans of the planning partners are considered to be integral parts of this plan. The planning partners, through adoption of general plans and zoning ordinances, have planned for the impact of natural hazards. The plan development process provided them with the opportunity to review and expand on policies contained within these planning mechanisms. The planning partners used their general plans and the hazard mitigation plan as complementary documents that work together to achieve the goal of reducing risk exposure to the citizens of the OA. An update to a general plan may trigger an update to the hazard mitigation plan.

All municipal planning partners are committed to creating a linkage between the hazard mitigation plan and their individual general plans by identifying a mitigation action as such and giving that action a high priority. Additionally, all planning partners are committed to being in full compliance with California Assembly Bill 2140 and Senate Bill 379, which promote the integration of local hazard mitigation plans and general plans and mandate that these plans address climate change. Other planning processes and programs to be coordinated with the recommendations of the hazard mitigation plan include the following:

- Emergency response plans.
- Training and exercise of emergency response plans.
- Debris Management Plans.
- Recovery Plans.
- Capital improvement programs.
- Municipal codes.
- Community design guidelines.
- Water-efficient landscape design guidelines.
- Stormwater management programs.
- Water system vulnerability assessments.
- Community Wildfire Protection Plans.
- Comprehensive Flood Hazard Management Plans.
- Resiliency Plans.
- Community Development Block Grant-Disaster Recovery action plans.
- Public information/Education plans.

Some action items do not need to be implemented through regulation. Instead, these items can be implemented through the creation of new educational programs, continued interagency coordination, or improved public participation. As information becomes available from other planning mechanisms that can enhance this plan, that information will be incorporated via the update process.

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GLOSSARY

ACRONYMS

°F—Degrees Fahrenheit

ABAG—Association of Bay Area Governments

ADA—Americans with Disabilities Act

API—Advanced Persistent Threat

ASPA—Aboveground petroleum storage tank

ATC—(Federal) Air Traffic Controller

BACERP—Bay Area Climate and Energy Resilience Project

BART—Bay Area Rapid Transit System

BPR—Bottom pressure recorder

CAL FIRE—California Department of Forestry and Fire Protection

CalOES—California Office of Emergency Services

CCR—California Code of Regulations

CDC—Centers for Disease Control and Prevention

CEQA—California Environmental Quality Act

CERCLA—Comprehensive Environmental Response, Compensation, and Liability Act

CFR—Code of Federal Regulations

cfs—cubic feet per second

CPUC—California Public Utilities Commission

CRS—Community Rating System

CSA—County Service Area

CWA—Clean Water Act

CZM—Coastal Zone Management

DART—Deep ocean Assessment and Reporting of Tsunamis

DEM—Digital Elevation Model

DFIRM—Digital Flood Insurance Rate Maps

DHS—Department of Homeland Security

DMA—Disaster Mitigation Act

DOF—Department of Finance
DWR—Department of Water Resources
EA—Electronic Attack
EMA—Emergency Managers Association
EMP—Electromagnetic Pulse
EPA—U.S. Environmental Protection Agency
EPCRA—Emergency Planning and Community Right to Know Act
ESA—Endangered Species Act
FAA—Federal Aviation Administration
FBI—Federal Bureau of Investigation
FEMA—Federal Emergency Management Agency
FERC—Federal Energy Regulatory Commission
FHSZ—Fire Hazard Severity Zone
FIRM—Flood Insurance Rate Map
FMA—Flood Mitigation Insurance
FRA—Federal responsibility area
FRAP—Fire and Resource Assessment
g—Gravity (%g, percent acceleration force of gravity)
GIS—Geographic Information System
gpcd—Gallons per capita per day
Hazus—Hazards, United States-Multi Hazard
HMGP—Hazard Mitigation Grant Program
HMI—Hazard Mitigation Insurance
HMP—Hazard Mitigation Plan
IBC—International Building Code
IPCC—Intergovernmental Panel on Climate Change
IRC—International Residential Code
ISO—Insurance Services Office
IT—Information Technology
LEPC—Local emergency planning committee
LHMP—Local hazard mitigation plan
LiMWAN—Limit of Moderate Wave Action
LRA—Local responsibility area
m—Meter

MCI—Mass casualty incident
MITM—Man in the middle
mm—Millimeter
MM—Modified Mercalli
mm/yr—Millimeters per year
MM—Modified Mercalli Scale
mph—Miles per hour
NASA—National Aeronautics and Space Administration
NCDC—National Climatic Data Center
NCRIC—Northern California Regional Intelligence Center
NDSP—National Dam Safety Program
NEHRP—National Earthquake Hazard Reduction Program
NFIP—National Flood Insurance Program
NFPA—National Fire Protection Academy
NLD—National Levee Database
NMDC—National Drought Mitigation Center
NOAA—National Oceanic and Atmospheric Administration
NTSC—National Transportation Safety Board
NWS—National Weather Service
ONI—Ocean Niño Index
PCB—Polychlorinated biphenyls
PDI—Palmer Drought Index
PDM—Pre-Disaster Mitigation Grant Program
PDSI—Palmer Drought Severity Index
PG&E—Pacific Gas and Electric
PGA—Peak Ground Acceleration
PHDI—Palmer Hydrological Drought Index
PTWC—Pacific Tsunami Warning Center
RCRA—Resource Conservation and Recovery Act
SCA—(Bay Area Water) Supply Conservation Agency
SCADA—Supervisory Control and Data Acquisition
SERC—State Emergency Response Commission
SFHA—Special Flood Hazard Area
SFO—San Francisco International Airport

SFPUC—San Francisco Public Utilities Commission

SHELDUS—Special Hazard Events and Losses Database for the US

SPCC—Spill Prevention Control and Countermeasures

SPI—Standardized Precipitation Index

SRA—State responsibility area

TSCA—Toxic Substances Control Act

UN—United Nations

USDA—United States Department of Agriculture

USGS—U.S. Geological Survey

UST—Underground storage tank

VHFHSZ—Very High Fire Hazard Severity Zone

WC/ATWC—West Coast and Alaskan Tsunami Warning Center

WMD—Weapons of Mass Destruction

DEFINITIONS

100-Year Flood: The term “100-year flood” can be misleading. The 100-year flood does not necessarily occur once every 100 years. Rather, it is the flood that has a 1 percent chance of being equaled or exceeded in any given year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The Federal Emergency Management Agency (FEMA) defines it as the 1 percent annual chance flood, which is now the standard definition used by most federal and state agencies and by the National Flood Insurance Program (NFIP).

Acre-Foot: An acre-foot is the amount of water it takes to cover 1 acre to a depth of 1 foot. This measure is used to describe the quantity of storage in a water reservoir. An acre-foot is a unit of volume. One acre foot equals 7,758 barrels; 325,829 gallons; or 43,560 cubic feet. An average household of four will use approximately 1 acre-foot of water per year.

Asset: An asset is any man-made or natural feature that has value, including people; buildings; infrastructure, such as bridges, roads, sewers, and water systems; lifelines, such as electricity and communication resources; and environmental, cultural, or recreational features such as parks, wetlands, and landmarks.

Base Flood: The flood having a 1% chance of being equaled or exceeded in any given year, also known as the “100-year” or “1% chance” flood. The base flood is a statistical concept used to ensure that all properties subject to the National Flood Insurance Program (NFIP) are protected to the same degree against flooding.

Basin: A basin is the area within which all surface water—whether from rainfall, snowmelt, springs, or other sources—flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains, and ridges. Basins are also referred to as “watersheds” and “drainage basins.”

Benefit: A benefit is a net project outcome and is usually defined in monetary terms. Benefits may include direct and indirect effects. For the purposes of benefit-cost analysis of proposed mitigation measures, benefits are limited to specific, measurable, risk reduction factors, including reduction in expected property losses (buildings, contents, and functions) and protection of human life.

Benefit/Cost Analysis: A benefit/cost analysis is a systematic, quantitative method of comparing projected benefits to projected costs of a project or policy. It is used as a measure of cost effectiveness.

Building: A building is defined as a structure that is walled and roofed, principally aboveground, and permanently fixed to a site. The term includes manufactured homes on permanent foundations on which the wheels and axles carry no weight.

Capability Assessment: A capability assessment provides a description and analysis of a community's current capacity to address threats associated with hazards. The assessment includes two components: an inventory of an agency's mission, programs, and policies, and an analysis of its capacity to carry them out. A capability assessment is an integral part of the planning process in which a community's actions to reduce losses are identified, reviewed, and analyzed, and the framework for implementation is identified. The following capabilities were reviewed under this assessment:

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability

Community Rating System (CRS): The CRS is a voluntary program under the NFIP that rewards participating communities (provides incentives) for exceeding the minimum requirements of the NFIP and completing activities that reduce flood hazard risk by providing flood insurance premium discounts.

Critical Area: An area defined by state or local regulations as deserving special protection because of unique natural features or its value as habitat for a wide range of species of flora and fauna. A sensitive/critical area is usually subject to more restrictive development regulations.

Critical Facility: Facilities and infrastructure that are critical to the health and welfare of the population. These become especially important after any hazard event occurs. For the purposes of this plan, critical facilities include:

- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water reactive materials;
- Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a hazard event.
- Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for disaster response before, during, and after hazard events, and
- Public and private utilities, facilities and infrastructure that are vital to maintaining or restoring normal services to areas damaged by hazard events.
- Government facilities.

Cubic Feet per Second (cfs): Discharge or river flow is commonly measured in cfs. One cubic foot is about 7.5 gallons of liquid.

Dam: Any artificial barrier or controlling mechanism that can or does impound 10 acre-feet or more of water.

Dam Failure: Dam failure refers to a partial or complete breach in a dam (or levee) that impacts its integrity. Dam failures occur for a number of reasons, such as flash flooding, inadequate spillway size, mechanical failure of valves or other equipment, freezing and thawing cycles, earthquakes, and intentional destruction.

Debris Avalanche: Volcanoes are prone to debris and mountain rock avalanches that can approach speeds of 100 mph.

Debris Flow: Dense mixtures of water-saturated debris that move down-valley; looking and behaving much like flowing concrete. They form when loose masses of unconsolidated material are saturated, become unstable, and move down slope. The source of water varies but includes rainfall, melting snow or ice, and glacial outburst floods.

Debris Slide: Debris slides consist of unconsolidated rock or soil that has moved rapidly down slope. They occur on slopes greater than 65 percent.

Disaster Mitigation Act of 2000 (DMA); The DMA is Public Law 106-390 and is the latest federal legislation enacted to encourage and promote proactive, pre-disaster planning as a condition of receiving financial assistance under the Robert T. Stafford Act. The DMA emphasizes planning for disasters before they occur. Under the DMA, a pre-disaster hazard mitigation program and new requirements for the national post-disaster hazard mitigation grant program (HMGP) were established.

Drainage Basin: A basin is the area within which all surface water- whether from rainfall, snowmelt, springs or other sources- flows to a single water body or watercourse. The boundary of a river basin is defined by natural topography, such as hills, mountains and ridges. Drainage basins are also referred to as **watersheds** or **basins**.

Drought: Drought is a period of time without substantial rainfall or snowfall from one year to the next. Drought can also be defined as the cumulative impacts of several dry years or a deficiency of precipitation over an extended period of time, which in turn results in water shortages for some activity, group, or environmental function. A hydrological drought is caused by deficiencies in surface and subsurface water supplies. A socioeconomic drought impacts the health, well-being, and quality of life or starts to have an adverse impact on a region. Drought is a normal, recurrent feature of climate and occurs almost everywhere.

Earthquake: An earthquake is defined as a sudden slip on a fault, volcanic or magmatic activity, and sudden stress changes in the earth that result in ground shaking and radiated seismic energy. Earthquakes can last from a few seconds to over 5 minutes, and have been known to occur as a series of tremors over a period of several days. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties may result from falling objects and debris as shocks shake, damage, or demolish buildings and other structures.

Exposure: Exposure is defined as the number and dollar value of assets considered to be at risk during the occurrence of a specific hazard.

Extent: The extent is the size of an area affected by a hazard.

Fire Behavior: Fire behavior refers to the physical characteristics of a fire and is a function of the interaction between the fuel characteristics (such as type of vegetation and structures that could burn), topography, and weather. Variables that affect fire behavior include the rate of spread, intensity, fuel consumption, and fire type (such as underbrush versus crown fire).

Fire Frequency: Fire frequency is the broad measure of the rate of fire occurrence in a particular area. An estimate of areas most likely to burn is based on past fire history or fire rotation in the area, fuel conditions, weather, ignition sources (such as human or lightning), fire suppression response, and other factors.

Flash Flood: A flash flood occurs with little or no warning when water levels rise at an extremely fast rate

Flood Insurance Rate Map (FIRM): FIRMs are the official maps on which the Federal Emergency Management Agency (FEMA) has delineated the Special Flood Hazard Area (SFHA).

Flood Insurance Study: A report published by the Federal Insurance and Mitigation Administration for a community in conjunction with the community's Flood Insurance rate Map. The study contains such background

data as the base flood discharges and water surface elevations that were used to prepare the FIRM. In most cases, a community FIRM with detailed mapping will have a corresponding flood insurance study.

Floodplain: Any land area susceptible to being inundated by flood waters from any source. A flood insurance rate map identifies most, but not necessarily all, of a community's floodplain as the Special Flood Hazard Area (SFHA).

Floodway: Floodways are areas within a floodplain that are reserved for the purpose of conveying flood discharge without increasing the base flood elevation more than 1 foot. Generally speaking, no development is allowed in floodways, as any structures located there would block the flow of floodwaters.

Floodway Fringe: Floodway fringe areas are located in the floodplain but outside of the floodway. Some development is generally allowed in these areas, with a variety of restrictions. On maps that have identified and delineated a floodway, this would be the area beyond the floodway boundary that can be subject to different regulations.

Fog: Fog refers to a cloud (or condensed water droplets) near the ground. Fog forms when air close to the ground can no longer hold all the moisture it contains. Fog occurs either when air is cooled to its dew point or the amount of moisture in the air increases. Heavy fog is particularly hazardous because it can restrict surface visibility. Severe fog incidents can close roads, cause vehicle accidents, cause airport delays, and impair the effectiveness of emergency response. Financial losses associated with transportation delays caused by fog have not been calculated in the United States but are known to be substantial.

Freeboard: Freeboard is the margin of safety added to the base flood elevation.

Frequency: For the purposes of this plan, frequency refers to how often a hazard of specific magnitude, duration, and/or extent is expected to occur on average. Statistically, a hazard with a 100-year frequency is expected to occur about once every 100 years on average and has a 1 percent chance of occurring any given year. Frequency reliability varies depending on the type of hazard considered.

Fujita Scale of Tornado Intensity: Tornado wind speeds are sometimes estimated on the basis of wind speed and damage sustained using the Fujita Scale. The scale rates the intensity or severity of tornado events using numeric values from F0 to F5 based on tornado wind speed and damage. An F0 tornado (wind speed less than 73 miles per hour (mph)) indicates minimal damage (such as broken tree limbs), and an F5 tornado (wind speeds of 261 to 318 mph) indicates severe damage.

Goal: A goal is a general guideline that explains what is to be achieved. Goals are usually broad-based, long-term, policy-type statements and represent global visions. Goals help define the benefits that a plan is trying to achieve. The success of a hazard mitigation plan is measured by the degree to which its goals have been met (that is, by the actual benefits in terms of actual hazard mitigation).

Geographic Information System (GIS): GIS is a computer software application that relates data regarding physical and other features on the earth to a database for mapping and analysis.

Hazard: A hazard is a source of potential danger or adverse condition that could harm people and/or cause property damage.

Hazard Mitigation Grant Program (HMGP): Authorized under Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster

Hazards U.S. Multi-Hazard (Hazard) Loss Estimation Program: Hazus is a GIS-based program used to support the development of risk assessments as required under the DMA. The Hazus software program assesses risk in a quantitative manner to estimate damage and losses associated with natural hazards. Hazus is FEMA’s nationally applicable, standardized methodology and software program and contains modules for estimating potential losses from earthquakes, floods, and wind hazards. Hazus has also been used to assess vulnerability (exposure) for other hazards.

Hydraulics: Hydraulics is the branch of science or engineering that addresses fluids (especially water) in motion in rivers or canals, works and machinery for conducting or raising water, the use of water as a prime mover, and other fluid-related areas.

Hydrology: Hydrology is the analysis of waters of the earth. For example, a flood discharge estimate is developed by conducting a hydrologic study.

Intensity: For the purposes of this plan, intensity refers to the measure of the effects of a hazard.

Inventory: The assets identified in a study region comprise an inventory. Inventories include assets that could be lost when a disaster occurs and community resources are at risk. Assets include people, buildings, transportation, and other valued community resources.

Landslide: Landslides can be described as the sliding movement of masses of loosened rock and soil down a hillside or slope. Fundamentally, slope failures occur when the strength of the soils forming the slope exceeds the pressure, such as weight or saturation, acting upon them.

Lightning: Lightning is an electrical discharge resulting from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a “bolt,” usually within or between clouds and the ground. A bolt of lightning instantaneously reaches temperatures approaching 50,000°F. The rapid heating and cooling of air near lightning causes thunder. Lightning is a major threat during thunderstorms. In the United States, 75 to 100 Americans are struck and killed by lightning each year (see <http://www.fema.gov/hazard/thunderstorms/thunder.shtm>).

Liquefaction: Liquefaction is the complete failure of soils, occurring when soils lose shear strength and flow horizontally. It is most likely to occur in fine grain sands and silts, which behave like viscous fluids when liquefaction occurs. This situation is extremely hazardous to development on the soils that liquefy, and generally results in extreme property damage and threats to life and safety.

Local Government: Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Magnitude: Magnitude is the measure of the strength of an earthquake, and is typically measured by the Richter scale. As an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

Mass movement: A collective term for landslides, debris flows, and lahars.

Mitigation: A preventive action that can be taken in advance of an event that will reduce or eliminate the risk to life or property.

Mitigation Actions: Mitigation actions are specific actions to achieve goals and objectives that minimize the effects from a disaster and reduce the loss of life and property.

Objective: For the purposes of this plan, an objective is defined as a short-term aim that, when combined with other objectives, forms a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

Peak Ground Acceleration: Peak Ground Acceleration (PGA) is a measure of the highest amplitude of ground shaking that accompanies an earthquake, based on a percentage of the force of gravity.

Preparedness: Preparedness refers to actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Presidential Disaster Declaration: These declarations are typically made for events that cause more damage than state and local governments and resources can handle without federal government assistance. Generally, no specific dollar loss threshold has been established for such declarations. A Presidential Disaster Declaration puts into motion long-term federal recovery programs, some of which are matched by state programs, designed to help disaster victims, businesses, and public entities.

Probability of Occurrence: The probability of occurrence is a statistical measure or estimate of the likelihood that a hazard will occur. This probability is generally based on past hazard events in the area and a forecast of events that could occur in the future. A probability factor based on yearly values of occurrence is used to estimate probability of occurrence.

Repetitive Loss Property: Any NFIP-insured property that, since 1978 and regardless of any changes of ownership during that period, has experienced:

- Four or more paid flood losses in excess of \$1000.00; or
- Two paid flood losses in excess of \$1000.00 within any 10-year period since 1978 or
- Three or more paid losses that equal or exceed the current value of the insured property.

Return Period (or Mean Return Period): This term refers to the average period of time in years between occurrences of a particular hazard (equal to the inverse of the annual frequency of occurrence).

Riverine: Of or produced by a river. Riverine floodplains have readily identifiable channels. Floodway maps can only be prepared for riverine floodplains.

Risk: Risk is the estimated impact that a hazard would have on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Risk Assessment: Risk assessment is the process of measuring potential loss of life, personal injury, economic injury, and property damage resulting from hazards. This process assesses the vulnerability of people, buildings, and infrastructure to hazards and focuses on (1) hazard identification; (2) impacts of hazards on physical, social, and economic assets; (3) vulnerability identification; and (4) estimates of the cost of damage or costs that could be avoided through mitigation.

Risk Ranking: This ranking serves two purposes, first to describe the probability that a hazard will occur, and second to describe the impact a hazard will have on people, property, and the economy. Risk estimates are based

on the methodology used to prepare the risk assessment for this plan. The following equation shows the risk ranking calculation:

$$\text{Risk Ranking} = \text{Probability} + \text{Impact (people + property + economy)}$$

Robert T. Stafford Act: The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 100-107, was signed into law on November 23, 1988. This law amended the Disaster Relief Act of 1974, Public Law 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.

Special Flood Hazard Area: The base floodplain delineated on a Flood Insurance Rate Map. The SFHA is mapped as a Zone A in riverine situations and zone V in coastal situations. The SFHA may or may not encompass all of a community's flood problems

Stakeholder: Any person or public or private entity that owns or operates facilities that would benefit from the mitigation actions of this plan, and/or has an authority or capability to support mitigation actions identified by this plan.

Stream Bank Erosion: Stream bank erosion is common along rivers, streams and drains where banks have been eroded, sloughed or undercut. However, it is important to remember that a stream is a dynamic and constantly changing system. It is natural for a stream to want to meander, so not all eroding banks are “bad” and in need of repair. Generally, stream bank erosion becomes a problem where development has limited the meandering nature of streams, where streams have been channelized, or where stream bank structures (like bridges, culverts, etc.) are located in places where they can actually cause damage to downstream areas. Stabilizing these areas can help protect watercourses from continued sedimentation, damage to adjacent land uses, control unwanted meander, and improvement of habitat for fish and wildlife.

Steep Slope: Different communities and agencies define it differently, depending on what it is being applied to, but generally a steep slope is a slope in which the percent slope equals or exceeds 25%. For this study, steep slope is defined as slopes greater than 33%.

Thunderstorm: A thunderstorm is a storm with lightning and thunder produced by cumulonimbus clouds. Thunderstorms usually produce gusty winds, heavy rains, and sometimes hail. Thunderstorms are usually short in duration (seldom more than 2 hours). Heavy rains associated with thunderstorms can lead to flash flooding during the wet or dry seasons.

Tornado: A tornado is a violently rotating column of air extending between and in contact with a cloud and the surface of the earth. Tornadoes are often (but not always) visible as funnel clouds. On a local scale, tornadoes are the most intense of all atmospheric circulations, and winds can reach destructive speeds of more than 300 mph. A tornado's vortex is typically a few hundred meters in diameter, and damage paths can be up to 1 mile wide and 50 miles long.

Vulnerability: Vulnerability describes how exposed or susceptible an asset is to damage. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damage, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power. Flooding of an electric substation would affect not only the substation itself but businesses as well. Often, indirect effects can be much more widespread and damaging than direct effects.

Watershed: A watershed is an area that drains downgradient from areas of higher land to areas of lower land to the lowest point, a common drainage basin.

Wildfire: These terms refer to any uncontrolled fire occurring on undeveloped land that requires fire suppression. The potential for wildfire is influenced by three factors: the presence of fuel, topography, and air mass. Fuel can include living and dead vegetation on the ground, along the surface as brush and small trees, and in the air such as tree canopies. Topography includes both slope and elevation. Air mass includes temperature, relative humidity, wind speed and direction, cloud cover, precipitation amount, duration, and the stability of the atmosphere at the time of the fire. Wildfires can be ignited by lightning and, most frequently, by human activity including smoking, campfires, equipment use, and arson.

Windstorm: Windstorms are generally short-duration events involving straight-line winds or gusts exceeding 50 mph. These gusts can produce winds of sufficient strength to cause property damage. Windstorms are especially dangerous in areas with significant tree stands, exposed property, poorly constructed buildings, mobile homes (manufactured housing units), major infrastructure, and aboveground utility lines. A windstorm can topple trees and power lines; cause damage to residential, commercial, critical facilities; and leave tons of debris in its wake.

Zoning Ordinance: The zoning ordinance designates allowable land use and intensities for a local jurisdiction. Zoning ordinances consist of two components: a zoning text and a zoning map.

Santa Clara County Operational Area Hazard Mitigation Plan

Appendix A. Public Outreach Materials

A. PUBLIC OUTREACH MATERIALS

To Be Completed

Santa Clara County Operational Area Hazard Mitigation Plan

Appendix B. Progress Report Template

B. PROGRESS REPORT TEMPLATE

Reporting Period: *(Insert reporting period)*

Background: [Client Name] and participating local cities and districts developed a hazard mitigation plan to reduce risk from all hazards by identifying resources, information, and strategies for risk reduction. The federal Disaster Mitigation Act of 2000 requires state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. To prepare the plan, the participating planning partners organized resources, assessed risks from natural hazards, developed planning goals and objectives, reviewed mitigation alternatives, and developed an action plan to address probable impacts from natural hazards. By completing this process, these jurisdictions maintained compliance with the Disaster Mitigation Act, achieving eligibility for mitigation grant funding opportunities afforded under the Robert T. Stafford Act. The plan can be viewed on-line at:

INSERT LINK

Summary Overview of the Plan's Progress: The performance period for the Hazard Mitigation Plan became effective on [], 2017, with the final approval of the plan by FEMA. The initial performance period for this plan will be 5 years, with an anticipated update to the plan to occur before [], 2022. As of this reporting period, the performance period for this plan is considered to be []% complete. The Hazard Mitigation Plan has targeted [] hazard mitigation actions to be pursued during the 5-year performance period. As of the reporting period, the following overall progress can be reported:

- [] out of [] actions ([]%) reported ongoing action toward completion.
- [] out of [] actions ([]%) were reported as being complete.
- [] out of [] actions ([]%) reported no action taken.

Purpose: The purpose of this report is to provide an annual update on the implementation of the action plan identified in the Hazard Mitigation Plan. The objective is to ensure that there is a continuing and responsive planning process that will keep the Hazard Mitigation Plan dynamic and responsive to the needs and capabilities of the planning partners. This report discusses the following:

- Natural hazard events that have occurred within the last year.
- Changes in risk exposure within the OA.
- Mitigation success stories.
- Review of the action plan.
- Changes in capabilities that could impact plan implementation.
- Recommendations for changes/enhancement.

The Plan Maintenance Element: The plan maintenance element, made up of planning partners and other stakeholders within the OA, reviewed and approved this progress report at its annual meeting held on [], 201[]. It was determined through the plan's development process that a plan maintenance element would remain in service to oversee maintenance of the plan. At a minimum, the plan maintenance element will provide technical review and oversight on the development of the annual progress report. It is anticipated that there will be turnover

in the membership annually, which will be documented in the progress reports. For this reporting period, the Plan Maintenance element membership is as indicated in Table 1.

Table 1. Plan Maintenance Element Members		
Name	Title	Jurisdiction/Agency

Natural Hazard Events within the OA: During the reporting period, there were __ natural hazard events in the OA that had a measurable impact on people or property. A summary of these events is as follows:

- _____
- _____

Changes in Risk Exposure in the OA: *(Insert brief overview of any natural hazard event in the OA that changed the probability of occurrence or ranking of risk for the hazards addressed in the hazard mitigation plan)*

Mitigation Success Stories: *(Insert brief overview of mitigation accomplishments during the reporting period)*

Review of the Action Plan: Table 2 reviews the action plan, reporting the status of each action. Reviewers of this report should refer to the Hazard Mitigation Plan for more detailed descriptions of each action and the prioritization process.

Address the following in the “status” column of the following table:

- Was any element of the action carried out during the reporting period?
- If no action was completed, why?
- Is the timeline for implementation for the action still appropriate?
- If the action was completed, does it need to be changed or removed from the action plan?

Table 2. Action Plan Matrix

[illegible]

Completion status legend:

✓ = Project Completed

O = Action ongoing toward completion

X = No progress at this time

Changes That May Impact Implementation of the Plan: *(Insert brief overview of any significant changes in the OA that would have a profound impact on the implementation of the plan. Specify any changes in technical, regulatory and financial capabilities identified during the plan’s development)*

Recommendations for Changes or Enhancements: Based on the review of this report by the Plan Maintenance element, the following recommendations will be noted for future updates or revisions to the plan:

- _____
- _____
- _____
- _____
- _____
- _____

Public review notice: *The contents of this report are considered to be public knowledge and have been prepared for total public disclosure. Copies of the report have been provided to the governing boards of all planning partners and to local media outlets. The report is posted on the Santa Clara County Hazard Mitigation Plan website. Any questions or comments regarding the contents of this report should be directed to:*

Insert Contact Info Here

Santa Clara County Operational Area Hazard Mitigation Plan

Appendix C. Plan Adoption Resolutions from Planning Partners

C. PLAN ADOPTION RESOLUTIONS FROM PLANNING PARTNERS

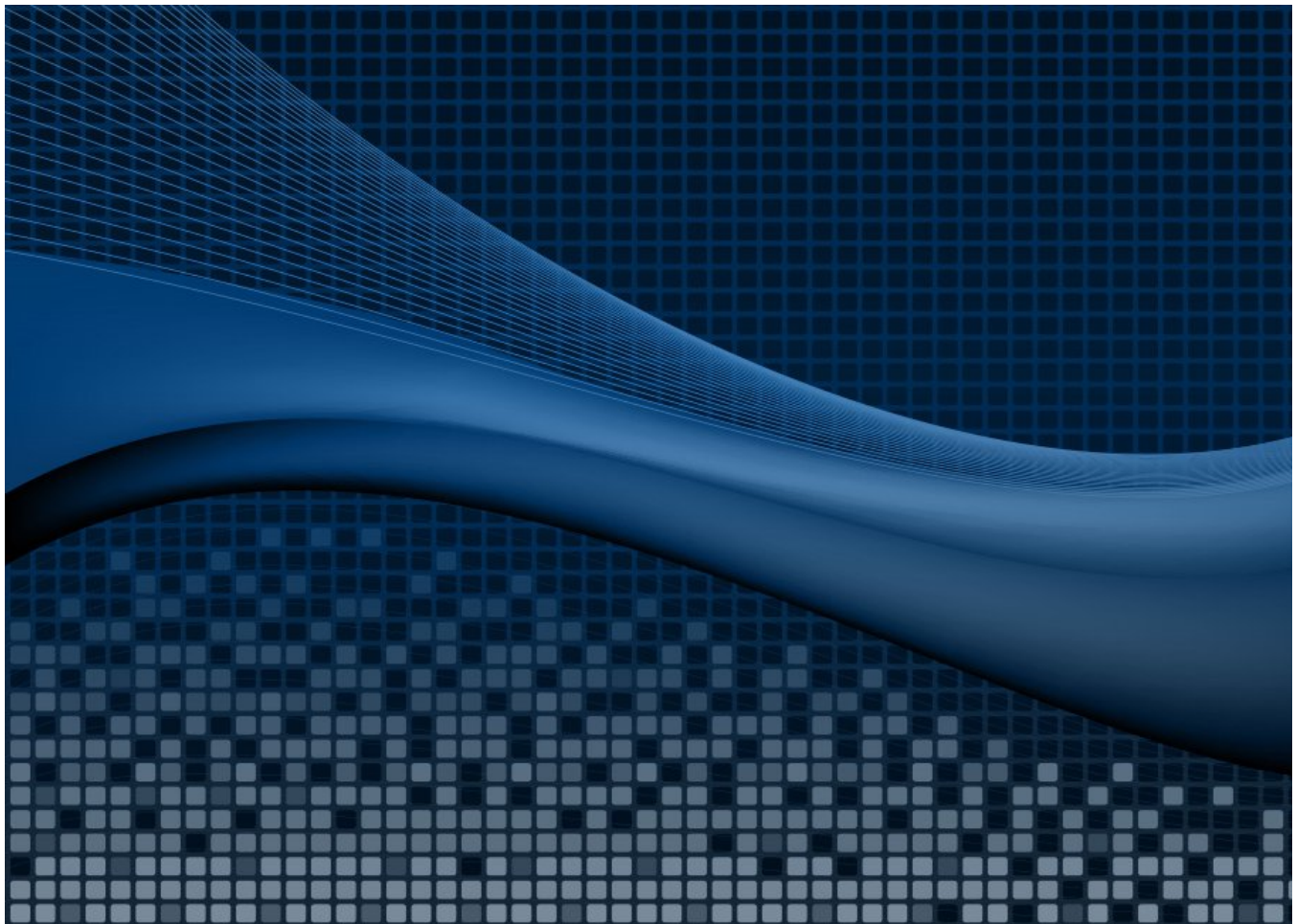
To Be Provided When Available



ATTACHMENT 3

Santa Clara Operational Area Hazard Mitigation Plan

Volume 2—Planning Partner Annexes



Santa Clara Operational Area Hazard Mitigation Plan

Volume 2—Planning Partner Annexes

September 19, 2017

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Appendices

Appendix A. Planning Partner Expectations
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INTRODUCTION

BACKGROUND

Region IX of the Federal Emergency Management Agency (FEMA) and the California Office of Emergency Services (CalOES) both encourage multi-jurisdictional planning for hazard mitigation. Such planning efforts require all participating jurisdictions to fully participate in the process and formally adopt the resulting planning document. Chapter 44 of the Code of Federal Regulations (44 CFR) states:

“Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.” (Section 201.6.a(4))

For the Santa Clara Operational Area Hazard Mitigation Plan, a Planning Partnership was formed to leverage resources and to meet requirements of the federal Disaster Mitigation Act (DMA) for as many eligible local governments as possible. The DMA defines a local government as follows:

“Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.”

Two types of Planning Partners participated in this process, with distinct needs and capabilities:

- Incorporated municipalities (cities, towns and the County)
- Special purpose districts.

Each participating planning partner has prepared a jurisdiction-specific annex to this plan. These annexes, as well as information on the process by which they were created, are contained in this volume.

THE PLANNING PARTNERSHIP

Initial Solicitation and Letters of Intent

The planning team solicited the participation of all eligible municipalities and special purpose districts at the outset of this project. A kickoff meeting was held on July 19, 2016 to identify potential stakeholders and planning partners for this process. The purpose of the meeting was to introduce the planning process to jurisdictions in the County that could have a stake in the outcome of the planning effort. All eligible local governments within the planning area were invited to attend. The goals of the meeting were as follows:

- Provide an overview of the Disaster Mitigation Act.
- Describe the reasons for a plan.
- Outline the hazard mitigation work plan.

- Outline planning partner expectations.
- Seek commitment to the planning partnership.
- Seek volunteers for the working group.

All interested local governments were provided with a list of planning partner expectations developed by the planning team and were informed of the obligations required for participation. Local governments wishing to join the planning effort were asked to provide the planning team with a “letter of intent to participate” that agreed to the planning partner expectations (see Appendix A) and designated a point of contact for their jurisdiction. In all, formal commitment was received from 17 planning partners by the planning team. Maps for each participating municipality are provided in the individual annex for that municipality in this volume.

Planning Partner Expectations

The planning team developed the following list of planning partner expectations, which were confirmed at the kickoff meeting held on July 19, 2016:

1. Each partner will submit a “Letter of Intent to participate.”
2. Each partner will designate a lead point of contact for the effort.
3. Each partner will support and participate in the selection and function of the Steering Committee selected to oversee the development of this plan.
4. Each partner will provide support in the form of mailing list, possible meeting space, and public information materials, such as newsletters, newspapers or direct mailed brochures, required to implement the public involvement strategy developed by the Steering Committee.
5. Each partner will participate in the process through opportunities such as:
 - a. Steering Committee meetings
 - b. Public meetings or open houses
 - c. Workshops and planning-partner-specific training sessions
 - d. Public review and comment periods prior to adoption
6. Each partner will attend the **mandatory** workshop. This workshop will cover the proper completion of the jurisdictional annex template, which is the basis for each partner’s jurisdictional chapter in the plan.
7. After participation in the mandatory template workshop, each partner will be required to complete their template and provide it to the planning team in the time frame established by the Steering Committee.
8. Each partner will perform a “consistency review” of all its technical studies, plans, ordinances specific to hazards to identify any that are inconsistent equivalent countywide documents reviewed in the preparation of the countywide plan.
9. Each partner will review the risk assessment and identify hazards and vulnerabilities specific to its jurisdiction.
10. Each partner will review the mitigation recommendations in the countywide plan to determine if they meet the needs of its jurisdiction.
11. Each partner will create its own action plan that identifies each project, who will oversee its implementation, how it will be financed and when it is estimated to occur.
12. Each partner will sponsor at least one public meeting to present the draft plan to its constituents at least two weeks prior to adoption.
13. Each partner will formally adopt the plan.

By adopting this plan, each planning partner also agrees to the plan implementation and maintenance protocol established in Volume 1. Failure to meet these criteria may result in a partner being dropped from the partnership by the Steering Committee, and thus losing eligibility under the scope of this plan.

Linkage Procedures

Eligible local jurisdictions that did not participate in development of this multi-jurisdictional plan may comply with DMA requirements by linking to this plan following the procedures outlined in Appendix B.

ANNEX-PREPARATION PROCESS

Templates

Templates were created to help the Planning Partners prepare their jurisdiction-specific annexes. Since special purpose districts operate differently from incorporated municipalities, separate templates were created for the two types of jurisdictions. The templates were created so that all criteria of Section 201.6 of 44 CFR would be met, based on the partners' capabilities and mode of operation. Templates available for the planning partners' use were specific as to whether the partner is a municipality or a special purpose district and whether the annex is an update to a previous hazard mitigation plan or a first-time hazard plan. Each partner was asked to participate in a technical assistance workshop during which key elements of the template were completed by a designated point of contact for each partner and a member of the planning team. The templates were set up to lead each partner through a series of steps that would generate the DMA-required elements that are specific for each partner. The template instructions provided to the Planning Partners can be found in Appendix C to this volume.

Workshop

Workshops were held for Planning Partners to address the following topics:

- DMA
- Local plan background
- Analysis of public survey results
- The templates
- Risk ranking
- Developing your action plan
- Cost/benefit review.

The sessions provided technical assistance and an overview of the template completion process. Attendance at this workshop was mandatory under the planning partner expectations established by the Planning Team. There was 100-percent attendance of the partnership at these sessions.

In the risk-ranking exercise, each planning partner was asked to rank each risk specifically for its jurisdiction, based on the impact on its population or facilities. Municipalities were asked to base this ranking on probability of occurrence and the potential impact on people, property and the economy. Special purpose districts were asked to base this ranking on probability of occurrence and the potential impact on their constituency, their vital facilities and the facilities' functionality after an event. The methodology followed that used for the countywide risk ranking presented in Volume 1. A principal objective of this exercise was to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation processes. Tools utilized during these sessions included the following:

- The risk assessment results developed for this plan
- Hazard maps for all hazards of concern
- Hazard mitigation catalogs
- Federal funding and technical assistance catalogs
- Copies of partners' prior annexes, if applicable.

Prioritization

44 CFR requires actions identified in the action plan to be prioritized (Section 201.c.3.iii). The planning team and steering committee developed a methodology for prioritizing the action plans that meets the needs of the partnership and the requirements of 44 CFR. Each action was assigned two priorities—a priority for implementation and a priority for pursuing grant funding—according to the following criteria:

- **Implementation Priority:**
 - **High Priority**—An action that meets multiple objectives, that has benefits that exceed cost, that is eligible for grant funding and funding has been secured or it is an ongoing project, and that can be completed in the short term (1 to 5 years).
 - **Medium Priority**—An action that meets multiple objectives, that has benefits that exceed costs, that is eligible for grant funding but funding has not yet been secured, and that can be completed in the short term (1 to 5 years) once funding is secured. Medium priority actions become high priority actions once funding is secured.
 - **Low Priority**—An action that will mitigate the risk of a hazard, that has benefits that do not exceed the costs or are difficult to quantify, that is not eligible for any identified grant funding and funding has not been secured, and for which the timeline for completion is long term (more than 5 years). Low priority actions may be eligible for grant funding from programs that have not yet been identified.
- **Grant Pursuit Priority:**
 - **High Priority**—An action that meets grant eligibility requirements, that has high benefits, that has a high or medium implementation priority, and for which one of the following funding conditions is true:
 - Local funding is unavailable
 - Local funding is available but could be used for other, non-grant-eligible projects if grant funding is received for this action.
 - **Medium Priority**—An action that meets grant eligibility requirements, that has medium or low benefits, that has a medium or low implementation priority, and for which local funding is unavailable.
 - **Low Priority**—An action that does not meet grant eligibility requirements or has low benefits.

Priority designations for a given action can change based on changes to any parameter, such as funding availability. The prioritization will be updated as needed annually through the plan maintenance strategy.

Benefit/Cost Review

44 CFR requires the prioritization of the action plan to emphasize a benefit/cost analysis of the proposed actions. Because some actions may not be implemented for up to 10 years, benefit/cost analysis was qualitative and not of the detail required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. A review of the apparent benefits versus the apparent cost of each project was performed. Parameters were established for assigning subjective ratings (high, medium, and low) to costs and benefits as follows:

Cost ratings were defined as follows:

- **High**—Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).
- **Medium**—The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- **Low**—The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.

Benefit ratings were defined as follows:

- **High**—Project will provide an immediate reduction of risk exposure for life and property.
- **Medium**—Project will have a long-term impact on the reduction of risk exposure for life and property, or project will provide an immediate reduction in the risk exposure for property.
- **Low**—Long-term benefits of the project are difficult to quantify in the short term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly.

For many of the actions identified in this plan, financial assistance may be available through Hazard Mitigation Assistance grants, all of which require detailed benefit/cost analyses. These analyses will be performed on projects at the time of application using the FEMA benefit-cost model. For projects not seeking financial assistance from grant programs that require detailed analysis, “benefits” can be defined according to parameters that meet the goals and objectives of this plan.

Analysis of Mitigation Actions

Each planning partner reviewed its recommended actions to classify each action based on the hazard it addresses and the type of mitigation it involves. This planning process used the Community Rating System (CRS) categories of mitigation activities (2017 *CRS Coordinators Manual* (OMB No. 1660-0022), Figure 510-4). The CRS credits programs and activities that are considered to be above and beyond the minimum requirements established by FEMA. These CRS categories add significantly more detail to the four mitigation categories defined in FEMA’s 2013 *Local Mitigation Handbook*. The CRS expanded categories provide a more comprehensive range of alternatives to consider, thus increasing integration opportunities. Additionally, the use of CRS program guidance will enhance the CRS credit potential for this plan, benefiting planning partners who participate in the CRS program. Mitigation types used for this categorization are as follows:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.

- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Climate Resilient**—Actions that minimize the impacts of climate change via an aquifer storage and recovery system to increase water supply for drought mitigation and a flood diversion and storage project to reduce flood risk.

COMPATIBILITY WITH PREVIOUSLY APPROVED PLANS

The jurisdictions listed in Table 1 previously participated in the Association of Bay Area Governments (ABAG) regional hazard mitigation planning effort. The table lists the dates that each of these jurisdictions adopted its annex under the ABAG plan. The City of Los Altos and the City of San José may have participated in the plan, but no actions were identified and no proof of formal adoption was located.

Table 1. ABAG Participants - 2010

Jurisdiction	Jurisdiction Adoption Date (2010 ABAG)
Santa Clara County	February 7, 2012
City of Campbell	March 19, 2012
City of Cupertino	Unavailable (listed as approval pending adoption on plan website)
City of Gilroy	January 9, 2012
Town of Los Altos Hills	2014 (annex to plan was developed in 2013)
Town of Los Gatos	February 21, 2012
City of Monte Sereno	September 20, 2011
City of Morgan Hill	March 21, 2012
City of Mountain View	February 28, 2012
City of Palo Alto	Unavailable (listed as approval pending adoption on plan website)
City of Santa Clara	Unavailable
City of Saratoga	February 15, 2012
City of Sunnyvale	Unavailable

The ABAG plan identified over 300 regional strategies in the following categories:

- Infrastructure
- Health
- Housing
- Economy
- Government
- Education
- Land Use.

Planning partners selected some of these strategies for implementation and included them in their annexes to the plan. The progress on these strategies has been reviewed and is included in Appendix D of Volume 2 of this plan. Each strategy was determined to be completed, was removed or was carried over to this plan update.

FINAL COVERAGE UNDER THE PLAN

All of the committed planning partners fully met the participation requirements specified by the Planning Team and agreed to by the Planning Partnership. Table 2 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.

Table 2. Planning Partner Status

	Letter of Intent Date	Attended Workshop?	Completed Template?	Covered by This Plan?
County of Santa Clara	August 1, 2016	Yes	Yes	Yes
City of Campbell	July 22, 2016	Yes	Yes	Yes
City of Cupertino	July 25, 2016	Yes	Yes	Yes
City of Gilroy	August 9, 2016	Yes	Yes	Yes
City of Los Altos	July 25, 2016	Yes	Yes	Yes
Town of Los Altos Hills	July 28, 2016	Yes	Yes	Yes
Town of Los Gatos	July 21, 2016	Yes	Yes	Yes
City of Milpitas	July 25, 2016	Yes	Yes	Yes
City of Monte Sereno	August 27, 2015	Yes	Yes	Yes
City of Morgan Hill	August 1, 2016	Yes	Yes	Yes
City of Mountain View	August 14, 2016	Yes	Yes	Yes
City of Palo Alto	July 28, 2015	Yes	Yes	Yes
City of San José	August 3, 2016	Yes	Yes	Yes
City of Santa Clara	August 2, 2016	Yes	Yes	Yes
City of Saratoga	July 21, 2016	Yes	Yes	Yes
City of Sunnyvale	August 11, 2016	Yes	Yes	Yes
Santa Clara County Fire Department	August 1, 2016	Yes	Yes	Yes

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The County and the unincorporated areas have sought exemption from the California Environmental Quality Act (CEQA) for the Hazard Mitigation Plan based on four sections of the CEQA guidelines:

- **Section 15183(d)**—"The project is consistent with...a general plan of a local agency, and an environmental impact report was certified by the lead agency for the...general plan."
- **Section 15262**—"A project involving only feasibility or planning studies for possible future actions which the agency, board or commission has not approved, adopted, or funded does not require the preparation of an environmental impact report or negative declaration but does require consideration of environmental factors. This section does not apply to the adoption of a plan that will have a legally binding effect on later activities."
- **Section 15306**—" (Categorical Exemption) Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted or funded."
- **Section 15601(b)(3)**—"...CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA."

Planning partners may seek exemption at their discretion.

ACRONYMS AND ABBREVIATIONS

- **AB 1420**—Assembly Bill 1420 Urban Water Management Planning Act
- **AB 2140**—Assembly Bill 2140 General Plans: Safety Element

- **ABAG**—Association of Bay Area Governments
- **AlertSCC**—Santa Clara County Emergency Alert System
- **ARES/RACES**—Amateur Radio Emergency Service/radio Amateur Civil Emergency Services
- **BCEGS**—Building Code Effectiveness Grading Schedule
- **CalFire**—State of California Department of Forestry and Fire Protection
- **CalOES**—State of California Office of Emergency Services
- **CalWARN**—California Water/Wastewater Agency Response Network
- **CDBG**—Community Development Block Grants
- **CEMP**—Comprehensive Emergency Management Plan
- **CEQA**—California Environmental Quality Act
- **CERT**—Citizens Emergency Response Training
- **CFR**—Code of Federal Regulations
- **CIP**—Capital Improvement Plan
- **CIPR**—Capital Improvement Project Reserve
- **CRS**—Community Rating System
- **CUPA**—Certified Unified Program Agencies
- **CWOP**—Closed without Payment
- **CWPP**—Community Wildfire Protection Plan
- **DMA**—Disaster Mitigation Act
- **DR**—Major Disaster Declaration
- **DPW**—Department of Public Works
- **EMPG**—Emergency Management Performance Grant
- **EOC**—Emergency Operations Center
- **EOP**—Emergency Operations Plan
- **ESD**—Environmental Services Department
- **ETS**—Engineering and Technology Services
- **FEMA**—Federal Emergency Management Agency
- **FIT**—Facility Inspection Tool
- **FMA**—Flood Mitigation Assistance
- **GHG**—Greenhouse gas
- **GIS**—Geographic Information System
- **HCP**—Habitat conservation plan
- **HMA**—Hazard Mitigation Assistance
- **HMGP**—Hazard Mitigation Grant Program
- **HSGP**—Homeland Security Grant Program
- **ISD**—Information Services Department (Santa Clara County)
- **LHMP**—Local hazard mitigation plan
- **NCCP**—Natural community conservation plan
- **NFIP**—National Flood Insurance Program
- **NPDES**—National Pollution Discharge Elimination System
- **OES**—Office of Emergency Services
- **PDM**—Pre-Disaster Mitigation Grant Program
- **POC**—Point of Contact
- **PSAP**—Public-safety answering point
- **RWQCB**—Regional Water Quality Control Board
- **SCADA**—Supervisory control and data acquisition
- **SCC**—Santa Clara County
- **SCCFD**—Santa Clara County Fire Department

- **SCVWD**—Santa Clara Valley Water District
- **SFPUC**—San Francisco Public Utilities Commission
- **UASI**—Urban Area Security Initiative
- **URM**—Unreinforced Masonry
- **USC**—United States Code
- **USGS**—U.S. Geological Survey
- **UWMP**—Urban Water Management Plan
- **WUI**—Wildland Urban Interface

1. COUNTY OF SANTA CLARA

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

David Flamm, Deputy Director OES
55 West Younger Avenue
San José, CA 95110
Telephone: - (408)808-7802
e-mail Address: david.flamm@oes.sccgov.org

Alternate Point of Contact

Darrell Ray, Emergency Manager
55 West Younger Avenue
San José, CA 95110
Telephone: - (408)808-7814
e-mail Address: darrell.ray@oes.sccgov.org

1.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—February 18, 1850
- **Current Population**—The California Department of Finance estimated population for the unincorporated area of the county is 87,352 as of January 1, 2016. The unincorporated population comprises 4.5 percent of the County population.
- **Population Growth**—The California Department of Finance estimated an increase in the unincorporated population from 2015 (87,029) to 2016 (87,352) of 0.4 percent. Table 1-1 shows the California Department of Finance decennial population statistics for Santa Clara County from 1980 through 2010, with the percent change of the previous decades from 1990 to 2010.

Table 1-1. Population Statistics for Santa Clara County from 1980 through 2010

Year	Total County		Incorporated Cities		Unincorporated County	
	Population	% Change from Previous Decade	Population	% Change from Previous Decade	Population	% Change from Previous Decade
1980	1,295,071	—	1,168,117	—	126,954	—
1990	1,497,577	15%	1,391,404	19%	106,173	-16%
2000	1,682,585	12%	1,582,772	14%	99,813	-6%
2010	1,781,642	6%	1,691,716	7%	89,926	-10%

Source: California Department of Finance

- **Location and Description**—A significant portion of the county's land area is unincorporated ranch and farmland. Large areas of unincorporated rural areas lie to the east, west and south of the county. Mt. Hamilton is within the Diablo Range which lines the eastern border of the County: the Santa Cruz Mountains lie along the west. Within the Santa Cruz Mountains are steep slopes, active earthquake faults, and redwood forests. Both mountain ranges have areas of geologic instability. The County of Santa Clara operates 28 parks covering more than 50,000 acres including scenic lakes, streams, and miles of hiking and biking trails, primarily in these open lands.

The Santa Clara County Public Health Department has defined the cities and small areas/neighborhoods in the unincorporated areas of the county to better enable reporting data for smaller populations within cities and pre-existing neighborhoods (See Figure 1-1). The **Unincorporated Areas Small Area/Neighborhood Profiles** include:

- Bayshore—This area lies to the northeast, bordered by Sunnyvale and Mountain View. Moffit Federal Airfield inhabits most of this area, with a residential area west of the airfield. The population in this small area is 719. 100 percent of households in Bayshore are occupied by renters. The median household income is \$77,778.
- Unincorporated East—This area lies along the eastern border of the county. The population in this area is 1,144. Households occupied by renters is 27 percent. The median household income is \$41,162.
- Unincorporated South—This area lies along the southern border of the county, bordered by the city of Gilroy to the west, and Morgan Hill to the northwest. The population in this area is 12,946. Households occupied by renters is 26 percent. The median household income is \$89,423.
- Unincorporated West—This area lies along the western border of the county. The population in this area is 11,032. Households occupied by renters is 20 percent. The median household income is \$98,362.



Figure 1-1. Unincorporated Areas Small Area/Neighborhoods

- **Brief History**—The County of Santa Clara is one of 27 original county jurisdictions when California became a state. The seat of California’s first capital city, San José, is in the county of Santa Clara. The county is named after Mission Santa Clara, which was established in 1777. The first inhabitants of the greater Santa Clara Valley were members of the Ohlone or Costanoan cultural group. A number of Ohlone tribes occupied the southern portions of the San Francisco Bay area.

During the Spanish and Mexican Periods (1776-1848) the Santa Clara Valley was established as Spain’s new world colony. The El Camino Real (King’s Highway) was the major transportation route that linked

the Franciscan missions and outposts that were being developed during this period. The pueblo at San José was the first civil settlement established by the Spanish Crown. With Mexico's new independence, and the formal change of governmental control from Spain to Mexico in 1822. The Mexican government brought about the legalization of trade with foreign ships in the ports of San Francisco and Monterey, and a law for the settlement of private land grants to local residents for a "rancho" to stimulate colonization of the territory. Dwellings were built on the ranchos and soon villages were developed. By 1845, American immigrants were increasing the population and establishing businesses within the valley. The American presence in San José was rapidly changing the character of the pueblo from a Mexican village to a bustling American town.

In May 1846, the United States declared war on Mexico; and shortly thereafter, the American flag was raised in Monterey and San José. California statehood was achieved in 1850. The discovery of gold in 1848 brought settlers and the making of towns to the valley. Part of the county's territory was given to Alameda County in 1853. In 1882, Santa Clara County tried to levy taxes upon property of the Southern Pacific Railroad within county boundaries. The result was the U.S. Supreme Court case of *Santa Clara County v. Southern Pacific Railroad*, 118 U.S. 394 (1886), in which the Court extended Due Process rights to artificial legal entities. The mid-1800s saw houses, hotels, schoolhouses, and businesses established. Early businesses were a variety of manufacturing, seed, and fruit industries. Many businesses generated in the late 1800s remained viable through the early to mid-1900s: tannery and leather products, vegetable and fruit seed farms, wood products such as lumber, mill work, sashes, doors, and moldings, and canned fruits, for example. In 1939, San José had a population of 57,651, and had the largest packing center for dried fruit and canning in the world. The first major technology company to be based in the area was Hewlett-Packard, founded in a garage in Palo Alto in 1939. IBM selected San José as its West Coast headquarters in 1943. Varian Associates, Fairchild Semiconductor, and other early innovators were located in the county by the late 1940s and 1950s. The U.S. Navy had a large presence in the area and began giving large contracts to Silicon Valley electronics companies. The term "Silicon Valley" was coined in 1971. The trend accelerated in the 1980s and 1990s, and agriculture has since then been nearly eliminated from the northern part of the county.

- **Climate**—The climate in Santa Clara County is described as Mediterranean, characterized by warm, dry summers and mild winters. The climate of the region remains temperate year round due to the area's geography and its proximity to the Pacific Ocean. The temperature seldom drops below freezing. The fall and winter months have daily high temperatures that range from 55 to 77 degrees Fahrenheit. The summer months have dry warm weather with a range of high temperatures between 65 and 82 degrees Fahrenheit. The average rainfall in the county is 15 inches in San José and approximately 40 inches in the Santa Cruz Mountains.
- **Governing Body Format**—The governing body of the county is a five member board of supervisors, elected by voters in each district to serve four year terms on the County Council. The Council hires a professional Chief Executive Officer (CEO), Chief Operating Officer (COO), and six Deputy CEO's. The County of Santa Clara provides services to its residents either directly or by working with other agencies. The County directly provides administrative services, building permits/inspections, planning/design review, engineering/public works, city clerk/election services and finance. The county is one among three counties in California (with Napa and Madera) to establish a separate department, the Santa Clara County Department of Corrections, to deal with corrections pursuant to California Government Code §23013. In the United States House of Representatives, Santa Clara County is split between four congressional districts.

The County Charter is a legislative document adopted by the people of the County of Santa Clara. The Charter provides for the creation of the County and defines its powers and privileges and facilitates the

governing of the County. The County Council assumes responsibility for the adoption of this plan; the Office of Emergency Service will oversee its implementation.

1.3 DEVELOPMENT TRENDS

Within Santa Clara County, and the bay area region, there is a housing shortage. From 2007 through 2014, 999 housing units were projected to be produced in the County. This falls within 10 percent below the projected need (1,090) of housing for the period. The County of Santa Clara revised the General Plan Housing Element in June 2015. The most significant changes to the strategies and policies are increased focus on Extremely Low Income families, Permanent Supportive Housing, Secondary Units, and Farmworker housing. The Housing Element states “Funding programs will prioritize housing for households with extremely low incomes (as opposed to households with low or moderate incomes), secondary units will be the focus of efforts to reduce regulatory constraints, more collaborative efforts will be pursued, and the housing needs of farmworkers and the homeless will get increased attention.”

From 1970-2010, the unincorporated population decreased by 37 percent due to the urban unincorporated islands or “pockets” being annexed into their surrounding cities, while the total County population increased by nearly 67 percent. The policy of cities annexing the unincorporated areas around them reinforces the role of cities to plan for and accommodate new urban development. As a result, cities are accorded the opportunities and responsibilities for new housing or infill redevelopment.

The unincorporated County population is expected to be stable during the 2015-2022 planning period, as large-scale annexations connected with the State’s Streamlined Annexation Incentive Program are expected to decrease throughout the time period. As a result, there is a relatively small amount of housing construction in the unincorporated County. The slowing construction of housing units on unincorporated County lands reflects the Countywide policies for compact growth occurring within city boundaries near urban infrastructure, as well as ongoing annexations. Table 1-2 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

1.4 CAPABILITY ASSESSMENT

1.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to inform the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume I and Volume II (Unincorporated County Annex). All of the below items were additionally reviewed as part of the full capability assessment for the Unincorporated County Area.

- **Santa Clara County General Plan**—The General Plan, including the Housing Element, Land Use, and Safety Elements, were reviewed for information regarding the jurisdiction profile, and the goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Santa Clara County Municipal Code**—The Municipal Code was reviewed for the jurisdiction profile, the full capability assessment, and for identifying opportunities for action plan integration.
- **Floodplain Management Ordinance**—The Floodplain Management Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvement Plan**—The Capital Improvement Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Technical Reports and Information**—Outside resources and references used to complete the Santa Clara County - Unincorporated Annex are identified in Section 2.12 of this Annex.

Table 1-2. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan?	No					
• If yes, give the estimated area annexed and estimated number of parcels or structures.	N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No					
• If yes, please describe land areas and dominant uses.	N/A					
• If yes, who currently has permitting authority over these areas?	N/A					
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
• If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	This is currently in planning stages.					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	37	39	59	46	49
	Multi-Family	0	0	2	1	1
	Other (commercial, mixed use, etc.)	4	4	8	3	12
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Special Flood Hazard Areas- 24 Landslide- 99 High Liquefaction Areas- 45 Tsunami Inundation Area - 0 Wildfire Risk Areas - 126					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	County growth policies focus on higher density, infill development occurring in cities.					

1.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 1-3. An assessment of fiscal capabilities is presented in Table 1-4. An assessment of administrative and technical capabilities is presented in Table 1-5. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 1-6. An assessment of education and outreach capabilities is presented in Table 1-7. Classifications under various community mitigation programs are presented in Table 1-8. Development and permitting capabilities are presented in Table 1-9, and the community's adaptive capacity for the impacts of climate change is presented in Table 1-10.

Table 1-3. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	No
Comment: The Santa Clara County building code is the 2013 California Building Code, including the Building Standards Administrative Code, Building Code, Volumes 1 & 2, Residential Code, Electrical Code, Mechanical Code, Plumbing Code, Energy Code, Historical Building Code, Fire Code, Existing Building Code, Green Building Standards Code, and Referenced Standards Code; incorporated by reference (Ord. No. NS-1100.117, § 3, 12-10-13).				
Zoning Code	Yes	No	Yes	No
Comment: Zoning Ordinance of the County of Santa Clara, establishing regulations limiting the use of land and structures; Articles 1 through 5, (Ord. No. NS-1200.317, § 18, 6-8-04).				
Subdivisions	Yes	No	Yes	No
Comment: Santa Clara County Subdivision Ordinance, regulating the subdivision of land in the unincorporated areas in accordance with the Subdivision Map Act (Government Code § 66410 et seq.), (Ord. No. NS-1203.35, § 4, 3-13-78).				
Stormwater Management	Yes	No	Yes	Yes
Comment: The Nonpoint Source Pollution Ordinance was established to protect the health and safety of individuals in the County of Santa Clara and reduce surface water quality degradation caused by stormwater runoff, (Ord. No. NS-517.84, 6-25-13).				
Post-Disaster Recovery	Yes	Yes	No	Yes
Comment: Draft recovery framework was completed in Fall 2016. Final draft framework projected to be published within the next 12 months. Draft framework does currently address mitigation integration opportunities.				
Real Estate Disclosure	No	No	Yes	Yes
Comment: CA. State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property. **Further investigation needed on this matter.				
Growth Management	Yes	No	Yes	No
Comment: California State Growth Management – General Planning Law - Cal. Gov. Code §65300 et seq.				
Site Plan Review	Yes	No	Yes	Yes
Comment: Title C: Construction, Development, and Land Use, Chapter II Single Building Sites provides requirements for site development plans and site plan reviews, (Ord. No. NS-1203.35, § 5, 3-13-78).				
Environmental Protection	Yes	No	Yes	Yes
Comment: Title C: Construction, Development, and Land Use, Chapter III grading and Drainage provides requirements for protecting environmentally sensitive areas on or near the site, such as creeks, streams, wetlands, lakes, springs, trees, and riparian habitat that could be affected by the grading (Ord. No. NS-1203.120, § 1, 4-9-13). The California Environmental Quality Act (CEQA) also outlines requirements for environmental protection. Riparian Setback Ordinance for San Martin Area: Yes. The Riparian Setback requirements for new development in the San Martin area reduce the likelihood of the release of stormwater pollutants to local waterway. [See new (March 2016) setback ordinance. https://www.municode.com/library/ca/santa_clara_county/codes/code_of_ordinances?nodeId=TITBRE_DIVB11.5NOSOPO_CHVIISTRIV_EPRSAMAAR]				
Flood Damage Prevention	No	Yes	Yes	No
Comment: Floodplain Management Ordinance reflects updates to floodplain management policies affecting real property located in designated flood hazard areas of the unincorporated territory of Santa Clara County, (Ord. No. NS-1100.106, § 1, 4-21-09).				
Emergency Management	Yes	No	Yes	Yes
Comment: The Emergency Services Ordinance provides for the protection of persons and property within the County of Santa Clara in the event of an emergency; the establishment, coordination, and direction of the Santa Clara County Emergency Organization, Disaster Council, Office of Emergency Services; and the coordination of the County with all other public agencies, corporations, organizations and affected private persons, (Ord. No. NS-300.600, § 2, 5-13-97).				
Climate Change	Yes	No	Yes	Yes
Comment: SB 97 directs California Environmental Quality Act (CEQA) Guidelines to address greenhouse gas emissions. Other state policies include AB 32, SB 375, SB 379 and regulations of the Climate Action Plan.				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Other: Fire Code	Yes	No	No	Yes
Comment: The fire code of the County is the 2013 California Fire Code, based on the International Fire Code (2012 Edition), modified by the California Building Standards Commission, (Ord. No. NS-1100.117, § 1, 12-10-13.)				
Other: Santa Clara County Geologic Ordinance	Yes	No	Yes	No
Comment: The Geologic Ordinance is for the purpose of establishing minimum requirements for the geologic evaluation of land based on proposed land uses, and ensuring ensure the County fulfills its duties under state law regarding geologic hazards, including the Alquist-Priolo Earthquake Fault Zoning Act and the Seismic Hazards Mapping Act (Ord. No. NS-1203.111, § 1, 3-19-02)				
Planning Documents				
General Plan	Yes	No	Yes	Yes
Is the plan compliant with Assembly Bill 2140? No.				
Comment: The Santa Clara County General Plan, 1995-2010, was adopted December 20, 1994. Recent revisions include the Housing Element Update, 2014, the Health Element Update, 2015, and Local Serving Areas, 2015. The 2000 Stanford University Community Plan, adopted December 2000, is also a part of the General Plan and is published separately as a stand-alone document.				
Capital Improvement Plan	Yes	No	No	Yes
How often is the plan updated? 5 Year Intervals				
Comment: In May of 2016 the proposed Five-Year Capital Improvement Plan (CIP) for Fiscal Years FY 2017 – FY 2021 was presented to the Board of Supervisors for approval. The CIP covers Policy Manual: Policies 4.11 and 4.14, Facilities and Fleet Department Projects, Parks and Recreation Department Projects, Roads and Airports Department Projects, and Health and Hospital Projects.				
Floodplain or Watershed Plan	No	Yes	Yes	No
Comment: None Located; Santa Clara Valley Water District				
Stormwater Plan	Yes	No	Yes	Yes
Comment: The Santa Clara County Stormwater Management Program complies with the National Pollutant Discharge Elimination System (NPDES) to manage stormwater (rainwater) runoff to protect local waterways during construction and after construction. The County implements the NPDES requirements through its development review process to ensure local waterways meet pollution prevention and flow management requirements.				
Urban Water Management Plan	No	Yes	Yes	No
Comment: The Santa Clara Valley Water District 2015 Urban Water Management Plan provides information on water use and supply in Santa Clara County, including groundwater, local surface water, imported water, and water recycling, historical water use, water conservation programs, demand projections, water shortage contingency and supply interruption planning, reliability and threats to reliability.				
Habitat Conservation Plan	No	Yes	No	Yes
Comment: The Santa Clara Valley Habitat Plan is a 50-year regional plan to protect endangered species and natural resources while allowing for future development in Santa Clara County, and is both a habitat conservation plan and natural community conservation plan, or HCP/NCCP. The final Habitat Plan was approved and adopted in 2013.				
Economic Development Plan	No	No	No	No
Comment: The 1995-2010 General Plan, Book A, Part Two, has a chapter on Economic Well Being that discusses economic development within the county. Strategy #5 is to increase economic development planning and promotion.				
Shoreline Management Plan	No	No	No	No
Comment: The Santa Clara Valley Water District and State Coastal Conservancy have worked in partnership with the Army Corps on the South San Francisco Bay Shoreline Study for over 10 years. This major flood risk management and ecosystem restoration project will protect Santa Clara County communities ringing the southern part of the San Francisco Bay from tidal flooding and rising sea levels.				
Community Wildfire Protection Plan	Yes	No	Yes	Yes
Comment: The Santa Clara County Fire Department has developed a Community Wildfire Protection Plan to reduce wildland fire risks to communities and the environment. The CWPP is currently in the public review process. The CWPP is a vital element in the H.R. 4233 (Healthy Forest Restoration Amendments Act of 2009), Public Law 108-148, 2003). The Act was revised in 2009 to address changes to funding and provide a renewed focus on wildfire mitigation.				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Forest Management Plan Comment: The Santa Clara County Department of Parks and Recreation Tree Safety Program serves to protect natural forest and woodland communities, maintain the natural setting, manage problem trees in designated developed areas characterized by high public use, and protect park facilities and cultural and historical resources.	Yes	No	No	Yes
Climate Action Plan Comment: The Climate Action Plan for Operations and Facilities was developed and approved in 2009. SB 97 directs California Environmental Quality Act (CEQA) Guidelines to address greenhouse gas emissions. Other state policies include AB 32 and SB 375 and regulations of the Climate Action Plan.	Yes	No	Yes	Yes
Comprehensive Emergency Management Plan Comment: The Santa Clara County Operational Area Emergency Operations Plan was approved in 2008. In 2013 the Office of Emergency Services began the revision of the EOP consistent and compliant with applicable State and Federal planning guides and documents, applicable for all Operational Area emergency management functions.	Yes	No	Yes	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: The County of Santa Clara developed a standalone THIRA and participates in the Bay Area UASI THIRA, 2015. A THIRA evaluates the capability targets against scenarios across all hazards that stress stakeholder capabilities, and estimates the resources needed to achieve those capability targets.	Yes	Yes	No	Yes
Post-Disaster Recovery Plan Comment: Draft recovery framework was completed in Fall 2016. Final draft framework projected to be published within the next 12 months. Draft framework does currently address mitigation integration opportunities.	Yes	No	No	Yes
Continuity of Operations Plan Comment: There is a COOP planning initiative to be conducted throughout the calendar year of 2017. Planning process will include hazard identification and mitigation planning.	Yes	No	No	Yes
Public Health Plan Comment: The Santa Clara County Department of Public Health has the following public health plans: 2015-2020 Community Health Assessment and Health Improvement Plan; 2014 Emergency Medical Services Plan; 2013 EMS Strategic Plan; 2013 Santa Clara County EMS System Strategic Implementation Plan; Santa Clara County EMS Trauma System Plan; and Santa Clara County EMS Stroke Plan.	Yes	No	No	Yes
Other: Comment: None Located	No	No	No	Yes

Table 1-4. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes; Recreational Services fees
Incur Debt through General Obligation Bonds	Yes – dependent on voter approval
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Yes; Special District fees, Open Space Authority (Measure Q funds).

Table 1-5. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Land Development Engineering Section of the Planning and Development Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Building Inspection, Planning and Development Department
Planners or engineers with an understanding of natural hazards	Yes	County Surveyor, Land Development Engineering Section
Staff with training in benefit/cost analysis	Yes	Controller-Treasurer Department
Surveyors	Yes	Office of County Surveyor
Personnel skilled or trained in GIS applications	Yes	Graphic Information Services
Scientist familiar with natural hazards in local area	Yes	Planning and Development Department, Contracted Services
Emergency manager	Yes	Office of Emergency Services
Grant writers	Yes/No	Planning and Development Department, Office of Emergency Services

Table 1-6. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Department of Planning and Development
Who is your floodplain administrator? (department/position)	Planning and Development/Director
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	April 21, 2009
Does your floodplain management program meet or exceed minimum requirements?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	November 2014
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	Yes Issues are currently being addressed
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • Is your jurisdiction interested in joining the CRS program?	No No
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	670 ^a \$164,764,000 ^a \$889,748 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	121 ^a 37 CWOP ^a \$1,506,976.57 ^a

a. According to FEMA statistics as of October 31, 2016.

Table 1-7. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes; County Executive's Office of Public Affairs coordinates Public Information Officers, Media Contacts and Spokespersons from individual departments.
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes Office of Emergency Services page provides hazard mitigation information.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes The County, Sheriff's, OES, Public Health, and Fire Departments have Facebook, Twitter, or YouTube accounts or multiple sites.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes; Animal Advisory Commission, Flood Protection and Watershed Advisory Committees, Los Altos Hills County Fire Protection District, Santa Clara County Health Authority, Santa Clara County Emergency Operational Area Council.
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes Community Emergency Response Team, Volunteer programs
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes Alert SCC, Santa Clara County Emergency Alert System,

Table 1-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	3	2013
Public Protection (Santa Clara County Fire Department)	Yes	2/2Y	12/2015
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 1-9. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Planning and Development
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	Yes

Table 1-10. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment Question	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comment: None provided.	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: None provided.	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment: None provided.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment: None provided.	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment: None provided.	
Participation in regional groups addressing climate risks	Medium
Comment: None provided.	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Medium
Comment: None provided.	
Identified strategies for greenhouse gas mitigation efforts	Medium
Comment: None provided.	
Identified strategies for adaptation to impacts	Medium
Comment: None provided.	
Champions for climate action in local government departments	Low
Comment: None provided.	
Political support for implementing climate change adaptation strategies	Medium
Comment: None provided.	
Financial resources devoted to climate change adaptation	Low
Comment: None provided.	
Local authority over sectors likely to be negative impacted	Low
Comment: None provided.	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Low
Comment: None provided.	
Local residents support of adaptation efforts	Low
Comment: None provided.	
Local residents' capacity to adapt to climate impacts	Low
Comment: None provided.	
Local economy current capacity to adapt to climate impacts	Low
Comment: None provided.	
Local ecosystems capacity to adapt to climate impacts	Low
Comment: None provided.	

1.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction’s process for integrating the hazard mitigation plan into local planning mechanisms.

1.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **Emergency Management Performance Grant (EMPG)**—Annual Grant program that is meant to comprehensively reduce shared risk across the operational area. Any purchases take into account mitigation impact.
- **Recovery Framework**—As a component of the recovery framework potential mitigation actions are identified and recommended in order to build a community’s emergency management capacity and resiliency.
- **Silicon Valley Regional Interoperability Authority**—Meant to mitigate consequences of hazards due to interoperability and communication issues.
- **Emergency Operations Plan (EOP)**—Integrated mitigation actions by planning for organizational short-falls and unforeseen circumstances.

1.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **California Building Code**—Maintain triennial adoption of updated California Building Code to maintain regulatory standards that will subsequently minimize future hazard impacts.
- **Habitat Conservation Plan**—There is integration potential for our Plan with the Hazard Mitigation Plan due to the fact that we will be managing 47,000 acres of ranchland and open space that has the potential to be impacted by fire, flooding and theologically earthquakes.
- **Environmental Protection**—Riparian Setback Ordinance for San Martin Area (see same section above)
- **Site Plan Review**—The site plan review process provides an opportunity for mitigation to be incorporated into development practices. Several current projects were identified and were included in the action plan (see Table 1-13).

1.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-11 lists all past occurrences of natural hazards within the jurisdiction.

Table 1-11. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment ^a
Earthquake	—	4/18/1906	\$524,000,000
Flooding	15	2/5/1954	Unknown
Flooding	47	12/23/1955	Unknown
Fire	65	12/29/1956	Unknown
Flooding	82	4/4/1958	Unknown
Severe Weather - High Winds	—	1960	\$95,185
Severe Weather - High Winds	—	1961	\$73.36

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment ^a
Flooding	138	10/24/1962	Unknown
Flooding	122	3/6/1962	Unknown
Severe Weather - Winter Weather/High Winds	—	1962	\$67,657
Severe Weather - Thunderstorm	—	1962	\$845
Flooding	145	2/25/1963	Unknown
Dam/Levee Break	161	12/21/1963	Unknown
Severe Weather - Lightening	—	1965	\$7,837
Severe Weather - Thunderstorm	—	1965	\$648.67
Severe Weather - Thunderstorm	—	1965	\$7,135.19
Severe Weather - High Winds	—	1965	\$110,652.18
Severe Weather - Thunderstorm	—	1965	\$74,765.54
Severe Weather - Thunderstorm	—	1965	\$6,486.52
Severe Weather - High Winds	—	1966	\$83,128.89
Severe Weather - Thunderstorm	—	1967	\$61,117
Severe Weather - High Winds	—	1967	\$81,566.86
Severe Weather - Thunderstorm	—	1968	\$10,015.94
Landslide	—	1968	\$16,283,858.04
Severe Storm/Thunder Storm	—	1969	\$5,567,438.75
Severe Weather - Thunderstorms/High Winds	—	1969	\$10,763,714.88
Severe Weather - Thunderstorms/High Winds	—	1970	\$63,632.35
Severe Weather - Winter Weather	—	1970	\$71,031.25
Severe Weather - High Winds	—	1972	\$2,835.13
Flooding	—	1973	\$86,206.90
Drought	3023	1/20/1977	Unknown
Severe Weather - Thunderstorms/High Winds	—	1980	\$2,996.28
Winter Weather	—	1981	\$2,716.10
Flooding	651	12/19/1981	\$17,543,819.07
Flooding	—	1982	\$409,356.61
Severe Weather - Thunderstorms/High Winds	—	1982	\$12,280.67
Flooding	—	1982	\$1,228,067.36
Severe Weather - High Winds	—	1982	\$25,584.73
Flooding	—	1983	\$20,746,004.58
Severe Weather - Thunderstorms/High Winds	—	1983	\$915,264.90
Severe Storm/Thunder Storm/Wind	—	1983	\$24,788.43
Flooding - Coastal Storm	677	1/21/1983	\$1,189,844.38
Earthquake	—	1984	\$9,124,812.35
Fire	739	6/26/1985	Unknown
Flooding	758	2/12/1986	\$10,812,819.38
Severe Weather - High Winds	—	1987	\$7,865.46
Severe Weather - High Winds	—	1988	\$5,008.81
Severe Weather - High Winds	—	1988	\$17,271.77
Flooding	—	1988	\$100,176.25
Severe Weather - Winter Weather	—	1989	\$238,928.43

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment ^a
Earthquake	845	10/17/1989	\$1,409,677,726
Severe Weather - Freeze	894	12/19/1990	Unknown
Severe Weather - High Winds	—	1991	\$669.32
Severe Weather - Winter Weather	—	1992	\$175.98
Flooding	—	1992	\$3,586,367.38
Flooding/Wind	—	1992	\$1,797.17
Severe Weather - Winter Weather	—	1992	\$3,808.34
Flooding	—	1993	\$91,125.34
Severe Weather - Winter Weather/High Winds	—	1993	\$230,691.85
Severe Weather - Winter Weather/High Winds	—	1993	\$108,172.06
Severe Weather - Winter Weather	—	1994	\$2,498.91
Severe Weather - Winter Weather	—	1994	\$2,050.39
Severe Weather - Storm	1044	1/3/1995	\$1,010,899.28
Severe Weather - Storm	1046	2/13/1995	\$17,482,926.56
Severe Weather - Landslide	1155	12/28/1996	\$21,792,068.12
Severe Weather - Tornado	—	1997	\$29,534.83
Severe Weather - landslide	1203	2/2/1998	\$25,537,087.33
Severe Weather - High Winds	—	2001	\$936,826.09
Fire - Croy	2465	9/23/2002	\$6,559,446.93
Hurricane - Katrina (Evacuation)	3248	8/29/2005	\$1,870,933.90
Landslide	—	2006	\$5,094,611.45
Severe Weather - High Winds	—	2006	\$199,865.53
Severe Weather - Winter Weather	—	2007	\$5,578,430.62
Severe Weather - Tornado	—	2007	\$1,143.12
Fire - California Wildfires	3287	6/20/2008	\$491,525,986
Fire - Summit	2766	5/22/2008	\$10,722,593.80
Severe Weather - High Winds	—	2008	\$55,042.66
Severe Weather - High Winds	—	2008	\$18,164.08
Severe Weather - Winter Weather	—	2008	\$8,806.82
Severe Weather - High Winds	—	2009	\$23,016.33
Severe Weather - High Winds	—	2009	\$48,294.84
Severe Weather - High Winds	—	2009	\$20,235.96
Severe Weather - Fog	—	2009	\$9,206.53
Severe Weather - Heat	—	2009	\$3,682.61
Severe Weather - High Winds	—	2009	\$5,523.92
Flooding/Wind/Landslide	—	2009	\$1,852,906.55
Severe Weather - High Winds	—	2009	\$18,413.07
Severe Weather - Winter Weather	—	2009	\$46,953.32
Flooding/Landslide	—	2010	\$5,434.77
Severe Weather - High Winds	—	2010	\$313,858.17
Severe Weather - High Winds	—	2010	\$9,057.95
Severe Weather - High Winds	—	2010	\$10,869.54
Severe Weather - High Winds	—	2010	\$181,159.13

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment ^a
Landslide	—	2010	\$1,449.27
Severe Weather - High Winds	—	2010	\$21,286.19
Severe Weather - High Winds	—	2011	\$2,634.24
Flooding/Wind/Landslide	—	2011	\$66,294.96
Landslide	—	2012	\$19,356.21
Severe Weather - High Winds	—	2012	\$4,129.32
Landslide	—	2012	\$10,323.31
Severe Weather - High Winds	—	2012	\$4,430.42
Hail	—	2012	\$51.62
Severe Weather - High Winds	—	2012	\$731.23
Flooding	—	2012	\$2,787,293.67
Severe Weather - High Winds	—	2012	\$5,333.71
Severe Weather - High Winds	—	2013	\$2,882.72
Severe Weather - High Winds	—	2013	\$11,106.92
Severe Weather - High Winds	—	2013	\$18,313.74
Flooding	—	2014	\$500.59
Severe Weather - High Winds	—	2014	\$667.46
Severe Weather - High Winds	—	2015	\$7,608.33
Severe Weather - High Winds	—	2015	\$3,250
Fire - Loma	—	2016	Unknown
Flooding	—	2017	\$6,608,518 ^b

a. Unless otherwise indicated damage assessment values are in 2015 dollars

b. 2017 dollars

1.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 1
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- Localized street flooding throughout County.

1.8 HAZARD RISK RANKING

Table 1-12 presents the ranking of the hazards of concern.

1.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Santa Clara County can be found in Appendix D of this volume.

Table 1-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
1	Wildfire	54	High
2	Severe Weather	33	Medium
3	Flood	18	Medium
3	Landslide	18	Medium
4	Dam and Levee Failure	13	Low
5	Drought	9	Low

1.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 1-13 lists the actions that make up the County of Santa Clara hazard mitigation action plan. Table 1-14 identifies the priority for each action. Table 1-15 summarizes the mitigation actions by hazard of concern and the six mitigation types.

1.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 1-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SCC-1—County-Wide CWPP - Maintain and update as appropriate, the County unincorporated CWPP, while expanding the planning scope to integrate the all of the Operational Area's jurisdictions.						
Existing	Wildfire	1, 2, 5, 6	Santa Clara County Fire Department -or- FireSafe Council	Medium	SCCFD General Budget; County OES General Budget; HMGP; PDM; EMPG	Ongoing
SCC-2—CalFire, South County Fire, and the Santa Clara County Fire Department should prepare for coordinated wildfire response operations through the development of a Wildfire Annex to the County's Emergency Operations Plan						
Existing	Wildfire	1, 3, 5, 6	County OES	Low	SCCFD General Budget; County OES General Budget; HMGP; EMPG	Short-term
SCC-3—Cal Fire, South County Fire, and the Santa Clara County Fire should continue working together to study the latest research on best practices (i.e. Be Ember Aware) via conferences, seminars and invitations to attend other area FireSafe Council meetings.						
New and Existing	Wildfire	1, 2, 5	Santa Clara County Fire Department	Low	SCCFD General Budget, FireSafe Council General Budget, and South County Fire General Budget; EMPG	Ongoing
SCC-4—Continue to promote programs that mitigate vegetation fire, such as disease tree removal, defensible space, and FireWise community programs.						
New and Existing	Wildfire	2, 4, 6, 8	Santa Clara County Fire Department	Low	SCCFD General Budget; County OES General Budget; South County Fire General Budget; HMGP; and PDM; EMPG	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SCC-5—Create Santa Clara County Information Sharing Council (or equivalent) as an institutional receptacle for matters pertaining to infrastructure data-sharing efforts. <ul style="list-style-type: none"> • Invite all departments/agencies owning EM related data (including private utilities) • Consider hosting private sector • Host quarterly council meetings 						
New and Existing	All hazards	1, 2, 5	ISD (GIS)	\$150,000 (for all #19 Actions collectively) Medium	SCCFD General Budget, County OES Budget, ISD/GIS Budget, HMGP; EMPG	Short-Term
SCC-6—Maintain and update a GIS layer of localized flooding “hot spots” throughout the County.						
New and Existing	Flood, Severe Weather	1, 2	SCVWD	\$50,000 Medium	SCVWD General Budget; County ISD/GIS Budget, HMGP; PDM; FMA; EMPG	Short-Term
SCC-7—Maintain and update GIS to evaluate catastrophic dam failure scenarios.						
New and Existing	Dam and Levee Failure	1, 2	SCVWD	\$100,000 Low	SCVWD General Budget; County ISD/GIS Budget, HMGP; PDM; FMA; EMPG	Short-Term
SCC-8—Develop, update, and maintain GIS inventories of essential facilities, at-risk buildings and infrastructure and prioritize mitigation projects. Ideas for Implementation: <ul style="list-style-type: none"> • Identify critical facilities at risk from natural hazards events. • Develop strategies to mitigate risk to these facilities, or to utilize alternative facilities should natural hazard events cause damage to the facilities in question. • Identify bridges at risk from flood or earthquake hazards. 						
Existing	All hazards	1, 2, 8	ISD (GIS)	\$50,000 Medium	County ISD Budget, County OES Budget, HMGP; PDM; FMA; EMPG	Long-term/Ongoing
SCC-9—Maintain the WebEOC to up-to-date technology. For example, review the WebEOC vendor's Road Map; assess the vendor technology's fitness to the County's IT infrastructure; consider upgrading to a new system.						
Existing	All hazards	2, 9	ISD (GIS)	\$100,000 Low	County ISD Budget, County OES Budget, Emergency Management Performance Grant Program, HMGP; PDM; FMA; EMPG	Short-Term
SCC-10—Participate in Statewide effort to collaborate on the spatial data standardization, data sharing platform, common operating procedures.						
Existing	All hazards	1, 5, 9	ISD (GIS)/OES	\$10,000 Low	County ISD Budget, County OES Budget, Emergency Management Performance Grant Program, HMGP; PDM; FMA; EMPG	Ongoing
SCC-11—Develop and provide the Indoor Mapping, Evacuation Routing to Emergency Response Personnel						
New	Dam and Levee Failure, Earthquake, Flood, Severe Weather, Wildfire, Hazardous Materials	2, 9	ISD (GIS)	Medium	County ISD Budget, Emergency Management Performance Grant Program, HMGP; PDM; FMA; EMPG	Long-Term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SCC-12—Develop a standard set of maps (digital and hard copy) that should be utilized during exercise and events.						
New and Existing	All hazards	2, 9	ISD (GIS)	\$50,000 Low	County ISD Budget, Emergency Management Performance Grant Program, HMGP; PDM; FMA; EMPG	Short-Term
SCC-13—Identify county facilities vulnerable to earthquakes and develop appropriate actions. Identify the most seismically vulnerable bridges on county roads.						
Existing	Earthquake	2, 8	ISD (GIS)	\$100,000 Low	County ISD Budget, Fleet and Facilities Budget Emergency Management Performance Grant Program, HMGP; PDM; FMA; EMPG	Long-Term
SCC-14—Identification and deployment of next generation reverse 911 system (i.e. AlertSCC replacements)						
New	All hazards	6, 9	County Communications	\$300,000 High	County ISD Budget, County OES Budget; County Communications Budget; the State Homeland Security Grant Program	Long-Term
SCC-15—Deploy Plume Modeling software and enable OES staff to manage data input to assess hazardous materials atmospheric risk						
New and Existing	Hazardous materials, Earthquake	1, 2	ISD (GIS)	\$200,000 Medium	County ISD Budget, County OES Budget; County Public Health Budget; SCCFD; EMPG; the State Homeland Security Grant Program	Long-Term
SCC-16—Bloomfield Road Settlement Repair (located in Gilroy between Sheldon & Davidson Aves): Project would realign current drainage ditch to dewater the subsurface/ ground water; inject materials to stabilize the subgrade; and, install new AC pavement.						
Existing	Earthquake, Landslide,	6, 8	Roads and Airports	\$3,000,000 High	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term
SCC-17—Shannon Road Slide Repair (between Diduca Way & Santa Rose Dr. in Los Gatos): Soil nail project would cover approximately 1,000 LF.						
Existing	Landslide	6, 8	Roads and Airports	\$2,000,000 High	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term
SCC-18—Miguelito Road Repairs for two road sections (located in east side of San José): Section 1, located near the intersection of Camino Vista Way and Miguelito Road, would replace the current soldier pile wall with a new retaining wall and repave the roadway. Section 2, located near the intersection of Rica Vista Way and Miguelito Road, would repair the slope failure.						
Existing	Landslide	6, 8	Roads and Airports	\$650,000 High	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term
SCC-19—Clayton Road Slide Repair (located near 14194 Clayton Road, San José): Install retaining wall and repair roadway.						
Existing	Landslide	6, 8	Roads and Airports	\$500,000 High	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term
SCC-20—East Dunne Avenue Slide Repair & Road Reconstruction (located in Morgan Hill): Project site is about 0.3 mile from Woodchopper Picnic Area located in Anderson Lake County Park.						
Existing	Landslide	6, 8	Roads and Airports	\$3,500,000 High	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SCC-21—Alma Bridge Road Slide Repair (located in Los Gatos): Project site is 0.75 mile south of the Los Gatos Rowing Club@ Lexington Reservoir.						
Existing	Landslide	6, 8	Roads and Airports	\$1,500,000 High	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term
SCC-22—Arastradero Road Slide & Mitigation Project: Located 0.08 mile south of the intersection of Alpine & Arastradero Roads.						
Existing	Landslide	6, 8	Roads and Airports	\$1,000,000 High	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term
SCC-23—Review and implement selected recommendations detailed in the Loma Fire Watershed Emergency Response Team Final Report, October 25, 2016 (CA-SCU-006912). Potential actions may include, but are not limited to: the deployment of an early warning system, infrastructure improvements, establishment of a FireWise community program, waterway clearance, general watershed restoration, etc.						
New and Existing	Wildfire, Flood, Landslide	3, 4, 6, 9	County OES	Medium	County Roads and Airports Budget; County OES Budget; HMGP; PDM; FMA	Long-Term
SCC-24—Review critical facilities and capital projects for mitigation project potential - including, but not limited to: street flood water drainage, power production maintenance/upgrades, etc.						
Existing	All hazards	3, 6, 8	Fleet and Facilities	Medium	County Roads and Airports Budget; County OES Budget; County Fleet and Facilities Budget; County Roads and Airports Budget; County Planning & Development Budget; HMGP; PDM; FMA, EMPG; the State Homeland Security Grant Program	Short-Term
SCC-25—Provide technical information and guidance to public on individual risk identification using information sharing/GIS platforms.						
New and Existing	All hazards	1, 4, 6	County ISD	Low	County ISD Budget, County OES Budget; SCCFD; EMPG; the State Homeland Security Grant Program	Short-Term
SCC-26—Develop strategy to take advantage of post disaster opportunities - through the development of Disaster Recovery Planning, Disaster Cost Recovery Planning, etc.						
New and Existing	All hazards	1, 2, 3, 4, 5, 6, 7, 8	County OES	Medium	County OES Budget; SCCFD; County Finance Agency Budget; EMPG; the State Homeland Security Grant Program; HMGP	Long-Term
SCC-27—Develop and adopt a COOP for County Departments, as appropriate						
Existing	All hazards	6, 9	County OES	Low	County OES Budget; SCCFD; County ISD; EMPG; the State Homeland Security Grant Program; HMGP	Short-Term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
<p>SCC-28—Maintain existing data as well as gather new data needed to define risks and vulnerability. New data should be integrated into County policies relating to, but not limited to: stormwater management, post-disaster recovery, real estate disclosures, environmental protection, climate change, fire suppression, seismic activity.</p>						
New and Existing	All hazards	1, 2, 3	County OES	Low	County OES Budget; SCCFD; County ISD; EMPG; the State Homeland Security Grant Program; HMGP	Ongoing
<p>SCC-29—Maintain existing data as well as gather new data needed to define risks and vulnerability. New data should be integrated into County plans relating to, but not limited to: the County's General Plan, Capital Improvement Plan, Stormwater Plan, Habitat Conservation Plan, Community Wildfire Protection Plan, Forest Management Plan, Climate Action Plan, Emergency Operations Plan, Threat & Hazard Identification & Risk Assessment, Post-Disaster Recovery Plan; Continuity of Operations Plan; Public Health Plan</p>						
New and Existing	All hazards	1, 2, 3	County OES	Low	County OES Budget; SCCFD; County ISD; EMPG; the State Homeland Security Grant Program; HMGP	Ongoing
<p>SCC-30—Develop a Debris Collection and Management Plan</p>						
Existing	Dam and Levee Failure, Earthquake, Flood, Landslide, Severe Storm, Wildfire	2, 6	County Roads and Airports	Medium	County OES Budget; SCCFD; County ISD; County Roads & Airports Budget; County Public Health Budget; EMPG; the State Homeland Security Grant Program; EMPG	Short-Term
<p>SCC-31—Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:</p> <ul style="list-style-type: none"> • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 3, 4, 7, 8	SCVWD	Low	SCVWD General Budget; HMGP; PDM; FMA	Ongoing
<p>SCC-32— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.</p>						
New	All hazards	2, 3	County OES	Medium	County OES Budget, SCCFD Budget, County Planning & Development Budget	Ongoing
<p>SCC-33—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.</p>						
New and Existing	All hazards	1, 2, 7	County OES	Medium	County OES Budget, SCCFD Budget, County ISD/GIS Budget, County Finance Agency Budget	Long-Term
<p>SCC-34—Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.</p>						
New and Existing	All hazards	1, 5	County OES	Low	County OES Budget, SCCFD Budget, HMGP; PDM; EMPG	Ongoing
<p>SCC-35—Coordinate with the private sector on prioritization of critical facilities before and during restoration of utility services.</p>						
Existing	All hazards	5, 6	County OES	Low	County OES Budget	Ongoing
<p>Acronyms used in Sources of Funding: EMPG = the Federal Emergency Management Performance Grant; FMA = the Federal Flood Mitigation Assistance Grant Program; HMGP = The Federal Hazard Mitigation Grant Program; PDM = Federal Pre-Disaster Mitigation Grant Program; SCCFD General Budget = Santa Clara County Fire Department General Budget</p>						

Table 1-14. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
SCC-1	4	Medium	Medium	Yes	Yes	Yes	High	Medium
SCC-2	4	Medium	Low	Yes	Yes	Yes	High	Medium
SCC-3	3	Low	Low	Yes	Yes	Yes	High	Medium
SCC-4	4	Medium	Low	Yes	Yes	Yes	High	Medium
SCC-5	3	Medium	Medium	Yes	Yes	Yes	High	Medium
SCC-6	2	Medium	Medium	Yes	Yes	Yes	High	Medium
SCC-7	2	Medium	Low	Yes	Yes	Yes	High	Medium
SCC-8	3	Medium	Medium	Yes	Yes	Yes	Low	Medium
SCC-9	2	Medium	Low	Yes	Yes	Yes	High	Medium
SCC-10	3	Low	Low	Yes	Yes	Yes	Medium	Medium
SCC-11	2	High	Medium	Yes	Yes	Yes	Medium	Medium
SCC-12	2	Low	Low	Yes	Yes	Yes	Medium	Medium
SCC-13	2	Medium	Low	Yes	Yes	Yes	Low	Medium
SCC-14	2	High	High	Yes	Yes	No	Medium	High
SCC-15	2	Medium	Medium	Yes	Yes	Yes	Low	Medium
SCC-16	2	High	High	Yes	Yes	No	Medium	High
SCC-17	2	High	High	Yes	Yes	No	Medium	High
SCC-18	2	High	High	Yes	Yes	No	Medium	High
SCC-19	2	High	High	Yes	Yes	No	Medium	High
SCC-20	2	High	High	Yes	Yes	No	Medium	High
SCC-21	2	High	High	Yes	Yes	No	Medium	High
SCC-22	2	High	High	Yes	Yes	No	Medium	High
SCC-23	4	Medium	Medium	Yes	Yes	Yes	Low	Medium
SCC-24	3	Medium	Medium	Yes	Yes	Yes	High	Medium
SCC-25	3	Low	Low	Yes	Yes	Yes	Medium	Low
SCC-26	8	Medium	Medium	Yes	Yes	Yes	Low	Medium
SCC-27	2	Medium	Low	Yes	Yes	Yes	High	Medium
SCC-28	3	Low	Low	Yes	Yes	Yes	Medium	Medium
SCC-29	3	Low	Low	Yes	Yes	Yes	Medium	Medium
SCC-30	2	Medium	Medium	Yes	Yes	Yes	High	Medium
SCC-31	5	Medium	Low	Yes	Yes	Yes	High	Medium
SCC-32	2	Medium	Medium	Yes	No	Yes	High	Low
SCC-33	3	Medium	Medium	Yes	No	Yes	Low	Low
SCC-34	2	Low	Low	Yes	Yes	Yes	Medium	Low
SCC-35	2	High	Low	No	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 1-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	SCC-5, SCC-8, SCC-10, SCC-26, SCC-28, SCC-29, SCC-30, SCC-32, SCC-33, SCC-34	SCC-8, SCC-13, SCC-16, SCC-24	SCC-25		SCC-9, SCC-11, SCC-12, SCC-14, SCC-15, SCC-27, SCC-30, SCC-35		
Wildfire	SCC-1, SCC-3, SCC-5, SCC-8, SCC-10, SCC-23, SCC-26, SCC-28, SCC-29, SCC-30, SCC-32, SCC-33, SCC-34	SCC-1, SCC-4, SCC-8, SCC-24	SCC-1, SCC-4, SCC-25	SCC-4	SCC-2, SCC-9, SCC-11, SCC-12, SCC-14, SCC-27, SCC-30, SCC-35		
Severe Weather	SCC-5, SCC-6, SCC-8, SCC-10, SCC-26, SCC-28, SCC-29, SCC-30, SCC-32, SCC-33, SCC-34	SCC-8, SCC-24	SCC-25		SCC-9, SCC-11, SCC-12, SCC-14, SCC-27, SCC-30, SCC-35		
Flood	SCC-5, SCC-6, SCC-8, SCC-10, SCC-23, SCC-26, SCC-28, SCC-29, SCC-30, SCC-31, SCC-32, SCC-33, SCC-34	SCC-10, SCC-8, SCC-24, SCC-31	SCC-25, SCC-31		SCC-9, SCC-11, SCC-12, SCC-14, SCC-27, SCC-30, SCC-35		
Landslide	SCC-5, SCC-8, SCC-10, SCC-23, SCC-26, SCC-28, SCC-29, SCC-30, SCC-32, SCC-33, SCC-34	SCC-8, SCC-16, SCC-18, SCC-19, SCC-20, SCC-21, SCC-22, SCC-24	SCC-25		SCC-9, SCC-12, SCC-14, SCC-27, SCC-30, SCC-35	SCC-18, SCC-19,	
Dam and Levee Failure	SCC-5, SCC-7, SCC-8, SCC-10, SCC-26, SCC-28, SCC-29, SCC-30, SCC-32, SCC-33, SCC-34	SCC-8,, SCC-24	SCC-25		SCC-9, SCC-11, SCC-12, SCC-14, SCC-27, SCC-30, SCC-35		
Drought	SCC-5, SCC-8, SCC-10, SCC-26, SCC-28, SCC-29, SCC-32, SCC-33, SCC-34	SCC-8, SCC-24	SCC-25		SCC-9, SCC-12, SCC-14, SCC-27, SCC-35		

a. See the introduction to this volume for explanation of mitigation types.

2. CITY OF CAMPBELL

2.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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2.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—1952
- **Current Population**—42,584 (as of January 1, 2016 – California Department of Finance)
- **Population Growth**—According to the state Department of Finance, it is estimated that Campbell experienced a 1.4 percent increase in population between 2014 (41,986) & 2015 (42,584). Although projections are not available for individual cities, the Department of Finance projects that Santa Clara County will experience a 4.25 percent increase in population between 2015 and 2020 and a 9.15 percent increase between 2020 and 2030.
- **Location and Description**—Nestled in the midst of Silicon Valley, Campbell has retained the charm of a small, friendly town while embracing the future. Residents enjoy beautiful natural surroundings, well maintained parks and trails, and easy access to transit and major freeways. The City occupies approximately six square miles of relatively flat land near the south end of the San Francisco Bay. Nearby communities include San José to the west, east and north, and Los Gatos and Saratoga to the south.
- **Brief History**—The City was founded in 1887 and incorporated in 1952 as a general law city. Benjamin Campbell, Campbell's founder, came west in 1846 with his family. In 1851, he bought 160 acres which would later become Campbell's historical downtown core. Although there were efforts to incorporate Campbell in 1906, it was not considered by the voters until 1946, at which time it failed by a narrow margin of 10 votes. Facing the threat of being gobbled up by its voracious neighbors and the impending loss of county services, incorporation advocates won the day on March 11, 1951, by a narrow margin of 50 votes. From the mid-1850s, Campbell was primarily an agricultural production center, with fruits as its major crops. By 1950, however, croplands were beginning to be transformed into residential neighborhoods. Campbell's population doubled during the 1960s, slowed down in the 1970s, increased by 33 percent in the 1980s, and has been limited since 1990. Today, Campbell is a largely built-out suburban community. Campbell has grown from a small farming community with a population of approximately 5,000 to a progressive community with a population of over 42,000.
- **Climate**—Campbell has a Mediterranean climate, generally characterized by mild, wet winters and warm, dry summers. On average, the warmest month of the year is July (average high temperature of 85° F) and the coolest month is January (average low temperature of 39° F). The annual average precipitation

is approximately 23 inches, with the wettest month of the year being February with an average rainfall of approximately 5.1 inches.

- **Governing Body Format**—Campbell operates under a Council/Manager form of government. Campbell is a General Law City with a five-member Council including a rotating Mayor’s position. The City Council is elected to four-year terms. The City Manager is the chief administrative officer of the city, acts as a liaison between the City Council and employees, and appoints department heads and all other staff. City departments include the City Manager/City Clerk’s Office, Community Development, Finance, Recreation & Parks, Public Safety (Police), and Public Works. The city has several commissions and boards including the Bicycle and Pedestrian Advisory Committee; Building Board of Appeals; Civic Improvement Commission; Historic Preservation Board; Parks and Recreation Commission; Planning Commission; Rental Increase Fact Finding Committee; Successor Agency; and Youth Commission. The City Council assumes responsibility for the adoption of this plan: the City Manager will oversee its implementation.

2.3 DEVELOPMENT TRENDS

Of the approximately 16,000 housing units in the City, 58 percent are single-family homes, 40 percent are multi-family units, and 2 percent are mobile homes or other types of residential options. The city has grown and changed since it adopted its current General Plan in 2001. The City of Campbell has adopted a variety of special area plans to protect the small town residential character and encourage commercial revitalization efforts in areas that are showing signs of age and obsolescence. In 2016, the city initiated a multi-year process of updating their General Plan. This General Plan update, referred to as the Envision Campbell Plan, looks ahead to the year 2040, making adjustments based on current issues and emergent trends, and positioning the City of Campbell for the next 20-25 years. Table 2-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

2.4 CAPABILITY ASSESSMENT

2.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (City of Campbell Annex). All of the below items were additionally reviewed as part of the full capability assessment for the City of Campbell.

- **City of Campbell General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **City of Campbell Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Technical Reports and Information**—Outside resources and references used to complete the City of Campbell Annex are identified in Section 2.12 of this Annex.

Table 2-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	No. The last land annexed occurred just before adoption of the 2012 hazard mitigation plan. N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	No N/A N/A					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes It is anticipated that the following properties will be redeveloped within the next five years: • Mixed Use development on E Campbell Ave • Commercial development on S. Bascom Ave They are located in an area with potential for liquefaction and possible inundation from a dam failure					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Total Number of Permits	1,122	1,276	1,375	1,276	1,605
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	The entire City of Campbell is approximately 4 miles north of a major dam (Lexington Reservoir) as well as in close proximity to the San Andreas Fault. Development has occurred throughout the city during the performance period for this plan. For hazards with a clearly defined extent and location, the City cannot estimate development impacts. For hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The current General Plan estimated "buildout" would accommodate a population level of approximately 41,825. The 2010 census found the population to be 39,349. The California Department of Finance estimated Campbell's population to be 41,986 as of January 1, 2015 and 42,584 as of January 1, 2016. The issue of "buildout" will be reviewed again as part of the General Plan update currently underway.					

2.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 2-2. An assessment of fiscal capabilities is presented in Table 2-3. An assessment of administrative and technical capabilities is presented in Table 2-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 2-5. An assessment of education and outreach capabilities is presented in Table 2-6. Classifications under various community mitigation programs are presented in Table 2-7. Development and permitting capabilities are presented in Table 2-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 2-9.

Table 2-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	Yes (State)	Yes	No
Comment: California Building Code, California Code of Regulations, Title 24, Campbell Municipal Code Title 18				
Zoning Code	Yes	No	No	Yes
Comment: Campbell Municipal Code Title 21, Article 1 through 6				
Subdivisions	Yes	No	Yes	Yes
Comment: Campbell Municipal Code Title 20				
Stormwater Management	Yes	Yes	Yes	Yes
Comment: Santa Clara Valley Water District				
Post-Disaster Recovery	Yes	No	No	Yes
Comment: None Located; Recovery plan development would be a coordinated effort				
Real Estate Disclosure	No	No	Yes	No
Comment: California Civil Code §1102 et seq.				
Growth Management	Yes	No	Yes	No
Comment: California Government Code §65300 et seq.				
Site Plan Review	Yes	No	No	Yes
Comment: Campbell Municipal Code Chapter 21.42				
Environmental Protection	Yes	Yes (State)	Yes	No
Comment: California Environmental Quality Act, Public Resources Code, Section 21000 et seq.				
Flood Damage Prevention	Yes	Yes (State)	Yes	Yes
Comment: FEMA, Campbell Municipal Code Chapter 21.22				
Emergency Management	Yes	Yes (State)	Yes	No
Comment: Campbell Municipal Code Title 2.28				
Climate Change	Yes - In progress	No	Yes	Yes - In progress
Comment: The City has recently acquired the services of DeNovo Planning Group to prepare a Climate Action Plan (CAP) for the City in coordination with an update of the City's General Plan. California Senate Bill 379				
Other: Fire Code	Yes	Yes (State)	Yes	No
Comment: Campbell Municipal Code Title 17				
Planning Documents				
General Plan	Yes	No	Yes	Yes - In progress
Is the plan compliant with Assembly Bill 2140? The General Plan includes a Health and Safety Element				
Comment: The City of Campbell's General Plan is currently being updated.				
Capital Improvement Plan	Yes	No	No	Yes
Comment: The 5-year CIP is updated annually.				
Floodplain or Watershed Plan	Yes	Yes	Yes	Yes
Comment: Santa Clara Valley Water District				
Stormwater Plan	Yes	Yes	Yes	Yes
Comment: Campbell Municipal Code Title 14, Chapter 14.02				
Urban Water Management Plan	No	Yes	Yes	No
Comment: Santa Clara Valley Water District				
Habitat Conservation Plan	No	Yes	No	No
Comment: U.S. Fish and Wildlife Service				
Economic Development Plan	Yes	No	No	No
Comment: General Plan identifies economic development strategies				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Shoreline Management Plan Comment: Not applicable	No	No	No	No
Community Wildfire Protection Plan Comment: Santa Clara County Fire Department	No	Yes	No	No
Forest Management Plan Comment: None Located	No	No	No	No
Climate Action Plan Comment: City of Campbell Climate Action Plan in progress	In progress	No	No	In progress
Comprehensive Emergency Management Plan Comment: The plan was revised and adopted by Council in 2014	Yes	No	Yes	No
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: Santa Clara County Office of Emergency Services	No	Yes	No	No
Post-Disaster Recovery Plan Comment: The plan was revised and adopted by Council in 2014	Yes	No	No	No
Continuity of Operations Plan Comment: The plan was revised and adopted by Council in 2014	Yes	No	No	No
Public Health Plan Comment: The plan was revised and adopted by Council in 2014	Yes	No	No	No
Other: Comment: None Located	N/A	N/A	N/A	N/A

Table 2-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes: park impact fees, vehicle impact fees
Other	No

Table 2-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Multiple staff in Community Development Department and Public Works Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Multiple staff in Building Department and Public Works Department
Planners or engineers with an understanding of natural hazards	Yes	Multiple staff in Building Department and Public Works Department
Staff with training in benefit/cost analysis	No	
Surveyors	Yes	Contract staff
Personnel skilled or trained in GIS applications	Yes	Community Development Department and Public Works Department
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Police Department/Captain
Grant writers	Yes	Comm. Dev./Public Works/City Manager

Table 2-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Community Development Department
Who is your floodplain administrator? (department/position)	Community Development Director
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	2014
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	3/15/2012
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	No Some of the maps are outdated. Property owners must apply for a letter of map amendment/revision in these cases.
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes FEMA E273 class
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	No No
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	85a \$23,936,300 ^a \$48,148 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	0 per FEMA website ^a n/a per FEMA website ^a n/a per FEMA website ^a

a. According to FEMA statistics as of October 31, 2016

Table 1-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	No
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes We use Twitter/Nextdoor to inform residents about preparedness and local hazards
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes CERT
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes Alert SCC and CodeRED

Table 2-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	2	2010
Public Protection	Yes	ISO 2	unknown
Storm Ready	Yes	N/A	unknown
Firewise	No	N/A	N/A

Table 2-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Planning and Building
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No, however staff has informally identified some underdeveloped areas that could be redeveloped.

Table 2-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Low
Comment: Our jurisdiction rating should improve within the next two years because the City has recently acquired the services of DeNovo Planning Group to prepare a Climate Action Plan (CAP) for the City in coordination with an update of the City's General Plan.	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: Our jurisdiction rating should improve within the next two years because the implementation and monitoring program developed for the CAP will include a summary matrix that identifies the priority for implementation of each measure, the timeframe for implementation of each measure, and identify the agency, department, or party responsible for measure implementation. A monitoring and reporting protocol will be developed as a tool for the City to use after adoption of the CAP, to ensure that priority measures are properly implemented within the timeframes identified.	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment: Our jurisdiction rating should improve within the next two years because DeNovo Planning Group proposes to utilize a greenhouse gas (GHG) software program to estimate the effectiveness of each measure or policy in reducing GHG levels and in meeting a Target Reduction Goal.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment: Our jurisdiction rating should improve within the next two years because the Climate Action Plan being prepared by DeNovo Planning Group will include an Existing Emissions Inventory that provides a detailed quantification of greenhouse gases being generated in Campbell during the base year.	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment: Our jurisdiction rating should improve within the next two years because the CAP will also provide a summary table of measures that would be required by future development projects. This tool will provide a clear and straight-forward reference to the development community, and will assist staff in their review of development projects for consistency with the CAP. This tool will also assist with the CEQA review of subsequent projects, and will detail how projects may be eligible for streamlined CEQA review if appropriate CAP measures are correctly integrated into project plans.	
Participation in regional groups addressing climate risks	Low
Comment: Unknown at this time	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comment: Our jurisdiction rating should improve within the next two years because the City Council will determine the appropriate target for the level of greenhouse gas emissions the CAP seeks to reduce in future years.	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment: Our jurisdiction rating should improve within the next two years because the Climate Action Plan being prepared by DeNovo Planning Group will include a range of strategies, measures, and programs that the City and the community may implement to reduce the generation of greenhouse gas emissions (GHGs) within the city. The Climate Action Plan being prepared by DeNovo Planning Group will include a wide range of measures to reduce greenhouse gas emissions from a variety of sources, including energy use, building design and materials, transportation, and solid waste disposal.	
Identified strategies for adaptation to impacts	Low
Comment: Our jurisdiction rating should improve within the next two years because the CAP will include all of the information contained in the Baseline Emissions Inventory, including a discussion of existing climate change science, the effects and impacts of climate change (with particular emphasis on how Campbell may be impacted), and a summary of actions currently being taken by State, Federal and local agencies on climate change.	
Champions for climate action in local government departments	Low
Comment: Our jurisdiction rating should improve within the next two years because several Departments will be involved in the General Plan update and the Climate Action Plan that will be coordinated with that effort.	
Political support for implementing climate change adaptation strategies	High
Comment: The City Council has authorized the preparation of the Climate Action Plan, illustrating their support for considering climate change adaptation strategies.	
Financial resources devoted to climate change adaptation	Low
Comment: It is unknown at this time. However, our jurisdiction rating should improve within the next two years because the CAP will identify possible funding sources for the implementation of proposed measures.	

Adaptive Capacity Assessment	Jurisdiction Rating
Local authority over sectors likely to be negative impacted	Low
Comment: It is unknown at this time. However, our jurisdiction rating should improve within the next two years in this regard.	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Unknown
Comment: Our jurisdiction rating should improve within the next two years because once completed, the Climate Action Plan being prepared by DeNovo Planning Group will help inform residents of climate risk.	
Local residents support of adaptation efforts	Unknown
Comment: It is unknown at this time how supportive residents will be of the adaption efforts proposed by DeNovo Planning Group and accepted by the City Council.	
Local residents' capacity to adapt to climate impacts	Unknown
Comment: It is unknown at this time what the local residents' capacity to adapt to climate impacts will be.	
Local economy current capacity to adapt to climate impacts	Unknown
Comment: It is unknown at this time what the local economy current capacity to adapt to climate impacts will be.	
Local ecosystems capacity to adapt to climate impacts	Unknown
Comment: It is unknown at this time what the local ecosystems capacity to adapt to climate impacts will be.	

2.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

This section describes the process for integrating the hazard mitigation plan into local planning mechanisms.

2.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **Emergency Operations Plan (EOP)**—The EOP's purpose is to help identify hazards in Campbell and enhance the development of our LHMP. These, and other goals, are written in the plan under the "Purpose" and "Scope" section of the plan.

2.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **General Plan**—This plan is currently being developed and will be used to assist in the growth and land development of our community. The plan will introducing green elements and environmental resource elements so we can help lower things such as greenhouse gas emissions, reducing waste, improving energy and water efficiency and complying with state and nationwide standards. The updated safety element will also comply with California State requirements regarding flood, wildfire and climate change. The risk assessment developed as part of the hazard mitigation plan update will be used to inform the development of the General Plan
- **Climate Action Plan**—This plan is under development and will be included in the General Plan.
- **Updated Floodplain Plan**—This updated plan will help us to better identify flood risks, their impact on the community and a prioritized action plan for reducing these flood risks.
- **Capital Improvement Plan**—There are several projects identified in this plan which could, at a later date, be integrated with this plan to help to mitigate some risks.
- **Other Legal and Regulatory Capabilities**—Those capabilities identified as providing an integration opportunity in Table 2-1 will be reviewed and updated to include information on hazard risk reduction as feasible and appropriate.

2.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 2-10 lists all past occurrences of natural hazards within the jurisdiction.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storm	1203	2/1998	Unknown
Severe Storm	1155	1/1997	Unknown
Severe Storm	758	2/1996	Unknown
Severe Storm	1046	3/1995	Unknown
Severe Storm	1044	1/1995	Unknown
Severe Freeze	894	12/19/90	\$31,800
Loma Prieta	845	10/17/1989	Unknown
Severe Storm	651	12/1981	Unknown
Drought	3023	1/1977	Unknown

2.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- Critical City infrastructure was built before modern seismic codes and are in need of retrofitting.
- The generators responsible for supporting our City’s critical infrastructure (EOC, City Hall, etc.) are over 25 years old and could be replaced.
- There are multi-family unit structures within the City with soft-story construction.

2.8 HAZARD RISK RANKING

Table 2-11 presents the ranking of the hazards of concern.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Severe Weather	33	High
3	Dam and Levee Failure	18	Medium
3	Flood	18	Medium
4	Drought	9	Low
4	Landslide	9	Low
5	Wildfire	0	Low/None

2.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for the City of Campbell can be found in Appendix D of this volume.

2.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 2-12 lists the actions that make up the City of Campbell hazard mitigation action plan. Table 2-13 identifies the priority for each action. Table 2-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

2.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

A dam inundation study to include Lexington and Stevens Creek Reservoirs is needed.

2.12 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan. This tool-kit included NOAA storm events data.

Table 2-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CB-1—Update the General Plan, which will assist in directing the growth and land development of our community, so we can better address environmental concerns and hazards during future growth.						
New and Existing	All Hazards	1, 2, 3, 4, 8	Planning/DeNovo Planning Group*	Low	General Plan Maintenance Fees	Short-term
CB-2—Develop a Climate Action Plan to help our community incorporate green elements and environmental resource elements so we can help lower greenhouse gas emissions, reducing waste, improving energy and water efficiency and complying with state and nationwide standards.						
New	All Hazards	1, 2, 6	Planning/DeNovo Planning Group*	Low	General Plan Maintenance Fees	Short-term
CB-3—Update our Municipal Code (Zoning, Subdivision, Flood Prevention, Site Plan Review) to adjust specific standards for achieving our General Plan goals and policies, which will help to mitigate risk in our community.						
New and Existing	All Hazards	1, 2, 3, 4, 6, 8	Planning	Medium	Capital Improvement Project Reserve (CIPR)	Long-term
CB-4—Develop a Green Infrastructure Master Plan to increase roadway safety and address storm run-off and drainage issues to prevent flooding and lessen the environmental impacts.						
New	Flood, Severe weather	1, 2, 3, 5, 6, 7, 8	Public Works	Low	Staff Time/Storm Water Fees	Short-term
CB-5—Replace the CAD/RMS system in the Police Department to improve emergency communications and improve the functionality of this critical resource.						
Existing	All Hazards	2, 4, 5, 9	Police Department	Medium	CIPR, Possible Grant	Short-term
CB-6—Develop a post disaster recovery plan and debris management plan.						
Existing	Earthquake, Flood, Severe Weather, Dam and Levee Failure, Landslide	2, 3, 4	Emergency Management	Medium	EMPG	Long-term
CB-7—Complete Unreinforced Masonry (URM) Abatement Program to ensure all private properties identified in the community have completed retrofitting of their buildings.						
Existing	Earthquake	1, 2, 3, 4, 8	Building Department	Medium	Staff time, General Fund, Possible HMGP and PDM	Short-term
CB-8—Where appropriate, support retro-fitting, purchase or relocation of critical structures located in high hazard area and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	1, 2, 6, 7, 8, 9	Public Works	High	HMGP, PDM, FMA	Short-term
CB-9—Complete the Campisi Bridge Feasibility Study to enhance and improve the structural stability of a key roadway and bridge that will be used for ingress and egress over a key waterway.						
New	Earthquake	1, 2, 6, 7, 8	Public Works	High	Possible Grant/CIPR	Long-term
CB-10—Develop the San Tomas Creek Trail Plan to provide greater recreational opportunities for Campbell and enhance natural environment hazard buffers						
New	Flood	2, 5, 6, 8	Public Works	High (\$2 million)	CIPR/Possible Local Grant	Long-term
CB-11—Silicon Valley Radio Interoperability Authority Emergency Radio Replacement – improve emergency communications and the ability to communicate with multiple agencies across the Operational Area.						
Existing	All Hazards	1, 2, 4, 5, 9	Police Department	Medium	CIPR, Possible Grant	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CB-12—Support efforts to retrofit privately owned buildings with soft-story construction.						
Existing	Earthquake	2, 3, 8	Public Works	Low	General Funds, Possible sub applicant for HMGP, PDM	Long-term
CB-13— Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Police Department/Community Development	Low	Staff Time, General Funds	Short-term
CB-14— Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Community Development	Low	Staff Time, General Funds	Ongoing

* Indicates consultant who will be leading the planning effort

Table 2-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
CB-1	5	High	Low	Yes	No	Yes	High	Low
CB-2	3	High	Low	Yes	No	Yes	High	Low
CB-3	6	Medium	Medium	Yes	No	No	Medium	Low
CB-4	7	Medium	Low	Yes	No	Yes	Low	Low
CB-5	4	High	Medium	Yes	Yes	Yes	Medium	Medium
CB-6	5	Medium	Medium	Yes	Yes	No	Medium	Medium
CB-7	5	Medium	Medium	Yes	No	Yes	High	Low
CB-8	6	High	High	Yes	Yes	No	Medium	High
CB-9	5	Medium	High	No	Possible	No	Low	High
CB-10	5	Medium	High	No	Possible	No	Low	Medium
CB-11	5	High	Medium	Yes	Yes	Yes	High	Medium
CB-12	3	High	Low	Yes	Possibly	Yes	Medium	Medium
CB-13	2	Low	Low	Yes	No	Yes	High	Low
CB-14	6	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 2-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	CB-1, CB-2, CB-3, CB-4, CB-7, CB-13	CB-3, CB-7, CB-8, CB-9, CB-12	CB-1, CB-2, CB-5	CB-2, CB-4, CB-9, CB-10	CB-5, CB-6, CB-8, CB-11	CB-7, CB-8, CB-9	
Severe Weather	CB-2, CB-3, CB-4, CB-13	CB-7, CB-8, CB-9	CB-1 CB-2, CB-5	CB-2, CB-4, CB-9, CB-10	CB-5, CB-6, CB-8, CB-11	CB-8, CB-9	CB-4
Dam and Levee Failure	CB-1, CB-3, CB-4, CB-13, CB-14	CB-7, CB-8, CB-9, CB-14	CB-1, CB-2, CB-5, CB-14	CB-2, CB-3, CB-4, CB-9, CB-10	CB-5, CB-6, CB-8, CB-11	CB-7, CB-8, CB-9	
Flood	CB-1, CB-3, CB-4, CB-13, CB-14	CB-7, CB-8, CB-9, CB-14	CB-1, CB-2, CB-5, CB-14	CB-2, CB-3, CB-4, CB-9, CB-10	CB-5, CB-6, CB-8, CB-11	CB-7, CB-8, CB-9	
Drought	CB-2, CB-3, CB-13			CB-9, CB-10	CB-5, CB-11		CB-4
Landslide	CB-1, CB-3, CB-4, CB-13	CB-4, CB-7, CB-8, CB-9	CB-1, CB-2, CB-6	CB-2, CB-3, CB-4, CB-9, CB-10	CB-5, CB-6, CB-11	CB-7, CB-8, CB-9	

a. See the introduction to this volume for explanation of mitigation types.

3. CITY OF CUPERTINO

3.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Timm Borden, Director of Public Works
10300 Torre Avenue
Cupertino, CA 95014
Telephone: 408-777-3354
e-mail Address: timmb@cupertino.org

Alternate Point of Contact

Chad Mosley, Senior Civil Engineer
10300 Torre Avenue
Cupertino, CA 95014
Telephone: 408-777-3354
e-mail Address: chadm@cupertino.org

3.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—1955
- **Current Population**—58,185 as of January 1, 2016
- **Population Growth**—Based on the data tracked by the state Department of Finance, Cupertino has experienced a relatively flat rate of growth. The overall population increased only 0.3 percent in 2015.
- **Location and Description**—Cupertino, California is located in the heart of Silicon Valley against the foothills of the Santa Cruz Mountains. With a population of almost 60,000 residents within 13-square miles, Cupertino is 42 miles south of San Francisco and on the western edge of Santa Clara County. The city enjoys convenient access from Highways 280 and 85 and is situated along Stevens Creek Boulevard. The City shares borders with San José to the east and south, Sunnyvale to the north, Santa Clara to the northeast, and Los Altos to the northwest.
- **Brief History**—In 1776, Spanish explorer Captain Juan Bautista de Anza led a group up the coast of California. During the expedition, the group encamped in what is now Cupertino. Anza's cartographer christened the creek next to the encampment the Arroyo San Joseph Cupertino (known today as Stevens Creek) in honor of his patron, San Guiseppa (San Joseph) of Copertino, Italy. The village of Cupertino sprang up at the crossroads of Saratoga-Sunnyvale Road (now DeAnza Boulevard) and Stevens Creek Boulevard. The initial primary economic activity was fruit agriculture, including prune, plum, apricot, and cherry orchards, as well as wineries. Cupertino officially became the 13th city in Santa Clara County on October 10, 1955.
- **Climate**—Cupertino has mild weather, wet winters and mild, dry summers. Averages in January range from 38.7 °F (3.7 °C) to 58.2 °F (14.6 °C). Averages in July range from 54.1 °F (12.3 °C) to 82.0 °F (27.8 °C). The average rainfall is 14.9 inches.
- **Governing Body Format**—The City of Cupertino is governed by a five-member council. The City consists of five departments which are overseen by the City Manager: Administrative Services, Community Development, Information Services, Public Works, and Recreation and Community Services. The City has thirteen commissions and committees, which report to the City Council. The City Council appoints the City Manager. The City Council is responsible for adopting this plan. The City Manager is responsible for overseeing its implementation.

3.3 DEVELOPMENT TRENDS

Cupertino is considered one of the most prestigious cities in which to live and work within Silicon Valley and the San Francisco Bay Area. Because Cupertino is a mature, 90 percent built-out city, we focus on business retention and revitalization. Cupertino is world renowned as the home of high-tech giants, such as Apple, Inc. and Seagate Technologies, and as a community with stellar public schools. DeAnza College, one of the largest single-campus community colleges in the country, is another major employer and a magnet for attracting local and international students. The City's proactive economic development efforts have resulted in an innovative environment for start-ups and growing companies to thrive. The City strives to retain and attract local companies through active outreach and a responsive and customer-oriented entitlement process. Cupertino is excited to have a number of new mixed-use development projects in final construction phases and almost fully leased, which will provide more retail and dining options, as well as provide additional housing opportunities to meet the needs of the growing community. Apple Inc.'s planned new corporate campus is under construction and will include 2.8 million square feet of office and R&D space north of Highway 280 between Wolfe Road and Tantau Avenue. Table 3-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 3-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan?	No					
<ul style="list-style-type: none"> If yes, give the estimated area annexed and estimated number of parcels or structures. 	N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	Yes					
<ul style="list-style-type: none"> If yes, please describe land areas and dominant uses. 	Predominantly single family residential developed valley floor property to the east of the city, a portion of which may be located in liquefaction-inundation zones along the Saratoga Creek and could also be subject to Wetland Fee Zones under the Santa Clara County Habitat Conservation Plan.					
<ul style="list-style-type: none"> If yes, who currently has permitting authority over these areas? 						
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
<ul style="list-style-type: none"> If yes, please briefly describe, including whether any of the areas are in known hazard risk areas 	Certain properties in the city have entitlements for development in the long term. None are in known hazard risk areas; all are on the valley floor.					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	59	50	56	42	51
	Multi-Family	0	3	3	0	2
	Other (commercial, mixed use, etc.)	4	3	7	6	7
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	The City has not historically had the ability to track development by hazard area. Development has occurred throughout the city during the performance period for this plan. For hazards with a clearly defined extent and location, the City cannot estimate development impacts. For hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The City is largely built out with some portions along the commercial corridors that are underdeveloped and could be redeveloped as infill development sites.					

3.4 CAPABILITY ASSESSMENT

3.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (Cupertino Annex). All of the below items were additionally reviewed as part of the full capability assessment for Cupertino.

- **Cupertino General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Cupertino Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives.
- **Technical Reports and Information**—Outside resources and references used to complete the Cupertino Annex are identified in Section 3.11 of this Annex.

3.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 3-2. An assessment of fiscal capabilities is presented in Table 3-3. An assessment of administrative and technical capabilities is presented in Table 3-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 3-5. An assessment of education and outreach capabilities is presented in Table 3-6. Classifications under various community mitigation programs are presented in Table 3-7. Development and permitting capabilities are presented in Table 3-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 3-9.

Table 3-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
2016 California Code of Regulations	Yes	Yes	Yes	No
Comment: City of Cupertino and Santa Clara County Fire Dept. Jurisdiction; Cupertino Municipal Code Title 16: Buildings and Construction				
Zoning Code	Yes	No	No	No
Comment: Cupertino Municipal Code, Title 19: Zoning				
Subdivisions	Yes	Yes	Yes	No
Comment: Cupertino Municipal Code, Title 18: Subdivisions; California Subdivision Map Act				
Stormwater Management	Yes	Yes	Yes	No
Comment: Cupertino Municipal Code Title 9.18: Stormwater Pollution Prevention and Watershed Protection; State Water Resources Control Board				
Post-Disaster Recovery	No	No	No	No
Comment: None located.				
Real Estate Disclosure	No	No	Yes	No
Comment: California Civil Code §1102 et seq.				
Growth Management	Yes	Yes	Yes	No
Comment: Local Agency Formation Commission; California Government Code §65300 et seq.				
Site Plan Review	Yes	No	No	No
Comment: Cupertino Municipal Code Title 19: Zoning				
Environmental Protection	Yes	Yes	Yes	No
Comment: Cupertino General Plan, Cupertino Municipal Code Title 9: Health and Sanitation; California Environmental Quality Act (Guideline: California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387)				
Flood Damage Prevention	Yes	Yes	Yes	Yes
Comment: Cupertino Municipal Code Title 16.52: Prevention of Flood Damage; State Dept. of Water Resources, FEMA, Santa Clara Valley Water District				
Emergency Management	Yes	Yes	Yes	No
Comment: Santa Clara County Fire; Cupertino Municipal Code Title 2.40: Disaster Council				
Climate Change	Yes	No	Yes	Yes
Comment: General Plan Environmental Resources and Sustainability Element & Cupertino Climate Action Plan; California SB-379				
Other:	No	No	No	No
Comment: None Located				
Planning Documents				
General Plan	Yes	No	No	No
Is the plan compliant with Assembly Bill 2140? Yes				
Comment: General Plan: Community Vision 2015-2040; Last adopted October 2015				
Capital Improvement Plan	Yes	No	No	No
How often is the plan updated? Annually				
Comment: Part of adopted budget				
Floodplain or Watershed Plan	No	Yes	No	Yes
Comment: No plan identified; Santa Clara Valley Water District – Flood Control				
Stormwater Plan	Yes	No	No	No
Comment: Storm Drain Master Plan				
Urban Water Management Plan	No	Yes	Yes	No
Comment: Municipal Regional Permit, State Water Resources Control Board				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Habitat Conservation Plan Comment: Cupertino is outside of the SCC Habitat Conservation Plan Permit Area	No	No	No	No
Economic Development Plan Comment: Economic Development Strategic Plan	Yes	No	No	No
Shoreline Management Plan Comment: None located	No	No	No	No
Wildland Urban Interface Area Plan Comment: Santa Clara County Community Wildfire Protection Plan, June 2016	Yes	Yes	Yes	No
Forest Management Plan Comment: None located	No	No	No	No
Climate Action Plan Comment: Cupertino Climate Action Plan	Yes	No	Yes	Yes
Comprehensive Emergency Management Plan Comment: Santa Clara County Operational Area Emergency Management Plan	Yes	No	No	No
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: Urban Area Security Initiative THIRA – 2016; UASI is required to develop a THIRA as a condition of grant funding. As a jurisdiction within the Santa Clara Operational Area, Cupertino is covered by UASI.	No	Yes	Yes (Partial)	No
Post-Disaster Recovery Plan Comment: None located	No	No	No	No
Continuity of Operations Plan Comment: None located	No	No	No	No
Public Health Plan Comment: None located	No	No	No	No
Other: Comment: None located	No	No	No	No

Table 3-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No (City does not manage these utilities)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 3-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development/Director, Assistant Director, Principal Planner, Senior Planner, Associate Planner, Assistant Planners Public Works/Director, Senior Civil Engineer, Associate Civil Engineer, Senior Engineering Technician
Engineers or professionals trained in building or infrastructure construction practices	Yes	Chief Building Official, Deputy Building Official, Permit Center Manager, Building Inspector Public Works/Director, Senior Civil Engineer, Associate Civil Engineer, Construction Inspector
Planners or engineers with an understanding of natural hazards	Yes	Public Works/Director, Senior Civil Engineer
Staff with training in benefit/cost analysis	Yes	Contract
Surveyors	Yes	Contract
Personnel skilled or trained in GIS applications	Yes	GIS Coordinator, GIS Technician
Scientist familiar with natural hazards in local area	Yes	Contract
Emergency manager	Yes	County Fire
Grant writers	Yes	Contract

Table 3-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works
Who is your floodplain administrator? (department/position)	Public Works/Senior Civil Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	May 5, 1980; Last updated 2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceed Increased Freeboard (1'), Cumulative Substantial Damage
When was the most recent Community Assistance Visit or Community Assistance Contact?	2015
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification?	Yes (currently Class 7) No
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	145 ^a \$44,365,900 ^a \$103,099 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	20 ^a 10/0 ^a \$812,170.73 ^a

a. According to FEMA statistics as of October 31, 2016

Table 3-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes Interactive GIS maps and Open Data Portal
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes Ready 95014
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes, CERT and Public Safety Commission
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes Cupertino Alert System (CAS) allows the City to rapidly notify residents and businesses by phone, email, SMS and fax in the event of an emergency. Information made available on the City Channel, Ch. 26 on Comcast Cable or Ch. 99 on AT&T, Radio Cupertino 1670 AM, Facebook, Twitter, Nextdoor, and the Cupertino website.
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes CAS

Table 3-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	7	5/1/2015
Building Code Effectiveness Grading Schedule	Yes	2	10/18/2014
Public Protection	Yes	Unknown	Since Incorporation
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 3-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes City of Cupertino Community Development Department
Does your jurisdiction have the ability to track permits by hazard area?	No - Not historically but we now have the ability moving forward with new permit system.
Does your jurisdiction have a buildable lands inventory?	No

Table 3-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comment: None provided.	
Jurisdiction-level monitoring of climate change impacts	Medium
Comment: None provided.	
Technical resources to assess proposed strategies for feasibility and externalities	Medium
Comment: None provided.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High
Comment: Completed initial GHG inventory with adoption of Climate Action Plan in 2015. Will conduct an update to be released in 2017.	
Capital planning and land use decisions informed by potential climate impacts	Medium
Comment: None provided.	
Participation in regional groups addressing climate risks	High
Comment: Joint Venture Silicon Valley Public Climate Task Force; Santa Clara County's Silicon Valley 2.0; Joint Policy Committee Bay Area Climate & Resiliency Project	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comment: General Plan Environmental Resources & Sustainability Element Goal ES-1.1 provides the vision to incorporate principles of sustainability into Cupertino's planning, infrastructure and development processes.	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: City's Climate Action Plan outlines over 200 strategies to reduce GHG communitywide and for municipal operations	
Identified strategies for adaptation to impacts	Low
Comment: Two important documents are a start for addressing adaptation impacts	
1. General Plan Environmental Resources & Sustainability Element Strategy ES-1.1.3: Climate Adaptation & Resiliency	
2. Cupertino's Climate Action Plan Chapter 6 Climate Adaptation & Resiliency.	
Champions for climate action in local government departments	High
Comment: Champions for climate action starts in the City Manager's office and can be found within all levels of the organization and within each department. Departments report on their progress towards Climate Action Plan strategies yearly. Additionally, every staff report that goes to City Council has a section where staff need to explain the sustainability impact of the item.	
Political support for implementing climate change adaptation strategies	High
Comment: A sustainability commission created by the City in 2015 to oversee implementation of the Climate Action Plan meets quarterly	
Financial resources devoted to climate change adaptation	Low
Comment: None provided.	
Local authority over sectors likely to be negative impacted	Medium
Comment: None provided.	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Unknown
Comment: Unknown. This information can be updated after implementation of GP Strategy ES-1.1.3 Climate Vulnerability Assessment,	
Local residents support of adaptation efforts	Unknown
Comment: Unknown. This information can be updated after implementation of GP Strategy ES-1.1.3 Climate Vulnerability Assessment,	
Local residents' capacity to adapt to climate impacts	Unknown
Comment: None provided.	
Local economy current capacity to adapt to climate impacts	Unknown
Comment: None provided.	
Local ecosystems capacity to adapt to climate impacts	Unknown
Comment: Unknown. This information can be updated after implementation of GP Strategy ES-1.1.3 Climate Vulnerability Assessment,	

3.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

3.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **Cupertino General Plan**—Currently incorporates information on hazard risks and strategies for hazard risk reduction through its development plans and strategies. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate.
- **Flood Damage Prevention Ordinance**—The flood damage prevention ordinance identifies areas at risk from the flood hazard and includes specific standards and regulations designed to reduce risk to structures within those areas.

3.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **Legal and Regulatory Capabilities**—Those capabilities identified as providing an integration opportunity in Table 3-1 will be reviewed and updated to include information on hazard risk reduction as feasible and appropriate.

3.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 3-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 3-10. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Heavy Rain	—	January 3-13, 2017	Unknown
Flood	—	January 20, 2010	Unknown
Heavy Rain	—	December 15, 2002	Unknown
Severe Storm	1203	February 9, 1998	\$25,537,087.33
Severe Storm	1115	January 4, 1997	\$21,792,068.12
Severe Storm	1046	March 12, 1995	\$9,331,377.98
Severe Storm	1044	January 10, 1995	\$17,482,926.56
Freeze	894	February 11, 1991	Unknown
Earthquake	845	October 17, 1989	\$1,409,677,726.18
Flood	758	February 21, 1986	\$10,812,819.38
Storm	677	February 9, 1983	\$20,746,004.58
Flood	651	January 7, 1982	\$17,543,819.07

3.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- Urban street flood—particular areas are prone to street flooding during flash rain events.

3.8 HAZARD RISK RANKING

Table 3-11 presents the ranking of the hazards of concern.

Table 3-11. Hazard Risk Ranking			
Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	48	High
2	Severe Weather	33	Medium
3	Flood	25	Medium
4	Landslide	15	Medium
4	Wildfire	15	Medium
5	Drought	9	Low
6	Dam and Levee Failure	0	Low ^a

a. A dam plan exists for Stevens Creek Reservoir

3.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Cupertino can be found in Appendix D of this volume.

3.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 3-12 lists the actions that make up the City of Cupertino hazard mitigation action plan. Table 3-13 identifies the priority for each action. Table 3-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

3.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 3-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CPT-1—Require all new construction, including public facilities, to be built in accordance with the most recent Building and Fire Code standards.						
New and Existing	All hazards	3	Building Division Fire Department	Low	General Fund	Ongoing
CPT-2— Continue to enforce and/or comply with State-mandated requirements, such as the California Environmental Quality Act and environmental regulations to ensure that urban development is conducted in a way to minimize air pollution. Specifically, develop a Sustainable Land Use and Green Building Policy to expand on the work that was done to achieve these goals in the 2005 General Plan Sustainability Section.						
New and Existing	All hazards	1, 2, 3, 4	Planning Division Public Works	Low	General Fund	Ongoing
CPT-3—Increase the use of clean, alternative energy, by subscribing to and supporting Community Choice Energy.						
New	Severe Weather	1, 2, 6	Building Division	Medium	General Fund	Ongoing
CPT-4—Increase recycling rates in local government operations and in the community.						
New and Existing	Wildfire	4, 6	Public Works Sustainability	Medium	General Fund Resource Recovery Fund	Ongoing
CPT-5— Promote or increase the resiliency of critical and essential facilities/infrastructure following a major natural disaster through various means.						
New and Existing	All hazards	3, 8, 9	Building Division Public Works	Medium	General Fund	Ongoing
CPT-6— Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution.						
New and Existing	Severe Weather	2, 4, 6	Sustainability	Medium	General Fund	Ongoing
CPT-7—Maintain and update a GIS layer of localized flooding “hot spots” throughout the City.						
New	Flood and Severe Weather	1, 2, 4, 8, 9	Public Works Information Services	Medium	General Fund	Ongoing
CPT-8—Develop a storm drain master plan in order to develop and prioritize capital projects.						
New	Flood and Severe Weather	1, 2, 4, 8, 9	Public Works	Medium	General Fund Storm Fee	Short-term
CPT-9—Continue to maintain good standing and compliance under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> Enforcement of the flood damage prevention ordinance Participate in floodplain identification and mapping updates Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Public Works	Low	Staff Time, General Funds	Ongoing
CPT-10—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Planning Division Public Works	High	HMGP, PDM, FMA, CDBG-DR	Short-term
CPT-11— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.						
New and Existing	All Hazards	2, 4	Planning Division	Low	Staff Time, General Funds	Ongoing
CPT-12—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Public Works	Low	Staff Time, General Funds	Short-term

Table 3-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
CPT-1	1	High	Low	Yes	No	Yes	Medium	Low
CPT-2	4	High	Low	Yes	No	Yes	High	Low
CPT-3	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
CPT-4	2	Medium	Medium	Yes	No	Yes	Medium	Low
CPT-5	3	High	High	Yes	Yes	No	Medium	High
CPT-6	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
CPT-7	5	Medium	Medium	Yes	Yes	Yes	Medium	Medium
CPT-8	5	High	High	Yes	Yes	Yes	High	High
CPT-9	5	Medium	Medium	Yes	No	Yes	Medium	Low
CPT-10	5	High	High	Yes	Yes	No	Medium	High
CPT-11	2	Medium	Low	Yes	No	Yes	High	Low
CPT-12	2	Low	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 3-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	CPT-11, CPT-12	CPT-1, CPT-2, CPT-5, CPT-10	CPT-1, CPT-2, CPT-5		CPT-1, CPT-2, CPT-5	CPT-1, CPT-2, CPT-5	
Severe Weather	CPT-3, CPT-6, CPT-11, CPT-12	CPT-2, CPT-5, CPT-10	CPT-2, CPT-5				
Flood	CPT-7, CPT-8, CPT-9, CPT-11, CPT-12	CPT-7, CPT-8, CPT-9, CPT-10	CPT-7, CPT-8, CPT-9		CPT-7, CPT-8, CPT-9		
Landslide	CPT-11, CPT-12	CPT-2, CPT-5, CPT-10	CPT-2, CPT-5				
Wildfire	CPT-11, CPT-12	CPT-2, CPT-10	CPT-2	CPT-2			
Drought	CPT-3, CPT-6, CPT-11, CPT-12	CPT-10	CPT-3, CPT-6				
Dam and Levee Failure	CPT-11, CPT-12	CPT-7, CPT-8, CPT-9, CPT-10	CPT-9		CPT-7, CPT-8, CPT-9		

a. See the introduction to this volume for explanation of mitigation types.

4. CITY OF GILROY

4.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Roy J. Shackel, Fire Captain/OES Coordinator
7070 Chestnut St.
Gilroy, CA 95020
Telephone: 408-846-0386
e-mail Address: rshackel@ci.gilroy.ca.us

Alternate Point of Contact

Kristi Abrams, Community Development Director
7351 Rosanna St.
Gilroy, CA 95020
Telephone: 408-846-0467
e-mail Address: Kristi.Abrams@ci.gilroy.ca.us

4.2 JURISDICTION PROFILE

- **Date of Incorporation**—1868
- **Current Population**—55,170 as of January 1, 2016
- **Population Growth**—Based on the data tracked by the state Department of Finance, Gilroy has experienced a moderate rate of growth. The overall population has increased by approximately 13 percent since 2010 and growth averaged 1.3 percent per year from 2000 to 2014.
- **Location and Description**—The City of Gilroy is on the inland U.S. Route 101 corridor, approximately 40 miles north of Monterey and 30 miles south of San José. The city is surrounded by unincorporated Santa Clara County. This unincorporated area is served by the Santa Clara County Sheriff's Department, City of Gilroy fire department, and a rural fire district operated by CalFire. To the east and approximately 2.5 miles from the city limits are the foothills of the Diablo mountain range. To the west and also outside of the city limits are the Santa Cruz mountains. Seven miles to the north is Morgan Hill, the closest incorporated city to Gilroy in Santa Clara County.

Gilroy is well known as the “Garlic Capital of the World” and for the Gilroy Garlic Festival, which occurs annually, featuring a wide variety of garlic-flavored foods, including garlic ice cream. Olam Spices and Vegetables (formerly Gilroy Foods) processes vast quantities of garlic and other fresh vegetables. Gilroy is home to the Gilroy Premium Outlets, a large shopping center consisting of outlet stores. The major highways through Gilroy are U.S. Route 101 and State Route 152. The Santa Clara Valley Transportation Authority provides local buses and express buses to San José and Sunnyvale. Caltrain provides weekday rush-hour commuter rail service to the Santa Clara Valley and the San Francisco Peninsula. Amtrak California's Capitol Corridor line runs a San José-Santa Barbara Thruway Motorcoach connection with a stop in Gilroy. Monterey-Salinas Transit's Line 55, which stops in Gilroy, is a rush-hour San José-Monterey express bus that also serves as an Amtrak Thruway Motorcoach connection. San Benito County Express provides intercounty bus service to Hollister and San Juan Bautista.

- **Brief History**—Gilroy's first inhabitants were the Amah Mutsun native American tribes. The area was first settled in the late 1700s by the Spanish missionaries and military, followed by wider Spanish settlement, including Spanish land grants, in the early 1800s. In the post - Mexican-American War and

gold rush years, the area's first agricultural enterprises began. The village of Gilroy was incorporated in 1868. Agriculture continued to expand throughout the 1900s with tree crops such as prunes, cherries and apricots dominating until the early 1960s when the area transitioned to row crops such as tomatoes, sugar beets, and, of course, garlic. In the latter half of the 20th century, Gilroy began the shift to an urban community, while maintaining its small-town feel and agricultural roots. The Gilroy Garlic Festival, held annually in July, draws thousands of visitors from around the world to enjoy everything garlic!

- **Climate**— Gilroy's climate strikes a pleasant balance between hot and cold, wet and dry, making it perfect for agriculture and recreation. Nestled between the Diablo and Santa Cruz mountains in the Santa Clara Valley, Gilroy residents enjoy mild temperatures, while missing most of the coastal fog. A state climatology report says up to 70 percent of Gilroy's days are sunny, with average rainfall of about 19.11 inches. The proximity of the Pacific Ocean keeps temperatures uniform. The average annual temperature is 62.8 degrees, although it is not unusual for summer readings to top 100. The average July high temperature is near 90 degrees. Winter temperatures drop to an average of 57 degrees in January.
- **Governing Body Format**—The City of Gilroy is a charter city, governed by a seven-member city council and mayor elected at-large. The City employs 269 people in eight departments: Police Services, Fire Services, Administration, Human Resources/Risk Management/Facilities Department, Finance and IT Department, Community Development Department, Public Works Department and Recreation Department. In addition to local police services and fire services, the City also provides emergency medical services. The City has 16 commissions, boards and committees, which report to the City Council. The City Council assumes responsibility for the adoption of this plan; the City Administrator will oversee its implementation.

4.3 DEVELOPMENT TRENDS

Gilroy continues to see strong residential development with an annual average of 300 new dwelling units constructed between 2010 and the present. Two significant affordable housing projects approved will provide 340 units of multi-family housing for varying levels of affordability. Non-residential development has experienced a more moderate pace, with two notable projects, a new CVS store and a 400,000 square foot food distribution facility constructed in recent years. The Gilroy General Plan was adopted in 2002, with the 2040 General Plan update almost complete. City actions, such as those relating to land use, zoning, subdivisions, design review, and capital improvements, must be consistent with the plan. Future growth and development in the City will be managed as identified in the general plan. Table 4-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 4-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan?	No					
• If yes, give the estimated area annexed and estimated number of parcels or structures.	N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No					
• If yes, please describe land areas and dominant uses.	N/A					
• If yes, who currently has permitting authority over these areas?	N/A					
Are any areas targeted for development or major redevelopment in the next five years?	No					
• If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	N/A					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	163	226	175	238	424
	Multi-Family	0	0	0	0	1
	Other (commercial, mixed use, etc.)	7	0	2	15	4
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Development has occurred throughout the city during the performance period for this plan. For hazards with a clearly defined extent and location, the City cannot estimate development impacts. For hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex. Currently, permits are not displayed geographically; however, the City will be migrating to a more robust system. No GIS capability planning to upgrade.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	City residents voted no growth via Prop. H measure in 2016.					

4.4 CAPABILITY ASSESSMENT

4.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (City of Gilroy Annex). All of the below items were additionally reviewed as part of the full capability assessment for the City of Gilroy.

- **City of Gilroy General Plan**—The General Plan, including the Community Resources and Potential Hazards (Chapter 8) was reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives. Specifically, Section 25, Natural Hazards, was reviewed. The subsections in this Chapter include Natural Hazards in which, policies include Seismic, Fire and Flooding.
- **City of Gilroy Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.

- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.

4.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 4-2. An assessment of fiscal capabilities is presented in Table 4-3. An assessment of administrative and technical capabilities is presented in Table 4-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 4-5. An assessment of education and outreach capabilities is presented in Table 4-6. Classifications under various community mitigation programs are presented in Table 4-7. Development and permitting capabilities are presented in Table 4-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 4-9.

Table 4-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes
Comment: 2016 Municipal Code Chapter 6, Codes adopted with amendments – effective Jan. 1, 2017				
Zoning Code	Yes	No	Yes	No
Comment: 2016 Municipal Code Chapter 30, Codes adopted with amendments – effective Jan. 1, 2017				
Subdivisions	Yes	No	Yes	No
Comment: 2016 Municipal Code Chapter 21, Codes adopted with amendments – effective Jan. 1, 2017				
Stormwater Management	Yes	No	Yes	No
Comment: 2016 Municipal Code Chapter 27C, Codes adopted with amendments – effective Jan. 1, 2017				
Post-Disaster Recovery	Yes	No	No	Yes
Comment: County draft recovery framework was completed in Fall 2016. Final draft framework projected to be published within the next 12 months. City of Gilroy will begin post disaster recovery planning following the county's adoption.				
Real Estate Disclosure	No	Yes	Yes	No
Comment: Cal. Civ. Code §1102 et seq.				
Growth Management	Yes	No	Yes	Yes
Comment: Adoption of local measure H limits city annexation limits to current city boundaries. Cal. Gov. Code §65300 et seq.				
Site Plan Review	Yes	No	Yes	No
Comment: 2016 Municipal Code Chapter 30, Codes adopted with amendments – effective Jan. 1, 2017				
Environmental Protection	Yes	No	Yes	No
Comment: Chapter 12.6 - Implement the Santa Clara Valley habitat conservation plan/natural community conservation plan ("HCP/NCCP") and the associated implementing agreement and take permits in order to provide a regulatory framework for promoting the protection and recovery of natural resources, including covered species, while streamlining the permitting process for both publicly funded and privately funded planned development in the City of Gilroy. The California Environmental Quality Act (CEQA) also outlines requirements for environmental protection.				
Flood Damage Prevention	Yes	No	Yes	No
Comment: Floodplain Management Ordinance reflects updates to floodplain management policies affecting real property located in designated flood hazard areas of the City of Gilroy (ordinance No. 98-17; updated January 2017).				
Emergency Management	Yes	No	Yes	Yes
Comment: The Emergency Organization and Functions provides for the protection of persons and property within the City of Gilroy in the event of an emergency; the establishment, coordination, and direction of the City of Gilroy's Emergency Organization & Office of Emergency Services (ordinance chapter 9).				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Climate Change	Yes	No	Yes	Yes
Comment: SB 97 directs California Environmental Quality Act (CEQA) Guidelines to address greenhouse gas emissions. Other state policies include AB 32, SB 375, SB 379 and regulations of the Climate Action Plan.				
Other: None located	N/A	N/A	N/A	N/A
Comment: N/A				
Planning Documents				
General Plan	Yes	No	Yes	Yes
Is the plan compliant with Assembly Bill 2140? Yes				
Comment: Gilroy 2020 General Plan				
Capital Improvement Plan	Yes	No	No	Yes
How often is the plan updated? Updated with the General Plan and as needed.				
Comment: Capital Improvement Projects & Master Plans are evaluated every five years. Each capital improvement project undertaken by the City of Gilroy is the result of a master plan prepared in conjunction with data from the General Plan and other policy or forecast documents. The Engineering Division of the Public Works Department uses the master plan reports as a tool in developing the city's capital improvement budget and to identify the timing and/or type of improvement to be made. Improvements identified in master plans range from the need for a new neighborhood park site, an additional new fire station, to improvements in traffic circulation, or augmentation to the city's existing sewer, storm drain, or water system.				
Floodplain or Watershed Plan	Yes	No	No	Yes
Comment: No floodplain or watershed management plan was located.				
Stormwater Plan	Yes	No	Yes	Yes
Comment: City of Gilroy municipal storm water quality protection and discharge control was adopted to ensure the health, safety, and general welfare of City of Gilroy citizens, and protect and enhance the water quality of watercourses and water bodies in a manner pursuant to and consistent with the Federal Clean Water Act (33 U.S.C. 1251 et seq.) and the Porter-Cologne Water Quality Control Act (California Water Code Section 1300 et seq.) by reducing pollutants in storm water discharges to the maximum extent practicable and by prohibiting non-storm water discharges to the storm drain system. (Ord. No. 2011-13, § 1, 11-21-11)				
Urban Water Management Plan	Yes	No	Yes	Yes
Comment: Storm water plan will manage both of these categories.				
Habitat Conservation Plan	No	Yes	No	Yes
Comment: City of Gilroy has adopted the Santa Clara Valley Habitat Plan is a 50-year regional plan to protect endangered species and natural resources while allowing for future development in Santa Clara County, and is both a habitat conservation plan and natural community conservation plan, or HCP/NCCP. The final Habitat Plan was approved and adopted in 2013.				
Economic Development Plan	Yes	No	No	No
Comment: Article 8A of the General Municipal Code: The purpose of this article to provide industry and commerce with an alternative method of financing in acquiring, constructing or rehabilitating facilities which will increase employment opportunities for the inhabitants of or otherwise contribute to the economic development of the city.				
Shoreline Management Plan	No	No	No	No
Comment: N/A				
Community Wildfire Protection Plan	No	Yes	Yes	No
Comment: The Santa Clara County Fire Department has developed a Community Wildfire Protection Plan to reduce wildland fire risks to communities and the environment. The CWPP is currently in the public review process. The CWPP is a vital element in the H.R. 4233 (Healthy Forest Restoration Amendments Act of 2009), Public Law 108-148, 2003). The Act was revised in 2009 to address changes to funding and provide a renewed focus on wildfire mitigation.				
Forest Management Plan	No	No	No	No
Comment: None located.				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Climate Action Plan Comment: The Climate Action Plan for the City of Gilroy Operations and Facilities was developed and approved in 2009. SB 97 directs California Environmental Quality Act (CEQA) Guidelines to address greenhouse gas emissions. Other state policies include AB 32 and SB 375 and regulations of the Climate Action Plan.	Yes	No	Yes	Yes
Comprehensive Emergency Management Plan Comment: City of Gilroy Emergency Operations Plan was approved in 2009. The plan is consistent and compliant with all state and federal documents.	Yes	No	Yes	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: Consistent with adopted City of Gilroy ABAG 2010 adopted plan.	Yes	No	No	Yes
Post-Disaster Recovery Plan Comment: County draft recovery framework was completed in Fall 2016. Final draft framework projected to be published within the next 12 months. City of Gilroy will begin post disaster recovery planning following the county's adoption.	Yes	No	No	Yes
Continuity of Operations Plan Comment: No COOP/COG currently exists. Will examine integrating for mitigation in the future.	Yes	No	No	Yes
Public Health Plan Comment: The City of Gilroy falls under the authority of the Santa Clara County Dept. of Public Health, which has the following of Public Health Plans. 2015-2020 community health assessment and health improvement plan, 2014 EMS services plan 2013 EMS strategic plan, 2013 Santa Clara County EMS strategic implementation plan, & Santa Clara County EMS trauma system plan, and Santa Clara County EMS stroke plan.	No	Yes	Yes	No

Table 4-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	None

Table 4-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Com. Dev.- Sr. Planner and Planning Manager, Public Works – Sr. Civil Engineer, City Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Com. Dev. – Building Official and Building Inspectors
Planners or engineers with an understanding of natural hazards	No	
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	No	
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Admin. – City Administrator
Grant writers	No	

Table 4-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works
Who is your floodplain administrator? (department/position)	Director of Public Works
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	January 2017
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceed One-foot additional freeboard requirement and cumulative substantial damage.
When was the most recent Community Assistance Visit or Community Assistance Contact?	March 2015
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	No Maps do not include flood blockage issues in a portion of the city per study prepared by Schaaf & Wheeler and there are flood zone 'A' areas where base flood elevations have not been determined.
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes Ongoing training to keep up with latest developments/updates
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification?	Yes (currently class 8) Yes
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	175 ^a \$65,758,000 ^a \$ 233,485 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	32 ^a 0/10 ^a \$302,117.33 ^a

a. According to FEMA statistics as of December 31, 2016.

Table 4-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	No
Do you utilize social media for hazard mitigation education and outreach?	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
Do you have any other programs already in place that could be used to communicate hazard-related information?	No
Do you have any established warning systems for hazard events?	Yes
If yes, please briefly describe.	Reverse 911

Table 4-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System (ISO)	Yes	8	10/01/16
Building Code Effectiveness Grading Schedule	Yes	2	2/2013
Public Protection (Gilroy Fire Department)	Yes	4	Unknown
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 4-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits?	Yes
• If no, who does? If yes, which department?	Community Development/Planning Department
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No

Table 4-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment Question	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comment: None provided.	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: None provided.	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment: None provided.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment: None provided.	
Capital planning and land use decisions informed by potential climate impacts	Medium
Comment: None provided.	
Participation in regional groups addressing climate risks	Low
Comment: None provided.	

Adaptive Capacity Assessment Question	Jurisdiction Rating
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Medium
Comment: None provided.	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment: None provided.	
Identified strategies for adaptation to impacts	Low
Comment: None provided.	
Champions for climate action in local government departments	Medium
Comment: None provided.	
Political support for implementing climate change adaptation strategies	Medium
Comment: None provided.	
Financial resources devoted to climate change adaptation	Low
Comment: None provided.	
Local authority over sectors likely to be negative impacted	Low
Comment: None provided.	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Low
Comment: None provided.	
Local residents support of adaptation efforts	Low
Comment: None provided.	
Local residents' capacity to adapt to climate impacts	Medium
Comment: None provided.	
Local economy current capacity to adapt to climate impacts	Low
Comment: None provided.	
Local ecosystems capacity to adapt to climate impacts	Medium
Comment: None provided.	

4.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

4.5.1 Existing Integration

- **General Plan**—The City of Gilroy General Plan includes information on natural hazards. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate.
- **Municipal Code**—The City of Gilroy Municipal Code includes regulations pertaining to reducing risk from natural hazards, such as building codes with seismic standards and the flood damage prevention ordinance.

4.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration. These plans and programs will be developed, reviewed and/or updated to include information on hazard risk reduction as feasible and appropriate:

- Building Code
- Post-Disaster Recovery
- Growth Management
- Emergency Management
- Climate Change
- General Plan
- Capital Improvement Plan
- Floodplain or Watershed Plan
- Stormwater Plan
- Urban Water Management Plan
- Habitat Conservation Plan
- Climate Action Plan
- Comprehensive Emergency Management Plan
- Threat & Hazard Identification & Risk Assessment (THIRA)
- Post-Disaster Recovery Plan
- Continuity of Operations Plan.

4.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 4-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 4-10. Natural Hazard Events			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Heavy Rain	DR-4301	01/17	\$6,608,518
Wildfire (Loma)	None	10/16	Unknown
Heavy Rain	N/A	12/15/02	Unknown
Severe Storm	DR-1203	02/09/98	\$25,537,087.33
Severe Storm	DR-1155	01/04/97	\$21,792,068.12
Severe Storm	DR-1046	03/12/95	\$9,331,377.98
Severe Storm	DR-1044	01/10/95	\$17,482,926.56
Freeze	DR-894	02/11/91	Unknown
Earthquake	DR-845	10/17/89	\$1,409,677,726.18

4.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- There are a number of unreinforced masonry buildings in the downtown area.
- Approximately 1.8 percent of the City's structures are located in the 1 percent annual chance flood hazard area. However, 74.6 percent of the City's buildings are located in the 0.2 percent annual chance flood hazard area, where flood damage prevention regulations and mandatory flood insurance purchase requirements do not apply.

4.8 HAZARD RISK RANKING

Table 4-11 presents the ranking of the hazards of concern.

Table 4-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Severe Weather	33	Medium
3	Flood	24	Medium
4	Landslide	18	Medium
5	Dam and Levee Failure	13	Low
6	Wildfire	9	Low
7	Drought	9	Low

4.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for City of Gilroy can be found in Appendix D of this volume.

4.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 4-12 lists the actions that make up the City of Gilroy hazard mitigation action plan. Table 4-13 identifies the priority for each action. Table 4-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

Table 4-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
GIL-1—Continue/maintain a relationship with local service providers to ensure a backup system/process for telephonic communication with a local PSAP.						
Existing	All Hazards	5, 9	Police Department, Fire OES	Low	City's General Fund, EMPG, The Federal HMGP	Short-term
GIL-2—Continue/maintain a plan for a cooperative program to retrofit or tear down unreinforced masonry buildings (downtown).						
Existing	Earthquake	1, 2, 3, 4, 6, 7, 8	Community Development Department; Building, Life, and Environmental Safety Division	Medium	City's General Fund, EMPG, The Federal HMGP	Ongoing
GIL-3—Continue/maintain to reinforce/retrofit existing structures to meet current building code standards for essential facility seismic safety						
New and Existing	Earthquake	1, 2, 3, 4, 6, 7, 8	Community Development Department; Building, Life, and Environmental Safety Division	Medium	City's General Fund, EMPG, The Federal HMGP	Ongoing
GIL-4—Identify feasible means and alternates to supplying all essential city facilities in hazard areas assessed by this plan with backup power generation capability. These include, but are not limited to: city hall, fire stations, senior centers, auditorium, community rooms, alert and warning facilities etc.						
New and Existing	Any hazard assessed by this plan that could result in the interruption of power	2, 6, 9	City Facilities	High	City's General Fund, EMPG, The Federal HMGP	Long-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
GIL-5—The City of Gilroy will take into account hazard risk assessments, mitigation actions and projects when developing any growth management plan, as a result of local Ballot Measure H, which limits the boundaries of the City to its current status.						
New	Dam Failure, Earthquake, Flood, Landslide, Wildfire	1, 2, 3, 4, 6, 7, 8, 9	Planning	Medium	City's General Fund, EMPG, The Federal HMGP	Short-term
GIL-6—The City of Gilroy will develop a Post-Disaster Recovery Plan that at a minimum will address all hazards assessed by this plan, following the County's adoption of its Recovery Framework.						
New	All Hazards	1, 2, 4, 5, 8	Fire/OES	Medium	City's General Fund, EMPG, The Federal HMGP	Long-term
GIL-7—The City of Gilroy will consider areas to integrate mitigation and climate change planning.						
New and Existing	All Hazards	1, 2, 3, 4, 6, 7, 8, 9	Planning and Building	Low	City's General Fund	Ongoing
GIL-8—The City of Gilroy will consider integrating mitigation actions during the next update to the General Plan in order to reduce the impact from natural disasters.						
New and Existing	All Hazards	3, 4, 6, 7, 8	Planning, City Manager	Low	City's General Fund	Long-term
GIL-9—The City of Gilroy will integrate, feasible, grant-eligible mitigation actions during the next update to the Capital Improvement Plan in order to reduce the impact from natural disasters and to leverage the benefits of this hazard mitigation plan.						
New and Existing	All Hazards	3, 5, 6, 7, 8	Planning, Engineering, Public Works	Low	City's General Fund; Possible HMGP	Long-term
GIL-10—The City of Gilroy will take into account mitigation activities as per revised ordinance No. 2017-01 or when developing any floodplain or watershed plan in the future.						
New and Existing	Flood	1, 2, 3, 4, 5, 6, 7, 8, 9	Engineering	Low	City's General Fund	Long-term
GIL-11—The city of Gilroy will include mitigation activities when revising Chapter 27C of the Municipal code - Storm Water Quality Protection and Discharge Control or when developing any storm water management plan.						
New and Existing	Flood	1, 2, 3, 4, 5, 6, 7, 8, 9	Engineering	Low	City's General Fund	Long-term
GIL-12—The city of Gilroy will include mitigation activities when revising Chapter 12C of the Municipal code, the Habitat Conservation Plan.						
New and Existing	Climate Change	1, 2, 3, 5, 6, 8	Planning	Low	City's General Fund	Long-term
GIL-13—Consider development of COOP/COG for essential functions within the City's government						
New	All Hazards	1, 2, 5, 8, 9	City Manager	Low	General Fund; EMPG	Short-term
GIL-14—If it is determined to be feasible and cost-effective, the City of Gilroy will develop and implement a system to track development in hazard-prone areas using GIS software or an appropriate substitute.						
New	All Hazards	1, 2, 3, 4, 7, 8, 9	Planning	Medium	City's General Fund	Long-term
GIL-15— Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Fire	Low	Staff Time, General Funds	Short-term
GIL-16—Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> Enforcement of the flood damage prevention ordinance Participate in floodplain identification and mapping updates Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Public Works	Low	Staff Time, General Funds	Ongoing

a. EMPG – Emergency Management Performance Grant; HMGP – Hazard Mitigation Grant Program

Table 4-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
GIL-1	2	High	Low	Yes	Yes	Yes	High	High
GIL-2	8	High	Medium	Yes	Yes	Yes	High	High
GIL-3	8	High	Medium	Yes	Yes	Yes	High	High
GIL-4	3	High	High	Yes	Yes	No	Low	High
GIL-5	8	Medium	Medium	Yes	Yes	Yes	Medium	Medium
GIL-6	5	Medium	Medium	Yes	Yes	Yes	Medium	Medium
GIL-7	8	Low	Low	Yes	No	Yes	Medium	Low
GIL-8	5	Medium	Low	Yes	Possible	Yes	Medium	Medium
GIL-9	5	Medium	Low	Yes	No	Yes	Medium	Low
GIL-10	9	Medium	Low	Yes	No	Yes	Medium	Low
GIL-11	9	Medium	Low	Yes	No	Yes	Medium	Low
GIL-12	7	Medium	Low	Yes	No	Yes	Medium	Low
GIL-13	5	High	Low	Yes	Yes	Yes	Medium	High
GIL-14	7	Medium	Medium	Yes	No	Yes	Medium	Low
GIL-15	2	Low	Low	Yes	No	Yes	High	Low
GIL-16	6	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 4-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	5, 6, 7, 8, 9, 14, 15	2, 3, 4, 9			1, 3, 4, 13	9	
Severe Weather	5, 6, 7, 8, 9, 12, 14, 15	4, 9		12	1, 4, 13	9	
Flood	5, 6, 7, 8, 9, 10, 11, 14, 15, 16	4, 9, 16	16		1, 4, 13	9	
Landslide	5, 6, 7, 8, 9, 14, 15	4, 9			1, 4, 13	9	
Dam and Levee Failure	5, 6, 7, 8, 9, 14, 15	4, 9			1, 4, 13	9	
Wildfire	5, 6, 7, 8, 9, 14, 15	4, 9			1, 4, 13	9	
Drought	5, 6, 7, 8, 9, 12, 14, 15	4, 9		12	1, 4, 13	9	

a. See the introduction to this volume for explanation of mitigation types.

4.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Current flood maps do not include flood blockage issues in a portion of the city per study prepared by Schaaf & Wheeler and there are flood zone ‘A’ areas where base flood elevations have not been determined. A more comprehensive study could provide a more clear picture of Gilroy’s flooding hazard.

Additionally, the Planning Department lacks the capability to overlay permits for development with known hazard areas. Consequently, the City should consider the acquisition and implementation of a GIS-based system to visually represent development in known hazards areas.

4.12 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

5. CITY OF LOS ALTOS

5.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Scott McCrossin, Police Captain
1 N. San Antonio Road
Los Altos, CA 94022
Telephone: 650-947-2770
e-mail Address: smccrossin@losaltosca.gov

Alternate Point of Contact

Susanna Chan, Public Works Director
1 N. San Antonio Road
Los Altos, CA 94022
Telephone: 650-947-2700
e-mail Address: schan@losaltosca.gov

5.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—December 1, 1952
- **Current Population**—31,353 (2016 state Department of Finance estimate)
- **Population Growth**—Based on data tracked by the California State Department of Finance, Los Altos has experienced a relatively steady rate of growth during that past 10 years. The overall population has increased 8.2 percent since 2010 with an average rate of 1.82 percent per year during that same period. Based on ABAG 2040 Projections, in the year 2040 Los Altos is estimated to have a population of 32,800.
- **Location and Description**—**The City of Los Altos is a small city located in the northwestern region of Santa Clara County, California. Los Altos is bordered by Palo Alto and Mountain View to the north, Sunnyvale and Cupertino to the south.** Los Altos strives to maintain a semi-rural atmosphere where most streets do not have curbs, gutters or sidewalks. The civic center is situated in the center of a still producing apricot orchard, a remnant of those that once covered the area. Lot sizes for most single-family homes in the city are fairly large at more than a quarter acre in area. Many Los Altos homes sell for \$2 million or more, putting the city (along with neighboring Los Altos Hills, with which it shares ZIP codes) at numbers 7 and 33 on Forbes' "Most Expensive ZIP Codes in America" list in 2016. Since the mid-1990s, Downtown Los Altos has experienced mild economic difficulties due to competition from nearby regional shopping centers and chain stores. The City Council has embarked on a planning process with the goal of identifying economic drivers and developing a cohesive vision based on extensive community input that will guide the Downtown's future.
- **Brief History**—The history of modern Los Altos dates back to 1906, when Paul Shoup, a Southern Pacific Railroad executive, formed the Altos Land Co. with friends. The group purchased 140 acres of land between Palo Alto and Mountain View owned by Sarah Winchester, the widow of the inventor of the Winchester rifle. The company planned a new town to serve the new Southern Pacific Railroad cutoff between Mayfield and Los Gatos and named it "Los Altos" (Spanish for "the heights") because the land was the highest on that cutoff.

In March 1907, at an outdoor land sale sponsored by the Altos Land Company, prospective buyers attended a promotional BBQ and purchased the first town lots. The site of the sale, near today's intersection of Foothill Expressway and Main Street, was the focal point of the new town. The town's name gradually spread informally to identify a much larger unincorporated area served by the Los Altos School District formed in 1910, including what is today Los Altos Hills and portions of other neighboring towns.

This larger community's population exploded after World War II, and on December 1, 1952, an expanded Los Altos became the eleventh city in Santa Clara County. As a result of decreased interest in train travel due to the wide adoption of the automobile, the Southern Pacific Railroad, an essential part of the town's founding, ceased operation here in 1964, and its right-of-way became Foothill Expressway.

- **Climate**—With an average annual rainfall of 24.71 inches, the state of California gets 14.5 less inches of rain than the national average (39.17 inches). Los Altos has had an average rainfall of 39.28 inches over the last 30 years, which is 0.11 inches fewer than the average nationwide, and 59 percent more than the average in California. Average summertime temperatures range from a low of 57 degrees Fahrenheit to a high of 79 degrees. Average wintertime temperatures range from a low of 38 degrees Fahrenheit to a high of 58 degrees (U.S. Climate Data).
- **Governing Body Format**—The City of Los Altos is governed by a five-member city council. The City consists of five departments: General Government (City Manager's Office), Community Development, Public Works, Recreation & Community Services and Police. The City currently has eleven Commissions and one Committee covering a variety of subject matters. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.

5.3 DEVELOPMENT TRENDS

The recent pace of development activity in the City of Los Altos has been high and it is expected to remain at this level for the foreseeable future. Development is principally focused on the remodel or reconstruction of single-family dwellings on existing lots of record as the City is nearly built-out and the subdivision of land to create new lots is a rare occurrence. The exception to this is for sites with a high density zoning designation, where multiple-family dwelling units are being developed with rental and condominium units. The Los Altos General Plan covers the 2002 to 2020 time period and the most recently adopted element of the plan was the Housing Element, which was adopted in 2013 and is consistent with State Law. Those City actions relating to land use development, annexations, zoning, subdivision and design review, redevelopment, and capital improvements, must be consistent with the City's General Plan. Future growth and development in the City will be guided and managed by the goals, policies, and programs contained in the General Plan. Table 5-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 5-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Pending Jardin Drive Annexation: less than one acre, which includes six parcels plus a remnant					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	Yes Less than one acre as described above; Single-family land use City of Mountain View transitioning to City of Los Altos					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	No “targeted” areas have been identified. N/A					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	43	42	39	36	44
	Multi-Family	23	5	251	20	4
	Other (commercial, mixed use, etc.)	1	1	0	2	3
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	For hazards with a clearly defined extent and location, the City cannot estimate development impacts. However, most development occurs outside of flood hazard areas. Many properties are subject to flooding; however, their structures typically rest outside of the floodplain, except for creekside properties that are subject to periodic flooding. For hazards with impacts city-wide, it is safe to assume that new development could be subject to impacts from hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction’s buildable lands inventory. If no such inventory exists, provide a qualitative description.	The City is principally built out					

5.4 CAPABILITY ASSESSMENT

5.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (Los Altos Annex). All of the below items were additionally reviewed as part of the full capability assessment for City of Los Altos.

- **City of Los Altos General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **City of Los Altos Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.

- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects. The Santa Clara Valley Water District (SCVWD) is the County’s flood control agency and is responsible for larger scale flood control improvement projects. The City’s Capital Improvements Plan includes an annual stormwater improvement project to address localized flooding issues.
- **City of Los Altos Emergency Operations Plan (EOP)**—The EOP was reviewed for compliance with Federal, State, and local directives.
- **Technical Reports and Information**—Outside resources and references used to complete the Los Altos Annex are identified in Section 5.11 of this Annex.

5.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 5-2. An assessment of fiscal capabilities is presented in Table 5-3. An assessment of administrative and technical capabilities is presented in Table 5-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 5-5. An assessment of education and outreach capabilities is presented in Table 5-6. Classifications under various community mitigation programs are presented in Table 5-7. Development and permitting capabilities are presented in Table 5-8, and the community’s adaptive capacity for the impacts of climate change is presented in Table 5-9.

Table 5-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	Yes	Yes	No
Comment: Chapter 12.04 through 12.68 of the LAMC (revised Nov. 8, 2016), County Fire Department				
Zoning Code	Yes	No	Yes	No
Comment: Chapter 14 of the LAMC (revised Nov. 8, 2016), California Planning and Zoning Code				
Subdivisions	Yes	No	Yes	No
Comment: Chapter 13 of the LAMC (revised Jan. 25, 2011), Subdivision Map Act				
Stormwater Management	Yes	Yes	Yes	Yes
Comment: Stormwater Master Plan (adopted April 26, 2016)				
Post-Disaster Recovery	No	No	No	No
Comment: City of Los Altos Emergency Operations Plan (LAMC 2.28 – Emergency Plan)				
Real Estate Disclosure	No	No	Yes	No
Comment: California Civil Code §1102 et seq.				
Growth Management	Yes	No	Yes	No
Comment: California Government Code §65300 et seq.				
Site Plan Review	Yes	No	No	No
Comment: Chapter 14 of the LAMC				
Environmental Protection	Yes	Yes	Yes	No
Comment: Los Altos General Plan (adopted Nov. 2002), CEQA, SCVWD, Dept. of Fish and Game, Water Quality Control Board, Bay Area Air Quality Management District				
Flood Damage Prevention	Yes	Yes	No	No
Comment: Chapter 12.60 of the LAMC, National Flood Insurance Program (revised March 24, 2009), FEMA, Department of Homeland Security				
Emergency Management	Yes	Yes	Yes	No
Comment: City of Los Altos Emergency Operations Plan (LAMC 2.28 – Emergency Plan, adopted Oct. 22, 1987)				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Climate Change	Yes	No	Yes	No
Comment: Los Altos Climate Action Plan, State Initiative to protect climate & reduce emissions; California SB-379: Land Use: General Plan: Safety Element				
Other:	No	No	No	No
Comment: None Identified.				
Planning Documents				
General Plan	Yes	No	Yes	No
Is the plan compliant with Assembly Bill 2140? Yes				
Comment: Los Altos General Plan 2002-2020, November 2002				
Capital Improvement Plan	Yes	No	Yes	Maybe
How often is the plan updated? Biannually				
Comment:				
Floodplain or Watershed Plan	No	Yes	Yes	Maybe
Comment: Santa Clara Valley Water District				
Stormwater Plan	Yes	Yes	Yes	Yes
Comment: Stormwater Master Plan (adopted 2016)				
Urban Water Management Plan	Yes	Yes	Yes	No
Comment: NPDES Permit, Regional Water Quality Control Board Permit				
Habitat Conservation Plan	No	No	No	No
Comment: None Identified				
Economic Development Plan	Yes	No	No	No
Comment: Los Altos General Plan Economic Development Element (adopted 2002)				
Shoreline Management Plan	No	No	No	No
Comment: None Identified.				
Community Wildfire Protection Plan	No	No	No	No
Comment: None Identified.				
Forest Management Plan	No	No	No	No
Comment: None Identified.				
Climate Action Plan	Yes	No	Yes	No
Comment: Los Altos Climate Action Plan, December 2013				
Comprehensive Emergency Management Plan	Yes	Yes	Yes	No
Comment: City of Los Altos Emergency Operations Plan (LAMC 2.28 – Emergency Plan, adopted Oct. 22, 1987)				
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	No	No	No
Comment: City of Los Altos Emergency Operations Plan (LAMC 2.28 – Emergency Plan, adopted Oct. 22, 1987)				
Post-Disaster Recovery Plan	Yes	Yes	No	No
Comment: City of Los Altos Emergency Operations Plan (LAMC 2.28 – Emergency Plan, adopted Oct. 22, 1987), Gov't Code: 8642-8644				
Continuity of Operations Plan	Yes	No	No	No
Comment: Agility Recovery Continuity of Operations Planning & Recovery – Bridging the gap between disaster and the Agency (City of Los Altos) – Provides recovery of business interruptions (Office Space, Power, Communications and computer systems)				
Public Health Plan	No	Yes	No	No
Comment: Santa Clara County				
Other:	No	No	No	No
Comment: None Identified.				

Table 5-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes - subject to voter approval
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 5-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development Department, City of Los Altos, Senior Staff
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Department and Community Development Department – Building Division
Planners or engineers with an understanding of natural hazards	Yes	Community Development Department, City of Los Altos, Senior Staff
Staff with training in benefit/cost analysis	Yes	Public Works Department, Community Development Department, City of Los Altos, Senior Staff
Surveyors	Yes	Public Works On-Call
Personnel skilled or trained in GIS applications	Yes	Public Works Department, Community Development Department, City of Los Altos, Senior Staff
Scientist familiar with natural hazards in local area	No	Not Applicable
Emergency manager	Yes	Police Department/Captain
Grant writers	Yes	City Staff or Contracting with Consultants

Table 5-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works/Community Development Department
Who is your floodplain administrator? (department/position)	Planning Division, Planning Services Manager—Advance Planning
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	3/24/88, revised 3/30/09
Does your floodplain management program meet or exceed minimum requirements?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	8/11/16
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
• If so, please state what they are.	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
• If no, please state why.	N/A
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
• If so, what type of assistance/training is needed?	N/A
Does your jurisdiction participate in the Community Rating System (CRS)?	Yes
• If yes, is your jurisdiction interested in improving CRS Classification?	Yes – currently class 8
• Is your jurisdiction interested in joining the CRS program?	N/A
How many flood insurance policies are in force in your jurisdiction?	199 ^a
• What is the insurance in force?	\$60,960,300 ^a
• What is the premium in force?	\$134,701 ^a
How many total loss claims have been filed in your jurisdiction?	0 ^a
• How many claims were closed without payment/are still open?	10/0 ^a
• What were the total payments for losses?	\$37,478.49 ^a

a. According to FEMA statistics as of October 31, 2016

Table 5-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes, Public Information Officer
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes
• If yes, please briefly describe.	The City of Los Altos Flood Zone information webpage contains links to the FEMA and SCVWD website
Do you utilize social media for hazard mitigation education and outreach?	Yes
• If yes, please briefly describe.	Nixle, Nextdoor, Facebook, City's website
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
• If yes, please briefly describe.	Nixle, Nextdoor
Do you have any established warning systems for hazard events?	Yes
• If yes, please briefly describe.	Alert SCC, Nixle

Table 5-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	8	September 14, 2014
Building Code Effectiveness Grading Schedule	Yes	Pending	Pending
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 5-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits?	Yes
• If no, who does? If yes, which department?	Community Development
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No

Table 5-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High
Comment: Relatively unaffected due to considerable elevation above sea level.	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: Climate Action Plan lacks measurement tools	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment: There are no staff member with specific expertise in this area.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High
Comment: Has greenhouse gas inventory as of 2005	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment: This is not a current priority in the evaluation of development applications.	
Participation in regional groups addressing climate risks	Medium
Comment: The City has an appointed Environmental Commission and Commissioners have contacts with regional groups that are focused on these issues.	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High
Comment: CEQA regulations, Los Altos Climate Action Plan, Environmental Commission, City Council	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: City of Los Altos Climate Action Plan: Adopted December, 2013	
Identified strategies for adaptation to impacts	High
Comment: City of Los Altos Climate Action Plan	
Champions for climate action in local government departments	Medium
Comment: Senior Staff in each City Department	
Political support for implementing climate change adaptation strategies	Medium
Comment: GreenTown Los Altos (local non-profit)	
Financial resources devoted to climate change adaptation	Low
Comment: No Community Issues identified	

Adaptive Capacity Assessment	Jurisdiction Rating
Local authority over sectors likely to be negative impacted Comment: None Provided	High
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: None Provided	High
Local residents support of adaptation efforts Comment: None Provided	High
Local residents' capacity to adapt to climate impacts Comment: None Provided	Medium
Local economy current capacity to adapt to climate impacts Comment: None Provided	Low
Local ecosystems capacity to adapt to climate impacts Comment: None Provided	Medium

5.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

5.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **Emergency Operations Center Plan/Manual**—The hazard mitigation plan is incorporated by reference. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the Plan/Manual as appropriate.
- **Los Altos General Plan, Natural Environment and Hazards Element**—Provides background data and the City's Goals, Policies and Programs to address and mitigate natural hazards. This Element of the General Plan includes Program NEH 16: that calls for the preparation and maintenance of an Emergency Preparedness Plan. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the Plan/Manual as appropriate.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.

5.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **Legal and Regulatory Capabilities**—Those capabilities identified as providing an integration opportunity in Table 5-1 will be reviewed and updated to include information on hazard risk reduction as feasible and appropriate.

5.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 5-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 5-10. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Wildfires	EM-3287	6/20/2008	Not available
Summit Fire	EM-2766	5/22/2008	Not available
Croy Fire	FS-2465	9/23/2002	Not available
Tornado	N/A	05/05/1998	\$300,000
Severe Winter Storms And Flooding	DR-1203	2/2/1998	Not available
Severe Storms, Flooding, Mud And Landslides	DR-1155	12/28/1996	Not available
Severe Winter Storms, Flooding Landslides, Mud Flow	DR-1046	2/13/1995	Not available
Severe Winter Storms, Flooding, Landslides, Mud Flows	DR-1044	1/3/1995	Not available
Severe Freeze	DR-894	12/19/1990	Not available
Loma Prieta Earthquake	DR-845	10/17/1989	Not available
Severe Storms & Flooding	DR-758	2/12/1986	Not available
Grass, Wildlands, & Forest Fires	DR-739	6/26/1985	Not available
Coastal Storms, Floods, Slides & Tornadoes	DR-677	1/21/1983	Not available
Severe Storms, Flood, Mudslides & High Tide	DR-651	12/19/1981	Not available
Drought	EM-3023	1/20/1977	Not available

5.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- The Emergency Operations Center is in need of replacement.
- Some utilities are above ground and subject to outage resulting from natural hazard events.

5.8 HAZARD RISK RANKING

Table 5-11 presents the ranking of the hazards of concern.

Table 5-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	48	High
2	Severe Weather	33	Medium
3	Flood	18	Medium
4	Drought	9	Medium
5	Dam and Levee Failure	6	Low
6	Wildfire	3	Low
6	Landslide	3	Low

5.9 STATUS OF PREVIOUS PLAN INITIATIVES

The 2011 ABAG LHMP did not contain any clearly defined actions for the City of Los Altos. No actions were identified that outlined what would be done, how it would be done, by whom it would be led, and the timeframe in which the action would be accomplished. The development of this annex is considered a functional reset of the city's hazard mitigation plan; therefore, no prior action reconciliation is provided.

5.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 5-12 lists the actions that make up the City of Los Altos hazard mitigation action plan. Table 5-13 identifies the priority for each action. Table 5-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

5.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit, National Climatic Data Center disaster statistics, and State Department of Finance population estimates were used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 5-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
LA-1—Implement the adopted Stormwater Master Plan						
New or existing	Flood	3, 6	Public Works	High	Federal, State, local grant funds and General Fund	Ongoing
LA-2—Continue to maintain good standing and compliance under the National Flood Insurance Program through enforcement of flood zone ordinance, cooperation with Santa Clara Valley Water District, participation in floodplain identification and mapping updates and continued public education.						
New & existing	Flood	1, 2, 3, 4, 7, 8	Public Works/SCVWD	Low	Staff time and General Fund	Ongoing
LA-3—Improve/replace the substandard Emergency Operation Center						
Existing	All Hazards	6, 8	City Manager's Office	High	Federal, State, local grant funds or General Fund	Short-term/Long-term
LA-4—Continue to work with PG&E on the City's Utility Undergrounding Program						
Existing	Earthquake, Wildfire, Severe Weather, Flood, Landslide	5, 6, 8	Public Works	High	PG&E Rule 20A Allocation	Long-term
LA-5—Integrate the hazard mitigation plan into other plans and programs that dictate land use decisions within Los Altos						
New & existing	All Hazards	2, 4	Community Development	Low	Staff time, General Fund	Ongoing
LA-6—Develop a post-disaster recovery plan and a debris management plan						
Existing	All Hazards	1, 3, 4, 6, 8	Police Department	Medium	EMPG	Long-term
LA-7— Educate general public through the construction of a demonstration garden that showcases drought tolerant landscaping and stormwater best management practices						
New	Drought, Flood	1, 2, 4, 6	Assistant City Manager/Public Works	Medium	Private/public partnership, Grants, staff time	Short-term
LA-8—Incorporate modern security technology into critical facilities upgrade and new construction						
New & existing	Human-caused	1, 3	Police Department/Public Works	High	Federal Grants and General Fund	Long-term
LA-9—Conduct comprehensive police officer training pertaining to human-caused multi-casualty incidents. This training will incorporate a multi-disciplinary approach with police action and rescue operations.						
N/A	Human-caused	1, 2, 9	Police Department	Low	Staff Time, General Funds	Ongoing
LA-10—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Public Works and Community Development	High	HMGP, PDM, FMA, CDBG-DR	Long-term
LA-11—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Police Department	Low	Staff Time, General Funds	Short-term

Table 5-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
LA-1	2	High	High	Yes	No	No	Medium	Low
LA-2	6	High	Low	Yes	No	Yes	High	Low
LA-3	2	High	High	Yes	Yes	No	Medium	Medium
LA-4	3	Medium	High	No	No	Yes	Medium	Low
LA-5	2	High	Low	Yes	Yes	Yes	High	Medium
LA-6	5	High	Medium	Yes	Yes	No	Medium	High
LA-7	4	High	Medium	Yes	No	Yes	High	Low
LA-8	2	High	High	Yes	Yes	No	Medium	Medium
LA-9	3	High	Low	Yes	No	Yes	High	Low
LA-10	4	High	High	Yes	Yes	No	Medium	High
LA-11	2	Low	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 5-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	LA-5, LA-11	LA-4, LA-10			LA-3, LA-6	LA-3	
Flood	LA-1, LA-2, LA-5, LA-11	LA-1, LA-2, LA-10	LA-2, LA-7	LA-2	LA-3, LA-6		
Wildfire	LA-5, LA-11	LA-4, LA-10			LA-3, LA-6		
Drought	LA-5, LA-7, LA-11	LA-10	LA-7		LA-3, LA-6		
Landslide	LA-5, LA-11	LA-4, LA-10			LA-3, LA-6		
Severe Weather	LA-5, LA-11	LA-4, LA-10			LA-3, LA-6		
Tsunami	LA-5, LA-11	LA-4, LA-10			LA-3, LA-6		
Dam and Levee Failure	LA-5, LA-11	LA-10			LA-3, LA-6		
Human-Caused	LA-5, LA-9, LA-11				LA-8, LA-9		

a. See the introduction to this volume for explanation of mitigation types.

6. TOWN OF LOS ALTOS HILLS

6.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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6.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**— January 27, 1956
- **Current Population**—8,658 as of January 1, 2016
- **Population Growth**— 1.95 percent since 2010, 0.7 percent 2015 to 2016
- **Location and Description**— The Town of Los Altos Hills is a residential community in the northwestern region of Santa Clara County, California. It is 35 miles south of San Francisco, 5 miles south of Stanford University, and 17 miles north of downtown San José. The Town encompasses nine square miles, making it one of the smallest incorporated cities in Santa Clara County. It borders the City of Palo Alto and Palo Alto's Pearson-Arastradero Preserve to the north and west, the City of Los Altos to the east and the Mid Peninsula Regional Open Space District's Rancho San Antonio to the south. There is an additional 5.2 square miles of unincorporated land adjacent to the Town's southern boundary that is designated within the Town's "sphere of influence." In addition Foothill Community College is located within the Town boundaries new Highway 280 and Moody Road. There are several distinct features of Los Altos Hills. One is the Town's dedication to the preservation of a "residential-agricultural" conditional lifestyle, which is shown through open lands, rolling hills, and a rural atmosphere. The Town's Pathway System manifests this lifestyle, with 85 miles of trails and off-road paths that connect the community. Another significant feature of the Town is the absence of commercial and industrial zones. Permitted uses include schools, religious, and recreational facilities. The Town's zoning requires a minimum lot size of 1 acre.

The topography of Los Altos Hills provides significant constraints to development, such as steep slopes, unstable soils, seismic faults, and other natural hazards. Three major faults traverse the Town of Los Altos Hills: (1) Berrocal Fault, which runs from west to east, (2) Altamont Fault, parallel to Berrocal Fault, and (3) Monte Vista Fault, running from northwest to southeast. The Town is also near the San Andreas Fault and all are categorized as potentially active.

- **Brief History**— Ohlone Indians were the first known residents of Los Altos Hills. They were part of a group of Native Americans who once inhabited small villages throughout the Santa Clara Valley. Both Los Altos and Los Altos Hills have been substantiated as sites of early Ohlone villages. In 1955, Indian

remains and artifacts such as mortars and pestles were found on the Peck property east of Moody Road. In 1964, developers on O'Keefe Lane unearthed more human remains and artifacts. Still later, in 1970, an Ohlone village and burial ground of major significance came to light on the Costello property on O'Keefe Lane, prompting archaeological study by Foothill College and others. Additional mounds and village sites have since been excavated along Permanente and Matadero Creeks.

Two large Spanish-Mexican land grants comprise Los Altos Hills: Rancho La Purissima Concepcion, 4,436 acres granted to Native Americans José Gorgonio and his son José Ramon in 1840 and sold to Juana Briones de Miranda in 1844 for the sum of \$300; and Rancho San Antonio, 4,438 acres granted to Juan Prado Mesa. Adobe Creek was the boundary line of the two ranchos. The Briones and Mesa families were friendly and became related when two of the Mesa men married two of the Briones women.

In 1855 Juana Briones sold 3,000 acres to Martin Murphy, founder of the City of Sunnyvale, who had previously leased her land for cattle grazing. Murphy gave 2,800 acres to his daughter, Elizabeth Yuba, when she married William Taaffe, a prosperous San Francisco merchant. They built a home on what is now the Foothill Community College campus and had four children: William, Martin, and twin daughters Mary and Mathilda. Some of the Taaffe descendants still reside in Los Altos Hills. The two large ranchos were eventually parceled and sold as smaller ranches for cattle grazing and vineyards, mostly of Zinfandel grapes. Many Italian and French vintners lived on Purissima Road until a blight destroyed the vineyards near the turn of the century. Soon after, orchards of apricots, plums and prunes flourished.

With its millions of fruit trees producing a beautiful, aromatic sea of blossoms, Santa Clara Valley became the "Valley of Heart's Delight" and so it remained well into the 1960s. Trains and tour buses brought countless travelers from near and far to glimpse this unique panorama.

Los Altos Hills was incorporated as a general law city on January 27, 1956 with the name "The Town of Los Altos Hills." Before then, residential development was constrained by factors including lack of a dependable water supply. Water from wells and creek beds was safe, but not always adequate. Headwaters for Hale, Adobe, Barron, Matadero, Purissima, and Deer Creeks are in local foothills characterized by heavily wooded banks and often-impenetrable areas of poison oak and chaparral. Homes and farms were usually on large acreage. The overall personality of the region was distinctly rural.

After World War II, the pressures of a growing population and increasing urbanization were felt throughout the San Francisco Peninsula. Many members of the unincorporated Los Altos Hills community viewed local commercialism as undesirable and felt threatened by possible annexation by neighboring cities. When adjacent Los Altos incorporated in 1952 with a one-quarter-acre minimum lot size, residents of the Hills knew they had to take action to defend and preserve the amenities of their rural life, such as one-acre lots and the right to keep horses on private property.

The compelling reasons for the incorporation of Los Altos Hills were printed on green paper and distributed to residents in the fall of 1955. As stated in this document (referred to as the "Green Sheets") one of the primary reasons the founders of the Town originally decided to incorporate in 1956 was to maintain the rural character of the community. This desire continues today.

In 2016 the Town celebrated its 60th anniversary. To commemorate the occasion the Town distributed a History Anthology. A time capsule dedicated in 2016 is to be opened on the 75th anniversary in 2031.

Wealthy San Franciscans attracted to the area during this period built summer estates in Los Altos Hills. Among the many still standing are: The Shumate House on Viscaino, the Lohman and Griffin Houses on the Foothill College campus, the Morgan Manor (which for many years was operated as Ford Country Day School) on Stonebrook, and the Finn Mansion on Prospect. Both Morgan Manor and Griffin House are official Town Historical Landmarks.

- **Climate**—Los Altos Hills receives 37 inches of rain per year and 1 inch of snowfall. The average US city receives 37 inches and 25 inches, respectively. The number of days with any measurable precipitation is 69. On average, there are 263 sunny days per year in Los Altos Hills, California. The July high is around 78 degrees. The January low is 39 degrees. The Best Places comfort index, which is based on humidity during the hot months, is rated as 53 out of 100, where higher is more comfortable. The US average on the comfort index is 44.
- **Governing Body Format**—Los Altos Hills was incorporated as a general law city on January 27, 1956 with the name “The Town of Los Altos Hills.” The Town of Los Altos Hills is governed by a five-member city council. The Town consists of six departments: City Manager, City Clerk, Building, Emergency Services, Engineering & Public Works, Finance & Administrative Services, Municipal Code, Planning and Parks & Recreation. The City Manager has administrative responsibility and authority to ensure that the laws and ordinances of the Town are duly enforced. He is responsible for managing and giving direction to all department heads except the City Attorney. The City Manager is appointed by, and serves at the pleasure of, the City Council.

Major responsibilities of the City Manager are as follows:

- Represents the Town with other governmental agencies
- Recommends adoption of ordinances and resolutions to execute the City Council's policies
- Advises the City Council of the fiscal condition of the Town
- Prepares an annual budget and Capital Improvement Plan
- Exercises general supervision over all public buildings, parks, and other public properties under the control of the Town
- Appoints or removes employees of the Town.

The Town contracts police services with the Santa Clara County Sheriff's Office. Fire services are provided by the Los Altos Hills County Fire District who hires the Santa Clara County Fire Department to perform fire department services. The Town has 16 committees and commissions that report to the City Council. The City Council assumes responsibility for adoption of this plan, the City Manager will oversee its implementation.

6.3 DEVELOPMENT TRENDS

The guiding principle of the Land Use Element, as with other parts of the General Plan, is to address long-term needs while preserving the semi-rural character of the community and the overall quality of life for residents. While many changes have taken place in the intervening years, most of the pleasant country aspects of the Town remain as new housing is constructed to accommodate the needs and lifestyles of today's residents.

There are no commercial or industrial uses within the Town limits. As the Town has developed over the past 50 years, residents have continued to support the preservation of low-density residential development and the semi-rural character of the community through one-acre zoning, the right to keep horses on private property, and the protection of open space, creek corridors, wildlife habitat and heritage oak trees.

With limited land available for additional housing and only slight possibility of change on non-residential parcels, Los Altos Hills is almost fully developed. However, in addition to infill development on vacant lots, redevelopment is occurring as existing residences are torn down and replaced with new homes. The current trend is to develop residences that maximize the square footage allowed under floor area and development area regulations established by the Town's Zoning Ordinance. Table 6-1 summarizes development trends in the performance period since the previous hazard mitigation plan and expected future development trends.

Table 6-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes Six properties on Mora Drive and Mora Glen Drive were annexed in September 2016.					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	Yes The Town intends to pursue annexation of most of the remaining County islands that are within the Urban Service Area. County of Santa Clara					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	No N/A					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	N/A	N/A	N/A	634	634
	Multi-Family	N/A	N/A	N/A	0	0
	Other (commercial, mixed use, etc.)	N/A	N/A	N/A	0	0
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	The Town has a geologic hazards map and requires geotechnical peer review for new residences. Until recently, many properties in Los Altos Hills were in the Wildland Urban Interface (WUI) area and therefore subject to building code and landscape restrictions related to fire prevention. The City Council rescinded the WUI map on October 20, 2016. New residences and properties re-roofing a residence are still required to have class A roofing, and new residences and second units are required to have fire sprinkler systems. Development has occurred throughout the Town during the performance period for this plan. For hazards with impacts town-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The Town is close to being built out. Most new projects involve the demolition of an existing residence and construction of a new (replacement) residence. A few subdivisions are processed each year. In 2015 two two-lot subdivisions were approved. Pending subdivision applications include one for two lots and one for nine lots.					

6.4 CAPABILITY ASSESSMENT

6.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 Los Altos Hills Annex. All of the below items were additionally reviewed as part of the full capability assessment for Los Altos Hills

- **Los Altos Hills General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Los Altos Hills Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Los Altos Hills Local Hazard Mitigation Plan March 19, 2014**—The LHMP was used to develop the community profile portions of the plan and to compare strategies and information against current data.
- **Technical Reports and Information**—Outside resources and references used to complete the Los Altos Hills Annex are identified in 2.12 of this annex.

6.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 6-2. An assessment of fiscal capabilities is presented in Table 6-3. An assessment of administrative and technical capabilities is presented in Table 6-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 6-5. An assessment of education and outreach capabilities is presented in Table 6-6. Classifications under various community mitigation programs are presented in Table 6-7. Development and permitting capabilities are presented in Table 6-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 6-9.

Table 6-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: Muni Code Title 8 & 2016 California Building Code	Yes	No	Yes	Yes
Zoning Code Comment: Muni Code Title 10 Alquist-Priolo Earthquake Fault Zoning Act Division 2, Chapter 7.5 2621 Public Resources Code	Yes	No	Yes	Yes
Subdivisions Comment: Muni Code Title 9 & Subdivision Map Act Government Code 66410-66413.5	Yes	No	Yes	No
Stormwater Management Comment: Muni Code Title 9, 10 California Regional Water Quality Control Board Order 01-119, State Waste Discharge Requirements, Clean Water Act	Yes	Yes	Yes	No
Post-Disaster Recovery Comment: None Identified	No	No	No	Yes
Real Estate Disclosure Comment: State of California Dept. of Real Estate Disclosures in Real Property Transactions Cal. Civ. Code §1102 et seq. 2005 Natural Hazards, Earthquake Guides	No	Yes	Yes	No
Growth Management Comment: Cal. Gov. Code §65300 et seq.	No	No	Yes	No
Site Plan Review Comment: Muni Code Title 10 – 1 & 10-2	Yes	No	No	No
Environmental Protection Comment: Various sections of Municipal Code and General Plan, California Environmental Quality Act Public Resources Code 21000–21189 and the CEQA Guidelines California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000– 15387	Yes	No	Yes	No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Flood Damage Prevention Comment: Muni Code Title 7 Chapter 4, Department of Water Resources	Yes	No	Yes	Yes
Emergency Management Comment: Emergency Operations Plan 2009	Yes	No	No	Yes
Climate Change Comment: California SB-32 and SN-379	No	No	Yes	Yes
Other: Comment: None Identified	No	No	No	No
Planning Documents				
General Plan Is the plan compliant with Assembly Bill 2140? Yes Comment: Government Code 65300-65303.4; Town of Los Altos Hills General Plan Update 2007	Yes	No	Yes	Yes
Capital Improvement Plan How often is the plan updated? Annually Comment: 2016-2017 Operating & Capital Budget and Five-Year Capital Plan	Yes	No	No	No
Floodplain or Watershed Plan Comment: Santa Clara Valley Water District	No	Yes	Yes	Yes
Stormwater Plan Comment: Los Altos Hills Sewer Management Plan 2016; Clean Water Act, County National Pollutant Discharge Elimination System	Yes	Yes	Yes	Yes
Urban Water Management Plan Comment: None Identified	No	No	No	No
Habitat Conservation Plan Comment: Santa Clara Valley Habitat Plan	No	Yes	No	No
Economic Development Plan Comment: None Identified	No	No	No	No
Shoreline Management Plan Comment: None Identified	No	No	No	No
Community Wildfire Protection Plan Comment: Town has not adopted Santa Clara County Draft Wildfire Protection Plan	No	Yes	No	Yes
Forest Management Plan Comment: None Identified	No	No	No	No
Climate Action Plan Comment: Los Altos Hills Draft Climate Action Plan	Yes	No	No	Yes
Comprehensive Emergency Management Plan Comment: Santa Clara County Operational Area Emergency Operations Plan, 2008	No	Yes	No	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: None Identified	No	No	No	No
Post-Disaster Recovery Plan Comment: None Identified	No	No	No	Yes
Continuity of Operations Plan Comment: None Identified	No	No	No	No
Public Health Plan Comment: Santa Clara County	No	Yes	No	No
Other: Comment: None Identified	No	No	No	No

Table 6-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	No
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes - subject to voter approval
User Fees for Water, Sewer, Gas or Electric Service	Yes - sewer
Incur Debt through General Obligation Bonds	Yes - subject to voter approval
Incur Debt through Special Tax Bonds	Yes -subject to voter approval
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 6-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning, Building, Public Works & Engineering / LAH
Engineers or professionals trained in building or infrastructure construction practices	Yes	Building Dept. / LAH
Planners or engineers with an understanding of natural hazards	Yes	Planning, Building, Public Works & Engineering / LAH
Staff with training in benefit/cost analysis	Yes	Finance / LAH / Director
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Planning, Public Works & Engineering / LAH
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	City Manager/Los Altos Hills/Emergency Manager
Grant writers	No	

Table 6-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works
Who is your floodplain administrator? (department/position)	Public Works / City Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	November 17, 2001
Does your floodplain management program meet or exceed minimum requirements?	May not meet minimum NFIP requirements
<ul style="list-style-type: none"> If exceeds, in what ways? 	
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
<ul style="list-style-type: none"> If so, please state what they are. 	
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
<ul style="list-style-type: none"> If no, please state why. 	
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
<ul style="list-style-type: none"> If so, what type of assistance/training is needed? 	
Does your jurisdiction participate in the Community Rating System (CRS)?	No
<ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving CRS Classification? Is your jurisdiction interested in joining the CRS program? 	No
How many flood insurance policies are in force in your jurisdiction?	82 ^a
Reference https://bsa.nfipstat.fema.gov/reports/1011.htm#CAT	
<ul style="list-style-type: none"> What is the insurance in force? What is the premium in force? 	\$24,837,300 ^a \$59,953 ^a
How many total loss claims have been filed in your jurisdiction?	13 ^a
Reference https://bsa.nfipstat.fema.gov/reports/1040.htm#06	
<ul style="list-style-type: none"> How many claims were closed without payment/are still open? What were the total payments for losses? 	8 CWOP/ 0 Open ^a \$31,535 ^a

a. According to FEMA statistics as of October 31, 2016

Table 6-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes Webpage listing links to documents, websites and videos explaining preparedness for natural and man made hazards. Also provides documents explaining structural and no-structural hazard mitigation.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes Post information on Facebook, NextDoor, Twitter during emergencies and exercises
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes - Environmental Design & Protection Committee, Environmental Initiatives Committee
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes CERT volunteers, Town website, Town newsletter, Nextdoor.com, community events
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes Reverse 9-1-1, local radio station, ham radio, Community Emergency Response Team

Table 6-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection (Alameda County Fire Department)	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 6-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Building Department
Does your jurisdiction have the ability to track permits by hazard area?	No. But the Town is moving forward with the implementation of a new permit tracking software and once that is in place we will have the ability to track permits by these or similar categories.
Does your jurisdiction have a buildable lands inventory?	No

Table 6-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comment: None provided	
Jurisdiction-level monitoring of climate change impacts	Medium
Comment: Climate Action Plan December 15, 2016	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment: None provided	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High
Comment: None provided	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment: None provided	
Participation in regional groups addressing climate risks	Low
Comment: None provided	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Medium
Comment: None provided	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: Adopted Climate Action Plan December 15, 2016	
Identified strategies for adaptation to impacts	Low
Comment: None provided	
Champions for climate action in local government departments	Medium
Comment: None provided	
Political support for implementing climate change adaptation strategies	Medium
Comment: None provided	
Financial resources devoted to climate change adaptation	Low
Comment: None provided	
Local authority over sectors likely to be negative impacted	Medium
Comment: None provided	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Medium
Comment: None provided	
Local residents support of adaptation efforts	Medium
Comment: None provided	
Local residents' capacity to adapt to climate impacts	Medium
Comment: None provided	
Local economy current capacity to adapt to climate impacts	Medium
Comment: None provided	
Local ecosystems capacity to adapt to climate impacts	Medium
Comment: None provided	

6.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

6.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **Los Altos Hills General Plan**—Mitigation Plan is an Annex to the General Plan.

6.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **Los Altos Hills General Plan**—Plan will be reviewed to ensure alignment with the updated LHMP.
- **Los Altos Hills Municipal Code**—Sections related to zoning and building codes will be reviewed to ensure alignment with LHMP.
- **Community Wildfire Protection Plan**—Santa Clara County Fire recently adopted the Santa Clara County Community Wildfire Protection Plan. The plan included City annexes, which identify specific measures to reduce impacts from wildfires.
- **Legal and Regulatory Capabilities**—Those capabilities identified as providing an integration opportunity in Table 6-1 will be reviewed and updated to include information on hazard risk reduction as feasible and appropriate.

6.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 6-10 lists all past occurrences of natural hazards within the jurisdiction.

6.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include the following:

- Although only approximately 1 percent of structures in the Town are in the 1 percent annual chance floodplain, almost 92 percent of the Town's structures are believed to be located in the 0.2 percent annual chance flood hazard area.

6.8 HAZARD RISK RANKING

Table 6-11 presents the ranking of the hazards of concern.

Table 6-10. Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Winter Storm	—	Jan 7, 2017	\$7,000
Fire (Stanford Dish)	—	June 25, 2007	The flames prompted a voluntary evacuation of homes in the area, but no structures were damaged and no injuries to residents. The blaze, burned about 125 acres
Flood	—	Jan 1, 2006	Not available
Flood	1203	Feb 2, 1998	Not available
Flood	1155	Dec 28, 1996	Not available
Winter Storm	1046	Feb 13, 1995	Not available
Winter Storm	1044	Jan 3, 1995	Not available
Severe Freeze	894	Dec 19, 1990	Not available
Earthquake (Loma Prieta)	845	Oct 17, 1989	Significant damage in Los Altos Hills, resulting in the demolition of 7 homes and necessitating substantial repairs to more than 25 residential units.
Winter Storm	758	Feb 12, 1986	Not available
Wildfire (Liddicoat)	739	July 1, 1985	\$9,000,000 (2014 LHMP) A major fire set by an arsonist destroyed nine homes in Los Altos Hills and damaged 16 others. The fire spread rapidly, burning 200 acres. The fire forced the evacuation of 195 residents, as well as horses, sheep, and dogs. The American Red Cross established a shelter at Gunn High School in Palo Alto. Injuries were limited to smoke inhalation, heat exhaustion and minor burns.
Earthquake 6.2	—	March 24, 1984	Not available
Storm/Flooding	677	Jan 21, 1983	In January 1983, both President Reagan and Governor Deukmejian declared Santa Clara County a disaster area caused by major rainfall. Major rainfall in March, 1983 caused flooding on Edith Road and West Fremont Road. A series of landslides closed Page Mill Road from Paseo del Roble to Three Forks Road. There were numerous slides on Viscaino Road from Concepcion to Purissima. The rain-swollen Adobe Creek caused erosion and landslides in the area of Foothill College.
Winter Storm	651	Dec 19, 1981	Not available
Earthquake 5.8	—	Jan. 27, 1980	Not available
Earthquake 5.9	—	Jan. 24, 1980	Not available
Earthquake 5.9	—	Aug. 6, 1979	Not available
Drought	3023	Jan 20, 1977	Not available
Earthquake 7.9	—	April 18, 1907	Not available

Table 6-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	48	High
2	Severe Weather	33	Medium
3	Wildfire	18	Medium
3	Flood	18	Medium
4	Landslide	15	Medium
5	Drought	9	Low
6	Dam and Levee Failure	0	Low

6.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2014 LHMP for Los Altos Hills can be found in Appendix D of this volume.

6.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 6-12 lists the actions that make up the Town of Los Altos Hills hazard mitigation action plan. Table 6-13 identifies the priority for each action. Table 6-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

6.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 6-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Department	Estimated Cost	Sources of Funding	Timeline
LAH-1—Create resources to assist neighbors in networking and having an emergency action plan.						
Existing	Earthquake, Flood, Wildfire	1, 2, 4, 5, 8, 9	OES*, CERT	Low	Staff Time, General Fund	1-5 years (Short-term)
LAH-2—Continue tree trimming programs, brush clearance, and other defensible space outreach efforts as necessary to minimize the potential for road blockage. Maintenance of brush and vegetative growth for fire prevention is addressed in Section 4-2.115 and 4-2.116 of the LAH Municipal Code						
Existing	Wildfire, Flood, Severe Weather	1, 2, 4, 5, 6, 8	Public Works*, LAHCFD	Medium	Staff Time, General Fund	1-5 years (Short-term)
LAH-3—Develop and enhance public education and outreach materials for all hazards with emphasis on high risk ratings.						
Existing	All Hazards	1, 2, 4, 8, 9	OES	Low	Staff Time, General Fund	1-5 years (Short-term)
LAH-4—Prepare a comprehensive evacuation plan focusing on potential wildland fire threats and identifying potential evacuation routes.						
Existing	Earthquake, Wildfire, Flood, Landslide	1-6, 8, 9	OES*, Sheriff, Fire	Low	Staff Time, General Fund	1-5 years (Short-term)
LAH-5—Participate in County organized efforts to implement a countywide Community Wildfire Protection Plan.						
Existing	Wildfire	1-9	County OES*, LAH OES	Low	Staff Time, General Fund, HMGP	1-5 years (Short-term)
LAH-6—Evaluate options and resources available to support home owners in completing seismic retrofits.						
Existing	Earthquake	1-6, 8	Planning	Low	Staff Time, General Fund	1-5 years (Short-term)
LAH-7—Coordinate with the appropriate state and county agencies to develop a comprehensive list of bridges and overpasses within Los Altos Hills and who is responsible for their maintenance.						
Existing	Earthquake, Flood, Landslide	1, 2, 4, 5, 8	Public Works	Low	Staff Time, General Fund, HMGP	1-5 years (Short-term)
LAH-8—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas.						
Existing	Earthquake, Wildfire, Flood	1-6, 8	Planning	High	HMGP, PDM, FMA, Staff Time, General Fund	1-5 years (Short-term)
LAH-9—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community such as Municipal Code.						
New and Existing	All Hazards	1-4,8	Planning	Low	Staff Time, General Fund	1-5 years (Short-term)

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Department	Estimated Cost	Sources of Funding	Timeline
LAH-10—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos, total losses, successes, lessons learned) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.						
Existing	All Hazards	1-4	OES	Low	Staff Time, General Fund	1-5 years (Short-term)
LAH-11—Support the Countywide initiatives identified in Volume 1 of the hazard mitigation plan						
Existing	All Hazards	1-9	Planning	Low	Staff Time, General Fund	On-going
LAH-12—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan						
Existing	All Hazards	1-6	OES	Low	Staff Time, General Fund	1-5 years (Short-term)
LAH-13—Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> Enforcement of the flood damage prevention ordinance. Participate in floodplain identification and mapping updates. Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1-5	Planning	High	Staff Time, General Fund , HMGP	1-5 years (Short-term)
LAH-14—Participate in the development of a countywide post-disaster recovery plan and a debris management plan						
Existing	Earthquake, Flood, Landslide	2, 3, 5, 6, 8	OES, Finance, Public Works	High	Staff Time, General Fund, HMGP	1-5 years (Short-term)
LAH-15—Consider participation in programs such as Firewise, StormReady and the Community Rating System						
Existing	Wildfire, Flood, Severe Weather	1, 2, 3, 5, 6, 8	LAHCFD, Public Works, Planning	High	Staff Time, General Fund	1-5 years (Short-term)
LAH-16—Complete Matadero Creek Erosion Control Project						
Existing	Flood	1-6	Public Works	Low	Staff Time, General Fund, HMGP, PDM, FMA, SCVWD Matching Grant	1-5 years (Short-term)
LAH-17—Complete Barron Creek restoration joint project with private property owner.						
Existing	Flood	1-6	Public Works	Low	Staff Time, General Fund , HMGP, PDM, FMA, SCVWD Matching Grant	1-5 years (Short-term)
LAH-18—Complete open space vegetation restoration project.						
Existing	Earthquake, Landslide	1-6	Public Works	Low	Staff Time, General Funds, HMGP, PDM	1-5 years (Short-term)
LAH-19—Continue offering Personal Emergency Preparedness and Community Emergency Response Team (CERT) training to the community.						
Existing	Earthquake, Wildfire, Flood	1, 2, 4, 8, 9	LAHCFD*, OES	Low	Staff Time, General Fund	1-5 years (Short-term)
LAH-20— Create and maintain a pathways inventory for alternate evacuation routes.						
Existing	Earthquake, Wildfire, Flood	2, 3, 4	Planning	Low	Staff Time, General Fund	1-5 years (Short-term)

* — Indicates lead agency

Table 6-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
LAH-1	6	Medium	Low	Yes	No	Yes	High	Low
LAH-2	6	Medium	Medium	Yes	No	Yes	High	Low
LAH-3	5	Medium	Low	Yes	No	Yes	High	Low
LAH-4	8	Medium	Low	Yes	No	Yes	High	Low
LAH-5	9	Medium	Low	Yes	Yes	No	Medium	Med
LAH-6	7	High	Low	Yes	No	Yes	High	Low
LAH-7	5	Medium	Low	Yes	Yes	No	Medium	Med
LAH-8	7	High	High	Yes	Yes	Yes	High	High
LAH-9	5	Medium	Low	Yes	No	Yes	High	Low
LAH-10	4	Medium	Low	Yes	No	Yes	High	Low
LAH-11	9	Low	Low	Yes	No	Yes	High	Low
LAH-12	6	Medium	Low	Yes	No	Yes	High	Low
LAH-13	5	High	High	Yes	Yes	No	Medium	High
LAH-14	5	Medium	High	No	Yes	No	Medium	High
LAH-15	6	Medium	High	No	No	No	Low	Low
LAH-16	6	High	Low	Yes	Yes	Yes	High	High
LAH-17	6	High	Low	Yes	Yes	Yes	High	High
LAH-18	6	High	Low	Yes	Yes	Yes	High	High
LAH-19	5	High	Low	Yes	No	Yes	High	Low
LAH-20	3	High	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 6-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	LAH-1, LAH-3, LAH-6, LAH-8, LAH-9, LAH-10, LAH-12,	LAH-6, LAH-7, LAH-9, LAH-10, LAH-12, LAH-19	LAH-1, LAH-3, LAH-4, LAH-10, LAH-12, LAH-19, LAH-20	LAH-14	LAH-4		
Severe Weather	LAH-2, LAH-3, LAH-9, LAH-10, LAH-12, LAH-15	LAH-10, LAH-19	LAH-3, LAH-10, LAH-12, LAH-15, LAH-19	LAH-14			
Wildfire	LAH-1, LAH-2, LAH-3, LAH-5, LAH-9, LAH-10, LAH-12, LAH-15	LAH-5, LAH-10, LAH-12, LAH-15, LAH-19	LAH-1, LAH-3, LAH-4, LAH-5, LAH-10, LAH-12, LAH-16, LAH-19, LAH-20	LAH-9, LAH-12, LAH-14, LAH-18	LAH-4		
Flood	LAH-1, LAH-2,3, LAH-8, LAH-9, LAH-10, LAH-11, LAH-12, LAH-13, LAH-15	LAH-7, LAH-9, LAH-10, LAH-12, LAH-13, LAH-15, LAH-20	LAH-1, LAH-3, LAH-4, LAH-10, LAH-12, LAH-13, LAH-15, LAH-19, LAH-20	LAH-9, LAH-12, LAH-13, LAH-14, LAH-16, LAH-17, LAH-18	LAH-4		
Landslide	LAH-3, LAH-9, LAH-10, LAH-11, LAH-12	LAH-7, LAH-10	LAH-3, LAH-4, LAH-10, LAH-12, LAH-19, LAH-20	LAH-14, LAH-16, LAH-17, LAH-18	LAH-4		
Drought	LAH-3, LAH-9, LAH-10, LAH-11, LAH-12	LAH-10, LAH-12, LAH-19	LAH-3, LAH-10, LAH-12, LAH-19	LAH-9, LAH-12			
Dam and Levee Failure	LAH-9, LAH-10, LAH-11, LAH-12	LAH-9, LAH-10,	LAH-3	LAH-9,			

a. See the introduction to this volume for explanation of mitigation types.

7. TOWN OF LOS GATOS

7.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Laurel Prevetti, Town Manager
Town Manager's Office
110 East Main Street
Los Gatos, CA 95030
Telephone: 408-354-6832
e-mail Address: lprevetti@losgatosca.gov

Alternate Point of Contact

Lt. J. R. Langer
Los Gatos-Monte Sereno Police Dept.
110 East Main Street
Los Gatos, CA 95030
Telephone: 408-399-5719
e-mail Address: jlanger@losgatosca.gov

7.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—August 10, 1887
- **Current Population**—31,376 as of January 1, 2016.
- **Population Growth**—Based on the data obtained from the State Department of Finance, Los Gatos has experienced a relatively flat rate of growth. The overall population has increased by only 0.7 percent since 2015. Los Gatos population is expected to grow marginally per decade through 2030.
- **Location and Description**—The Town of Los Gatos, California is nestled at the base of the Sierra Azules, approximately 50 miles south of San Francisco, in the southwestern portion of Santa Clara County where the Santa Clara Valley meets the lower slopes of the Santa Cruz Mountains. Los Gatos is bounded by the City of San José to the north and east, the City of Campbell to the north, the Cities of Monte Sereno and Saratoga to the west, and the unincorporated County of Santa Clara and the County of Santa Cruz to the south. Los Gatos encompasses a wide variety of terrain, both the valley and hillsides are interspersed with creeks, streams, and riparian habitat.
- **Brief History**—The name Los Gatos comes from “El Rancho de Los Gatos,” a ranch established in 1839 by a Mexican land grant and so named because of the large number of mountain lions in the area. Wheat production in the mid 1800s gave way to orchards, and rapid growth ensued when the railroad reached Los Gatos in 1878. Residential subdivisions were built and by 1887, the population had grown to 1,500 and Los Gatans voted to incorporate. Highway 17 was constructed through the center of Town, opening in 1940. Los Gatos grew slowly over the first 80 years, but today Los Gatos covers nearly 15 square miles and has a population of over 30,000.
- **Climate**—Los Gatos enjoys a mild Mediterranean climate. Summers are dry and warm in the 80 to 100-degree range. Winters are temperate and semi-moist in the 40 to 60-degree range. Los Gatos receives most of its precipitation in December through March. The average annual precipitation is 14.9 inches. It is rare to have rain in the summer months.

- **Governing Body Format**—The Town of Los Gatos is governed by a five-member Town Council who sets policy that the Town Manager is responsible to administer (City Manager form of government). The Town Council assumes responsibility for the adoption of this Plan, and the Town Manager will oversee its implementation. The Town consists of nine departments: Town Manager’s Office, Clerk, Town Attorney, Finance, Human Resources, Library, Police, Community Development, and Parks and Public Works. The Town is served by 14 Boards, Commissions, and Committees, which are advisory to the Town Council.

7.3 DEVELOPMENT TRENDS

Anticipated residential and commercial development levels for Los Gatos are low to moderate, consisting primarily of residential remodels, the completion of the Netflix headquarters, and commercial renovations. The Town’s Housing Element, certified in 2015, identifies strategies to meet the Town’s fair share of the regional housing needs, including a focus on affordable housing and increasing the number of second units on existing properties. The Town of Los Gatos updated its General Plan in 2010. In addition to the Housing Element, the General Plan also includes elements regarding land use, community design, transportation, open space, sustainability, noise, safety, and human services. Town actions related to land use designations, annexation, zoning, and capital improvements, must always be consistent with the General Plan. Future growth and development in the Town is managed in accordance with the General Plan. Table 7-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

7.4 CAPABILITY ASSESSMENT

7.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (Town of Los Gatos Annex). All of the below items were additionally reviewed as part of the full capability assessment for Town of Los Gatos.

- **Town of Los Gatos General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Town of Los Gatos Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvement Program**—The Town’s Five Year Capital Improvement Program was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Sustainability Plan**—The Sustainability Plan was reviewed for information regarding climate change.
- **Technical Reports and Information**—Outside resources and references used to complete the Town of Los Gatos Annex are identified in Section 7.11 of this annex.

Table 7-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes Land Area Annexed: 1.05 AC, 4 Parcels					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	Yes Residential land areas Town Council Approval					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes North Forty Development (Corner of Los Gatos Blvd. & Lark Ave.) Flood Zone					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	685	736	765	809	873
	Multi-Family	0	3	4	0	1
	Other (commercial, mixed use, etc.)	90	118	123	132	143
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Accela (permit system) allows for data input for hazard area type (i.e. Fire Hazard), but does not allow the Town to sort by area. The Town has Fire, Flood, and Hillside (landslide) zones that can be inputted into the system. Development has occurred throughout the Town during the performance period for this plan. For those hazards with a clearly defined extent and location, the Town cannot estimate development impacts. For those hazards with impacts town-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.						

7.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 7-2. An assessment of fiscal capabilities is presented in Table 7-3. An assessment of administrative and technical capabilities is presented in Table 7-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 7-5. An assessment of education and outreach capabilities is presented in Table 7-6. Classifications under various community mitigation programs are presented in Table 7-7. Development and permitting capabilities are presented in Table 7-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 7-9.

Table 7-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: Town Code Chapter 6, 2016	Yes	Yes	Yes	Yes
Zoning Code Comment: Town Code Chapter 29, 2016	Yes	No	Yes	No
Subdivisions Comment: Town Code Chapter 24, 1994 and Chapter 29, 1998	Yes	No	Yes	No
Stormwater Management Comment: Municipal Regional Stormwater Permit 2017; Town Code Chapter 2, 1968 and Chapter 29, 1998	Yes	Yes	Yes	Yes
Post-Disaster Recovery Comment: Town Code Chapter 8, 1968	Yes	Yes	Yes	No
Real Estate Disclosure Comment: Cal. Civ. Code §1102 et seq.	No	No	Yes	No
Growth Management Comment: Town Code Chapter 29, 2016 and Town's General Plan, 2010; Cal. Gov. Code §65300 et seq.	Yes	Yes	Yes	Yes
Site Plan Review Comment: Town Code Chapter 29, 2016	Yes	Yes	Yes	No
Environmental Protection Comment: Lead Agency for project level CEQA review	Yes	Yes	Yes	Yes
Flood Damage Prevention Comment: Town Code Chapter 29, 2003	Yes	Yes	Yes	Yes
Emergency Management Comment: Town Code Chapter 8 (Civil Defense and Disaster) 1968	Yes	Yes	Yes	Yes
Climate Change Comment: Town General Plan Chapter 9, 2010; CA SB-379	Yes	Yes	Yes	Yes
Other: Grading Ordinance Comment: Town Code Chapter 12, 1968	Yes	Yes	Yes	Yes
Planning Documents				
General Plan Is the plan compliant with Assembly Bill 2140? Yes, General Plan contains a Safety Element, 2010 Comment:	Yes	Yes	Yes	Yes
Capital Improvement Plan How often is the plan updated? Yearly Comment:	Yes	No	No	Yes
Floodplain or Watershed Plan Comment: Town Code Chapter 29, 2016; No plan located; Santa Clara Valley Water District	Yes	Yes	No	No
Stormwater Plan Comment: West Valley Clean Water Program	No	Yes	Yes	Yes
Urban Water Management Plan Comment: West Valley Clean Water Program	No	Yes	Yes	Yes
Habitat Conservation Plan Comment: None located	No	No	No	No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Economic Development Plan Comment: Economic Vitality Program, 2002	Yes	No	No	Yes
Shoreline Management Plan Comment: None located	No	No	Yes	No
Community Wildfire Protection Plan Comment: Santa Clara County Fire	No	Yes	Yes	Yes
Forest Management Plan Comment: None located	No	No	No	No
Climate Action Plan Comment: Sustainability Plan, 2012	Yes	Yes	No	Yes
Comprehensive Emergency Management Plan Comment: Town of Los Gatos- City of Monte Sereno Emergency Operations Plan, 2015	Yes	Yes	Yes	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: Threat and Hazard & Risk Assessment- Emergency Operations Plan , 2015 page 14	Yes	Yes	Yes	Yes
Post-Disaster Recovery Plan Comment: Town of Los Gatos-City of Monte Sereno Emergency Operations Plan 2015 page 34. The Town of Los Gatos participates in Emergency Management Planning as a Santa Clara County Fire District served community. As such, the Town is currently participating in the development of an Operational Area Recovery Framework (anticipated publication and promulgation 2017/2018) that follows guidance provided by the State of California and the Federal Emergency Management Agency.	Yes	No	No	Yes
Continuity of Operations Plan Comment: Currently under development. Individual departments have business and continuity plans in place.	Yes	No	Yes	Yes
Public Health Plan Comment: The Town of Los Gatos falls under the authority of the Santa Clara County Department of Public Health, which has the following public health plans: 2015-2020 Community Health Assessment and Health Improvement Plan; 2014 Emergency Medical Services Plan; 2013 EMS Strategic Plan; 2013 Santa Clara County EMS System Strategic Implementation Plan; Santa Clara County EMS Trauma System Plan; and Santa Clara County EMS Stroke Plan.	No	Yes	No	Yes

Table 7-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Open Space Fund	Yes

Table 7-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Parks & Public Works Department Town of Los Gatos Associate & Assistant Engineers Community Development Department Town of Los Gatos Associate & Assistant Planners
Engineers or professionals trained in building or infrastructure construction practices	Yes	Parks & Public Works Department Town of Los Gatos Associate & Assistant Engineers Community Development Department Town of Los Gatos Associate & Assistant Planners
Planners or engineers with an understanding of natural hazards	Yes	Parks & Public Works Department Town of Los Gatos Associate & Assistant Engineers Community Development Department Town of Los Gatos Associate & Assistant Planners
Staff with training in benefit/cost analysis	Yes	Parks & Public Works Department Town of Los Gatos Director Community Development Department Town of Los Gatos Director
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Parks & Public Works Department Town of Los Gatos Associate & Assistant Engineers Community Development Department Town of Los Gatos Associate & Assistant Planners
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Town Manager's Office Town of Los Gatos Town Manager
Grant writers	Yes	Parks & Public Works Department Town of Los Gatos Administrative Analyst, Director

Table 7-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Parks and Public Works Department
Who is your floodplain administrator? (department/position)	Parks and Public Works Director
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	2003
Does your floodplain management program meet or exceed minimum requirements?	Meet; May need to be updated with provisions pertaining to the 2004 National Flood Insurance Reform Act
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • Is your jurisdiction interested in joining the CRS program?	No No
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	156 ^a \$46,988,700 ^a \$83,636 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	20 ^a 10/0 ^a \$51,957.41 ^a

a. According to FEMA statistics as of October 31, 2016

Table 7-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes, the Town Manager currently acts as the Public Information Officer
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes General Plan, Flood Plain Ordinance, Hillside Development Standards & Guidelines, Los Gatos Prepared Webpage
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes Facebook, Twitter, NextDoor
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes What's New
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes Alert SCC

Table 7-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection (Santa Clara County Fire)	Yes	2/2Y	2015
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 7-8. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Parks and Public Works Department, Community Development Department
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	Yes (in the General Plan)

Table 7-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts Comment: None provided.	Medium
Jurisdiction-level monitoring of climate change impacts Comment: None provided.	Low
Technical resources to assess proposed strategies for feasibility and externalities Comment: None provided.	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory Comment: None provided.	Low
Capital planning and land use decisions informed by potential climate impacts Comment: None provided.	Medium
Participation in regional groups addressing climate risks Comment: None provided.	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes Comment: None provided.	Low
Identified strategies for greenhouse gas mitigation efforts Comment: None provided.	Medium
Identified strategies for adaptation to impacts Comment: None provided.	Low
Champions for climate action in local government departments Comment: None provided.	Low
Political support for implementing climate change adaptation strategies Comment: None provided.	Low
Financial resources devoted to climate change adaptation Comment: None provided.	Low

Adaptive Capacity Assessment	Jurisdiction Rating
Local authority over sectors likely to be negative impacted Comment: None provided.	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: None provided.	Low
Local residents support of adaptation efforts Comment: None provided.	Medium
Local residents' capacity to adapt to climate impacts Comment: None provided.	Low
Local economy current capacity to adapt to climate impacts Comment: None provided.	Low
Local ecosystems capacity to adapt to climate impacts Comment: None provided.	Low

7.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

7.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **General Plan**—The General Plan integrates the legal and regulatory section of the Hazard Mitigation Plan throughout it.
- **Hillside Development Standards & Guidelines**—Multiple sections of the Hillside Development Standards & Guidelines integrate the goals of the Hazard Mitigation Plan.
- **Emergency Operation Plan**—The Emergency Operation plan integrates many pieces of the Hazard Mitigation Plan through a Hazard Analysis, Preparedness, Response, Recovery, and Mitigation sections.
- **Building Code**—The Building Code currently integrates the Hazard Mitigation Plan through enforcing code that will mitigate damage from a disaster. The Town also has a Code Compliance Officer to enforce these codes to maintain safety in the Town.
- **Fire Code**—Santa Clara County's Fire Code integrates the Hazard Mitigation Plan through specific fire standards and practices for projects throughout the County.

7.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **General Plan**—Several parts of the General Plan have the opportunity for future integration. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate.
- **Sustainability Plan**—The Adaptive Capacity for Climate Change section of the Hazard Mitigation Plan integrates into the Sustainability Plan.
- **Flood Damage Prevention Ordinance**—Opportunity to integrate new NFIP ordinance language.

7.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 7-10 lists all past occurrences of natural hazards within the jurisdiction.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flood	651	January 7, 1982	\$17,543,819.07
Storm	677	February 9, 1983	\$20,746,004.58
Fire	739	July 18, 1985	Unknown
Flood	758	February 21, 1986	\$10,812,819.38
Earthquake	845	October 17, 1989	\$1,409,677,726.18
Freeze	894	February 11, 1991	Unknown
Severe Storm	1044	January 10, 1995	\$17,482,926.56
Severe Storm	1046	March 12, 1995	\$9,331,377.98
Severe Storm	1155	January 4, 1997	\$21,792,068.12
Severe Storm	1203	February 9, 1998	\$25,537,087.33
Heavy Rain	N/A	December 15, 2002	Unknown
Flood	N/A	January 20, 2010	Unknown
Heavy Rain	N/A	January 3-13, 2017	Unknown

7.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- Street flooding occurs within the Town.

7.8 HAZARD RISK RANKING

Table 7-11 presents the ranking of the hazards of concern.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	48	High
2	Wildfire	45	High
3	Severe Weather	33	Medium
5	Landslide	18	Medium
4	Flood	15	Medium
7	Dam and Levee Failure	10	Low
6	Drought	9	Low

7.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Town of Los Gatos can be found in Appendix D of this volume.

7.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 7-12 lists the actions that make up the Town of Los Gatos hazard mitigation action plan. Table 7-13 identifies the priority for each action. Table 7-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

7.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 7-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
LGT-1—Periodically update the Town's geologic, seismic, and geotechnical maps.						
Existing	All Hazards	1, 2, 6, 7, 8	Community Development	Medium	HMGP, General Funds	On-going
LGT-2—Periodically identify and retest, if needed, those bridges whose destruction would cause serious access problems after an earthquake.						
Existing	Earthquake	1, 2, 4, 8	Caltrans	High	Possible Grants, State	On-going
LGT-3—Work with facility owners to periodically ensure that all buildings and structures in Town whose uses and functions are essential in response to a major earthquake are safe.						
Existing	All Hazards	1, 2, 5	Community Development, Fire, Schools	Medium	HMGP, PDM, FMA	On-going
LGT-4—Amend the Town Code to reduce the permitted gradient for roads in areas determined to be high risk landslide or fault zones.						
New	Flood, Earthquake	2, 3, 4, 8	Community Development	Low	HMGP, General Funds	Long-term
LGT-5—Update the Town's earthquake preparedness information packet, keep it current on an ongoing basis and develop and implement effective means to disseminate it to Town residents and businesses.						
N/A	Earthquake	1, 2, 4, 6, 8	Town	Medium	Possible Grants	Long-term
LGT-6—Create and adopt a Geologic Hazards Checklist to be utilized during the development review process.						
New	Flood, Earthquake	1, 2, 3, 4, 7, 8	Community Development	Medium	HMGP, General Funds	Long-term
LGT-7—Adopt procedures whereby the public will continually be made aware of the Town's policies regarding safety hazards and be conveniently supplied with information, including notification of residents of fire emergency plans for their area.						
N/A	All Hazards	1, 2, 4, 8, 9	Police	Medium	HMGP	Long-term
LGT-8—Coordinate with Santa Clara Valley Water District, (SCVWD) FEMA, and/or the State Department of Water Resources to develop and distribute flood hazard preparedness educational information, including evacuation plans, for residents.						
Existing	Flood	1, 2, 4, 8, 9	Police, Parks and Public Works, FEMA, Water District, State	Medium	HMGP, PDM, FMA	Long-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
LGT-9—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.						
New and Existing	All Hazards	1, 2, 5	Parks and Public Works, Police, Fire Department	Medium	HMGP, General Funds	On-going
LGT-10—Develop a post-disaster recovery plan and a debris management plan.						
New and Existing	All Hazards	1, 2, 5	Police, Fire Department	Medium	Possible Grants, General Funds	On-going
LGT-11—Encourage and work with Santa Clara Valley Water District to establish policies and ordinances to support water conservation.						
New and Existing	Drought, Landslide	1, 2, 3, 5	Parks and Public Works, Water District	Low	Possible Grants, General Funds	On-going
LGT-12—The Town will inventory and map, using GIS, the location of soft-story buildings. The maps will be available to first responders during emergencies.						
Existing	Earthquake	1, 2	Community Development	Low	General Funds	Short-term
LGT-13— The Town will consider developing a retrofit grant program for building owners. The grant program would be made more possible if the Town is able to secure mitigation grants through having an adopted Hazard Mitigation Plan. This project would also be consistent with General Plan Safety Element Policy SAF Policy 1.5, which calls for the Town to provide incentives for seismic retrofits of structures.						
Existing	Earthquake	2, 4, 5, 7	Community Development	High	HMGP, PDM (General Funds for local match)	Short-term
LGT-14—The Town will coordinate with surrounding jurisdictions that are in the inundation area of the Lexington Reservoir Lenihan Dam to implement a siren warning system.						
New and Existing	Dam Failure	5, 9	Parks and Public Works	High	HMGP, PDM	Short-term
LGT-15—Marketing and public education campaigns for dam failures will also be implemented.						
New and Existing	Dam Failure	1, 4, 9	Police, Community Development	Low	General Funds	On-going
LGT-16— Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit.						
Existing	Greenhouse Gas Mitigation	4, 6	Parks and Public Works, Town Manager's Office	Low	General Funds	On-going
LGT-17— Increase the use of clean, alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology.						
Existing	Greenhouse Gas Mitigation	3, 4	Town Council	Medium	General Funds	On-going
LGT-18—Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money.						
Existing	Greenhouse Gas Mitigation	2, 6	Community Development	Medium	General Funds	Long-term
LGT-19— Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Parks and Public Works / Community Development	High	HMGP, PDM, FMA	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
LGT-20—Continue to integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community						
New and Existing	All Hazards	2, 4,	Community Development	Low	Staff Time, General Funds	On-going
LGT-21— Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Town Manager's Office	Low	Staff Time, General Funds	Short-term
LGT-22— Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Parks and Public Works	Low	Staff Time, General Funds	On-going

Table 7-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
LGT-1	5	Medium	Medium	Yes	Yes	No	Medium	High
LGT-2	4	Medium	High	No	Yes	No	Low	Medium
LGT-3	3	Medium	Medium	Yes	Yes	No	Low	Medium
LGT-4	4	Medium	Low	Yes	Yes	Yes	Medium	High
LGT-5	5	High	Medium	Yes	Yes	No	Medium	Medium
LGT-6	6	High	Medium	Yes	Yes	No	Medium	Medium
LGT-7	5	High	Medium	Yes	Yes	No	Medium	Medium
LGT-8	5	High	Medium	Yes	Yes	No	Medium	Medium
LGT-9	3	High	Medium	Yes	Yes	No	Medium	High
LGT-10	3	Medium	Medium	Yes	Yes	No	Medium	High
LGT-11	4	Medium	Low	Yes	Yes	Yes	Medium	Medium
LGT-12	2	High	Low	Yes	No	Yes	High	Low
LGT-13	4	High	High	Yes	Yes	No	Medium	High
LGT-14	2	High	High	Yes	Yes	No	Medium	High
LGT-15	3	High	Low	Yes	No	Yes	High	Low
LGT-16	2	Low	Low	Yes	No	Yes	High	Low
LGT-17	2	Low	Medium	No	No	Yes	Medium	Low
LGT-18	2	Low	Medium	No	No	Yes	Medium	Low
LGT-19	5	High	High	Yes	Yes	No	Medium	High
LGT-20	2	Medium	Low	Yes	No	Yes	High	Low
LGT-21	2	Low	Low	Yes	No	Yes	High	Low
LGT-22	6	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 7-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Dam and Levee Failure	LGT-1, LGT-7, LGT-9, LGT-20, LGT-21	LGT-3, LGT-19	LGT-7, LGT-14, LGT-15		LGT-10, LGT-14		
Drought	LGT-1, LGT-7, LGT-9, LGT-20, LGT-21	LGT-3, LGT-19	LGT-7		LGT-10		LGT-11
Flood	LGT-1, LGT-4, LGT-6, LGT-7, LGT-9, LGT-20, LGT-21, LGT-22	LGT-3, LGT-19, LGT-22	LGT-7, LGT-8, LGT-22	LGT-4	LGT-10		
Earthquake	LGT-1, LGT-4, LGT-6, LGT-7, LGT-9, LGT-20, LGT-21	LGT-3, LGT-13, LGT-19	LGT-5, LGT-7	LGT-4	LGT-10, LGT-12	LGT-2	
Landslide	LGT-1, LGT-7, LGT-9, LGT-20, LGT-21	LGT-3, LGT-19	LGT-7		LGT-10		
Severe Weather	LGT-1, LGT-7, LGT-9, LGT-20, LGT-21	LGT-3, LGT-19	LGT-7		LGT-10		
Wildfire	LGT-1, LGT-7, LGT-9, LGT-20, LGT-21	LGT-3, LGT-19	LGT-7		LGT-10		

a. See the introduction to this volume for explanation of mitigation types.

8. CITY OF MILPITAS

8.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Toni Charlop, Emergency Services Coordinator
Milpitas Fire Department – Office of Emergency Services
777 S. Main St
Milpitas, CA 95035
Phone: (408) 586-2801
E-mail: tcharlop@ci.milpitas.ca.gov

Alternate Point of Contact

Robert Mihovich, Fire Chief
Milpitas Fire Department
777 S. Main St.
Milpitas, CA 95035
Phone: (408) 586-2811
E-mail: rmihovich@ci.milpitas.ca.gov

8.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—January 6, 1954
- **Current Population**—75,521 as of January 1, 2016
- **Population Growth**—Over the course of the last six years (2010 – 2016), Milpitas’ population has grown at an average rate of 2.1 percent. Over this duration, the highest rate of population growth was in 2014-2015 at 4.2 percent. 2010-2011 had the lowest rate of growth at 0.3 percent. According to most recent statistics, the Milpitas population grew 1.9 percent in 2015 – 2016. (Source: CA Dept. of Finance)
- **Location and Description**—Located at the southern tip of San Francisco Bay, between Fremont (north) and San José (south), the City of Milpitas is a progressive community that is an integral part of the high tech Silicon Valley. Milpitas (incorporated area) is often called the “Crossroads of Silicon Valley” with most of its 13.63 square miles of land situated between two major freeways (I-880 and I-680), State Route 237 and County Expressway. Milpitas is home to The Great Mall of the Bay Area, which is the largest enclosed mall in Northern California at approximately 1.1 million square feet of leasable space. (Source: www.ci.milpitas.ca.gov/milpitas/about-milpitas/)
- **Brief History**—Milpitas was first inhabited by the Tamyen, a linguistic subgroup of the Muwekma Ohlone people who resided in the San Francisco Bay Area for thousands of years. During the Spanish expeditions, Milpitas served as a crossroads between Mission San José de Guadalupe (modern day Fremont, CA) and Mission Santa Clara de Asis (modern day Santa Clara, CA). In the 1850s – 80s large numbers of European settlers descended to farm the fertile lands of Milpitas. By mid-20th century Milpitas found itself being swallowed up by its neighbor to the south, San José, thus resulting in the incorporation of Milpitas, January 26, 1954. Seven years later San José attempted to annex Milpitas, in which the “Milpitas Minutemen” quickly organized to oppose the annexation of Milpitas into San José and keep it independent, hence the Minuteman in the Milpitas seal. (Source: Wikipedia)
- **Climate**—Milpitas enjoys warm, sunny weather with few extreme temperatures. Rainfall is confined mostly to the winter months. During winter, temperatures are relatively warm at an average of 31 °F to

59 °F (-0.5°C to 15°C). Showers and cloudy days come and go during this season dropping most of the city's annual 15 inches (380 mm) of precipitation, and as spring approaches, the gentle rains gradually dwindle. In summer, the grasslands on the hillsides dehydrate rapidly and form bright, golden sheets on the mountains set off by stands of oak. Summer is dry and warm but not hot like in other parts the Bay Area. Temperatures infrequently reach over 100 °F (38 °C) with most days in the mid-70s to the high-70s. From June to September, Milpitas experiences little rain, and as autumn approaches, the weather gradually cools down. Many temperate-climate trees drop their leaves during fall in the South Bay but the winter temperature is warm enough for evergreens like palm trees to thrive. (Source: Wikipedia)

- Governing Body Format**—The city of Milpitas is governed by a five-member city council. The City consists of 13 departments, which include: Building & Safety, City Attorney, City Clerk, City Manager, Engineering, Finance, Fire, Human Resources, Information Services, Planning & Neighborhood Services, Police, Public Works, and Recreation Services. The City has 14 Commissions which report to the City Council. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation. (Source: www.ci.milpitas.ca.gov)

8.3 DEVELOPMENT TRENDS

Development for the City of Milpitas is anticipated to be high, given the City's regional location and relationship to the Silicon Valley. The City has several proposed projects such as high density, transit oriented residential development, new single family and apartment units, mixed-use in-fill developments, new hotels, and commercial remodels for adaptive re-use. The City's 1994 General Plan it serves as the master policy document to guide land use, circulation, housing, open space, sustainability, and economic development throughout the City. Given the importance of this document, the City kicked off a process to comprehensively update the General Plan in October 2016, with completion anticipated in 2018. An update of the City's Zoning Ordinance is also anticipated after completion of the General Plan update, which will update land use regulations and use regulations to reflect the policies established within the General Plan, along with associated General Plan and Zoning Land Use Maps. Table 8-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 8-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan?	No					
<ul style="list-style-type: none"> If yes, give the estimated area annexed and estimated number of parcels or structures. 	N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No					
<ul style="list-style-type: none"> If yes, please describe land areas and dominant uses. 	N/A					
<ul style="list-style-type: none"> If yes, who currently has permitting authority over these areas? 	N/A					
Are any areas targeted for development or major redevelopment in the next five years?	Unknown at this time.					
<ul style="list-style-type: none"> If yes, please briefly describe, including whether any of the areas are in known hazard risk areas 	N/A					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family (new)	8	66	94	129	71
	Multi-Family (new)	0	8	83	42	25
	Commercial (new)	1	3	6	3	3

Criterion	Response					
	Other	2,921	3,267	3,810	4,451	3,785
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Development has occurred throughout the city during the performance period for this plan. For hazards with a clearly defined extent and location, the City cannot estimate development impacts. For hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The City of Milpitas is currently undergoing the process of the General Plan Update, which will include inventory of land uses, underutilized properties, vacant lands, etc.					

8.4 CAPABILITY ASSESSMENT

8.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (Milpitas Annex). All of the below items were additionally reviewed as part of the full capability assessment for Milpitas.

- **Milpitas General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Milpitas Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—Various Capital Improvement Projects/ Programs have been identified and funded to mitigate potential risks and hazards associated with critical infrastructure such as water, sewer, stormwater, and electrical utilities. These improvements include seismic evaluations to identify specific utility improvement needs, condition assessment of existing infrastructure, and design and construction of various capital improvements.
- **Milpitas Multi-Hazard Functional Plan**—The Multi-Hazard Functional Plan was reviewed to identify Continuity of Government Operations Plans, Public Health Plans and Threat, Hazard Identification and Risk Assessments.
- **2012 Emergency Operations Plan**—This plan was reviewed for Threat, Hazard Identification and Risk Assessments, and satisfies the City of Milpitas' Comprehensive Emergency Management Plan.
- **Technical Reports and Information**—Outside resources and references used to complete the Milpitas Annex are identified in Section 8.10 of this Annex.

8.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 8-2. An assessment of fiscal capabilities is presented in Table 8-3. An assessment of administrative and technical capabilities is presented in Table 8-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 8-5. An assessment of education and outreach capabilities is presented in Table 8-6. Classifications under various community mitigation programs are presented in Table 8-7. Development and permitting capabilities are presented in Table 8-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 8-9.

Table 8-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: MMC Title II	Yes	No	Yes	Yes
Zoning Code Comment: MMC Title VI	Yes	No	Yes	Yes
Subdivisions Comment: MMC XI	Yes	No	No	Yes
Stormwater Management Comment: MMC Title VI; Santa Clara Valley Water District	Yes	Yes	Yes	Yes
Post-Disaster Recovery Comment: MMC Title V	Yes	No	No	Yes
Real Estate Disclosure Comment: Cal. Civ. Code §1102 et seq.	No	No	Yes	No
Growth Management Comment: MMC Title XI; Cal. Gov. Code §65300 et seq.	Yes	No	Yes	No
Site Plan Review Comment: MMC Title II	Yes	No	No	No
Environmental Protection Comment: MMC Title VI, RWQCB NPDES Permit #CAS029718; California Environmental Quality Act	Yes	No	Yes	No
Flood Damage Prevention Comment: MMC Title XI, Chapter 15	Yes	Yes	No	Yes
Emergency Management Comment: MMC Title V	Yes	No	No	Yes
Climate Change Comment: MMC Title II; CA SB-379	Yes	No	Yes	Yes
Other: Water Conservation Measures Comment: MCC Title III, Chapter 5	Yes	No	No	No
Planning Documents				
General Plan Is the plan compliant with Assembly Bill 2140? Yes Comment: Milpitas General Plan, undergoing current process of update	Yes	No	Yes	Yes
Capital Improvement Plan How often is the plan updated? Annually Comment: 2016-17 Budget, Adopted CIP, updated and reviewed annually	Yes	No	No	Yes
Floodplain or Watershed Plan Comment: Milpitas General Plan, 2010 SCVWD Local Hazard Mitigation Plan	Yes	Yes	Yes	Yes
Stormwater Plan Comment: No specific plan found, All planning/ordinance is guided by RWQCB NPDES Permit #CAS029718	No	No	Yes	N/A
Urban Water Management Plan Comment: 2015 UWMP, Milpitas General Plan, 2010 SCVWD Local Hazard Mitigation Plan	Yes	No	Yes	Yes
Habitat Conservation Plan Comment: Santa Clara Valley Habitat Plan	No	Yes	Yes	Yes

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Economic Development Plan Comment: In development for future	No	No	No	Yes
Shoreline Management Plan Comment: N/A	N/A	N/A	N/A	N/A
Community Wildfire Protection Plan Comment: California Fire Code; No plan located	No	No	No	N/A
Forest Management Plan Comment: None located	No	No	No	N/A
Climate Action Plan Comment: Milpitas Climate Action Plan (Adopted: May, 2013)	Yes	No	No	Yes
Comprehensive Emergency Management Plan Comment: 2012 Emergency Operation Plan & 2000 Multi-Hazard Functional Plan	Yes	No	No	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: 2012 Emergency Operation Plan & 2000 Multi-Hazard Functional Plan	Yes	No	No	Yes
Post-Disaster Recovery Plan Comment: 2012 Emergency Operation Plan & 2000 Multi-Hazard Functional Plan	Yes	No	No	No
Continuity of Operations Plan Comment: 2012 Emergency Operation Plan & 2000 Multi-Hazard Functional Plan, California Emergency Services Act Article 15	Yes	No	No	Yes
Public Health Plan Comment: 2000 Multi-Hazard Functional Plan, SCC Department of Public Health Strategic Plan, 2015-2018	Yes	Yes	No	Yes
Other: Comment: None located	N/A	N/A	N/A	N/A

Table 8-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes, subject to voter approval
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	N/A

Table 8-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	MLP Planning & Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	MLP Building, Engineering & Fire Prevention
Planners or engineers with an understanding of natural hazards	Yes	MLP Planning, Engineering, Public Works & Building
Staff with training in benefit/cost analysis	Yes	MLP Finance Dept.
Surveyors	Yes	On contract.
Personnel skilled or trained in GIS applications	Yes	MLP Information Systems
Scientist familiar with natural hazards in local area	Yes	On contract
Emergency manager	Yes	MLP Fire/OES
Grant writers	Yes	Varies by grant, dept. specific

Table 8-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Engineering & Public Works
Who is your floodplain administrator? (department/position)	Engineering/City Engineer (or Asst. CE)
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	11/7/95 update, 1993 adoption
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceed; however may be in need to minor update to reflect minor required changes to the program established in 2004 Residential construction, new or substantial improvements, shall have the lowest floor, including the basement, elevated by at least one foot above the base flood elevation or at least three feet above the highest adjacent grade if no depth number is specified.
When was the most recent Community Assistance Visit or Community Assistance Contact?	8/25/2016
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes Certified Floodplain Management training
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	Yes Yes (currently class 7) N/A
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	1,615 ^a \$408,539,600 ^a \$1,678,104 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	69 ^a 49/0 ^a \$75,337 ^a

a. According to FEMA statistics as of October 31, 2016.

Table 8-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes There is public information based on known threats- severe weather, earthquake preparedness, defer folks to valleywater.org, fema.gov, etc.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes Facebook, Twitter, Nixel, Next Door
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes, Emergency Preparedness Commission, SAFE/CERT Program
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes AlertSCC.org/ reverse 9-1-1 call system
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes AlertSCC.org/reverse 9-1-1 call system

Table 8-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	7	11/2011
Building Code Effectiveness Grading Schedule	Yes	1	2016
Public Protection Classification (MLP Fire)	Yes	02/2X	2/2016
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 8-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Building Dept.
Does your jurisdiction have the ability to track permits by hazard area?	Technically, yes. However, our computer system is not set up to track in that manner.
Does your jurisdiction have a buildable lands inventory?	No

Table 8-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts Comment: Climate Action Plan, 2013	Medium
Jurisdiction-level monitoring of climate change impacts Comment: None provided	Low
Technical resources to assess proposed strategies for feasibility and externalities Comment: None provided	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory Comment: None provided	Low
Capital planning and land use decisions informed by potential climate impacts Comment: Environmental impact report to monitor environmental effects of proposed projects.	High
Participation in regional groups addressing climate risks Comment: None provided	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes Comment: To the extent any project conditions have a legal nexus, Planning Commission and City Council would have the authority to impose conditions of approval related to development projects.	High
Identified strategies for greenhouse gas mitigation efforts Comment: Climate Action Plan: A Qualified Greenhouse Gas Reduction Strategy, Adopted May, 2013	High
Identified strategies for adaptation to impacts Comment: Climate Action Plan: A Qualified Greenhouse Gas Reduction Strategy, Adopted May, 2013	Medium
Champions for climate action in local government departments Comment: None provided	Medium
Political support for implementing climate change adaptation strategies Comment: Climate Action Plan: A Qualified Greenhouse Gas Reduction Strategy, Adopted May, 2013	High
Financial resources devoted to climate change adaptation Comment: Climate Action Plan: A Qualified Greenhouse Gas Reduction Strategy, Adopted May, 2013	Medium
Local authority over sectors likely to be negatively impacted Comment: Climate Action Plan: A Qualified Greenhouse Gas Reduction Strategy, Adopted May, 2013	Medium
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: None provided	Unknown
Local residents support of adaptation efforts Comment: None provided	Unknown
Local residents' capacity to adapt to climate impacts Comment: None provided	Unknown
Local economy current capacity to adapt to climate impacts Comment: None provided	Unknown
Local ecosystems capacity to adapt to climate impacts Comment: None provided	Varies/Unknown

8.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms:

8.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **City of Milpitas General Plan**—the General Plan includes a Seismic and Safety Element which addresses seismic, geologic, flooding, dam inundation, fire safety and emergency management.
- **Water Master Plan**—Addresses community wide water supply. Identifies deficiencies in the City's water distribution system and provides mitigations to correct deficiencies.
- **Sewer Master Plan**—Addresses sewer treatment capacity. Identifies deficiencies in City sewer collection system. Provides mitigation to correct deficiencies.
- **Storm Drain Master Plan**—Identifies deficiencies in the City's storm drain collection system and provides mitigation to correct deficiencies.
- **Water System Seismic Improvement Strategic Plan**—Identifies seismic risk to City's water system. Establishes backbone system and seismic event preparation requirements.
- **2015 Urban Water Management Plan**—In accordance with the California Urban Water Management Planning Act (CA Water Code Div. 6, Part 2.6, Sections 10610 through 10657), the Milpitas UWMP addresses water waste prevention to mitigate drought affects.
- **Capital Improvement Program (CIP)**—The CIP is designed to develop and maintain infrastructure. Funding sources can include State, Federal, and private funding in addition to public funds. Use of funds is based on meeting the highest priority needs of the community. (Site: 2016/17 Budget, pg. 37)
- **Milpitas Municipal Code**—The Milpitas Municipal Code adopts the California Building Codes, California Fire Codes, and other ordinances to support the safety and welfare of the community, infrastructure (both public and private), and environment in the City of Milpitas.

8.5.2 Opportunities for Future Integration

The Milpitas Annex of the Santa Clara Operational Area Hazard Mitigation Plan will be reviewed and approved by legal counsel in the City of Milpitas and, upon approval, will be moved to be adopted by the Milpitas City Council. There will be a 30 day public comment period, and it will be moved for adoption at the council meeting immediately following the 30 day open comment period. Once adoption has been completed the document will be provided to departments in the City that oversee planning documents, to include, but not limited to: Engineering, Finance, Public Works, Building and Planning. Upon the update of their planning documents, amendments based on the LHMP recommendations may be integrated as necessary and feasible. Municipal Code incorporation is initiated at the Department level, overseen by the city legal department, and ultimately approve by the Milpitas City Council. The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **CIP Program**—Add Additional Recycled Water Pipelines: Any additional recycled water lines that are installed will offset the effects of drought, a high frequency hazard.
- **CIP Proposed Project**—Add Water system redundancy/reliability: install the infrastructure to provide dual independent water sources.
- **Economic Development Plan**—The plan is intended to be developed. Such process would allow the opportunity to incorporate economic recovery plans within the document by planning for known hazards.

- **National Flood Insurance Reform Act of 2004**—Ordinance *MMC Title XI, Chapter 15*, to be updated to reflect the National Flood Insurance Reform Act of 2004.
- **Other Legal and Regulatory Capabilities**—All plans and ordinances currently take hazard mitigation into consideration, as noted in the above discussion, while in the planning adoption or updating processes. As information becomes regulatory, a Best Management Practice, and available (as applicable and financially feasible) – such as new CA Building Codes, Fire Codes, etc., the above listed plans and ordinances are amended as necessary.

8.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 8-10 lists all past occurrences of natural hazards within the jurisdiction.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Weather	N/A	1/8/17	\$37,800
Severe Weather	N/A	12/17/14	N/A
Severe Weather	213589	1/18/10	N/A
Wildfire	3287	6/20/08	N/A
Wildfire	2766	5/22/08	N/A
Hurricane	3248	8/29/05	N/A
Wildfire	2465	9/23/02	N/A
Severe Weather	1203	2/2/98	N/A
Severe Weather	1155	12/28/96	N/A
Severe Weather	1046	2/13/95	N/A
Severe Weather	1044	1/3/95	N/A
Severe Weather	894	12/19/90	N/A
Earthquake	845	10/17/89	N/A
Flood	758	2/12/86	N/A
Wildfire	739	6/26/85	N/A
Severe Weather	677	1/21/83	N/A
Flood	651	12/19/81	N/A
Drought	3023	1/20/77	N/A

8.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities:

- A significant portion of the City is within the 0.2 percent annual chance flood hazard area (estimated 60 percent of total population and 82 percent of total replacement value). Flood damage prevention regulations and mandatory flood insurance purchase requirements do not apply within these areas.

8.8 HAZARD RISK RANKING

Table 8-11 presents the ranking of the hazards of concern.

Table 8-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Flood	33	Medium
2	Severe Weather	33	Medium
3	Landslide	18	Medium
4	Drought	9	Low
5	Dam and Levee Failure	6	Low
6	Wildfire	0	None

8.9 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 8-12 lists the actions that make up the City of Milpitas hazard mitigation action plan. Table 8-13 identifies the priority for each action. Table 8-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

Table 8-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MLP-1—CIP 7130 Water Valve Replacement: Replacement of water valves on the water system. This action supports system isolation during an emergency, and planned water system maintenance.						
Existing	Earthquake	3, 6, 8	Public Works	High	Bonds; HMGP	Long-term (exact timeline TBD)
MLP-2—CIP 7129 Recycled Water Pipeline: This project would extend current recycled water lines through-out the city, eliminating the use of potable water for non-domestic uses.						
New and Existing	Drought	6	Public Works	High	Bonds; HMGP	Long-term (exact timeline TBD)
MLP-3—CIP 7100 Water System Seismic Improvement: Develops a comprehensive water system seismic improvements program. Including seismic rehabilitation to the city's "backbone" water system as defined in the Water Seismic Improvement Strategy Plan.						
Existing	Earthquake	6, 8	Public Works	High	Bonds	Long-term (exact timeline TBD)
MLP-4—Update Flood Ordinance to reflect the 2004 Flood Insurance Reform Act of 2004.						
Existing	Flood	3, 8	Engineering	Low	Operating Budget	Short-term
MLP-5—CIP 6119 Sewer Conditions Assessment: a citywide conditions assessment program is needed to determine the condition of the City's sanitary sewer system.						
Existing	All Hazards	2, 6, 8	Public Works	Medium	Sewer Revenue Fund; Possible Grants	Ongoing
MLP-6—3713 Trash Removal Devices: Install 2 trash removal devices within the City's storm drain system.						
New	Flood, Severe Weather	3, 8	Engineering	High \$350,000	Storm Fund; HMGP	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MLP-7—7127 SCADA: The SCADA system will allow authorized water technicians to be able to monitor and operate pumps and valves remotely. During an emergency situation, this can mean reducing hours of a potential response time, mitigating and possibly eliminating damage and potential emergencies.						
New	All Hazards	1, 2, 5, 7, 8, 9	Public Works	Medium \$6,050,000	Grants & Water Fund	Ongoing
MLP-8—City Tree Maintenance Program: Ongoing tree maintenance program. Promote tree health, removal of dead branches and trees that may become a hazard in severe weather, earthquake or a result of drought.						
Existing	All Hazards	6, 8	Public Works	Low \$170/year	Operating Budget	Ongoing
MLP-9—SCVWD Creek Flood Improvement Program: SCVWD maintains a CIP for flood protection with construction and maintenance. The SCVWD is responsible for Berryessa and Coyote Creeks, which run through the City of Milpitas in the low lying flood areas. Milpitas will support SCVWD in pursuing projects outlined in the CIP and impacting Milpitas.						
Existing	Flood	2, 4, 5, 6, 8, 9	SCVWD; Public Works	Low (for Milpitas)	SCVWD CIP; Milpitas Personnel Budget; HMGP, FMA	Ongoing
MLP-10—Develop Disaster Documentation Program: to include tracking disasters affecting Milpitas, and tracking via photos damage incurred during and after disaster events. This data can be used for tracking and trending, and ultimately mitigation planning.						
New	Flood, Earthquake, Landslide	1, 2, 4, 5, 6	Emergency Services	Low	Operating Budget	Short-term & Ongoing
MLP-11—Adoption of CA 2016 Building Codes						
New	All Hazards	2, 3	Building Dept.	Low	Operating Budget	Short-term
MLP-12—CIP 7126 Water Conservation Program: Develop, implement and manage a new City wide water rationing and conservation plan, including community outreach and education. This project will begin the conversion of City and private-owned irrigation facilities from potable to recycled water where they are adjacent to recycled water pipelines. Implementation of new State mandated water conservation programs.						
New	Drought	1, 2, 3, 4, 5	Public Works	Medium	Water & Park Fund	Long-term
MLP-13—2017 AlertSCC Public Outreach Campaign						
Existing	All Hazards	2, 4, 9	Emergency Services	Low	Operating Budget	Short-term & Ongoing
MLP-14— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.						
Existing	All Hazard	2, 3, 4, 6	Planning	Low	Operating Budget	Ongoing
MLP-15—Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of NFIP: Enforcement of the flood damage prevention ordinance. Participate in the floodplain identification and mapping updates. Provide public assistance/information on floodplain requirements and impacts.						
New and Existing	Flood	1, 2, 3, 5, 6, 7, 8	Engineering	Low	Personnel Budget	Ongoing
MLP-16—Work with Building officials to identify ways to improve the jurisdictions' BCEGS classification.						
New and Existing	All Hazards	3, 8	Building Dept.	Low	Personnel Budget	Ongoing
MLP-17—Consider the development of a post-disaster recovery plan and a debris management plan.						
New and Existing	All Hazards	1, 2, 4, 5, 6, 7, 8	Emergency Services	Medium	Personnel & Operating Budget; Possible Grants	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MLP-18—Consider the participation in programs such as StormReady and the Community Rating System.						
New and Existing	Severe Weather, Flood	2, 3, 4, 6, 7, 8	DPW/Engineering	Low	Personnel Budget	Ongoing
MLP-19—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Planning/ Building Department	High	HMGP, PDM, FMA	Short-term
MLP-20—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Fire Department – Office of Emergency Services	Low	Staff Time, General Funds	Short-term

Table 8-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
MLP-1	3	High	High	Yes	Yes	No	Med	High
MLP-2	1	Med	High	No	Yes	No	Low	Med
MLP-3	2	High	High	Yes	Yes	No	Med	High
MLP-4	2	Med	Low	Yes	No	Yes	High	Low
MLP-5	3	Med	Med	Yes	Possible	Yes	High	High
MLP-6	2	High	High	Yes	Yes	Yes	High	High
MLP-7	6	High	Med	Yes	Yes	Yes	High	High
MLP-8	2	Med	Low	Yes	No	Yes	High	Low
MLP-9	6	High	Low	Yes	Yes	Yes	High	High
MLP-10	5	Med	Low	Yes	No	Yes	High	Na
MLP-11	2	High	Low	Yes	No	Yes	High	Low
MLP-12	5	Med	Med	Yes	No	Yes	High	Low
MLP-13	3	High	Low	Yes	No	Yes	High	Low
MLP-14	4	Med	Low	Yes	No	Yes	High	Low
MLP-15	7	Med	Low	Yes	No	Yes	High	Low
MLP-16	2	Med	Low	Yes	No	Yes	High	Low
MLP-17	7	Med	Med	Yes	Possible	Yes	High	Med
MLP-18	6	High	Low	Yes	No	Yes	High	Low
MLP-19	5	High	High	Yes	Yes	No	Med	High
MLP-20	2	Low	Low	Yes	No	Yes	High	Low

Table 8-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	MLP-1, MLP-10, MLP-11, MLP-14, MLP-16, MLP-20	MLP-3, MLP-7, MLP-8, MLP-19	MLP-13	MLP-7, MLP-8	MLP-1, MLP-2, MLP-3, MLP-5, MLP-7, MLP-17	MLP-1, MLP-3,	
Flood	MLP-4, MLP-10, MLP-11, MLP-14, MLP-15, MLP-16, MLP-20	MLP-6, MLP-7, MLP-8, MLP-9, MLP-19	MLP-13, MLP-18	MLP-6, MLP-7, MLP-8, MLP-9	MLP-5, MLP-6, MLP-7, MLP-17	MLP-6, MLP-9,	
Severe Weather	MLP-10, MLP-11, MLP-14, MLP-16, MLP-20	MLP-6, MLP-7, MLP-8, MLP-19	MLP-13, MLP-18	MLP-6, MLP-7, MLP-8	MLP-5, MLP-6, MLP-7, MLP-17	MLP-6,	
Landslide	MLP-10, MLP-11, MLP-14, MLP-16, MLP-20	MLP-7, MLP-8, MLP-19	MLP-13	MLP-7	MLP-5, MLP-7, MLP-17		
Drought	MLP-10, MLP-11, MLP-12, MLP-14, MLP-16, MLP-20	MLP-7, MLP-8, MLP-19	MLP-12, MLP-13	MLP-2, MLP-7, MLP-8, MLP-11, MLP-12	MLP-2, MLP-7, MLP-17	MLP-2, MLP-12	MLP-2, MLP-12
Dam and Levee Failure	MLP-10, MLP-11, MLP-14, MLP-16, MLP-20	MLP-7, MLP-19	MLP-13	MLP-7	MLP-7, MLP-17		

a. See the introduction to this volume for explanation of mitigation types.

8.10 ADDITIONAL RESOURCES

California Department of Finance population statistics and projections and Wikipedia were used in the development of the jurisdiction profile.

The hazard mitigation plan annex development tool-kit was used in the natural hazard event history, hazard risk ranking and action plan development.

9. CITY OF MONTE SERENO

9.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Debra Figone, Interim City Manager
18041 Saratoga-Los Gatos Road
Monte Sereno, CA 95030
Telephone: (408) 354-7635, ext. 11
e-mail Address: dfigone@cityofmontesereno.org

Alternate Point of Contact

Jeannie Hamilton, Associate Planner
18041 Saratoga-Los Gatos Road
Monte Sereno, CA 95030
Telephone: (408) 354-7635, ext. 16
e-mail Address: jeannie@cityofmontesereno.org

9.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—May 14, 1957
- **Current Population**—3,475
- **Population Growth**—0.9 percent increase from 1/2015. Projected population through 2030, 3,600, a 0.03 percent increase.
- **Location and Description**— The City of Monte Sereno, approximately 1.6 square miles in size, is located in Northern California, some 50 miles south of San Francisco, within the San José metropolitan area. The city is located in the foothills of the Santa Cruz Mountains, about 10 miles (16 km) southwest of San José, immediately northwest of Los Gatos, and southeast of Saratoga. The city is named for the 2,249-foot El Sereno Mountain, upon the slopes of which the southern portion of the city is built. State Route 9 runs through the city and it is located within easy access to State Highways 17 and 85.
- **Brief History**—Monte Sereno was established in the early 1900s as a rural agricultural community. The area was dotted with ranch houses, orchards, dairies and livestock, and the mountain slopes of the southern portion of the city contained summer homes, recreational properties and a few large estates. The beauty and tranquility of the area attracted artists and writers looking for a peaceful and inspirational place to pursue their craft. A few of the City points of interest are the home in which American author John Steinbeck wrote the *Grapes of Wrath* and the site of the Billy Jones Rail Road. Unlike many other cities in Santa Clara County, Monte Sereno did not form on a crossroads or from an historical village. Consequently, a commercial core never developed in the City, leaving Monte Sereno strictly residential. Monte Sereno is a quiet residential community, approximately 1.6 square miles in size.
- **Climate**—Monte Sereno receives approximately 25 inches of rain per year, the US average is 37 inches. The number of days with any measureable rain is about 58. On average, there are 263 sunny days per year. The temperature for Monte Sereno ranges between 86 degrees in July and 38 degrees in January.
- **Governing Body Format**—Monte Sereno is a general law City, comprised of a Council Manager form of government. The voters elect five City Councilmembers to serve four year terms on the City Council. The City Council appoints a professional City Manager to serve as the Chief Administrative Officer.

Monte Sereno provides services to its residents either directly or by working with other agencies. The City directly provides administrative services, building permits/inspections, planning/design review, engineering/public works, city clerk/election services and finance. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.

9.3 DEVELOPMENT TRENDS

Monte Sereno is strictly a residential community with both recently constructed single-family homes as well as older homes built in the 1950s through 1970s. The majority of development in the City consists of home remodels and additions, as well as replacement of an older home with new construction. The City has also seen a number of secondary units constructed as a result of newly adopted incentives and reduced regulatory requirements.

Table 9-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 9-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes, February 1, 2011 1.45 acres. One single-family lot adjacent to City boundaries.					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	Yes Properties immediately adjacent to City Boundary. Santa Clara County					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	No N/A					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	5	6	11	6	3
	Multi-Family	0	0	0	0	0
	Other (commercial, mixed use, etc.)	0	0	0	0	0
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Development has occurred in the city during the performance period for this plan. For hazards with a clearly defined extent and location, the City cannot estimate development impacts. For hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	There are five parcels of underdeveloped land within the City limits. According to the General Plan, the total potential units for these parcels is 33 units.					

9.4 CAPABILITY ASSESSMENT

9.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 City of Monte Sereno Annex). All of the below items were additionally reviewed as part of the full capability assessment for the City of Monte Sereno

- **City of Monte Sereno General Plan**—The General Plan, including the Land Use, Open Space and Conservation, and Health and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **City of Monte Sereno Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Technical Reports and Information**—Outside resources and references used to complete the City of Monte Sereno Annex are identified in Section 9.11 of this annex.

9.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 9-2. An assessment of fiscal capabilities is presented in Table 9-3. An assessment of administrative and technical capabilities is presented in Table 9-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 9-5. An assessment of education and outreach capabilities is presented in Table 9-6. Classifications under various community mitigation programs are presented in Table 9-7. Development and permitting capabilities are presented in Table 9-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 9-9.

Table 9-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: Monte Sereno Municipal Code Title 9	Yes	No	Yes	No
Zoning Code Comment: Monte Sereno Municipal Code Title 10	Yes	No	Yes	No
Subdivisions Comment: Monte Sereno Municipal Code Title 13	Yes	No	Yes	No
Stormwater Management Comment: Monte Sereno Municipal Code Title 9 and NPDES Permit Requirements/ RWQCB, State Fish and Wildlife, Army Corp	Yes	Yes	Yes	No
Post-Disaster Recovery Comment: Monte Sereno plans to develop and adopt a City Recovery Plan following the development of the County's Recovery Framework.	Yes	No	No	Yes
Real Estate Disclosure Comment: Monte Sereno adopts and implements Real Estate Disclosure Laws Cal. Civ. Code §1102 et seq.	No	No	Yes	No
Growth Management Comment: General Plan serves as Growth Plan; Cal. Gov. Code §65300 et seq.	Yes	No	Yes	No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Site Plan Review Comment: Monte Sereno Municipal Code Title 10	Yes	No	No	No
Environmental Protection Comment: Monte Sereno adopts and implements California Environmental Quality Act Regulations (Guidelines: California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387)	Yes	No	Yes	No
Flood Damage Prevention Comment: Monte Sereno Municipal Code Title 10.21/Santa Clara Valley Water District/Army Corps of Engineers	Yes	Yes	Yes	No
Emergency Management Comment: Municipal Code Title Chapter 2.06 Emergency organization and functions. The City Manager serves as the City's EM point-of-contact. City's EM program is supported by Santa Clara County Fire Department; The City of Monte Sereno participates in Emergency Management Planning as a Santa Clara County Fire District served community.	Yes	No	Yes	Yes
Climate Change Comment: The City of Monte Sereno's General Plan states the jurisdiction's position in the Goals and Policies section; California SB-379: Land Use: General Plan: Safety Element	Yes	No	Yes	Yes
Other: Comment: None Identified	N/A	N/A	N/A	N/A
Planning Documents				
General Plan Is the plan compliant with Assembly Bill 2140? Yes Comment: Updated in 2015	Yes	No	Yes	Yes
Capital Improvement Plan How often is the plan updated? Annually with the Budget Comment:	Yes	No	No	Yes
Floodplain or Watershed Plan Comment: N/A – not local capability	No	No	Yes	No
Stormwater Plan Comment: N/A – not local capability	No	No	Yes	No
Urban Water Management Plan Comment: Water Program managed by West Valley Clean Water Program, which provides information on water use and supply in the City of Monte Sereno including groundwater, local surface water, imported water, and water recycling, historical water use, water conservation programs, demand projections, water shortage contingency and supply interruption planning, reliability and threats to reliability.	No	Yes	No	No
Habitat Conservation Plan Comment: N/A – not local capability	No	No	No	No
Economic Development Plan Comment: No Commercial lands in city.	No	No	No	No
Shoreline Management Plan Comment: No shorelines in city	No	No	No	No
Community Wildfire Protection Plan Comment: Cooperate with Central Fire District/Goals and Policies in General Plan	Yes	No	Yes	Yes
Forest Management Plan Comment: Tree Preservation regulations in Municipal Code work to maintain and enhance Urban Forest	Yes	No	No	No
Climate Action Plan Comment: The City of Monte Sereno's General Plan states the jurisdiction's position in the Goals and Policies section.	No	No	Yes	Yes

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Comprehensive Emergency Management Plan	Yes	Yes	Yes	Yes
Comment: Town of Los Gatos- City of Monte Sereno Emergency Operations Plan, 2015; Santa Clara County Fire Department supports City's EM program including EOP [CEMP] development.				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	Yes	Yes
Comment: Threat and Hazard & Risk Assessment- Emergency Operations Plan , 2015 page 14				
Post-Disaster Recovery Plan	No	No	No	Yes
Comment: Town of Los Gatos-City of Monte Sereno Emergency Operations Plan 2015 page 34. The City of Monte Sereno participates in Emergency Management Planning as a Santa Clara County Fire District served community. As such, the Town is currently participating in the development of an Operational Area Recovery Framework (anticipated publication and promulgation 2017/2018) that follows guidance provided by the State of California and the Federal Emergency Management Agency.				
Continuity of Operations Plan	No	No	No	Yes
Comment: No COOP/COG currently exists – will consider as mitigation action				
Public Health Plan	No	Yes	Yes	No
Comment: The City of Monte Sereno falls under the authority of the Santa Clara County Department of Public Health, which has the following public health plans: 2015-2020 Community Health Assessment and Health Improvement Plan; 2014 Emergency Medical Services Plan; 2013 EMS Strategic Plan; 2013 Santa Clara County EMS System Strategic Implementation Plan; Santa Clara County EMS Trauma System Plan; and Santa Clara County EMS Stroke Plan.				

Table 9-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 9-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning/Associate Planner
Engineers or professionals trained in building or infrastructure construction practices	Yes	Building/Building Official
Planners or engineers with an understanding of natural hazards	Yes	Planning/Associate Planner
Staff with training in benefit/cost analysis	Yes	Finance/Finance Officer
Surveyors	Yes	Building/Contract Surveyor
Personnel skilled or trained in GIS applications	No	
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	City Manager
Grant writers	No	

Table 9-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Planning Department
Who is your floodplain administrator? (department/position)	City Planner
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	December 2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	No No
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	21 ^a \$6,972,000 ^a \$7,824 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	4 ^a 2/0 ^a \$41,973.57 ^a

a. According to FEMA statistics as of October 31, 2016.

Table 9-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes, Public Information Officer (City Clerk)
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	No
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes Website Subscription Service
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes City Website

Table 9-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	Yes	2/2Y	2015
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 9-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Planning Department
Does your jurisdiction have the ability to track permits by hazard area?	No. We do not have any automated data tracking. We would have to go back through them by address.
Does your jurisdiction have a buildable lands inventory?	Yes

Table 9-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts Comment: None provided.	Low
Jurisdiction-level monitoring of climate change impacts Comment: None provided.	Low
Technical resources to assess proposed strategies for feasibility and externalities Comment: None provided.	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory Comment: None provided.	Low
Capital planning and land use decisions informed by potential climate impacts Comment: None provided.	Low
Participation in regional groups addressing climate risks Comment: None provided.	Medium
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes Comment: None provided.	Low
Identified strategies for greenhouse gas mitigation efforts Comment: None provided.	Low
Identified strategies for adaptation to impacts Comment: None provided.	Low
Champions for climate action in local government departments Comment: None provided.	Low
Political support for implementing climate change adaptation strategies Comment: None provided.	Medium
Financial resources devoted to climate change adaptation Comment: None provided.	Low

Adaptive Capacity Assessment	Jurisdiction Rating
Local authority over sectors likely to be negative impacted Comment: None provided.	High
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: None provided.	Medium
Local residents support of adaptation efforts Comment: None provided.	Medium
Local residents' capacity to adapt to climate impacts Comment: None provided.	Medium
Local economy current capacity to adapt to climate impacts Comment: None provided.	Medium
Local ecosystems capacity to adapt to climate impacts Comment: None provided.	Medium

9.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

9.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- City of Monte Sereno General Plan—The City's General Plan includes discussion of risk from natural hazards in the Open Space and Conservation Element and the Health and Safety Element.

9.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- General Plan—At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate.
- Capital Improvement Projects—Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.

9.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 9-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 9-10. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Earthquake	DR-845	10/17/89	\$1,409,677,726.18
Freeze	DR-894	02/11/91	Unknown
Severe Storm	DR-1044	01/10/95	\$17,482,926.56
Severe Storm	DR-1046	03/12/95	\$9,331,377.98
Severe Storm	DR-1155	01/04/97	\$21,792,068.12
Severe Storm	DR-1203	02/09/98	\$25,537,087.33
Heavy Rain	N/A	12/15/02	Unknown
Heavy Rain	N/A	01/3-13/17	Unknown

9.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- The City of Monte Sereno has limited response capabilities due to government size and high level of dependence on outside agencies to provide public works and safety functions.

9.8 HAZARD RISK RANKING

Table 9-11 presents the ranking of the hazards of concern.

Table 9-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Earthquake	48	High
3	Severe Weather	33	Medium
4	Flood	18	Medium
4	Landslide	18	Medium
5	Drought	9	Low
6	Dam and Levee Failure	0	None

9.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Monte Sereno can be found in Appendix D of this volume.

9.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 9-12 lists the actions that make up the City of Monte Sereno hazard mitigation action plan. Table 9-13 identifies the priority for each action. Table 9-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

9.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 9-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MTS-1—Consider the development of an information and awareness program, as well as guidance material to support private property owners attempting to perform emergency repairs to areas of the watershed and floodplain that may transect their property.						
New and Existing	Flood	1, 2, 3, 4, 6, 8	Building	Medium	General Funds, the Federal Emergency Management Performance Grant	Short-term
MTS-2—Continually develop and improve the means and methods of integrating more fully the EM decision making processes of the City of Monte Sereno and the Town of Los Gatos to improve both jurisdiction's EM programs and planning capability through all phases of the EM cycle, including Post-Disaster policies/plans.						
New and existing	All hazards	1, 2, 3, 5, 9	City Manager	Low	General Funds, the Federal Hazard Mitigation Grant Program, the Federal Emergency Management Performance Grant	Ongoing
MTS-3—Develop system for identifying and tracking property that has been permitted to be developed in known hazard areas.						
New and Existing	All hazards	1, 2, 4, 6, 7, 9	Building	Low	General Funds	Short-term
MTS-4—Explore options to expand GIS capability before, during, and after disasters through such means as: enhancing and refining relationship between City of Monte Sereno and County ISD/GIS, contract for specialized GIS products and/or platforms, develop local capability by conducting training for employees of the City Monte Sereno, etc.						
New	All hazards	1, 2, 4, 9	Planning	Low	General Funds, the Federal Emergency Management Performance Grant	Short-term
MTS-5—Review current capital improvement projects for mitigation action potential and consider additional means of integrating mitigation planning into the capital improvement project planning process.						
New and Existing	All hazards	2, 3, 6, 7	Public Works	Medium	General Funds	Ongoing
MTS-6—Participate, as appropriate, in the update and improvement of the Operational Area CWPP						
New and Existing	Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9	Building	Medium	General Funds	Ongoing
MTS-7—Develop Wildfire Annex to City of Monte Sereno's Emergency Operations Plan						
New	Wildfire	1, 2, 4, 9	Planning	Medium	General Funds, the Federal Hazard Mitigation Grant Program, the Federal Emergency Management Performance Grant	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MTS-8—Explore administrative/financial feasibility and public demand for a community-based wildfire awareness and safety program, such as FireWise.						
New	Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9	Building	Medium	General Funds; Santa Clara County Fire Department General Budget	Short-term
MTS-9—Consider development of COOP/COG for essential functions within the City's government						
New	All hazards	1, 2, 5, 8, 9	City Manager	Low	General Fund; Santa Clara County Fire Department General Budget; the Federal Hazard Mitigation Grant Program; the Federal Emergency Management Performance Grant	Short-term
MTS-10—Review General Plan to assess the potential for incorporating mitigation planning into the current General Plan development process.						
New and Existing	All hazards	2, 3, 6, 7	Planning	Medium	General Funds	Short-term
MTS-11—Develop a public outreach and education program for city residents to learn about actions they can take to reduce the impacts of disasters to their properties and integrate with any applicable Operational Area's public engagement strategies						
New and Existing	All hazards	1, 2, 4, 5, 6, 8, 9	City Manager	High	General Funds; Santa Clara County Fire Department General Budget; the Federal Emergency Management Performance Grant	Ongoing
MTS-12— Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Planning and Public Works	High	the Federal Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance	Short-term
MTS-13— Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	City Manager	Low	Staff Time, General Funds	Short-term
MTS-14— Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Planning	Low	Staff Time, General Funds	Ongoing

Table 9-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
MTS-1	6	Medium	Medium	Yes	Possibly	Possibly	Medium	Medium
MTS-2	5	High	Low	Yes	Possibly	Yes	High	Medium
MTS-3	6	Medium	Low	Yes	No	Yes	High	Low
MTS-4	4	Medium	Low	Yes	Possibly	Yes	High	Medium
MTS-5	4	Medium	Medium	Yes	No	Possibly	Medium	Low
MTS-6	9	Medium	Medium	Yes	No	Possibly	Medium	Low
MTS-7	4	Medium	Medium	Yes	Possibly	Possibly	Medium	Medium
MTS-8	9	Low	Medium	No	No	Possibly	Low	Low
MTS-9	5	Medium	Low	Yes	Yes	Yes	High	High
MTS-10	4	High	Medium	Yes	No	Possibly	Medium	Low
MTS-11	8	High	High	Yes	Possibly	No	Medium	Medium
MTS-12	5	High	High	Yes	Yes	No	Medium	High
MTS-13	2	Low	Low	Yes	No	Yes	High	Low
MTS-14	6	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 9-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Wildfire	MTS-2, MTS-3, MTS-4, MTS-5, MTS-6, MTS-10, MTS-13	MTS-12	MTS-8, MTS-11		MTS-7, MTS-9		
Earthquake	MTS-2, MTS-3, MTS-4, MTS-5, MTS-10, MTS-13	MTS-12	MTS-11		MTS-9		
Severe Weather	MTS-2, MTS-3, MTS-4, MTS-5, MTS-10, MTS-13	MTS-12	MTS-11		MTS-9		
Flood	MTS-2, MTS-3, MTS-4, MTS-5, MTS-10, MTS-13, MTS-14	MTS-1, MTS-12, MTS-14	MTS-1, MTS-11, MTS-14	MTS-1	MTS-9		
Landslide	MTS-2, MTS-3, MTS-4, MTS-5, MTS-10, MTS-13	MTS-12	MTS-11		MTS-9		
Drought	MTS-2, MTS-3, MTS-4, MTS-5, MTS-10, MTS-13	MTS-12	MTS-11		MTS-9		
Dam and Levee Failure	MTS-2, MTS-3, MTS-4, MTS-5, MTS-10, MTS-13, MTS-14	MTS-12, MTS-14	MTS-14		MTS-9		

a. See the introduction to this volume for explanation of mitigation types.

10. CITY OF MORGAN HILL

10.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Jennifer Ponce
Emergency Services Coordinator
16200 Vineyard Boulevard
Morgan Hill, CA 95037
Telephone: 408-776-7310
e-mail Address: jennifer.ponce@morganhill.ca.gov

Alternate Point of Contact

John Lang
Economic Development Coordinator
17575 Peak Avenue
Morgan Hill, CA 95037
Telephone: 408-310-4652
e-mail Address: john.lang@morganhill.ca.gov

10.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—November 10, 1906
- **Current Population**—43,645
- **Population Growth**—Over the last five years (2011-2016) Morgan Hill has experienced an annual average of 2.6 percent population growth. The current population (as of January 1, 2016) is 43,645 and is expected to grow to 48,000 by 2020. By 2035, Morgan Hill's population is estimated to be 58,200.
- **Location and Description**—Morgan Hill is approximately 39 kilometers (24 miles) south of downtown San José, 21 kilometers (13 miles) north of Gilroy, and 24 kilometers (15 miles) inland from the Pacific coast. The City of Morgan Hill is located in Santa Clara County nestled between the Diablo Mountain Range to the east and Santa Cruz Mountains to the west. To the north of Morgan Hill is the City of San José and to the south is the unincorporated area of San Martin. The predominant ingress and egress through Morgan Hill is Highway 101 which runs north and south. Prior to the building of Highway 101, the City of Morgan Hill was served by Monterey Highway. Monterey Highway runs through Downtown Morgan Hill and provides the main north south arterial connection for Morgan Hill residents. Morgan Hill is 12 square miles with a mixture of commercial, industrial, retail, agriculture and residential uses.

Morgan Hill is located within the seismically active San Francisco Bay region. The significant earthquakes in the region are generally associated with crustal movements along well-defined, active fault zones. The nearest known active faults are the San Andreas Fault, approximately 19 kilometers (12 miles) southwest, and the Calaveras Fault, approximately 1.6 kilometers (1 mile) northeast. Both faults have produced major earthquakes in the past, and have estimated maximum credible Richter magnitudes of 8.3 and 7.3, respectively. The Sargent-Berrocal Fault, a potentially active fault, lies 16 kilometers (10 miles) away from the Morgan Hill and has an estimated maximum credible Richter magnitude of 7.4. The Coyote Creek Fault is located in Morgan Hill and is classified as potentially active as well. In addition, several unnamed faults traverse the western slopes of the upland areas. Geomorphic evidence suggests that these faults were active during recent geologic time. However, these fault-related geomorphic features are not as fresh as those of the active Calaveras Fault and are considered to be somewhat older.

- Brief History**— In 1845 Martin Murphy, Sr. acquired 9,000 acres known as the Rancho Ojo de Agua de la Coche. Murphy had been a leader of the first party of pioneers to cross the Sierra Nevada range at Truckee Pass, later to become the route for the Southern Pacific Railroad. The Murphy family made its home in the valley below El Toro Mountain. By 1870 Martin’s seven sons and daughters had managed to acquire more than 70,000 acres. In 1851 the youngest son, Daniel, married Maria Fisher, heiress to the neighboring 19,000 acre Rancho Laguna Seca. Diana, their precocious daughter secretly married Hiram Morgan Hill in 1882. When Daniel Murphy died, Diana inherited 4,500 acres of their original rancho in the shadow of El Toro. Diana and Hiram Morgan Hill built their estate, the Villa Mira Monte, between the railroad and Monterey Road in 1886. When the first Southern Pacific station was built in 1898, the railroad referred to this area as Huntington. Many visitors would request the train stop at “Morgan Hill’s Ranch,” changing the name to Morgan Hill. By 1896 the growing community had a population of 250 with a post office, depot, two hotels, a restaurant, and several churches and shops. There was much controversy over the incorporation of the city. The Times printed many editorials supporting the issue, while those opposed were fearful of higher taxes. But the “yes” vote won by a margin of 65-36 and Morgan Hill became incorporated November 10, 1906. By 1909 the population rose to 1,000. The first school was built in 1894, but was soon outgrown and in 1907 architect William Weeks designed a new school. By the 1920s the City was known for its agricultural products including prunes, apricots, peaches, pears, apples, walnuts, and almonds. The region boasted prosperous vineyards until Prohibition demanded that production temporarily cease. Around the 1950s Morgan Hill experienced an economic transformation from an agricultural center to a suburban residential community. Growth began to accelerate rapidly in the 1970s as Silicon Valley developed and workers were attracted to Morgan Hill’s small town atmosphere, sense of community and reasonable housing prices. On November 3, 1973 the Morgan Hill Civic Center and library were proudly dedicated to the community of 7,000. By 1980 the population increased to approximately 18,000 residents. The 2010 census confirmed that 37,882 citizens called Morgan Hill their home.
- Climate**—Morgan Hill receives over 250 days of sunshine, with an average daily temperature of 73 degrees. Morgan Hill is predominantly a Mediterranean climate with dry summers with cooling evenings and wet winter. Annually, the City of Morgan Hill receives 20 inches of rain during the months of December through April. Historically the annual average high temperature for Morgan Hill is 75 degrees and the average low temperature is 47 degrees.
- Governing Body Format**—Morgan Hill is a general law city with a Council-manager form of government. The Morgan Hill City Council assume responsibility for adoption of this plan, the Office of Emergency Services for the City of Morgan Hill will oversee its implementation.

10.3 DEVELOPMENT TRENDS

Annually the City of Morgan Hill permits 200 units of housing through its residential development control system. This allows for consistent residential development within the City. Over the last two years there has been significant public and private investment into Morgan Hill's downtown. A combined \$75 million dollars of investment in infrastructure including new housing and commercial development is transforming the character and nature of the downtown. Table 10-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 10-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan?	No					
• If yes, give the estimated area annexed and estimated number of parcels or structures.	N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No					
• If yes, please describe land areas and dominant uses.	N/A					
• If yes, who currently has permitting authority over these areas?	N/A					
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
• If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Downtown continues to redevelop with new housing planned over the next two years. A portion of the Downtown is located in the 100 year floodplain.					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	1,053	1,050	1,734	1,966	2,106
	Mostly Housing	Mostly Housing	Mostly Housing	Mostly Housing	Mostly Housing	Mostly Housing
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	In general recent development activity has primarily occurred in the following hazard zones: Liquefaction, high fire hazard and FEMA flood area. Development has occurred throughout the City during the performance period for this plan. For those hazards with a clearly defined extent and location, the City cannot estimate development impacts. For those hazards with impacts City-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The City of Morgan Hill has 800 acres of undeveloped and underutilized residential land left which would represent approximately 3,100 units. The City of Morgan Hill has 200 acres of developable industrial/commercial land available which represents approximately 3 million square feet of commercial built space.					

10.4 CAPABILITY ASSESSMENT

10.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume I and Volume II (City of Morgan Hill Annex). All of the below items were additionally reviewed as part of the full capability assessment for City of Morgan Hill.

- **City of Morgan Hill 2035 General Plan**—The 2035 General Plan, including the Safety, Service and Infrastructure (SSI) element were reviewed for information regarding goals, policies and actions consistent with hazard mitigation for carry over as goals and objectives.
- **City of Morgan Hill Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.

- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Parks, Recreation, Bike and Trail Masterplan**—The Parks, Recreation, Bike and Trail Masterplan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Sewer Masterplan**—The Sewer Masterplan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Wastewater Masterplan**—The Wastewater Masterplan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Stormwater Management Plan**—The Stormwater Management Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Santa Clara County Community Wildfire Protection Plan**—The Santa Clara County Community Wildfire Protection Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **Technical Reports and Information**—Outside resources and references used to complete the City of Morgan Hill Annex are identified in Section 0 of this Annex.

10.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 10-2. An assessment of fiscal capabilities is presented in Table 10-3. An assessment of administrative and technical capabilities is presented in Table 10-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 10-5. An assessment of education and outreach capabilities is presented in Table 10-6. Classifications under various community mitigation programs are presented in Table 10-7. Development and permitting capabilities are presented in Table 10-8, and the community’s adaptive capacity for the impacts of climate change is presented in Table 10-9.

Table 10-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes
Comment: Morgan Hill Municipal Code, Title 15, Chapter 15.08.010, Ord. No. 2221				
Zoning Code	Yes	No	Yes	Yes
Comment: Morgan Hill Municipal Code, Title 18, Chapter 18.02.010, Ord. No. 559				
Subdivisions	Yes	No	Yes	No
Comment: Morgan Hill Municipal Code, Title 17, Chapter 17.04.010, Ord. No. 635				
Stormwater Management	Yes	No	Yes	Yes
Comment: Morgan Hill Municipal Code, Title 13, Chapter 13.30.010, Ord. No. 1989				
Post-Disaster Recovery	No	No	No	No
Comment: None located				
Real Estate Disclosure	No	Yes	Yes	No
Comment: Cal. Civ. Code §1102 et seq.				
Growth Management	Yes	No	Yes	No
Comment: Morgan Hill Municipal Code, Title 18, Chapter 18.78.010, Ord. No. 1010; Cal. Gov. Code §65300 et seq.				
Site Plan Review	Yes	No	No	No
Comment: Morgan Hill Municipal Code, Title 18				
Environmental Protection	Yes	No	Yes	No
Comment: California Environmental Quality Act				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity
Flood Damage Prevention Comment: Morgan Hill Municipal Code, Title 18, Chapter 18.42.010, Ord. No. 1398	Yes	No	Yes	Yes
Emergency Management Comment: Morgan Hill Municipal Code, Title 2, Chapter 2.44: Civil Disaster and Emergency Organization	Yes	No	Yes	No
Climate Change Comment: General Plan 2035-GOAL NRE-15 Climate Change; CA SB-379	Yes	No	Yes	No
Other: Fire Code Comment: Morgan Hill Municipal Code, Title 15	Yes	No	Yes	Yes
Planning Documents				
General Plan Comment: General Plan 2035-GOAL SSI-10 Built environment protects residents from impacts of climate change.	Yes	No	Yes	Yes
Capital Improvement Plan Comment: Annually updated	Yes	No	Yes	Yes
Floodplain or Watershed Plan Comment: Morgan Hill Municipal Code, Title 18, Chapter 18.42.010, Ord. No. 1398	Yes	Yes	Yes	Yes
Stormwater Plan Comment: Morgan Hill Municipal Code, Title 18, Chapter 18.71.120, Ord. No. 1993	Yes	No	Yes	Yes
Urban Water Management Plan Comment: Every 5 years	Yes	No	Yes	Yes
Habitat Conservation Plan Comment: Morgan Hill Municipal Code, Title 18, Chapter 18.69.010, Ord. No. 2057; Santa Clara Valley Habitat Plan	No	Yes	No	No
Economic Development Plan Comment: Economic Blueprint	Yes	No	No	No
Shoreline Management Plan Comment: N/A	No	No	No	No
Community Wildfire Protection Plan Comment: Morgan Hill Municipal Code, Title 15, Chapter 15.44.190, Ord. No. 2221; The Santa Clara County Community Wildfire Protection Plan, Annex 11: City of Morgan Hill	Yes	Yes	No	No
Forest Management Plan Comment: N/A	No	No	Yes	No
Climate Action Plan Comment: General Plan 2035- Policy NRE-15.3 Climate Action Plan	Yes	Yes	No	No
Comprehensive Emergency Management Plan Comment: Emergency Operations Plan, June 6, 2013	Yes	No	Yes	No
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: None located	No	No	No	No
Post-Disaster Recovery Plan Comment: None located	No	No	No	No
Continuity of Operations Plan Comment: None located	No	No	No	No
Public Health Plan Comment: Public Health Department, County of Santa Clara	No	Yes	Yes	No

Table 10-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 10-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning/City of Morgan Hill /Planner
Engineers or professionals trained in building or infrastructure construction practices	Yes	Building/Morgan Hill/Chief Building Official
Planners or engineers with an understanding of natural hazards	Yes	Planning/Morgan Hill/Planner
Staff with training in benefit/cost analysis	Yes	Economic Development/Morgan Hill/Economic Development Coordinator
Surveyors	No	Dept./Agency/Title
Personnel skilled or trained in GIS applications	Yes	Planning/Morgan Hill/Planner
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Office of Emergency Services/Morgan Hill/OES Coordinator
Grant writers	Yes	Office of Emergency Services/Morgan Hill/OES Coordinator

Table 10-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works
Who is your floodplain administrator? (department/position)	Public Works/Director of Public Works
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	1998
Does your floodplain management program meet or exceed minimum requirements?	Complies with AB 162; however, ordinance needs to be updated to comply with 2004 required revisions
• If exceeds, in what ways?	
When was the most recent Community Assistance Visit or Community Assistance Contact?	October 6, 2016
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
• If so, please state what they are.	

Criteria	Response
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	Yes Yes (currently class 7) Currently Participates
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	559 ^a \$157,559,200 ^a \$458,907 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	65 ^a 22 ^a \$482,726.02 ^a

a. According to FEMA statistics as of October 31, 2016.

Table 10-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes The City's Office of Emergency services website provides information to the community on preparedness, links to resources partners to help with preparedness and resources to contact in case of an emergency.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes We use the following tools for education and outreach related to hazard mitigation; AlertSCC, Nextdoor, Facebook, and website postings
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes (Planning Commission)
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes We use the following tools to alert the community; AlertSCC, Nextdoor, Facebook, and website postings
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes We use the following tools to alert the community; AlertSCC, Nextdoor, Facebook, and website postings.

Table 10-7. Community Classifications

	Participating	Classification	Date Classified
Community Rating System	Yes	7	09/23/2011
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection (Insurance Standards Organization)	Yes	3/3	2013
Storm Ready	No	N/A	N/A
Firewise (Jackson Oaks Homeowners Association)	Yes	-	09/27/16

Table 10-8. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Development Services (Planning and Building)
Does your jurisdiction have the ability to track permits by hazard area?	The City of Morgan Hill will have the ability in the near future to map and plot development permits by hazard zones.
Does your jurisdiction have a buildable lands inventory?	Yes

Table 10-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment Question	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts Comment: None provided	Medium
Jurisdiction-level monitoring of climate change impacts Comment:	Medium
Technical resources to assess proposed strategies for feasibility and externalities Comment: Very limited staffing resources familiar with climate change externalities	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory Comment: General Plan goals associated with greenhouse gas emissions	Medium
Capital planning and land use decisions informed by potential climate impacts Comment: General Plan goals associated with land use decision making	Medium
Participation in regional groups addressing climate risks Comment: Morgan Hill participates in regional initiatives including Joint Venture Silicon Valley Network.	Medium
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes Comment: Conformance with General Plan	Medium
Identified strategies for greenhouse gas mitigation efforts Comment: Conformance with General Plan	Medium
Identified strategies for adaptation to impacts Comment: None provided	
Champions for climate action in local government departments Comment: None provided	Medium
Political support for implementing climate change adaptation strategies Comment: None provided	Medium
Financial resources devoted to climate change adaptation Comment:	Low
Local authority over sectors likely to be negatively impacted Comment: None provided	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: None provided	Medium
Local residents support of adaptation efforts Comment: None provided	Unknown
Local residents' capacity to adapt to climate impacts	Unknown

Adaptive Capacity Assessment Question	Jurisdiction Rating
Comment: None provided	
Local economy current capacity to adapt to climate impacts	Low
Comment: None provided	
Local ecosystems capacity to adapt to climate impacts	Low
Comment: None provided	

10.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

10.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **General Plan 2035**—The recent adoption of the General Plan 2035 includes the Safety, Services, and Infrastructure Element which aims to protect the community from unreasonable risk by identifying the following hazards and establishing policies and actions to avoid or minimize those hazards:
 - Geologic and Seismic Hazards
 - Fire Hazards
 - Hazardous Materials
 - Flood Control
 - Impacts from Climate Change
- **Building Code and Fire Codes**—The recent adoption of the 2016 California Building and Fire codes incorporated local modifications given the climatic, topographic and geographic conditions that exist in Morgan Hill. In particular given the area is prone to earthquakes, severe weather and wildfires.

10.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- The City of Morgan Hill is conducting a comprehensive update to Title 18, Zoning Code. The opportunity to incorporate additional mitigation and abatement measures are contemplated for inclusion into Title 18.
- The City of Morgan Hill's last approved Flood Damage Prevention Ordinance was in 1998. The opportunity is to bring current to FEMA standards of 2004.
- Santa Clara County Fire Department recently adopted the Santa Clara County Community Wildfire Protection Plan. The plan includes City annexes throughout the County that identify specific measures to reduce impacts from wildfires. The Morgan Hill Annex identified specific elements to implement under the Community Wildfire Protection Plan.

10.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 10-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 10-10. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding	TBD	2/21/2017	unknown
Flooding	TBD	01/08/2017	\$103,322
Loma Wildfire	TBD	9/26/2016	unknown
Earthquake 2.5	N/A	7/24/2015	unknown
Earthquake 2.7	N/A	12/7/14	unknown
Flooding	N/A	2/28/2014	unknown
Flooding	N/A	10/13/2009	\$400,000
Earthquake 3.6	N/A	4/30/2009	unknown
Earthquake 4.3	N/A	3/30/2009	unknown
Earthquake 3.0	N/A	3/12/2009	unknown
Earthquake 3.7	N/A	11/6/2003	unknown
Flooding	N/A	12/10/1996	unknown
Morgan Hill Central Earthquake 6.2	N/A	4/24/1984	\$8 million

10.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 1
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- Areas of high and very high fire hazard located (and mapped) within and adjacent to city boundaries.
- Several drainage improvements are needed throughout the City.

10.8 HAZARD RISK RANKING

Table 10-11 presents the ranking of the hazards of concern.

Table 10-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Severe Weather	33	Medium
3	Wildfire	27	Medium
3	Dam and Levee Failure	18	Medium
3	Flood	18	Medium
3	Landslide	18	Medium
4	Drought	9	Low

10.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Santa Clara County can be found in Appendix D of this volume.

10.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 10-12 lists the actions that make up the City of Morgan Hill hazard mitigation action plan. Table 10-13 identifies the priority for each action. Table 10-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

Table 10-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MGH-1—Integrate the hazard mitigation plan into the Zoning Code, Title 18 code update						
Existing and New	All Hazards	2,3,7	Planning	Low	Staff Time, General Fund	Short-Term
MGH-2—Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP):						
<ul style="list-style-type: none"> Bring current and enforce Morgan Hill's Flood damage prevention ordinance Participate in floodplain identification and mapping updates Implement flood risk reduction projects in Morgan Hill Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	2,3,4	Public Works	Low	Capital Improvement Fund, HMGP/PDM	Ongoing
MGH-3—Support neighborhoods seeking to become certified Firewise Communities						
New and Existing	Wildfire	1,2,3,4,5,7,8	CalFire	Low	Staff Time, General Fund, HMGP	Ongoing
MGH-4—Enhance Public Education and Awareness of Natural Hazards and Disaster Preparedness						
New and Existing	All Hazards	7	Office of Emergency Services	Low	Staff Time, General Fund	Ongoing
MGH-5—Retrofit the Anderson Dam to make it seismically stable to withstand a large magnitude earthquake						
Existing	Dam Failure	1,2,3,4,6,8	Santa Clara Valley Water District	High	Federal Funding, Rate payer funding, HMGP	Long-term
MGH-6—Retrofit of high water use landscape & irrigation systems for water saving technology						
New and Existing	Drought and Climate Change	1,2,6,8	Community Services	Low	General Fund, Possible Grants	Long-term
MGH-7—Conduct Drought Public Education and Outreach						
New and Existing	Drought and Climate Change	1,2,6,8	Community Services	Low	General Fund	Ongoing
MGH-8—Develop GIS based maps that can be used during emergency incidents						
New and Existing	All Hazards	2,4,9	Public Works	Medium	Staff Time, General Fund	Ongoing
MGH-9—Harden infrastructure, such as locating utilities underground.						
New and Existing	All Hazards	1,2,3,7,8	Public Works*, PG&E, Frontier Communications	High	Capital Improvement Fund, PDM. HMGP	Ongoing
MGH-10—Update Stormwater management masterplan						
New and Existing	Flood	1,2,3,4,7,8	Public Works	Medium	Capital Improvement Fund	Ongoing
MGH-11—Coordinate disaster preparation and mitigation practices with private sector, public institutions and other public bodies.						
New and Existing	All Hazards	1,4,7,9	Office of Emergency Services	Low	Staff Time, General Fund	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MGH-12—Develop roadside fuel treatment programs						
New and Existing	Wildfire	2,4,5,6,7,8	Public Works*, CalFire	Medium	Public Works	Ongoing
MGH-13—Improve firefighting water supplies in Holiday Lakes and Jackson Oaks subdivisions.						
Existing	Wildfire	7,8	Public Works*, CalFire	High	General Fund, HMGP	Ongoing
MGH-14—Address density of livestock in wildfire prone areas to provide plan in an event of wildfire						
Existing	Wildfire	1,4,7	Public Works*, CalFire	Medium	General Fund	Ongoing
MGH-15—Implement infiltration and inflow preventative measures in wastewater system (mitigation measure needed during flooding events) City-wide						
New and Existing	Severe Weather and Flood	1,2,3	Public Works	Medium	Capital Improvement Fund	Ongoing
MGH-16—Construct concrete aprons at culvert openings at Butterfield Channel and drain outlets to keep areas clear of vegetation growth to allow water flow and visibility for inspection.						
Existing	Severe Weather and Flood	6,7,8	Public Works	Medium	Capital Improvement Fund, HMGP, PDM	Short-Term
MGH-17—After Upper Llagas Flood Control project is complete, install a new outlet in the creek channel on the south side of Spring Street, at a lower elevation than existing, to delay flooding and speed drainage.						
New and Existing	Flood and Severe Weather	6,7,8	Public Works	Medium	Capital Improvement Fund, HMGP, PDM	Long-Term
MGH-18—Implement CIP project addressing flooding at Burnett and Monterey. Improved facilities to direct stormwater out of the area or increase retention capacity.						
Existing	Flood and Severe Weather	6,7,8	Public Works	Medium	Capital Improvement Fund, HMGP, PDM	Short-Term
MGH-19—Improve facilities at the intersection of Main and Casa to direct flooding out of this area or otherwise increase retention capacity.						
Existing	Flood and Severe Weather	6,7,8	Public Works	High	Capital Improvement Fund, HMGP, PDM	Short-Term
MGH-20—Raise pavement level at intersection of Mission View and Half Road or install storm drains.						
New and Existing	Flood and Severe Weather	6,7,8	Public Works	Medium	Development Impact Fees, Capital Improvement Fund, HMGP, PDM	Short-Term
MGH-21—Evaluate silt issue at Circle Lane and Oak View to determine appropriate repair.						
Existing	Flood and Severe Weather	6,7,8	Public Works	Medium	Staff Time, General Fund	Short-Term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MGH-22—Implement projects to increase drainage including, but not limited to: <ul style="list-style-type: none"> • Sabini Ct : Install drain to nearby channel • Oak Canyon Dr.: Install concrete apron to reduce impacts from silting • Gallop Dr.: Inlet above Gallop needs re-work, some cobbles are loose. Re-design to reduce sediment build up, provide access from street • Peak Ave.: Increase inlet capacity • Fisher Creek retention basin: Lower elevation of large pond inlet so it retains more water during major storms • Teresa Ditch (behind homes on Teresa Lane): Improve ditch to reduce silting • Hayloft Ct: Investigate installing a catch basin and replacing curb/gutter area • Condit, at Ramada Inn: Extend storm drain so water from parking lot and street drain properly. 						
Existing	Flood and Severe Weather	6,7,8	Public Works	Medium	Capital Improvement Fund, HMGP, PDM	Short-Term
MGH-23—Support Santa Clara Valley Water District in the Llagas Creek Flood Protection Project.						
New and Existing	Flood and Severe Weather	6,7,8	Public Works	Medium	Staff Time; Santa Clara Valley CIP for Project Funds	Short-Term
MGH-24— Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Public Works, Planning	High	HMGP, PDM, FMA	Short-term
MGH-25— Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Office of Emergency Services	Low	Staff Time, General Funds	Short-term

* - denotes lead agency, other agencies are support agencies

Table 10-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority	Grant Pursuit Priority
MGH-1	3	Medium	Low	Yes	No	Yes	Medium	Low
MGH-2	3	High	Medium	Yes	Yes	Yes	High	Medium
MGH-3	7	Medium	Medium	Yes	Yes	Yes	Medium	Medium
MGH-4	1	Medium	Low	Yes	No	Yes	Medium	Medium
MGH-5	6	High	High	Yes	Yes	Yes	High ^a	High
MGH-6	4	Low	Medium	No	Yes	No	Medium	Low
MGH-7	4	Low	Low	Yes	No	Yes	Medium	Low
MGH-8	3	Medium	Low	Yes	No	Yes	Medium	Medium
MGH-9	5	Medium	High	No	Yes	Yes	Medium	Medium
MGH-10	6	Low	Medium	No	Yes	Yes	Medium	Medium
MGH-11	4	Medium	Medium	Yes	No	Yes	Medium	Low
MGH-12	6	Medium	Medium	Yes	Yes	Yes	Medium	Low
MGH-13	2	High	High	Yes	Yes	Yes	High ^a	High
MGH-14	3	Low	Medium	No	No	Yes	Medium	Medium
MGH-15	3	Low	Medium	No	Yes	Yes	Medium	Medium
MGH-16	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
MGH-17	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
MGH-18	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
MGH-19	3	Medium	High	No	Yes	No	Low	Medium
MGH-20	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
MGH-21	3	Medium	Medium	Yes	No	Yes	Medium	Low
MGH-22	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
MGH-23	3	Medium	Medium	Yes	No	Yes	Medium	Low
MGH-24	5	High	High	Yes	Yes	No	Medium	High
MGH-25	2	Low	Low	Yes	No	Yes	High	Low

a. High priority for implementation; however, funding source is needed

Table 10-14. Analysis of Mitigation Action

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	MGH-1, MGH-4, MGH-8, MGH-9, MGH-10, MGH-25	MGH-9, MGH-24	MGH-1, MGH-4, MGH-8, MGH-10, MGH-11		MGH-4, MGH-8		
Severe Weather	MGH-1, MGH-4, MGH-9, MGH-15, MGH-25	MGH-9, MGH-15, MGH-24	MGH-1, MGH-4, MGH-11	MGH-15	MGH-4	MGH-15, MGH-16, MGH-17, MGH-18, MGH-19, MGH-20, MGH-21, MGH-22, MGH-23	MGH-15
Wildfire	MGH-1, MGH-4, MGH-12, MGH-13, MGH-14, MGH-25	MGH-9, MGH-12, MGH-13, MGH-24	MGH-1, MGH-8, MGH-11, MGH-12, MGH-13, MGH-14	MGH-12	MGH-8, MGH-12, MGH-13		
Dam and Levee Failure	MGH-1, MGH-4, MGH-5, MGH-11, MGH-25	MGH-5, MGH-24	MGH-1, MGH-4, MGH-5, MGH-8, MGH-11	MGH-5	MGH-5	MGH-5	
Flood	MGH-1, MGH-2, MGH-4, MGH-8, MGH-11, MGH-15, MGH-25	MGH-2, MGH-13, MGH-24	MGH-1, MGH-2, MGH-4, MGH-8	MGH-2, MGH-10, MGH-15	MGH-11	MGH-2, MGH-10, MGH-15, MGH-16, MGH-17, MGH-18, MGH-19, MGH-20, MGH-21, MGH-22, MGH-23	MGH-15
Landslide	MGH-1, MGH-4, MGH-25	MGH-24	MGH-1, MGH-4				
Drought	MGH-1, MGH-4, MGH-9, MGH-15, MGH-25	MGH-9, MGH-15, MGH-24	MGH-1, MGH-4, MGH-11	MGH-15	MGH-4	MGH-15	MGH-6

a. See the introduction to this volume for explanation of mitigation types.

10.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

11. CITY OF MOUNTAIN VIEW

11.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Lynn Brown, Office of Emergency Services Coordinator
1000 Villa Street
Mountain View, CA 94041
Telephone: 650-903-6825
e-mail Address: lynn.brown@mountainview.gov

Alternate Point of Contact

Juan Diaz, Fire Chief
1000 Villa Street
Mountain View, CA 94041
Telephone: 650-903-6365
e-mail Address: juan.diaz@mountainview.gov

11.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—November 7, 1902
- **Current Population**—77,925 as of January 1, 2016
- **Population Growth**—Mountain View had a growth rate of 1.6 percent from 2015 to 2016. In 2020, the population is expected to be approximately 81,500. In 2030, it is expected to be approximately 88,600 (based on land use projections developed by the Community Development Department).
- **Location and Description**—The City of Mountain View is located in the heart of the Silicon Valley on the San Francisco Peninsula, at the north end of State Route 85, where it meets US Route 101. The historic route El Camino Real also runs through Mountain View. Located 10 miles north of San José and 35 miles south of San Francisco, Mountain View is situated between the Santa Cruz Mountains and the San Francisco Bay. It is bounded to the northwest by Palo Alto, to the southwest by Los Altos, to the east by Sunnyvale, to the northeast by Moffett Federal Airfield, and to the north by the San Francisco Bay.

The City of Mountain View covers 12 square miles and is home to just under 78,000 residents, as well as Fortune 1000 companies Google, Symantec, Microsoft and Intuit. Forty-two percent of the City's land area is developed with housing; twenty six percent with commercial, office, and industrial uses; twenty percent with parks and open space; eight percent public/institutional uses and two percent vacant land.
- **Brief History**—Like most Bay Area cities, the history of Mountain View begins with the Ohlone and the early influences of Spanish and Mexican settlers. It also reflects the creative and ambitious character of the first Americans to arrive in the area, many of whom came to California in search of gold, and stayed on to build successful businesses. Finally, Mountain View's history since incorporation is a story of phenomenal change, affecting everything from the size of the population, to the nature of the economy and the function of the City government.
- **Climate**—Mountain View has a Mediterranean climate. Summers are warm and dry, while winters are mild and wet. However, both summers and winters are somewhat moderated due to its relative proximity to the Pacific, although it has a lesser maritime influence than San Francisco further north on the peninsula. The average year round temperature is 60 degrees and average annual rainfall is 14 inches, with the majority of precipitation during the winter months.

- **Governing Body Format**—The City of Mountain View is governed by a seven-member city council. The City consists of eleven departments: City Attorney, City Clerk, City Manager, Community Development, Community Services, Finance and Administrative Services, Fire, Information Technology, Library, Police and Public Works. The City has eleven subcommittees, and thirteen commissions and advisory bodies, which report to the City Council. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.

11.3 DEVELOPMENT TRENDS

Mountain View’s diverse mix of land uses includes neighborhoods with single-family and multi-family residences, a vibrant Downtown, commercial streets and shopping districts as well as industrial districts. Most of the land in Mountain View is occupied by residential, public, institutional and open space uses. There are smaller areas of commercial use and vacant land. Current land uses will serve as a benchmark to evaluate land use change over time.

On July 10, 2012, the City Council adopted the 2030 General Plan, a comprehensive update to the City's 1992 General Plan. The 2030 General Plan is the guiding document for the City's physical development and preservation. It includes goals, policies and graphics that convey a long-term vision and guide local decision-making to achieve that vision. The General Plan is the foundation for zoning regulations, subdivisions and public works plans. It also addresses other issues related to the City’s physical environment, such as noise and safety. Table 11-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

11.4 CAPABILITY ASSESSMENT

11.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (Mountain View Annex). All of the below items were additionally reviewed as part of the full capability assessment for Mountain View

- **Mountain View General Plan**—The General Plan, including the Land Use and Public Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Mountain View Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
 - Capital Improvement Plan-Adopted Fiscal Year 2016-17, includes projects to maintain, replace and improvement city infrastructure.
 - Capital Improvement Plan-Adopted Fiscal Year 2015-16, Planned FY 2016-17 through FY 2019-20 (five year plan) includes projects to maintain, replace and improvement city infrastructure.
- **Technical Reports and Information**—Outside resources and references used to complete the Mountain View Annex are identified in Section 11.11 of this annex.

Table 11-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? <ul style="list-style-type: none">If yes, give the estimated area annexed and estimated number of parcels or structures.	No					
Is your jurisdiction expected to annex any areas during the performance period of this plan? <ul style="list-style-type: none">If yes, please describe land areas and dominant uses.If yes, who currently has permitting authority over these areas?	N/A					
Are any areas targeted for development or major redevelopment in the next five years? <ul style="list-style-type: none">If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?	Several areas are identified as "Change Areas" in the General Plan. North Bayshore (the area north of 101), will have new office development, and is being considered for new residential uses. East Whisman (the area east of Whisman Rd) will also have new office development and is being considered for residential uses. El Camino Real will have new residential development. San Antonio Center and the surrounding blocks will have new residential, retail and office development, and Moffett Blvd will have new residential development. North Bayshore has some flood zone areas, and is within the liquefaction area.					
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.		2011	2012	2013	2014	2015
	Single Family	51	40	51	49	11
	Multi-Family	54	52	41	71	64
	Other (commercial, mixed use, etc.)	2	14	24	21	1
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Mountain View is built out.					

11.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 11-2. An assessment of fiscal capabilities is presented in Table 11-3. An assessment of administrative and technical capabilities is presented in Table 11-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 11-5. An assessment of education and outreach capabilities is presented in Table 11-6. Classifications under various community mitigation programs are presented in Table 11-7. Development and permitting capabilities are presented in Table 11-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 11-9.

Table 11-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	No
Comment: City Code, Chapter 8, article , Ord. No. 11.13, § 7, 10/22/13				
Zoning Code	Yes	No	No	No
Comment: City Code, Chapter 36, Division 1, Ord. No. 18.13, § 1, 12/10/13				
Subdivisions	Yes	No	No	No
Comment: City Code, Chapter 28, other: California Subdivision Map Act (Government Code)				
Stormwater Management	Yes	No	Yes	Yes
Comment: City Code, Chapter 35, division 4				
Post-Disaster Recovery	No	No	No	Yes
Comment: None located				
Real Estate Disclosure	No	Yes	Yes	No
Comment: CA. State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property.				
Growth Management	No	No	Yes	No
Comment: CA State Government Code §65300 et seq.				
Site Plan Review	Yes	No	No	No
Comment: City Code, Chapter 36				
Environmental Protection	Yes	Yes	Yes	Yes
Comment: City Code, Chapter 2, Article 7, Ord. No. 13.73, 5/7/73, Other: California Environmental Quality Act				
Flood Damage Prevention	Yes	Yes	Yes	Yes
Comment: Local: City Code Chapter 8, Other: Santa Clara Valley Water District				
Emergency Management	Yes	Yes	No	Yes
Comment: City Code, Chapter 11				
Climate Change	Yes	No	Yes	Yes
Comment: Approved by City Council 2/12/2013; Other: CA SB-379				
Other:	N/A	N/A	N/A	N/A
Comment: None Located				
Planning Documents				
General Plan	Yes	No	Yes	No
Is the plan compliant with Assembly Bill 2140? No				
Comment: Mountain View General Plan 2030				
Capital Improvement Plan	Yes	No	No	Yes
How often is the plan updated? Every 5 years				
Comment: City Council adopts and funds a new CIP each fiscal year. Every 2-years they also adopt a five year proposed plan.				
Floodplain or Watershed Plan	Yes	Yes	No	Yes
Comment: Other is Santa Clara Valley Water District				
Stormwater Plan	Yes	Yes	Yes	Yes
Comment: City code, Chapter 35, Article 3, Division 4				
Urban Water Management Plan	Yes	Yes	Yes	Yes
Comment: Updated June 2016, others Santa Clara Valley Water District and San Francisco Public Utility Commission should also have current UWMP.				
Habitat Conservation Plan	Yes	Yes	Yes	Yes
Comment: Burrowing Owl Preservation Plan at Shoreline Park monitored by our city's biologist				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Economic Development Plan Comment: Approved by City Council 5/25/2004	Yes	No	No	Yes
Shoreline Management Plan Comment: None located	No	No	No	No
Community Wildfire Protection Plan Comment: None located	No	No	No	No
Forest Management Plan Comment: City has adopted a Community Tree Master Plan and has a Forestry Division which manages our 27,000 trees	Yes	Yes	Yes	No
Climate Action Plan Comment: On 2/12/2013 City council approved the development Climate Action Plans for both city operations and the community as a whole, with both plans identifying strategies, policies, and programs that will reduce our carbon emissions 80% below 2005 levels by 2050	Yes	No	No	Yes
Comprehensive Emergency Management Plan Comment: Emergency Operations Plan	Yes	No	No	No
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: None located	No	No	No	No
Post-Disaster Recovery Plan Comment: None located	No	No	No	Yes
Continuity of Operations Plan Comment: None located	No	No	No	Yes
Public Health Plan Comment: Santa Clara County Health Department	No	Yes	No	No
Other: Comment: None located	N/A	N/A	N/A	N/A

Table 11-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes, restricted to grant requirements
Capital Improvements Project Funding	Yes depending on funding source
Authority to Levy Taxes for Specific Purposes	Yes, 2/3 vote required
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes, vote is required
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	N/A

Table 11-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Public Works/Engineering/Principal Civil Engineer Community Development Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works/Engineering/Principal Civil Engineer
Planners or engineers with an understanding of natural hazards	Yes	Public Works/Engineering/Principal Civil Engineer
Staff with training in benefit/cost analysis	Yes	Community Development Dept.
Surveyors	No	No surveyors on staff
Personnel skilled or trained in GIS applications	Yes	Information Technology and Community Development Departments
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire Department/Office of Emergency Services Coordinator
Grant writers	Yes	Fire Department, Office of Emergency Services Coordinator

Table 11-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Department Public Works
Who is your floodplain administrator? (department/position)	Public Works Director
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	1/13/1998, last amended 11/22/16
Does your floodplain management program meet or exceed minimum requirements?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	11/10/2010
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes Continuing education
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification?	Yes No
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	603 ^a \$174,302,800 ^a \$492,397 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	5 ^a 0 ^a \$10,919 ^a

a. According to FEMA statistics as of October 31, 2016.

Table 11-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes Local hazard mitigation plan is on the city website
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes The city uses Facebook, Twitter, and other social media to provide education and outreach
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes Community Emergency Response Team (CERT) program, with over 800 residents in the database
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes AlertSCC is a telephone/text/email based system used by all cities in the county

Table 11-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	8	5/1/2002
Building Code Effectiveness Grading Schedule	No	—	—
Public Protection	Yes	1	6/14/2014
Storm Ready	No	—	—
Firewise	No	—	—

Table 11-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Community Development Department
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No

Table 11-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment Question	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts Comment: A Sea Level Rise study was conducted in 2013: http://laserfiche.mountainview.gov/Weblink/ElectronicFile.aspx?docid=64135&dbid=0	High
Jurisdiction-level monitoring of climate change impacts Comment: None provided.	Low
Technical resources to assess proposed strategies for feasibility and externalities Comment: None provided.	Medium
Jurisdiction-level capacity for development of greenhouse gas emissions inventory Comment: Though we lack in-house capacity to conduct an inventory, the City uses consultants to complete an inventory every few years. The City has an adopted Greenhouse Gas Reduction Program, which was adopted in 2012, and will be updated within the next 2 to 3 years.	High
Capital planning and land use decisions informed by potential climate impacts Comment: The City has completed a Sea Level Rise study, and has plans to implement the recommended measures. The City has also invested heavily in using recycled water where feasible. And, the City has given significant attention to land use impacts, particularly in its North Bayshore area, which is the most susceptible to these impacts. As required through the California Environmental Quality Act.	High
Participation in regional groups addressing climate risks Comment: The City is a long-standing and regular participant in Joint Venture Silicon Valley's	Medium
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes Comment: As required through the California Environmental Quality Act and through implementation of the Greenhouse Gas Reduction Program	Medium
Identified strategies for greenhouse gas mitigation efforts Comment: The City has developed Climate Action Plans for both city operations and the community as a whole, with both plans identifying strategies, policies, and programs that will reduce our carbon emissions 80% below 2005 levels by 2050. Included in the Greenhouse Gas Reduction Program.	High
Identified strategies for adaptation to impacts Comment: None provided.	Medium
Champions for climate action in local government departments Comment: None provided.	Medium
Political support for implementing climate change adaptation strategies Comment: None provided.	Medium
Financial resources devoted to climate change adaptation Comment: None provided.	Low
Local authority over sectors likely to be negative impacted Comment: None provided.	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: None provided.	High
Local residents support of adaptation efforts Comment: None provided.	High
Local residents' capacity to adapt to climate impacts Comment: None provided.	Medium
Local economy current capacity to adapt to climate impacts Comment: None provided.	High
Local ecosystems capacity to adapt to climate impacts Comment: None provided.	Medium

11.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning.

11.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **Emergency Operations Plan**—Ongoing effort to ensure the most effective and economical uses of all resources for the maximum benefit and protection of the civilian population in time of an emergency. Mitigation is incorporated into the Emergency Plan with a focus on not only responding to emergencies and disasters but also planning for future events to reduce the risks of hazards.
- **Public Safety Element of the General Plan**—Establishes policies and actions to protect the community from risks associated with earthquakes, floods, fires, toxic waste, crime, and other hazards. The plan was reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Land Use Element of the General Plan**—Constraints on how buildings are constructed and where different types of development should be located to reduce the risks to people and property. Mitigation is considered in land use integration, environmental impacts of development, and long-term sustainability for new development and city operations.
- **Housing Element of the General Plan**—Protecting overall community health, welfare and safety remains the key focus of housing development regulations and review in Mountain View. Mitigation will be integrated into future updates to ensure housing and development reduces risk and improves safety.
- **Capital Improvement Plan**—Includes adopted and requested projects that can help mitigate potential hazards. The development of the Hazard Mitigation Plan and selection of necessary mitigation activities enable the City to ensure consistency between the Hazard Mitigation Plan, the current Capital Improvement Plan and future versions of the Capital Improvement Plan. The Hazard Mitigation Plan may also assist with identifying new possible funding sources for capital improvement projects.

11.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- **Climate Action Plan**—Provides the City with an opportunity to directly reference the LHMP during subsequent updates of the plan and integrate hazard mitigation with existing goals and objectives. Since the Climate Action Plan provides guidance for minimizing the impact of human activity on the environment integration of hazard mitigation relating to air quality, land use and other factors is a fitting strategic next step. The City's Climate Action Plan will be the primary document that addresses our programs and mitigation actions for climate adaptation.
- **Storm Water Management**—The City requires permanent storm water pollution prevention measures for development and redevelopment projects in order to reduce water quality impacts of storm water runoff. This ordinance was reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Urban Water Management Plan**—The Urban Water Management Plan (UWMP) provides an analysis of the City's available water supply, during normal and dry-year scenarios, compared to current and future projected water demand. The UWMP is a link between land use planning and water supply planning developed to ensure sufficient water is available to meet the needs of Mountain View's existing and future water customers. Mitigation will be integrated into future updates to reduce risks from hazards and improve the safety of water systems.

- **Flood Damage Prevention**— the City will continue efforts to reduce our CRS rating to reduce flood risks to those property owners in FEMA designated flood zones.
- **Floodplain or Watershed Plan**—In conjunction with the Santa Clara Valley Water District and San Francisco Public Utility Commission, the City will integrate mitigation into future updates to reduce risks from hazards and improve floodplain safety.
- **Emergency Management**— the City has a strong and active Emergency Management program including CERT, Amateur Radio, regular Emergency Operations Center exercises and outreach to businesses and schools. Mitigation will be integrated into all aspects of these programs to reduce risks from hazards and address hazard mitigation as part of a targeted outreach program.
- **Climate change**—The City has developed Climate Action Plans for both city operations and the community as a whole, with both plans identifying strategies, policies, and programs that will reduce our carbon emissions 80 percent below 2005 levels by 2050. Mitigation will be integrated into all aspects of these plans to reduce risks from hazards and address hazard mitigation.
- **Post-Disaster Recovery Plan**—Mountain View does not have a Post-Disaster Recovery Plan and intends to develop one as a mitigation planning action during the next five years.
- **Continuity of Operations Plan**—Mountain View does not have a Continuity of Operations Plan and intends to develop one as a mitigation planning action during the next five years.

11.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 11-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 11-10. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Drought	N/A	Ongoing	N/A
Wildland fire/Strike Team Deployment/Erskine Fire	N/A	6/24/16	N/A
Wildland fire/Strike Team Deployment/Soberanes Fire	N/A	7/26/16	N/A
Wildland fire/Strike Team Deployment/Clayton Fire/	N/A	8/14/2016	N/A
Wildland fire/Strike Team Deployment/ Blue Cut Fire	N/A	8/14/2016	N/A
Wildland fire/Strike Team Deployment/Cedar Fire	N/A	8/22/2016	N/A
Wildland fire/Strike Team Deployment/Gap Fire	N/A	8/28/2016	N/A
Wildland fire/Strike Team Deployment/Loma Fire	N/A	9/26/2016	N/A
Summit Fire	2766	5/22/2008	N/A
Croy Fire	2465	9/25/2002	N/A
Severe Storms	1203	2/19/1998	N/A
Severe Freeze	894	2/11/1991	N/A
Loma Prieta Earthquake	845	10/18/1989	N/A
Drought	3023	1/20/1977	N/A

11.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- There are a number of structures in the City built with soft-story construction.

11.8 HAZARD RISK RANKING

Table 11-11 presents the ranking of the hazards of concern.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Severe Weather	33	Medium
3	Flood	18	Medium
4	Drought	9	Low
5	Dam and Levee Failure	3	Low
6	Landslide	0	None
6	Wildfire	0	None

11.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Mountain View can be found in Appendix D of this volume.

11.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 11-12 lists the actions that make up the City of Mountain View hazard mitigation action plan. Table 11-13 identifies the priority for each action. Table 11-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

11.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 11-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MTV-1—Create Continuity of Operations Plan						
New and existing	All hazards	3, 5	Fire Department/Office of Emergency Services	Medium	Staff time, general fund, Grants	Ongoing
MTV-2—Create Disaster Recovery Plan						
New and existing	All hazards	3, 5	Fire Department/Office of Emergency Services	Medium	Staff time, general fund, Grants	Ongoing
MTV-3—Complete soft story study: scoping of process to address issues related to potentially hazardous buildings containing soft, weak or open front stories						
Existing	Earthquake	2, 3, 4, 5, 9	Community Development	Medium	Staff time, general fund, Grants	Fiscal year 2016/2017 (Short-term)
MTV-4—Coordinate disaster preparation and mitigation practices with private sector, public institutions and public agencies						
New and existing	All hazards	7	Fire Department/Office of Emergency Services	Low	Staff time, general fund	Ongoing
MTV-5—Continue to maintain ISO class one rating for Fire Department						
New and existing	All hazards	2, 3, 5	Fire Department/Office of Emergency Services	Low	Staff time, general fund	Ongoing
MTV-6—Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flooding	2, 3, 4	Public Works	Low	Staff time, general fund	Ongoing
MTV-7—Enhance public education and awareness of natural hazards and disaster preparation						
New and existing	All hazards	7	Fire Department/Office of Emergency Services	Low	Staff time, general fund	Ongoing
MTV-8—Develop GIS based maps for emergency incidents						
New and existing	All hazards	5, 8	Information Technology	Low	Staff time, general fund	Ongoing
MTV-9—Continue Community Emergency Response Team (CERT) program						
New and existing	All hazards	7	Fire Department/Office of Emergency Services	Low	Staff time, general fund, Grants	Ongoing
MTV-10—Implement projects from storm water master plan						
New and Existing	Flooding	2, 3, 4	Public Works	Medium	Capital Improvement Fund, Grants	Fiscal year 2017-2018 (Short-term)
MTV-11—Implement projects from sea level rise study						
New and Existing	Flooding	2, 3, 4, 6	Public Works	Medium	Capital Improvement Fund, Grants	Fiscal year 2017-2018 (Short-term)
MTV-12—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All hazards	4, 5, 6, 7, 8	Community Development/ Public Works	High	FEMA (HMGP, PDM, FMA)	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MTV-13— Continue to integrate the hazard mitigation plan into other plans, ordinances and programs such as the Climate Action Plan, Stormwater Management, Urban Water Management Plan, Floodplain Management Program, etc.						
New and Existing	All hazards	2, 4,	Community Development/ Public Works	Low	Staff time, general funds	Ongoing
MTV-14—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All hazards	1, 5	Office of Emergency Services	Low	Staff time, general funds	Short-term

Table 11-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
MTV-1	2	High	Medium	Yes	Yes	Yes	High	High
MTV-2	2	High	Medium	Yes	Yes	Yes	High	High
MTV-3	5	High	Medium	Yes	Yes	Yes	High	High
MTV-4	1	Medium	Low	Yes	No	Yes	High	Medium
MTV-5	3	Medium	Low	Yes	No	Yes	High	Low
MTV-6	3	Low	Low	Yes	No	Yes	High	Low
MTV-7	1	Medium	Low	Yes	No	Yes	High	Low
MTV-8	2	High	Low	Yes	No	Yes	High	Low
MTV-9	1	Medium	Low	Yes	Yes	Yes	High	Medium
MTV-10	3	Low	Medium	No	Yes	Yes	High	Medium
MTV-11	4	Low	Medium	No	Yes	Yes	High	Medium
MTV-12	5	High	High	Yes	Yes	No	Medium	High
MTV-13	2	Medium	Low	Yes	No	Yes	High	Low
MTV-14	2	Low	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 11-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	MTV-4, MTV-7, MTV-9, MTV-13, MTV-14	MTV-3, MTV-12	MTV-4, MTV-7, MTV-9	MTV-4, MTV-6, MTV-10, MTV-11	MTV-5, MTV-9		
Severe Weather	MTV-4, MTV-7, MTV-9, MTV-13, MTV-14	MTV-3, MTV-12	MTV-4, MTV-7, MTV-9		MTV-5, MTV-9		MTV-10, MTV-11
Flood	MTV-4, MTV-7, MTV-9, MTV-13, MTV-14	MTV-3, MTV-12	MTV-4, MTV-7, MTV-9	MTV-4, MTV-7, MTV-9	MTV-5, MTV-9	MTV-10, MTV-11	MTV-10, MTV-11
Drought	MTV-4, MTV-7, MTV-9, MTV-13, MTV-14	MTV-3, MTV-12	MTV-4, MTV-7, MTV-9		MTV-5, MTV-9		
Dam and Levee Failure	MTV-4, MTV-7, MTV-9, MTV-13, MTV-14	MTV-3, MTV-12	MTV-4, MTV-7, MTV-9		MTV-5, MTV-9		

a. See the introduction to this volume for explanation of mitigation types.

12. CITY OF PALO ALTO

12.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Nathan Rainey, Emergency Services Coordinator
275 Forest Avenue
Palo Alto, CA 94301
Telephone: 650-617-3197
e-mail Address:
Nathaniel.rainey@cityofpaloalto.org

Alternate Point of Contact

Ken Dueker, Director of Emergency Services
275 Forest Avenue
Palo Alto, CA 94301
Telephone: 650-329-2419
e-mail Address:
Kenneth.dueker@cityofpaloalto.org

12.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—April 23, 1894
- **Current Population**—68,207 as of January 1, 2016
- **Population Growth and Demographics**—Palo Alto’s population has increased only slightly during the last 30 years compared to Santa Clara County as a whole. The number of residents increased by 4.7 percent from 55,966 in 1970 to 58,598 in 2000, and 9.9 percent between 2000 and 2010 (U.S. Census 1980, 1990, 2000, and 2010). As of the 2010 Census, population in the City has increased to 64,403. While the average number of people per household declined from 2.7 in 1970 to 2.3 in 2000, the number of housing units increased (See Table 12-1).

Table 12-1. Historical Population Growth in Palo Alto, 1990-2010

Year	Population	Numerical Change	Percent Change
1990	55,225	741	1.3
2000	58,598	675	1.2
2010	64,403	5,805	9.9

Source: US Census 1990, 2000, 2010.

Although 64.2 percent of Palo Alto’s population is White, the City is becoming more ethnically diverse. Asians, Native Hawaiian, and Other Pacific Islanders comprise 27.3 percent, while 0.2 percent are American Indian/Alaska Native, 6.2 percent are Hispanic, 1.9 percent are Black and 6.4 percent identify themselves as some other race or two or more races.

The median age of Palo Alto’s population has increased dramatically over the last few decades. In 1970, the median age was 29.5 for men and 33.7 for women. By 1990, these figures had increased to 36.7 and 40.0 respectively. In the year 2000, the median age for the entire population of Palo Alto was 40.2 years, which is considerably higher than the County median age of 34 years, and in 2010 it raised further to 41.9

years. The increase in median age has been accompanied by an increase in Palo Alto's senior population; the number of persons over 65 increased from 10 to 15.6 percent of the population between 1970 and 2000, and 17.1 percent in 2010. The number of older adults is expected to continue to increase in the future. At the other end of the age spectrum, the number of children under five has increased significantly over the last two decades and has resulted in an increase in the number of children entering childcare and school. However, the number of women of childbearing age has decreased markedly after increasing during the 1980s and 1990s and the middle-aged population has increased significantly indicating that Palo Alto will continue to grow older during the next decade.

- **Location and Description**—Part of the metropolitan San Francisco Bay Area and the Silicon Valley, Palo Alto is located within Santa Clara County and borders San Mateo County.

The City's boundaries extend from San Francisco Bay on the east to the Skyline Ridge of the coastal mountains on the west, with Menlo Park to the north, and Mountain View to the south. The City encompasses an area of approximately 26 square miles, of which one-third is open space. The city shares its borders with East Palo Alto, Los Altos, Los Altos Hills, Stanford, Menlo Park, Mountain View, Portola Valley, and portions of unincorporated San Mateo County and Santa Clara County (including the unincorporated areas of Cupertino and Saratoga in the foothills). It is named after a redwood tree called El Palo Alto. The city includes portions of Stanford University and its affiliates, is headquarters to a number of Silicon Valley high-technology companies, including Hewlett-Packard, VMware, Tesla Motors, SAP and Palintir and has served as an incubator to several other high-technology companies, such as Google, Facebook, Logitech, Intuit, and PayPal.

A blend of business and residential neighborhoods, anchored by a vibrant downtown, defines Palo Alto's unique character. A charming mixture of old and new, Palo Alto's tree-lined streets and historic buildings reflect its California heritage. At the same time, Palo Alto is recognized worldwide as a leader in cutting-edge development, as a quintessential part of Silicon Valley.

Based on data from the City's business registry in January 2016, there are 168 Firms in Palo Alto with over 50 employers collectively employing 56,410 employees. While this doesn't account for all businesses it shows that the business community is at least the size of the residential population of Palo Alto. So while the City's public services are sized for the residential community, they are serving a population at least double that size.

The City Auditor's Sales Tax Digest Summary Report from January 2016 lists the top 25 Sales/Use Tax contributors. The list is in alphabetical order and represents the year ended 2nd Quarter 2015. The Top 25 Sales/Use Tax contributors generate 48.5 percent of Palo Alto's total sales and use tax revenue are as follows:

- | | | |
|--------------------------|----------------------------------|---------------------------|
| ➤ Anderson Honda | ➤ Integrated Archive Systems | ➤ Tesla Lease Trust |
| ➤ Apple Stores | ➤ Loral Space Systems | ➤ Tesla Motors |
| ➤ Audi Palo Alto | ➤ Macy's Department Store | ➤ Tiffany & Company |
| ➤ Bloomingdale's | ➤ Magnussen's Toyota | ➤ Urban Outfitters |
| ➤ Critchfield Mechanical | ➤ Neiman Marcus Department Store | ➤ Valero Service Stations |
| ➤ CVS/Pharmacy | ➤ Nordstrom Department Store | ➤ Varian Medical Systems |
| ➤ Eat Club | ➤ Pottery Barn Kids | ➤ Wilkes Bashford |
| ➤ Fry's Electronics | ➤ Shell Service Stations | |
| ➤ Hewlett-Packard | ➤ Stanford University Hospital | |

- **Brief History**—Palo Alto was incorporated in 1894 and received its name from the tall landmark Redwood tree, *El Palo Alto*, which still grows on the east bank of San Francisquito Creek across from Menlo Park. One trunk of the twin-trunked tree can still be found by the railroad trestle near Alma Street in El Palo Alto Park.

Leland Stanford Junior University opened to 465 students in 1891, as a memorial by Leland and Jane Stanford to their son who died in 1884 while traveling in Europe. Stanford University played a significant role in the development of the Palo Alto landscape; it has since grown into a world renowned teaching and research university with more than 16,000 undergraduate and graduate students.

In 1925 the town of Mayfield, the original settlement that developed in the area in 1853, was annexed to the larger Palo Alto. In the decades that followed, Palo Alto continued to expand southward reaching the border it currently shares with Mountain View.

The population more than doubled from 25,000 to 55,000 residents by 1960, and since then has increased to roughly 68,000 today. During these boom years Palo Alto was transformed from agricultural fields to urban forest and became the birthplace of the Silicon Valley.

- **Climate**—Typical of the San Francisco Bay Area, Palo Alto has a Mediterranean Climate with cool, wet winters and warm, dry summers. Typically, in the warmer months, as the sun goes down, the fog bank flows over the foothills to the west and covers the night sky, thus creating a blanket that helps trap the summer warmth absorbed during the day (USClimateData.com, 2017). Average high and low temperature and precipitation by month are shown in Table 12-2.

Table 12-2. Average High and Low temperature and Precipitation by Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F:	58	62	66	70	74	78	79	79	80	74	65	58
Average low in °F:	38	41	43	45	49	52	57	55	53	48	42	38
Av. precipitation in inch:	3.07	3.19	2.48	0.98	0.47	0.08	0.04	0.04	0.16	0.75	1.97	2.95

The record high temperature was 107 °F (42 °C) on June 15, 1961, and the record low temperature was 15 °F (−9 °C) on November 17, 2003. Temperatures reach 90 °F (32 °C) or higher on an average of 9.9 days. Temperatures drop to 32 °F (0 °C) or lower on an average of 16.1 days.

Due to the Santa Cruz Mountains to the west, there is a "rain shadow" in Palo Alto, resulting in an average annual rainfall of only 15.32 inches (389 mm). Measurable rainfall occurs on an average of 57 days annually. The wettest year on record was 1983 with 32.51 inches (826 mm) and the driest year was 1976 with 7.34 inches (186 mm). The most rainfall in one month was 12.43 inches (316 mm) in February 1998 and the most rainfall in one day was 3.75 inches (95 mm) on February 3, 1998. Measurable snowfall is very rare in Palo Alto, but 1.5 inches (38 mm) fell on January 21, 1962.

- **Governing Body Format**—Palo Alto is a Charter City and has a council-manager form of government in which the nine-member, popularly-elected City Council appoints the City Manager, who in turn oversees a dynamic Executive Leadership Team in the operation of thirteen departments employing 1,000 staff. This vibrant organization enjoys a strong, collaborative, and open environment. The Fiscal Year 2016 citywide expenditure budget amounts to \$563.6 million, with a General Fund budget of \$185.7 million, a Capital Budget of \$124.7 million, and Enterprise Funds of \$342.5 million. The City Council assumes responsibility for the adoption of this plan, the Office of Emergency Services, on behalf of the City Manager, will oversee its implementation.

12.3 DEVELOPMENT TRENDS

Palo Alto comprises 16,627 acres, or about 26 square miles. Approximately 40 percent of this area is in parks and preserves and another 15 percent consists of agriculture and other open space uses. The remaining area is nearly completely developed, with single family uses predominating. Less than one percent of the City's land area consists of vacant, developable land (City of Palo Alto, 2007). The City of Palo Alto Comprehensive Plan 2007, Land Use & Community Design Element and 2007 Zoning Regulations guide the development of public and private property of which local land use and growth management is a central topic. Figure 12-1 shows the annual net change in non-residential square footage, based on project applications processed by the Department of Planning and Community Environment. Net square footage numbers shown represent the total square footage added by all developments approved in the planning area for the given period, minus the total square footage demolished. Negative numbers in the table indicate that more non-residential square footage was demolished (or approved for demolition) than was approved or constructed. As shown, the period between 2010 and 2014 has seen by far the greatest net increase in non-residential square footage (City of Palo Alto, 2014). Table 12-3 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 12-3. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan?	No					
<ul style="list-style-type: none"> If yes, give the estimated area annexed and estimated number of parcels or structures. 	N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No					
<ul style="list-style-type: none"> If yes, please describe land areas and dominant uses. 	N/A					
<ul style="list-style-type: none"> If yes, who currently has permitting authority over these areas? 	N/A					
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
<ul style="list-style-type: none"> If yes, please briefly describe, including whether any of the areas are in known hazard risk areas 	Commercial and some residential redevelopment occurs continually within Palo Alto through the normal course of property management. However, one project in the Fry's Building / California Avenue area may be redeveloped in the next five years in which the City will play a leading role. All of Palo Alto is in a seismic risk area, so any development will have seismic risks.					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	87	99	113	90	246
	Multi-Family	1	12	4	2	5
	Other (commercial, mixed use, etc.)	17	25	16	13	17
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	<ul style="list-style-type: none"> Special Flood Hazard Areas: 129 Landslide: 2 High Liquefaction Areas: 40 Wildfire Risk Areas: 4 					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Palo Alto is 99% built out.					

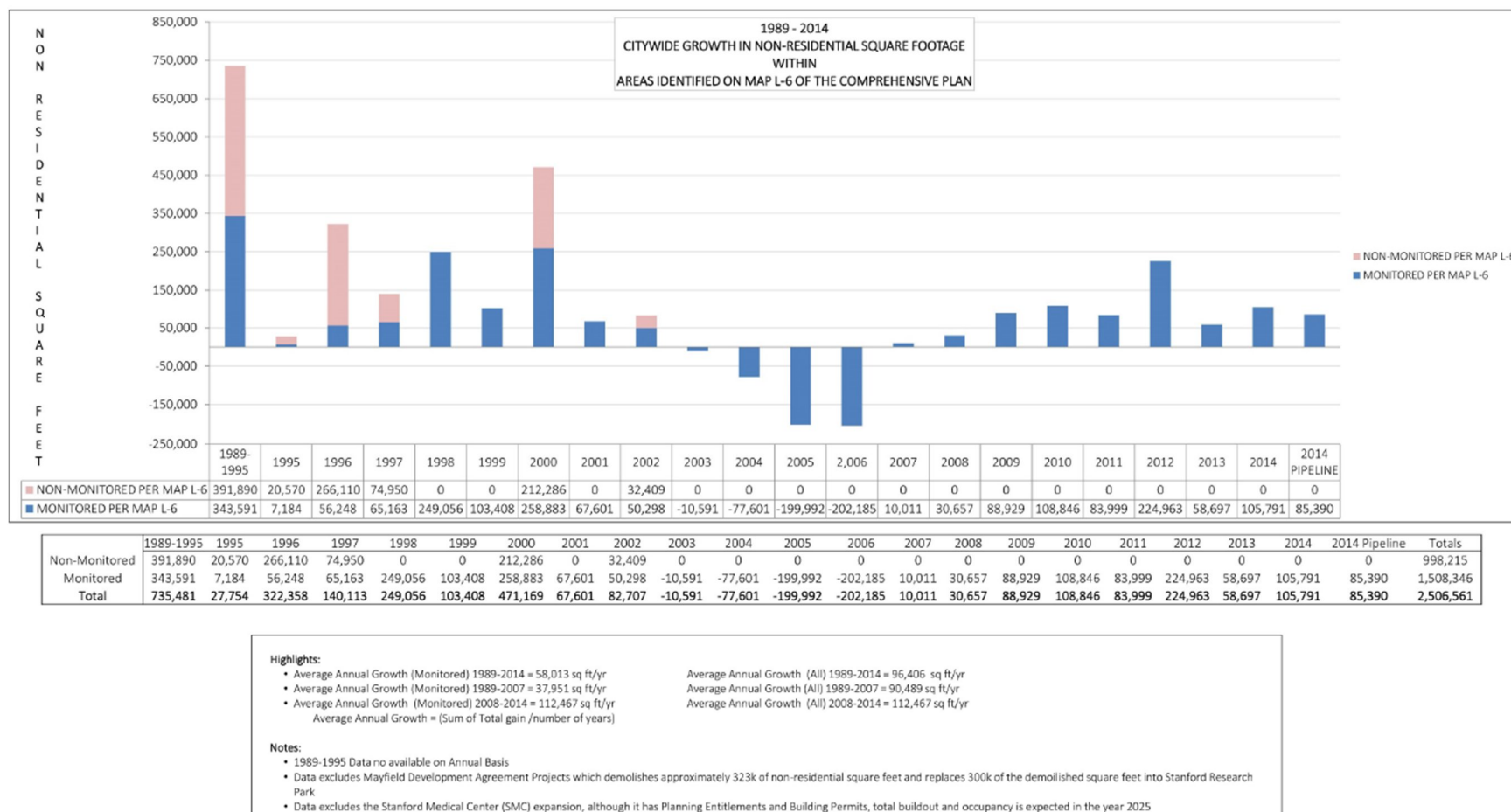


Figure 12-1. Citywide Growth in Non-Residential Square Footage 1989-2014

12.4 CAPABILITY ASSESSMENT

12.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (Palo Alto Annex). All of the below items were additionally reviewed as part of the full capability assessment for Palo Alto.

- **City of Palo Alto Comprehensive Plan**—The Comprehensive Plan was reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives. Additionally, development trends from the Land Use section of the Comprehensive Plan informed the development section of this annex.
- **City of Palo Alto Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **State of California Local Hazards Mitigation Plan**—The state plan was helpful for reviewing goals and also in assessing hazards.
- **County of Santa Clara and City of Palo Alto Local Hazards Mitigation Plan (2012)**—The previous LHMP provided a baseline of information for the writing of this document.
- **Palo Alto Threats and Hazards Identification and Risk Assessment (THIRA)**—The THIRA helped to inform the hazard analysis portion of this plan, as well as a source for mitigation actions.
- **Palo Alto Energy Assurance Plan**—The Energy Assurance Plan provided information for the jurisdiction profile as well as a source for mitigation actions.
- **Sustainability / Climate Adaptation Plan**—This plan provided information for our hazards analysis as well as identification of mitigation actions.
- **Foothills Wildfire Management Plan / Santa Clara County Community Wildfire Prevention Plan**—These plans informed our hazards analysis as well as identifying wildfire mitigation actions.
- **Technical Reports and Information**—Outside resources and references used to complete the City of Palo Alto Annex are identified in Section 12.13 of this annex.

12.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 12-4. An assessment of fiscal capabilities is presented in Table 12-5. An assessment of administrative and technical capabilities is presented in Table 12-6. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 12-7. An assessment of education and outreach capabilities is presented in Table 12-8. Classifications under various community mitigation programs are presented in Table 12-9. Development and permitting capabilities are presented in Table 12-10, and the community's adaptive capacity for the impacts of climate change is presented in Table 12-11.

Table 12-4. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: Palo Alto has adopted the 2016 California Building Code	Yes	Yes	Yes	No
Zoning Code Comment: Municipal Code, Title 18, effective 13 June 2016	Yes	Yes	Yes	No
Subdivisions Comment: Municipal Code, Title 21, effective 13 June 2016	Yes	No	No	No
Stormwater Management Comment: None located.	No	No	No	No
Post-Disaster Recovery Comment: None located.	No	No	No	No
Real Estate Disclosure Comment: Cal. Civ. Code §1102 et seq.	No	No	Yes	No
Growth Management Comment: Growth management falls under Palo Alto's 2007 Zoning Regulations and is more discreetly addressed in the City's Comprehensive Plan; Cal. Gov. Code §65300 et seq.	Yes	Yes	Yes	No
Site Plan Review Comment: Site Plan review falls under Palo Alto's 2007 Zoning Regulations and is well practiced in the permitting process.	Yes	Yes	Yes	No
Environmental Protection Comment: Ordinance 5107, 13 December 2010, to provide green building standards and environmental protections; California Environmental Quality Act (Guideline: California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387)	Yes	Yes	Yes	No
Flood Damage Prevention Comment: Municipal Code, Chapter 16.52 effective 13 June 2016	Yes	Yes	No	No
Emergency Management Comment: Municipal Code, Chapter 2.12 effective 13 June 2016	Yes	Yes	Yes	No
Climate Change Comment: Ordinance No. 5345, 31 August 2015, to comply with California Energy Code 2013 edition; California SB-379: Land Use: General Plan: Safety Element	Yes	No	Yes	No
Other: Seismic Hazards Identification Program Comment: In 1986, the City Council adopted the Seismic Hazards and Identification Program codified at Section 16.42 of the Municipal Code. This ordinance established a mandatory evaluation and reporting program and created incentives for property owners to voluntarily upgrade their structurally deficient buildings.	Yes	Yes	No	No
Planning Documents				
General Plan (As Comprehensive Plan) Palo Alto is undergoing an update to the comprehensive plan, which will be completed in 2017. This updated plan will be compliant with Assembly Bill 2140. Comment: The 2007 City of Palo Alto Comprehensive Plan (Comp Plan) and 2007 Zoning Regulations guide land use and growth management decisions in the City. The Land Use & Design, Housing, and Natural Environment Elements contain goals, policies, and programs related to natural hazards; however, the City is in the process of updating the current Comprehensive Plan which will derive a new Safety Element from the Natural Environment Element.	Yes	No	Yes	No
Capital Improvement Plan Comment: The 2017-2021 Capital Improvement Program Plan for the City of Palo Alto guides the City in the planning and scheduling of infrastructure improvement projects over the five year period. Annually, the City publishes a Capital Improvement Program budget to guide annual funding of scheduled projects.	Yes	Yes	Yes	Yes

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Floodplain or Watershed Plan Comment: Santa Clara Valley Water District	No	Yes	No	Yes
Stormwater Plan Comment: The City has a Storm Drain Master Plan, see Other plans below.	Yes	No	No	No
Urban Water Management Plan Comment: . The 2010 Urban Water Management Plan (UWMP) outlines actions that the City could take to achieve varying degree of water use reduction. The UWMP will be updated by June 30, 2016. Urban Water Management Plans are designed to assess the reliability of the City's water sources, support to our long-term resource planning, and ensure adequate water supplies are available to meet existing and future water demands. Every five years, an Urban Water Management Plan (UWMP) is prepared and submitted as required to the California Department of Water Resources, per the Urban Water Management Planning Act.	Yes	No	Yes	No
Habitat Conservation Plan Comment: 2013 - Santa Clara Valley Habitat Plan	No	Yes	No	Yes
Economic Development Plan Comment: The primary considerations for this are included in the City's Comprehensive Plan.	No	No	No	No
Shoreline Management Plan Comment: Baylands Master Plan 2008. The 2008 plan is an information update with the goal of producing an up-to-date record of Council approved policies and actions in the Baylands. It includes the history, environmental setting and adopted planning goals and policies for the Baylands area.	Yes	No	No	No
Community Wildfire Protection Plan Comment: Palo Alto has integrated our local CWPP into the Santa Clara County CWPP.	Yes	Yes	No	Yes
Forest Management Plan Comment: 2013 - The purpose of the plan is to establish long-term management goals and strategies to foster a sustainable urban forest in Palo Alto. It was developed using an inter-departmental team of staff in conjunction with Canopy and community partners.	Yes	No	No	No
Climate Action Plan Comment: 2014 - The City of Palo Alto launched a new Sustainability and Climate Action Plan (S/CAP) initiative in August 2014 to chart a path to a more sustainable future, find ways to improve our quality of life, grow prosperity and create a thriving and resilient community—all while dramatically reducing our carbon footprint. Palo Alto is already a world leader in climate protection strategies. The S/CAP will build on that leadership — and our successes exceeding the goals of our 2007 climate plan — to create an ambitious plan that also considers broader issues of sustainability, such as land use and biological resources. Palo Alto staff is already integrating our efforts with other Bay Area communities and agencies involved in these efforts.	Yes	No	No	Yes
Emergency Operations Plan Comment: 2016 - The Palo Alto Emergency Operations Plan (EOP) identifies the City's emergency planning, organization, and response policies and procedures. The EOP also addresses the integration and coordination with other governmental levels and volunteer agencies when required. It is meant to be considered as a preparedness document, intended to be read and understood before an emergency occurs. The major purposes of the plan are to distinguish who is in charge, to ensure essential jobs are accomplished, to provide for the continuity of government, to help citizens and City staff understand the City's emergency organization, to provide guidance for disaster education and training, and to provide for the proper transfer of command during an emergency. Palo Alto integrated this effort with the other jurisdictions in the Northern geography of Santa Clara County including Los Altos, Mountain View, and Sunnyvale.	Yes	No	No	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: City of Palo Alto THIRA, 2014: To evaluate the City of Palo Alto's capabilities for addressing all hazard incidents, the City of Palo Alto Office of Emergency Services (OES) conducted a collaborative planning process in order to develop the City of Palo Alto 2014 Threat and Hazard Identification and Risk Assessment (THIRA). It is compliant with the U.S. Department of Homeland Security (DHS) Comprehensive Preparedness Guide (CPG) 201, Second Edition, released in August 2013, which outlines a process to help communities identify capability targets and resource requirements necessary to address anticipated and unanticipated risks. The result of the THIRA process is an organized evaluation of vulnerability and implementation measures based on the necessary capabilities to deal with the hazards/threats of most concern. This report should inform ongoing City and University planning efforts. Bay Area UASI, 2016: The Bay Area UASI is required to develop a THIRA as part of grant funding requirements.	Yes	Yes	No (Partial)	No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Post-Disaster Recovery Plan	No	No	No	Yes
Comment: Palo Alto does not currently have a Post Disaster Recovery Plan				
Continuity of Operations Plan	Yes	No	No	No
Comment: In 2015-2016 Palo Alto initiated planning activities to develop a Continuity of Governance / Continuity of Operations Plan. We will complete this planning effort in 2017.				
Public Health Plan	No	Yes	Yes	No
Comment: The Santa Clara County Department of Public Health has responsibility for public health planning across the County.				
Other:	Yes	Yes	No	Yes
WUI/Foothills Fire Management Plan: This plan was recently updated in 2016. As part of the City's mitigation of wildland and urban fires, we have implemented the Palo Alto Foothills Fire Management Plan in cooperation with the Santa Clara County Midpeninsula Fire Safe Council. This plan pertains to the Palo Alto Foothills area west of the Foothills Expressway and Junipero Serra Boulevard, which represents a Wildland Urban Interface (WUI) area.				
Storm Drain Master Plan: To mitigate ongoing flood risks, in 1990, the City created an independent enterprise fund to fund needed improvements to the storm drain system with revenue generated through user fees and developed a Storm Drain Master Plan in 1993 to identify and prioritize a set of projects to increase system capacity and reduce the incidence of street flooding. Property owners approved a ballot measure in 2005 to increase the City's monthly storm drain fee and thereby provided funding to implement a set of seven high-priority capital improvement projects to upgrade the storm drain system.				

Table 12-5. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Yes

Table 12-6. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning & Community Environment/Planner Community Services Department/Open Space Ranger
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works/Engineer Development Services/Building Inspector
Planners or engineers with an understanding of natural hazards	Yes	Public Works/Engineer Development Services/Building Inspector
Staff with training in benefit/cost analysis	Yes	Administrative Services/Program Manager Planning & Community Environment/Program Manager
Surveyors	Yes	Public Works/Surveyor
Personnel skilled or trained in GIS applications	Yes	Planning & Community Environment, Technical Analyst Police Department
Scientist familiar with natural hazards in local area	Yes	USGS, NWS
Emergency manager	Yes	Office of Emergency Services/Coordinator
Grant writers	No	

Table 12-7. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works
Who is your floodplain administrator? (department/position)	Public Works Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	2004
Does your floodplain management program meet or exceed minimum requirements?	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	2015
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes Additional staffing
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	Yes Yes (currently class 7)
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	3,665 ^a \$957,293,500 ^a \$4,126,988 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	473 ^a 104 / 0 ^a \$ 8,984,657.71 ^a

a. According to FEMA statistics as of October 31, 2017

Table 12-8. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes. The City Communications Office, Public Safety public information officers, and Utilities Communication Manager provide public information officer functions.
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes. www.cityofpaloalto.org/lhmap & www.cityofpaloalto.org/thira Palo Alto maintains and follows an Open data initiative that makes large amounts of governmental information available to the public. We have a local hazards mitigation page on the city website.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes We have implemented the use of social media using Nextdoor to communicate these types of information to the public at large.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes - Citizen Corps is a best practice and model advocated by the federal government to integrate volunteers, non-government entities, the private sector, and other groups with local programs related to homeland security and emergency management (HS/EM). The City first formed a Citizen Corps Council (CCC) in 2004. The City later revised the structure of the in 2009.
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes The City of Palo Alto Website also provides several sources for hazard related information including a threats and hazards page, but also in our comprehensive plan. Our emergency services volunteer program also serves as a communications network in their outreach to neighborhood members as well as their participation in community events.
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes The City participates in the County of Santa Clara mass notification system, AlertSCC, to get emergency warnings sent directly to cell phone, mobile device, email, or landline.

Table 12-9. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	7	1990
Building Code Effectiveness Grading Schedule	Yes	1	2015
Public Protection (Palo Alto Fire Department)	Yes	2	2012
Storm Ready	Yes	N/A	2015
Firewise	No	N/A	N/A

Table 12-10. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Development Services Department
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	No

Table 12-11. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High
Comment: The City has a Sustainability Officer who manages a stakeholder team of both internal staff members and external agency representatives to understand the climate change issues in our area. The City's Sustainability and Climate Action Plan demonstrates our understanding of climate change impacts; Palo Alto is engaged in Bay Area conservation planning groups that are also involved in climate change impacts.	
Jurisdiction-level monitoring of climate change impacts	High
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	High
Comment: Staff members are assigned to assess and propose strategies for climate change impacts. These strategies are then included in our Comprehensive Plan, Hazard Mitigation Planning, and Sustainability and Climate Action Plan.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High
Comment: In 2009 Palo Alto published the City's Climate Protection Plan to reduce greenhouse gas emissions. The Climate Protection Plan provides a comprehensive inventory of emissions, reduction targets, and steps to reach those targets (http://www.cityofpaloalto.org/civicax/filebank/documents/9986). In 2014 the City updated this plan with new emissions data, goals, and actions. Additionally, the City has developed several programs to further reduce emissions including a long term road map coordinated through the Sustainability and Climate Action Plan as well as the City's carbon neutral electric plan. http://www.cityofpaloalto.org/gov/depts/utl/residents/resources/pcm/carbon_neutral_portfolio.asp	
Capital planning and land use decisions informed by potential climate impacts	High
Comment: As a result of the technical resources assigned to this planning element, Palo Alto incorporates decisions into Comprehensive Planning, Local Hazard Mitigation Planning, and Sustainability and Climate Action Planning.	
Participation in regional groups addressing climate risks	High
Comment: Palo Alto staff members are involved in Local, Regional, and National groups studying climate/change and adaption issues.	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High
Comment: The Palo Alto City Council has established an aggressive GHG reduction goal and is in process of updating its Comprehensive Plan and adopting a Sustainability and Climate Action Plan that will mandate considering climate change impacts during public decision-making processes	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: The City's Sustainability and Climate Action Plan (scheduled for approval 11/28) identifies strategies for reducing GHG emissions 80 percent by 2030 (against a 1990 baseline) and for adapting to expected climate change impacts. These include strong energy efficiency requirements in building codes; exploring electrification (switching customers from natural gas to carbon neutral electricity); embedding sustainability and climate considerations into the city's purchasing, operations and capital investment processes; encouraging shift of private and public vehicles to EVs, supported by expanded EV infrastructure; continued pursuit of the City's zero waste goals.	
Identified strategies for adaptation to impacts	High
Comment: Sustainability and Climate Action Plan	
Champions for climate action in local government departments	High
Comment: Chief Sustainability Officer sitting on City's Executive Leadership Team; multi-department Sustainability Board composed of department directors; 5 to 10 percent of City employees membership of voluntary "green team"	
Political support for implementing climate change adaptation strategies	High
Comment: Strong community and Council support	
Financial resources devoted to climate change adaptation	Low
Comment: Currently, the city provides funding for staff members to engage in change adaptation planning including a Chief Sustainability Officer, and additional departmental staff members on an ad hoc basis. The City has a Capital Improvement Plan (CIP) fund that will provide funding for designated projects. The City Council can allocate funding for change adaptation projects as well.	
Local authority over sectors likely to be negatively impacted	Low
Comment: The City has not studied intently the sectors likely to be negatively impacted by climate change.	

Adaptive Capacity Assessment		Jurisdiction Rating
Public Capacity		
Local residents knowledge of and understanding of climate risk		High
Comment: Palo Alto includes a highly educated community, many of whom we believe understand climate risks. Palo Alto OES hosted a keynote speaker at a 2016 community town-hall event who spoke on the theory of sea level rise and the worldwide and local impacts of this threat.		
Local residents support of adaptation efforts		High
Comment: There is strong local support from what we can tell now for adaptation efforts. The City sponsored a public facing sustainability workshop in 2016 with the participation of hundreds of community members; many community members are speaking up about their concerns of climate change, and several organizations have organized action groups (i.e. Palo Alto Green, Save Palo Alto Groundwater)		
Local residents' capacity to adapt to climate impacts		Medium
Comment: TBD. Overall, Palo Alto is one of the national jurisdictions leading the country in consciousness and thought; but the Palo Alto environment may challenge residential adaptation given our moderate climate (so temperature impacts will probably not be severe except for our elderly population), and the lifestyle of many high income residents. However, Palo Alto has launched an active "cool block" pilot program engaging neighbors in joint mitigation/adaptation efforts.		
Local economy current capacity to adapt to climate impacts		Medium
Comment: Generally strong economy; very energy efficient compared to US; substantial local food production capacity; but generally unrecognized risk to long term water supplies (impacting potable water, hydropower and agriculture).		
Local ecosystems capacity to adapt to climate impacts		Medium
Comment: Depends on the extent of the impacts. We can expect successional pressure on ecosystems from temperature and precipitation changes, other impacts from wildfires and flooding.		

12.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning.

12.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **Comprehensive Plan**—The Local Hazard Mitigation Plan is nested within the City's Comprehensive Plan, and many of the policies and programs in the Comprehensive Plan now have mitigation linkages for the hazards addressed in this plan.
- **Municipal Code**—The City of Palo Alto Municipal Code establishes risk mitigation standards for building codes that impact our seismic and flood risks.
- **Sustainability / Climate Action Plan**—The City's Sustainability and Climate Action Plan will be the primary document that addresses our programs and mitigation actions for climate adaptation.
- **Seismic Hazards Identification Program**—This program will evolve in the near future to provide additional policies to reduce risks to seismic prone buildings.
- **Community Rating System**—Palo Alto will continue efforts to reduce our CRS rating to reduce flood risks to those property owners in FEMA designated flood zones.
- **Energy Assurance Plan**—Palo Alto will continue to develop programs and actions that improves our energy assurance for certain critical infrastructure.
- **Foothills Fire Management Plan**—This plan addresses a broad range of integrated activities and planning documents to identify and mitigate the impacts of fire hazards in the Palo Alto Foothills Area. Fire mitigation project areas include the boundaries of Foothills Park and Pearson-Arastradero Preserve and each year the City allocates resources to treat segments of the project area and to provide public education and awareness.

- **Water Conservation Best Management Practices (BMP)**—Since 2002, the City has partnered with the Santa Clara Valley Water District (SCVWD) to promote and cost-share water efficiency programs for Palo Alto customers. Through this cost-sharing agreement, the City pays roughly half of the cost of the programs, with SCVWD administering many of these programs including onsite water audits, and rebates for landscape conversion as well as water efficient fixtures and appliances. The City also administers other water conservation programs in-house or through separate contracts with outside vendors, such as the Home Water Report program. The City continues to evaluate opportunities for program partnership opportunities with the Bay Area Water Supply and Conservation Agency and other regional alliances.

12.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration. They will be reviewed, developed and updated to include information on hazard risk reduction as feasible and appropriate.

- **Capital Improvement Program (CIP)**—Many of the CIP projects being implemented have a direct or indirect application to local hazards. Specific projects will become part of our mitigation action plan.
- **Foothills Fire Management Plan /Community Wildfire Prevention Plan**—These action plans will have a direct correlation to the mitigation action plan in the reduction of fire hazards to our wildland urban interface area.
- **Post Disaster Recovery Plan**—The City does not have a Post-Disaster Recovery Plan and intends to develop one as a mitigation planning action during the next five years.
- **Sustainability/Climate Action Plan**—The plan will provide strategies for dealing with anticipated impacts of climate change in our community. Some of these strategies will manifest mitigation actions that may be incorporated into future local hazard mitigation planning.
- **Floodplain Management Plan**—The City intends to develop a Floodplain Management Plan.
- **Firewise**—The City intends to meet the Firewise requirements as a public education mitigation action during the next five years.
- **Comprehensive Conservation Plan**—The City will develop two habitat related plans during the next five years. The Baylands Comprehensive Conservation Plan will be completed in FY 2017 to address our shoreline/baylands region; and in FY 2019 we will develop the Foothills, Arastradero, and Esther Clarke Comprehensive Conservation Plan to cover our additional highlands open spaces.

12.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 12-12 lists all past occurrences of natural hazards within the jurisdiction.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment ^a
Flood	DR-1203	1998	\$23 million ^a
Earthquake	DR-845	1989	Unknown ^a
Flood	None	1982	Unknown ^a
Flood	None	1967	Unknown ^a
Flood	None	1958	Unknown ^a
Flood	None	1955	Unknown ^a
Flood	None	1911	Unknown ^a
Flood	None	1862	Unknown

a. Damage assessment information from San Francisquito Creek Joint Powers Authority (2006), except 1862 flood information from PaloAltoHistory.org (2017).

12.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 1
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- Preponderance of city staff employees reside outside of Palo Alto
- Seismically at risk essential services and public facilities
- High density of seismically at risk soft story, concrete tilt up, concrete shear wall buildings
- Roughly 20 percent of Palo Alto is exposed to special flood hazard areas
- Single grid tied high voltage transmission connection to PG&E
- Palo Alto Critical Infrastructure is at risk to the natural hazards identified in this report; the City's Threat and Hazards Identification and Risk Analysis provides impacts to Critical Infrastructure.

12.8 HAZARD RISK RANKING

Table 12-13 presents the ranking of the hazards of concern.

Table 12-13. Hazard Risk Ranking			
Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	48	High
2	Flood	42	High
3	Severe Weather	33	Medium
4	Wildfire	15 ^a	Medium
4	Dam and Levee Failure	15 ^a	Medium
5	Drought	9	Low
6	Landslide	0	None

a. Results were modified based on institutional knowledge not fully captured in the quantitative risk assessment.

12.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Santa Clara County can be found in Appendix D of this volume.

12.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 12-14 lists the actions that make up the City of Palo Alto hazard mitigation action plan. Table 12-15 identifies the priority for each action. Table 12-16 summarizes the mitigation actions by hazard of concern and the six mitigation types.

Table 12-14. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
PA-1—San Francisquito Creek Lower Reach Flood Reduction and Ecosystem Restoration Project						
New	Flood / Severe Weather	5, 6, 8	San Francisquito Creek Joint Powers Authority	\$34 million: Low	General Fund; HMGP; FMA	0-1 Years (Short-term)
PA-2— San Francisquito Creek Upper Reach Flood Reduction and Ecosystem Restoration Project						
New	Severe Storm / Flood	2, 5, 6, 8	San Francisquito Creek Joint Powers Authority	Medium	General Fund; HMGP; FMA	1-2 Years (Short-term)
PA-3—Newell Creek Bridge replacement project to accommodate a 100 year flood event						
New	Flood / Severe Weather	2, 5, 6, 8	Palo Alto Public Works	Low	CALTRANS / SCVWD	2-5 Years (Short-term)
PA-4—Pope Chaucer Street Bridge replacement project to address 100 year flood event						
Existing	Flood / Severe Weather	2, 5, 6, 8	Santa Clara Valley Water District	Low	SCVWD	2-5 Years (Short-term)
PA-5—Matadero Creek Storm Water Pump Station Improvements						
New	Flood / Severe Weather	6, 8	Palo Alto Public Works	\$6 million: Low	CIP: SD-13003	0-1 Years (Short-term)
PA-6—Storm Drain System Replacement and Rehabilitation						
Existing	Flood / Severe Weather	6, 8	Palo Alto PW	\$ 1.5 million: Low	CIP: SD-06101	Annually (Ongoing)
PA-7—Recycled Water Pipeline Expansion Project to expand the recycled water purple pipeline within South Palo Alto towards Stanford Research Park						
Existing	Drought	5, 6	Palo Alto Public Works	\$30 million: Low	CIP: WS-07001	1-3 Years (Short-term)
PA-8—Continue to maintain good standing and compliance in the NFIP and improve Community Rating System Class to provide higher CRS premium discounts						
Existing	Flood / Severe Weather	1, 2, 3, 4	Palo Alto Public Works	Low	General Fund	2-3 Years (Short-term)
PA-9—Execute the SAFER Bay Project to protect critical infrastructure and property and restore historic marshlands						
New	Severe Storm / Flood / Sea Level Rise	2, 5, 6, 8	San Francisquito Creek Joint Powers Authority	High	Combination CIP: OS-09002	Unknown (Long-term)
PA-10—Construct new Public Safety Building to mitigate current risks to public safety essential services						
New	Earthquake	6, 9	Palo Alto Public Works	\$57 million: Medium	CIP: PE-15001	5 -7 Years (Long-term)
PA-11—Rebuild Fire Stations 3 and 4 to mitigate current risks to essential services						
New	Earthquake / Flood / Sea Level Rise	6, 8	Palo Alto Public Works	\$15 million: Low	CIP: PE-15003	2-4 Years (Short-term)
PA-12—Continue 7 year cycle for high priority of tree trimming						
Existing	Earthquake/ Flood / Severe Weather	6,8	Palo Alto Public Works	Low	General Fund	Annually (Ongoing)
PA-13—Replace the Baylands Tide Gate						
Existing	Flood / Severe Weather	6, 8	Santa Clara Valley Water District	Medium	SCVWD	Unknown (Long-term)
PA-14—Consider the use of alternative energy sources for critical infrastructure (essential facilities, key resources)						
Existing	Earthquake / Severe Weather	3, 5	Palo Alto Office of Sustainability	High	Staff Time; General Fund	Unknown (Long-term)

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
PA-15—Implement Wastewater Long-Range Facilities Plan						
Existing	Flood / Severe Weather / Earthquake / Sea Level Rise	6, 8	Palo Alto Public Works	\$3-20 million: Low	CIP: WQ-10001	Annually (Ongoing)
PA-16—Conduct a feasibility analysis concerning the continued use of water reservoirs in the Foothills region						
Existing	Earthquake / Wildfire / Drought	5, 6	Palo Alto Utilities	Medium	General Fund	3-5 Years (Short-term)
PA-17—Consider construction of a new water reservoir in the low lying areas of Palo Alto						
New	Earthquake / Drought	5, 6	Palo Alto Utilities	Medium	General Fund; Possibly HMGP	3-5 Years (Short-term)
PA-18—Rebuild and Reconfigure Electric System in Stanford Hospital/Mall Area to increase reliability during emergencies						
Existing	Earthquake / Severe Weather	5, 8	Palo Alto Utilities	Low	CIP: EL-17004	3-5 Years (Short-term)
PA-19—Install Fiber Optic Service to Black Mountain Radio Repeater Site to improve public safety communications along Skyline Drive						
New	Earthquake / Severe Weather / Wildfire	9	Palo Alto Utilities	Medium	CIP: TBD	2-3 Years (Short-term)
PA-20—Convert overhead utility lines to underground transmission. Installation of new underground electric, communication, and cable television systems in Electric Underground Districts 46 and 47						
Existing	Earthquake / Severe Weather	6, 8	Palo Alto Utilities	\$2.0 million: Low	CIP: EL-12001 / EL-11010	1-4 Years (Short-term)
PA-21—Construct a second electrical transmission interconnection to PG&E using a new corridor						
New	Earthquake / Severe Weather	1, 5	Palo Alto Utilities	High	CIP; Possible HMGP, PDM	Unknown (Long-term)
PA-22—Construct a second water interconnection from Palo Alto Utilities to Stanford Hospital						
New	Earthquake / Severe Weather	2, 6	Palo Alto Utilities	High	CIP; Possible HMGP, PDM	3-5 Years (Short-term)
PA-23—Connect Palo Alto to adjacent Public Safety agencies' Public Safety Answering Points by Fiber						
Existing	Earthquake / Severe Weather	9	Palo Alto Police Department	High	CIP; Possible HMGP, PDM	Unknown (Long-term)
PA-24—Implement a Public Safety Wireless Data Network						
New	Earthquake / Severe Weather /	9	Palo Alto Police Department	High	CIP; Possible EMPG	Unknown (Long-term)
PA-25—Conduct a Hydrology Study on Buck-Eye Creek for flood protection and erosion control at Foothills Park						
Existing	Flood / Severe Weather	6, 8	Palo Alto Community Services Department	\$105 K: Low	CIP: PG-15000	2-4 Years (Short-term)
PA-26—Develop a Baylands Comprehensive Conservation Plan						
Existing	Flood / Severe Weather / Sea Level Rise	1, 3	Palo Alto Community Services Department	\$330 K: Low	CIP: PG-17000	1-2 Years (Short-term)
PA-27—Address hazardous fuels and reduce structural ignitability in the Foothills region in accordance with the Community Wildfire Protection Plan and Foothills Fire Management Plan						
Existing	Wildfire	2, 3, 6, 8	Palo Alto Fire Department	\$150 K: Low	General Funds	Annually (Ongoing)
PA-28—Encourage creation by Foothills Residents of a Firewise Ready Community						
Existing	Wildfire	2, 3, 4, 8	Palo Alto OES	Low	Staff Time; General Funds	1-2 Years (Short-term)

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
PA-29—Consider a policy for Seismic Retrofitting of earthquake prone structures Existing	Earthquake	2, 3, 5, 8	Palo Alto Development Services	Low	Staff Time; General Funds	1-2 Years (Short-term)
PA-30—Develop a Policy for Sea-Level Rise considerations (what actions should the City take) Existing	Sea Level Rise	2, 3, 5, 8	Sustainability	Low	Staff Time; General Funds	1-2 Years (Short-term)
PA-31—Develop a post-disaster Community Long-term Recovery Plan New	All Hazards	1, 2, 4	Palo Alto OES	Medium	Staff Time; General Funds	3-5 Years (Short-term)
PA-32—Conduct public education that raises awareness of Palo Alto threats and hazards and improves community resilience Existing	All Hazards	1, 2, 4	Palo Alto OES	Low	Staff Time; General Funds	Annually (Ongoing)
PA-33—Maintain Storm Ready Community designation Existing	Severe Storm	2, 4, 9	Palo Alto OES	Low	Staff Time; General Funds	Annually (Ongoing)
PA-34—Improve Palo Alto Fire Department ISO rating Existing	All Hazards	1, 2, 3, 4,	Palo Alto Fire Department	Low	Staff Time; General Funds	1-2 Years (Short-term)
PA-35—Maintain Building Effectiveness Grading Schedule classification of 1 Existing	All Hazards	3, 8	Palo Alto Development Services	Low	Staff Time; General Funds	Annually (Ongoing)
PA-36—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses Existing	All Hazards	4, 5, 6, 7, 8	Palo Alto Development Services	High	HMGP, PDM, FMA	Short-term
PA-37—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community New and Existing	All Hazards	2, 4,	Development Services Department	Low	Staff Time, General Funds	Ongoing
PA-38—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan. New and Existing	All Hazards	1, 5	Palo Alto OES	Low	Staff Time; General Funds	Short-term

Table 12-15. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
PA-1	3	High	Low	Yes	Yes	Yes	High	High
PA-2	4	High	Medium	Yes	Yes	Yes	High	High
PA-3	4	High	Low	Yes	Yes	Yes	High	High
PA-4	4	High	Low	Yes	Yes	Yes	High	High
PA-5	2	Medium	Low	Yes	Yes	Yes	High	High
PA-6	2	Medium	Low	Yes	Yes	Yes	High	High
PA-7	2	Low	Low	Yes	No	Yes	High	Low
PA-8	4	Medium	Low	Yes	No	Yes	High	Low
PA-9	4	Medium	High	No	Yes	No	Low	Low
PA-10	2	High	Medium	Yes	No	Yes	High	Low
PA-11	2	High	Low	Yes	No	Yes	High	Low
PA-12	2	High	Low	Yes	No	Yes	High	Low
PA-13	2	Medium	Medium	Yes	No	Yes	Medium	Low
PA-14	2	Low	High	No	Yes	No	Low	Low
PA-15	2	Medium	Low	Yes	No	Yes	High	Low
PA-16	2	Medium	Medium	Yes	No	No	Medium	Low
PA-17	2	Medium	Medium	Yes	Yes	No	Medium	Medium
PA-18	2	High	Low	Yes	No	Yes	High	Low
PA-19	1	Medium	Medium	Yes	No	No	Low	Low
PA-20	2	High	Low	Yes	No	Yes	High	Low
PA-21	2	Medium	High	No	No	No	Medium	Low
PA-22	2	Medium	High	No	No	No	Medium	Low
PA-23	1	Medium	High	No	Yes	No	Low	Low
PA-24	1	Medium	High	No	No	No	Medium	Low
PA-25	2	Low	Low	Yes	No	Yes	High	Low
PA-26	2	Medium	Low	Yes	No	Yes	High	Low
PA-27	4	High	Low	Yes	Yes	Yes	High	High
PA-28	4	High	Low	Yes	No	Yes	High	Low
PA-29	4	Medium	Low	Yes	Yes	Yes	High	High
PA-30	4	Medium	Low	Yes	Yes	Yes	High	High
PA-31	3	Medium	Medium	Yes	Yes	Yes	High	Medium
PA-32	3	High	Low	Yes	No	Yes	High	Low
PA-33	3	High	Low	Yes	No	Yes	High	Low
PA-34	4	High	Low	Yes	No	Yes	High	Low
PA-35	2	High	Low	Yes	No	Yes	High	Low
PA-36	5	High	High	Yes	Yes	No	Medium	High
PA-37	2	Medium	Low	Yes	No	Yes	High	Low
PA-38	2	Low	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 12-16. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	PA-14, PA-15, PA-35, PA-37, PA-38	PA-16, PA-29, PA-36	PA-31, PA-32		PA-14, PA-18, PA-19, PA-22, PA-23, PA-24, PA-34, PA-35	PA-10, PA-11, PA-17, PA-20, PA-21	
Flood	PA-1, PA-2, PA-3, PA-4, PA-5, PA-6, PA-9, PA-13, PA-15, PA-25, PA-26, PA-30, PA-35, PA-37, PA-38	PA-1, PA-2, PA-3, PA-4, PA-5, PA-6, PA-9, PA-13, PA-30, PA-36	PA-8, PA-31, PA-32	PA-9, PA-25, PA-26	PA-8, PA-34, PA-35	PA-11, PA-17, PA-21	PA-1, PA-2, PA-9
Severe Weather	PA-1, PA-2, PA-3, PA-4, PA-5, PA-6, PA-9, PA-15, PA-26, PA-35, PA-37, PA-38	PA-1, PA-2, PA-3, PA-4, PA-5, PA-6, PA-9, PA-36	PA-8, PA-31, PA-32, PA-33	PA-26	PA-8, PA-18, PA-19, PA-22, PA-23, PA-24, PA-33, PA-34, PA-35	PA-20, PA-21	
Wildfire	PA-27, PA-35, PA-37, PA-38	PA-16, PA-27, PA-28, PA-36	PA-28, PA-31, PA-32	PA-27	PA-27, PA-34, PA-35		
Dam and Levee Failure	PA-37, PA-38	PA-36	PA-31, PA-32		PA-34	PA-9	
Drought	PA-37, PA-38	PA-16, PA-36	PA-31, PA-32	PA-7			PA-17

a. See the introduction to this volume for explanation of mitigation types.

12.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The City of Palo Alto has identified that more information is needed to understand the potential for impacts from the Searsville Dam. Palo Alto's susceptibility to risks associated with inundation caused by the failure of local Dams is a function of how much water is actually stored in the three dams within the watersheds that flow through Palo Alto. The City of Palo Alto Comprehensive Plan Environmental Impact Report provides an analysis of the risks provided by Felt Lake Dam, Lagunitas Reservoir Dam, and Searsville Dam (City of Palo Alto, 2016). We have strong evidence that Felt Lake and Lagunitas Reservoir Dams have negligible impact due to the low volumes of water they store. Searsville Dam is now heavily silted and stores only approximately 30 percent of its total capability. We will work with Stanford University to develop a better understanding of risks and impacts from this Dam.

12.12 PALO ALTO PLANNING PROCESS

The City of Palo Alto began our LHMP planning process in 2015 by participating in the Association of Bay Area Governments (ABAG) mitigation planning workshops. We followed up this preparation in January 2016 with the development of a project management plan that described how we would implement the local mitigation planning process. This effort was started in advance of the Santa Clara County effort to receive Mitigation Planning Grant funding. Palo Alto created two planning structures as recommended by ABAG and included an inter-departmental city staff planning team as well as an external stakeholder group comprised of various local organizations representative of our 'whole community.' Over the year, the planning process followed the recommended steps in the FEMA Process Map and joined the Santa Clara County planning process in August 2016.

Palo Alto also created an online website (cityofpaloalto.org/lhmap) in February 2016 that described our planning process and served as a data repository for our project teams and for the general public. In May 2016 we highlighted this process on the City's Homepage.

Meeting documentation including internal planning team minutes, stakeholder team minutes and community engagement summaries can be found online at: www.cityofpaloalto.org/lhmap

Hazard Mitigation & Climate Adaptation Planning: Meeting Roadmap

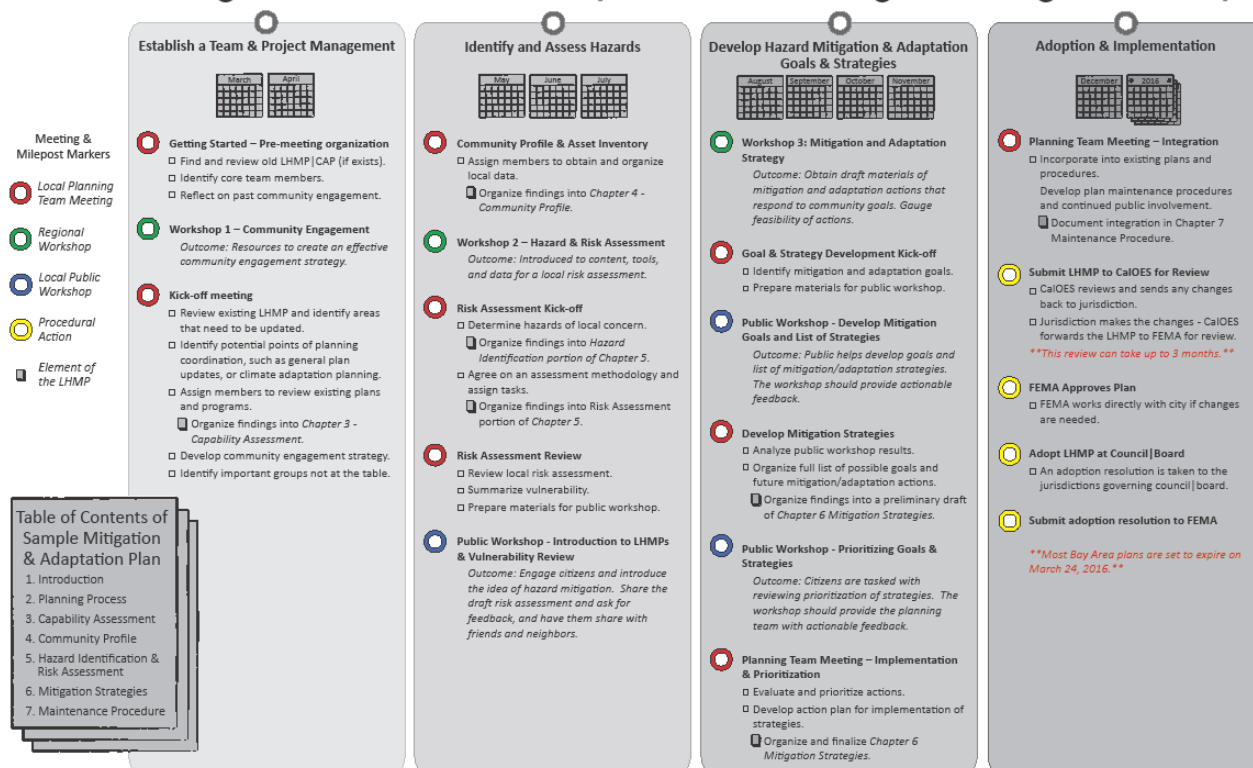


Figure 12-2. Meeting Roadmap for ABAG Planning Process



Figure 12-3. City of Palo Alto Homepage with Information on Local Hazard Mitigation Plan

12.13 ADDITIONAL RESOURCES

The following sources were used for information throughout this annex:

City of Palo Alto. 2007. City of Palo Alto Comprehensive Plan 2007, p. L-4. Accessed online at <http://www.cityofpaloalto.org/civicax/filebank/documents/8170>

City of Palo Alto. 2014. Comprehensive Plan Update: Land Use; Draft Existing Conditions Report – City of Palo Alto, August 29, 2014, p. 8-31. http://www.paloaltocompplan.org/wp-content/uploads/2014/09/8_LandUse.pdf

City of Palo Alto. 2016. City of Palo Alto Comprehensive Plan Environmental Impact Report, 2016. Hydrology and Water Quality, p. 4.8-38 & 39. Accessed online at http://www.paloaltocompplan.org/wp-content/uploads/2016/02/4-8_HydrologyWaterQuality.pdf

PaloAltoHistory.org. 2017. The Christmas Flood: “All Through the House... was Mud”. Web page accessed online at <http://www.paloaltohistory.org/the-christmas-flood.php>.

San Francisquito Creek Joint Powers Authority Proposition 1E Grant Proposal. http://www.water.ca.gov/irwm/grants/docs/Archives/Prop1E/Submitted_Applications/P1E_Round1_SWFM/San%20Francisquito%20Creek%20Joint%20Powers%20Authority/Att7_SWF_DReduc_1of3.pdf.

San Francisquito Creek Joint Powers Authority. 2006. San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration Project Report. Accessed online at <http://www.cityofpaloalto.org/cityagenda/publish/jpa-meetings/63.pdf>.

USClimateData.Com. 2017. Palo Alto Climate Data web page. Accessed online at <http://www.usclimatedata.com/climate/palo-alto/california/united-states/usca0830>

13. CITY OF SAN JOSÉ

13.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Cay Denise MacKenzie, CEM
Senior Emergency Services Planner
Office of Emergency Services
855 N. San Pedro St., Room 404
San José, CA 95110
Telephone: 408-794-7055
e-mail Address: cay.mackenzie@sanjoseca.gov

Alternate Point of Contact

Jared Hart, AICP, CPSWQ
Supervising Planner
Planning, Building and Code Enforcement
200 E. Santa Clara Street, 3rd Fl.
San José, CA 95113
Telephone: 408-535-7896
e-mail Address: jared.hart@sanjoseca.gov

13.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—The City of San José was officially incorporated on March 27, 1850, 73 years after its founding as Pueblo de San José, California’s first civilian settlement, on November 29, 1777.
- **Current Population**—As of January 1, 2016, the City of San José population was 1,042,094.
- **Population Growth**—The overall population has increased 9.2 percent between January 1, 2010 (945,942) and January 1, 2016 (1,042,094). San José is projected to have a population of approximately 1,379,000 residents in 2040.
- **Location and Description**—The City of San José is an urban area of 180.2 square miles nestled in a valley at the foot of the Santa Cruz and Diablo Mountain Ranges. San José is bordered by the San Francisco Bay and the City of Milpitas to the north, the cities of Santa Clara, Cupertino, Saratoga, Los Gatos, and Campbell to the west, and unincorporated lands to the south and east. Its lowest point is in Alviso, located at the southern end of the San Francisco Bay at sea level while the highest point in San José is Copernicus Peak, near Lick Observatory on Mt. Hamilton, which rises to 4,372 feet above sea level. San José is the 10th largest city in the United States, and the third largest city in California. It is the Capital of Silicon Valley and, as such, boasts the highest number of Fortune 500 companies headquartered in San José. Additionally, the City has the highest median income of a large U.S. city, and over 40 percent of the City’s adult residents hold a post-secondary educational degree. Forty percent of the city’s population was born outside the U.S. San José has the largest populations of Chinese, Vietnamese, and Indian residents within the San Francisco Bay area.
- **Brief History**—In November 1777, El Pueblo San José de Guadalupe became the first civil settlement in California. The settlement was mostly occupied by the Ohlone Indians along the Guadalupe River and Spanish settlers. At that time, San José was a farming community cultivating a number of different crops, which served the military communities in San Francisco and Monterey. In 1850, San José became the first capital of California, but this honor remained for only two years due to flooding in downtown and the lack of hotel capacity. Furthering San José’s difficulties, the city was plagued with floods, earthquakes,

and fires in the early 1900s. However, over the next century, San José experienced one of the most significant economic changes in California history, transforming from an agricultural community to what is known today as the “Capital of Silicon Valley.”

- **Climate**—The City of San José is located inland from the Pacific Coast in northern California. The climate in San José is a typical Mediterranean type modified by marine breezes from the Pacific Ocean. The principal characteristics of the local climate are warm and very dry summers with cool and relatively rainy winters. The average annual temperature is 60°F and the annual average rainfall is 14.42 inches.
- **Governing Body Format**—The municipal government established by the City of San José’s Charter is known as the “Council-Manager” form of government. All powers of the City and the determination of all matters of policy are vested in the Council, subject to the provisions of the Charter and Constitution of the State of California. As regards the San José Annex to the County of Santa Clara’s Local Hazard Mitigation Plan dated 2017, City Council assumes responsibility for adoption of the Plan, and the City Manager will oversee its implementation.

13.3 DEVELOPMENT TRENDS

Development in San José has increased significantly since the end of the Great Recession in mid-2009 and adoption of Envision San José 2040 General Plan (November 2011). Between November 2011 and the end of Fiscal Year 15-16, San José issued building permits for new construction of approximately 15,500 housing units, 6.9 million square feet of commercial development, and 5.4 million square feet of industrial development. The City’s current General Plan, *Envision San José 2040*, embodies twelve Major Strategies, which collectively inform the Land Use/Transportation Diagram and the Goals, Policies and Implementation Actions formulated to guide the physical development of San José and the evolving delivery of City services over the life of the General Plan. Table 13-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 13-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? <ul style="list-style-type: none">If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes 0.89 square miles, approximately 32 parcels					
Is your jurisdiction expected to annex any areas during the performance period of this plan? <ul style="list-style-type: none">If yes, please describe land areas and dominant uses.If yes, who currently has permitting authority over these areas?	Yes The City of San José is likely to annex properties in unincorporated areas adjacent the City, which apply for development permits over the timeframe of this plan. The number of properties and land area is expected to be minimal, consistent with annexations over the timeframe of the previous hazard mitigation plan. County of Santa Clara					
Are any areas targeted for development or major redevelopment in the next five years? <ul style="list-style-type: none">If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes The Envision San José 2040 General Plan directs and promotes growth within identified Growth Areas, particularly areas proximate to Downtown and with access to existing and planned transit facilities. Various General Plan identified Growth Areas have Flood Zones within their boundaries.					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	89	214	280	399	170
	Multi-Family	20	87	110	118	106
	Other (commercial, mixed use, etc.)	115	110	114	148	119
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Development has occurred throughout the city during the performance period for this plan. For hazards with a clearly defined extent and location, the City cannot estimate specific development impacts. For hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was consistent with General Plan policies and municipal code standards and as a result most development has occurred outside of identified hazard zones.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Periodically, the City completes a Vacant Land Inventory that documents its remaining vacant land according to land use designation. As of July 2015, total vacant land within San José's Urban Service Area/Urban Growth Boundary was approximately 4,700 acres. It is estimated that approximately 200 to 500 acres of vacant land may be developed over the next five years.					

13.4 CAPABILITY ASSESSMENT

13.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (City of San José Annex). All of the below items were additionally reviewed as part of the full capability assessment for the City of San José.

- **Envision San José 2040 General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives. The General Plan establishes goals and policies to incorporate safety

considerations into the City’s planning and decision-making processes to reduce risks of hazards. Since it is not possible to eliminate all such risks, the City and its residents must decide, based on personal, social, and economic costs and benefits, the degree of risk that is acceptable for various hazards. High risks in existing structures may be lowered to an acceptable level by physical alteration, relocation, demolition or changes in use. For new development, the emphasis of the *Envision General Plan* policies is to regulate construction so as to minimize identifiable risks.

The Natural Hazards policies in the Plan are based on substantial background data and analysis about existing conditions in the City of San José and in the Santa Clara Valley. In the event of a fire, geologic, or other hazardous occurrence, the City of San José’s Emergency Plan provides comprehensive, detailed instructions and procedures regarding the responsibilities of City personnel and coordination with other agencies to ensure the safety of San José’s citizens. The Emergency Plan includes evacuation procedures but does not delineate evacuation routes. Instead, procedures are outlined for different types of emergencies occurring in different locations of San José.

- **City of San José Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **The Plant Master Plan**—The Plant Master Plan was reviewed to identify strategies for preparing for sea-level rise as it relates to protecting regional critical infrastructure.
- **Technical Reports and Information**—Outside resources and references used to complete the City of San José Annex are identified in Section 13.10 of this Annex.

13.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 13-2. An assessment of fiscal capabilities is presented in Table 13-3. An assessment of administrative and technical capabilities is presented in Table 13-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 13-5. An assessment of education and outreach capabilities is presented in Table 13-6. Classifications under various community mitigation programs are presented in Table 13-7. Development and permitting capabilities are presented in Table 13-8, and the community’s adaptive capacity for the impacts of climate change is presented in Table 13-9.

Table 13-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	No
Comment: 2016 California State building code (CCR, Title 24): Building, Residential, Electrical, Mechanical, Plumbing, Building Energy Efficiency Standards, Historical Building, Existing Building, Green Building Standards; and 2015 International Existing Building Code. Municipal Code, Title 24, Technical Codes, October 2016				
Zoning Code	Yes	No	Yes	No
Comment: Municipal Code, Title 20, Zoning, Ord. 26248, February 2001, undergoes periodic review and revisions (http://www.sanjoseca.gov/index.aspx?NID=2108)				
Subdivisions	Yes	No	Yes	No
Comment: Municipal Code, Title 19, Subdivisions				
Stormwater Management	Yes	Yes	Yes	No
Comment: Municipal Code, Title 15, Chapter 15.14, Sewer Use Regulations, Ord. 24800; Municipal Code, Title 20, Chapter 20.95, Storm Water Management, Ord. 26995				
Post-Disaster Recovery	No	No	No	No
Comment: None located				
Real Estate Disclosure	No	No	Yes	No
Comment: CA. State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property.				
Growth Management	Yes	No	Yes	No
Comment: Municipal Code, Title 18, Chapter 18.30, Greenline/Urban Growth Boundary, Ords. 25301, 25302, 25706, 26082; Cal. Gov. Code §65300 et seq.				
Site Plan Review	Yes	No	No	No
Comment: Municipal Code, Title 20, Chapter 20.100, Administration and Permits, Ord. 26248, February 2001				
Environmental Protection	Yes	Yes	Yes	No
Comment: Municipal Code, Title 21, Environmental Clearance, Ord. 24551; California Environmental Quality Act				
Flood Damage Prevention	Yes	No	No	No
Comment: Municipal Code, Title 17, Chapter 17.08, Special Flood Hazard Area Regulations, Ord. 28512				
Emergency Management	Yes	No	No	No
Comment: Municipal Code, Title 8, Office of Emergency Services, Ord. 25213				
Climate Change	Yes	No	Yes	Yes
Comment: City of San José Greenhouse Gas Reduction Strategy, Resolution No. 77618, December 2015 (http://www.sanjoseca.gov/documentcenter/view/9388); California SB-379				
Other: N/A	No	No	No	No
Comment: None located				
Planning Documents				
General Plan	Yes	No	Yes	Yes
Envision San José 2040 General Plan, Resolution No. 76042, revised December 13, 2016. Comment: The Envision San José 2040 General Plan is in compliance with Assembly Bill 2140. (http://www.sanjoseca.gov/DocumentCenter/Home/View/474)				
Capital Improvement Plan	Yes	No	No	Yes
Comment: 2017 – 2021 Capital Improvement Program (CIP), updated annually (http://www.sanjoseca.gov/index.aspx?nid=5052)				
Floodplain or Watershed Plan	No	No	No	No
Comment: None located				
Stormwater Plan	Yes	No	No	No
Comment: City of San José Stormwater Management Annual Report 2015-2016, September 2016, prepared annually (http://www.sanjoseca.gov/ArchiveCenter/ViewFile/Item/2931)				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Urban Water Management Plan Comment: San José Municipal Water System 2015 Urban Water Management Plan, June 2016 (https://www.sanjoseca.gov/DocumentCenter/View/57483)	Yes	No	Yes	No
Habitat Conservation Plan Comment: Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan; Municipal Code, Title 18, Chapter 18.40, Habitat Conservation Plan, Ord. 29203, January 2013	Yes	No	No	No
Economic Development Plan Comment: None located	No	No	No	No
Shoreline Management Plan Comment: None located	No	No	No	No
Community Wildfire Protection Plan Comment: None located	No	No	No	No
Forest Management Plan Comment: None located	No	No	No	No
Climate Action Plan Comment: The City's Environmental Services Department is currently developing an Environmental Sustainability Plan (Climate Action Plan).	No	No	No	Yes
Comprehensive Emergency Management Plan Comment: City of San José Emergency Operations Plan, August 2004 (http://www.sanjoseca.gov/DocumentCenter/View/47603)	Yes	No	No	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: None located	Yes	No	No	No
Post-Disaster Recovery Plan Comment: None located	No	No	No	No
Continuity of Operations Plan Comment: None located	No	No	No	Yes
Public Health Plan Comment: None located	No	No	No	No
Other: N/A Comment: None located	No	No	No	No

Table 13-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes (water, sanitary and storm sewer)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Yes

Table 13-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning, Building and Code Enforcement/Planning Division, Planners Public Works, Civil Engineers
Engineers or professionals trained in building or infrastructure construction practices	Yes	Planning, Building and Code Enforcement/Building Division, Engineers and Building Inspectors
Planners or engineers with an understanding of natural hazards	Yes	Public Works, Civil Engineers Office of Emergency Services, Emergency Services Planners
Staff with training in benefit/cost analysis	Yes	Multiple City departments, Analysts
Surveyors	Yes	Public Works/Engineering Services, Land Surveyors, Engineers
Personnel skilled or trained in GIS applications	Yes	Multiple City departments and positions (e.g., GIS Specialists, Planners, etc.)
Scientist familiar with natural hazards in local area	Yes	Public Works, Engineers
Emergency manager	Yes	Fire Department, Office of Emergency Services, Director
Grant writers	Yes	Multiple departments have grant writing capability as a secondary function

Table 13-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works
Who is your floodplain administrator? (department/position)	Arlene Lew, Floodplain Manager
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	August 2, 1982; last updated April 7, 2009
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets the minimum requirements
When was the most recent Community Assistance Visit or Community Assistance Contact?	2011
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	Yes No N/A
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	7,668 ^a \$1,919,489,100 ^a \$6,725,447 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	477 ^a 210 ^a \$3,537,347.91 ^a

a. According to FEMA statistics as of October 31, 2016.

Table 13-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? If yes, please briefly describe.	Yes In addition to other information, the Office of Emergency Services has information on their website on emergency preparedness (e.g., winder storm preparedness, family preparedness, emergency kits), self-reliance in a power outage, and safety tips.
Do you utilize social media for hazard mitigation education and outreach? If yes, please briefly describe.	Yes The City used NextDoor and Facebook to reach community members related to participation in the Hazard Mitigation Plan Update survey employed as part of the Operational Area's LHMP update process.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, please briefly describe.	No
Do you have any established warning systems for hazard events? If yes, please briefly describe.	Yes An AlertSCC for smartphone/cell alerts is available for the public to sign up for; however no physical alert systems exist at this time.

Table 13-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	7	June 16, 2010
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	Yes	3	2016
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 13-8. Development and Permit Capabilities

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Planning, Building and Code Enforcement and Public Works
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	Although the City has the ability to track permits by hazard area, this capability is not currently being utilized.

Table 13-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High
<p>Comment: The City's Environmental Services Department is currently developing an Environmental Sustainability Plan focused on greenhouse gas emissions reduction, energy usage reduction, and a sustainable water supply. The City went through an RFP process in and selected PriceWaterhouseCoopers (PwC) to develop the plan.</p> <p>In addition, the City of San José was recently selected as a participating City Energy Project (CEP) city. The CEP is a national initiative from the Institute for Market Transformation and the Natural Resources Defense Council to create healthier and more prosperous American cities by improving the energy efficiency of buildings. Working in partnership, the Project and participating cities support innovative and practical solutions that boost local economies, reduce pollution, and create healthier environments.</p>	
Jurisdiction-level monitoring of climate change impacts	High
<p>Comment: The City has a certified Greenhouse Gas Reduction Strategy, and is in the process of drafting a Greenhouse Gas Reduction Strategy Implementation Policy to further implements the Greenhouse Gas Reduction Strategy through the development review process on a project level. Additionally, the City's greenhouse gas emissions inventory is periodically updated during the City's General Plan Four-Year Major Review process.</p>	
Technical resources to assess proposed strategies for feasibility and externalities	High
<p>Comment: The development and implementation of the Environmental Sustainability Plan and participation in the CEP will provide additional information on additional staff and tool needs to implement climate-change related projects.</p>	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
<p>Comment: The City recently hired consultants (AECOM) to updated its greenhouse gas emissions inventory. The previous GHG inventory was completed in 2008 as part of a comprehensive update of the City's General Plan. As mentioned above, the City's greenhouse gas emissions inventory is periodically updated during the City's General Plan Four-Year Major Review process.</p>	
Capital planning and land use decisions informed by potential climate impacts	High
<p>Comment: The City's General Plan contains multiple policies to support the implementation of environmental best practices, including those to minimize San José's contribution to climate change while remaining adaptable to impacts from climate change. The City also considers climate change impacts as part of capital improvement planning efforts and projects.</p>	
Participation in regional groups addressing climate risks	Medium
<p>Comment: Joint venture Silicon Valley, South Bay Shoreline Levee Project, Resilient By Design.</p>	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High
<p>Comment: The City of San José has authority in the decision-making process to consider climate change impacts. This also driven by State legislation to reduce GHG emissions.</p>	
Identified strategies for greenhouse gas mitigation efforts	High
<p>Comment: As mentioned above, the City's General Plan contains multiple policies to support the implementation of environmental best practices, including those to minimize San José's contribution to climate change while remaining adaptable to impacts from climate change. The City also has a certified Greenhouse Gas Reduction Strategy, and implements Green Building policies for private sector and municipal buildings. Among other related projects and planning efforts, the City is currently developing an Environmental Sustainability Plan (ESP), a citywide plan focused on water and greenhouse gas emissions as they relate to energy and mobility.</p>	
Identified strategies for adaptation to impacts	High
<p>Comment: The City's General Plan includes goals and policies focused on hazards and the incorporation of safety considerations into the City's planning and decision-making processes to reduce those risks.</p>	
Champions for climate action in local government departments	High
<p>Comment: Multiple departments including, Planning, Building and Code Enforcement, Department of Transportation, and Environmental Services, implement the goals of the General Plan related to climate change, and lead various other planning and project specific efforts to reduce greenhouse gas emissions in San José.</p>	

Adaptive Capacity Assessment	Jurisdiction Rating
Political support for implementing climate change adaptation strategies Comment: San José's commitment to environmental sustainability is embodied in its 30-year legacy of progressive land use planning, environmental protection, water and energy conservation programs. Recent actions, such as development of the City's Green Vision (adopted in October 2007), the City's adoption of the Urban Environmental Accords in 2005, and the Measurable Sustainability/Environmental Stewardship Major Strategy and incorporation of Environmental Leadership policies in the Envision San José 2040 General Plan extend that legacy.	High
Financial resources devoted to climate change adaptation Comment: In addition to funded staff positions on the Environmental Services Department's (ESD) energy team, ESD has obtained a \$200,000 City Energy Project (CEP) grant.	Medium
Local authority over sectors likely to be negative impacted Comment: None provided	Medium
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: None provided	Medium
Local residents support of adaptation efforts Comment: An extensive community engagement process was undertaken during the last comprehensive update of the City's General Plan. One of the top three planning priorities identified by the community was Environmental Leadership, including addressing climate change.	Medium
Local residents' capacity to adapt to climate impacts Comment: None provided	High
Local economy current capacity to adapt to climate impacts Comment: None provided	High
Local ecosystems capacity to adapt to climate impacts Comment: None provided	Medium

13.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

13.5.1 Existing Integration

- **Envision San José 2040 General Plan**—The General Plan establishes goals and policies to incorporate safety considerations into the City's planning and decision-making processes to reduce risks of hazards. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate.

13.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration. At the time of their development or update information from the mitigation plan will be integrated as feasible and as appropriate:

- **Greenprint**—The Greenprint is a long-term strategic plan that guides the future expansion of San José's parks, recreation facilities and community services. The City is undertaking a major update of its existing Greenprint. The process will involve extensive public engagement and is expected to take approximately 12-18 months.
- **Green Infrastructure Plan**—The City's Environmental Service's Department is developing a Green Infrastructure Plan as required by the San Francisco Bay Municipal Regional Stormwater NPDES Permit.

- **Zoning Code**—The Zoning Code promotes and protects the public peace, health, safety, and general welfare by guiding, controlling, and regulating future growth and development in the City.
- **Capital Improvement Program (CIP)**—The Five-Year Capital Improvement Plan (Program) is a long-range study of financial wants, needs, expected revenues, and policy intentions. The projects identified in the program will be reviewed to incorporate mitigation strategies as appropriate.
- **Greenhouse Gas Reduction Strategy**—The City’s Greenhouse Gas Reduction Strategy, prepared in conjunction with the Envision San José 2040 General Plan provides an implementation tool consistent with the requirements of State Assembly Bill 32 – the Global Warming Solutions Act of 2006.
- **Environmental Sustainability Plan**—The City’s Environmental Services Department is currently developing an Environmental Sustainability Plan (Climate Action Plan) focused on greenhouse gas emissions reduction, energy usage reduction, and a sustainable water supply.
- **Sanitary Sewer Master Plan**—The Sanitary Sewer Master Plan identifies capital improvement projects needed to improve the sewer system to address sewer system capacity deficiencies and to provide for planned future growth in the City. The projects identified in the program will be reviewed to incorporate mitigation strategies as appropriate.
- **Deferred Maintenance Infrastructure Log**—The Deferred Maintenance Infrastructure Log identifies City facilities deferred infrastructure maintenance and associated costs.
- **Plant Master Plan**—The Plant Master Plan (Plan) identifies projects and funding needed to repair and replace the San José/Santa Clara Water Pollution Control Plant’s aging facilities and processes as well, as a land use plan that defines the future treatment needs along with guidelines for the future development, restoration, and use of the Plant’s four-and-a-half square mile site. The projects identified in the program will be reviewed to incorporate mitigation strategies as appropriate.
- **Storm Sewer Master Plan**—The City of San José is currently developing a comprehensive citywide storm sewer system master plan. As part of this process, the City is evaluating the storm drain system capacity deficiencies and improvement alternatives, and is planning for climate change and adaption as it relates to the storm drain system.
- **Urban Village Plans**—The development of Urban Villages is the fifth of 12 major strategies embodied within the Envision San José 2040 General Plan. The General Plan establishes the Urban Villages concept to create a policy framework to direct a significant amount new job and housing growth to occur within Urban Villages. The General Plan identifies 68 Urban Villages. Preparation of an Urban Village Plan for each Urban Village area will provide for community involvement in the implementation of the General Plan and for land use and urban design issues to be addressed at a finer level of detail. Where these Urban Village boundaries overlap with identified hazards, the Urban Village Plans provide an opportunity to integrate land use planning that recognizes and is sensitive to existing hazards. Additionally, Urban Villages are planned to be walkable, bike friendly, with access to transit and other existing infrastructure and facilities, which furthers climate change goals to reduce automobile related greenhouse gas emissions.
- **Emergency Plans**—The City of San José has a number of plans that address emergency situations. The information obtained in the hazard mitigation plan through the risk assessment and discussion of likely impacts will be used to inform the update of these plans, and others, as appropriate:
 - City of San José Emergency Operations Plan
 - Mineta San José International Airport Emergency Response Plan
 - Department of Public Works Emergency Preparedness and Response Plan
 - City of San José Catastrophic Earthquake Mass Transportation/Evacuation Plan and City of San José Catastrophic Earthquake Mass Care and Sheltering Plan.

13.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 13-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 13-10. Natural Hazard Events			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Funnel Cloud	—	5/14/2015	Not Available
Strong Wind	—	2/6/2015	\$1,500
Strong Wind	—	2/6/2015	\$2,000
Strong Wind	—	2/6/2015	\$2,000
Flood	—	2/6/2015	Not Available
Strong Wind	—	12/30/2014	\$2,500
Strong Wind	—	12/30/2014	\$1,000
Strong Wind	—	12/30/2014	\$1,500
Strong Wind	—	12/30/2014	\$1,500
Strong Wind	—	12/30/2014	\$1,500
Strong Wind	—	12/30/2014	\$10,000
Strong Wind	—	12/30/2014	\$1,500
Strong Wind	—	12/30/2014	\$15,000
Strong Wind	—	12/30/2014	\$1,500
Flood	—	12/2/2014	Not Available
Flash Flood	—	2/28/2014	\$500
Flood	—	2/28/2014	Not Available
Strong Wind	—	1/21/2012	\$4,000
Landslide	—	11/30/2011	Not Available
Strong Wind	—	11/30/2011	\$1,000
Strong Wind	—	1/28/2010	\$3,000
Strong Wind	—	1/22/2010	\$12,000
Strong Wind	—	1/20/2010	\$45,000
Flood	—	1/20/2010	Not Available
Strong Wind	—	1/19/2010	\$5,000
Flood	—	1/18/2010	Not Available
Frost/Freeze	—	12/8/2009	\$20,000
High Wind	—	10/27/2009	\$50,000
High Wind	—	10/13/2009	\$125,000
Heat	—	5/17/2009	Not Available
Strong Wind	—	4/14/2009	\$50,000
Strong Wind	—	12/25/2008	\$6,000
Frost/Freeze	—	1/6/2007	\$50,000
Heat	—	7/20/2006	Not Available
Fire	2465	9/23/2002	Not Available
Flash Flood	—	2/8/1998	Not Available
Flash Flood	—	2/7/1998	Not Available
Flash Flood	—	2/3/1998	\$20,000
Severe Storm(s)	1203	2/2/1998	Not Available
Severe Storm(s)	1155	12/28/1996	Not Available

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storm(s)	1046	2/13/1995	Not Available
Severe Storm(s)	1044	1/3/1995	Not Available
Freezing	894	12/19/1990	Not Available
Earthquake	845	10/17/1989	Not Available
Flood	758	2/12/1986	Not Available
Fire	739	6/26/1985	Not Available
Coastal Storm	—	1/21/1983	Not Available
Flood	651	12/19/1981	Not Available
Drought	3023	1/20/1977	Not Available

13.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 1
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- More than 900 structures in the City are located in areas that will be impacted by sea level rise of 77 inches above mean higher high water.

13.8 HAZARD RISK RANKING

Table 13-11 presents the ranking of the hazards of concern.

Table 13-11. Hazard Risk Ranking			
Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Severe Weather	33	Medium
3	Flood	18	Medium
3	Dam and Levee Failure ^a	18	Medium
3	Landslide	18	Medium
3	Wildfire	18	Medium
4	Drought	9	Low

a. If considered separately, Dam Failure is ranked as medium while Levee Failure is ranked as low.

13.9 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 13-12 lists the actions that make up the City of San José hazard mitigation action plan. Table 13-13 identifies the priority for each action. Table 13-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

Table 13-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SJ-1—Consider establishing development review and possible Municipal Code change to require that for all new private development, consideration of increased risks (from flooding, water quality, water flow for firefighting, etc.) to neighboring public and private structures and infrastructure, are to be identified and disclosed in the Planning staff assessment of the development permitting action and in the memorandum to the Planning Commission and/or City Council during deliberation on the permitting action. The intention is to ensure efforts are increased to minimize impacts to neighborhood facilities.						
New	Flood, Wildfire	1, 2, 6	Planning, Building and Code Enforcement	Low	General Fund	Long-term
SJ-2—Develop trail route map for the public that provides the quickest possible trail routes/connections from the San José downtown core to suggested pedestrian evacuation corridors out of the city.						
New and Existing	Dam Failure, Earthquake, Flood	4, 6	Planning, Building and Code Enforcement	Medium	General Fund, Grant (EMPG, UASI)	Short-term
SJ-3—Develop trails/trail connections that provide for mass pedestrian egress from all parts of San José to allow citizen self-evacuation to appropriate locations to be determined (e.g. central and/or southern California, and other locations).						
New	Dam Failure, Earthquake, Flood	4	PRNS	High	Capital Budget, Grants	Long-term
SJ-4—Assess options, fund, and implement a public notification and mass warning system(s) with redundant features throughout the city to reach 90% of the affected population in multiple languages within 10 minutes of notification. This is to include assessment of the strategic siting of infrastructure that would be needed for such a system.						
New	All Hazards	4, 9	Public Works	High	General Fund	Long-term
SJ-5—Assess needs, specify appropriate equipment and procure back-up power generators for critical facilities and to operate 10 Disaster District Offices and a minimum of 60 shelter locations that would support 250 persons each.						
New	All Hazards	2	Office of Emergency Services, Public Works	High	General Fund, Grant (EMPG, UASI)	Long-term
SJ-6—Assess fuel needs, develop re-fueling plan and identify gap needs for critical city and utility infrastructure operations in the case of an extended power outage (assume one month outage).						
New and Existing	Dam Failure, Earthquake, Flood, Levee Failure, Wildfire	3	Emergency Services	Medium	General Fund, Grants	Long-term
SJ-7—Develop and execute agreements with fueling sources to provide supply during power outages when the City's supply has been fully utilized.						
New	Dam Failure, Earthquake, Flood, Levee Failure, Wildfire	2	Public Works	Low	General Fund	Short-term
SJ-8—Consider transition of fire hydrant water supply from potable to recycled water, where feasible, in order to preserve potable water for drinking use in the event of an emergency, and to more fully utilize the recycled water supply.						
Existing	Earthquake, Wildfire	3, 4	Fire	High	Capital Budget, Bonds, Grants	Long-Term
SJ-9—Develop and maintain public education materials and outreach in multiple languages to ensure the public is knowledgeable regarding hazard disaster preparedness.						
Existing	All Hazards	4	Emergency Services, Public Works	Medium	General Fund, Grants	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SJ-10—Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for residential properties with regarding to the following seven natural hazard zones: 1) Special Flood Hazard Areas; 2) Areas of Potential Flooding from dam failure inundation; 3) Very High Fire Hazard Severity Zones; 4) Wildland Fire Zones; 5) Earthquake Fault Zones; and 6) Liquefaction Zones; and 7) Landslide Hazard Zones.						
New	Flood, Wildfire, Earthquake, Landslide	4, 7	Emergency Services, Planning, Building and Code Enforcement	Low	General Fund, Grants	Short-term
SJ-11—Encourage property owners to make improvements through elevating their homes within flood hazard areas.						
Existing	Flood	4	Planning, Building and Code Enforcement	Low	General Funds, Grants (HMGP, FMA)	Long-term
SJ-12—Develop a Post-Disaster Recovery Plan.						
New	All Hazards	3	Office of Emergency Services	Medium	General Fund, Grants (EMPG, UASI)	Long-term
SJ-13—Develop a Debris Management Plan.						
New	All Hazards	3	Office of Emergency Services	Medium	General Fund, Grants (EMPG, UASI)	Long-term
SJ-14—Initiate having the SJ/SC Regional Wastewater Facility, and the San José Municipal Water System, join the CalWARN network.						
Existing	Flood	3, 5, 7, 9	Environmental Services	Medium	General Fund, Grants	Long-term
SJ-15—Develop public-private council of emergency management professionals for coordination of needs assessments in the event a disruption(s) of continuity of business and sharing of emergency planning assumptions for assistance in identifying private sector needs expected from the public sector, assessment of capability to fill appropriate gaps and development.						
New	All Hazards	5	Emergency Services	Medium	Public and Private	Long-term
SJ-16—Annually track building permits issued for new construction within hazard areas.						
New	Earthquake, Flood, Landslide, Wildfire	2	Planning, Building and Code Enforcement	Low	Staff time	Ongoing
SJ-17—Retrofit or replace critical lifeline infrastructure facilities, their backup facilities, and supply systems that are shown to be vulnerable to damage in natural disasters.						
Existing	All Hazards	6, 7	Public Works	High	General Fund, Grants (HMGP, PDM, FMA)	Long-term
SJ-18—Encourage replacing above ground electric and phone wires and other structures with underground facilities, and use the planning-approval process to ensure that all new phone and electrical utility lines are installed underground.						
Existing	Dam Failure, Earthquake, Flood, Landslide, Levee Failure, Wildfire	3, 6	Public Works	Low	Staff time, Developer Fees	Ongoing
SJ-19—Retrofit seismically- deficient bridges and road structures by working with Caltrans and other appropriate governmental agencies.						
Existing	Earthquake	5, 6, 7, 8	Public Works, Transportation	High	General Fund, State and Federal Funding, Grants (HMGP, PDM)	Long-term
SJ-20—Construct new or replace or retrofit water-retention structures that are determined to be structurally deficient, including levees, dams, reservoirs and tanks, particularly those protecting critical infrastructure.						
Existing	Dam Failure, Earthquake, Flood, Levee Failure	2, 6, 7, 8	Public Works	High	Staff time, Developer Fees (HMGP, PDM, FMA)	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SJ-21—Assist, coordinate, support, and/or encourage the U.S. Army Corp of Engineers, various Flood Control and Water Conservation Districts, and other responsible agencies to locate and maintain funding for the development of flood control projects that have high cost-benefit ratios.						
Existing	Dam Failure, Flood, Levee Failure	5, 6, 7, 8	Public Works	Low	Staff time, General Fund	Ongoing
SJ-22—Provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment (such as materials developed by ABAG's Sewer Smart Program).						
Existing	Flood	4	Environmental Services	Low	Storm sewer and sanitary sewer fees	Ongoing
SJ-23—Sponsor the formation and training of Community Emergency Response Teams (CERT) for employees and residents.						
Existing	All Hazards	1, 2, 4	Emergency Services	Medium	General Fund, Grants	Long-term
SJ-24—Work to educate building owners, local government staff, engineers, and contractors on privately-owned soft-story retrofit procedures and incentives using materials such as those developed by ABAG and the City of San José (see http://quake.abag.ca.gov/eqhouse.html).						
Existing	Earthquake	1, 2, 4	Planning, Building and Code Enforcement	Medium	Staff time, General Fund	Short-term
SJ-25—Conduct periodic fire-safety inspections of all multi-family buildings, as required by State law.						
Existing	Fire	3, 7, 8	Planning, Building and Code Enforcement	Low	General Fund, CDBG Grants	Ongoing
SJ-26—To reduce flood risk, thereby reducing the cost of flood insurance to private property owners, work to qualify for the highest-feasible rating under the Community Rating System of the National Flood Insurance Program.						
Existing	Flood	6, 7, 8, 9	Public Works	Low	General Fund, Development Fees	Ongoing
SJ-27—Maintain the local government's emergency operations center in a fully functional state of readiness.						
Existing	All Hazards	5, 9	Emergency Services	Low	General Fund, Grants	Ongoing
SJ-28—Identify and explore methods for the elevation of hazardous materials storage outside of flood zones.						
Existing	Flood	1, 2, 6	Environmental Services, Planning, Building and Code Enforcement	Medium	General Fund, Storm Sewer Fees, Grants (HMGP, FMA)	Ongoing
SJ-29—Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save financial resources.						
Existing	Drought, Flood, Severe Weather, Wildfire	3, 6	Environmental Services, Planning, Building and Code Enforcement	Medium	General Fund, Grants	Ongoing
SJ-30—Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2.						
Existing	Drought, Flood, Severe Weather, Wildfire	3, 4, 6	Environmental Services, Planning, Building and Code Enforcement, Transportation	Medium	General Fund, Grants, Development Fees	Ongoing
SJ-31—Actively pursue implementation of projects identified in the City's deferred maintenance program.						
Existing	Earthquake, Flood, Levee Failure	7, 8	Public Works, Transportation	High	General Fund, Grants	Ongoing
SJ-32—Implement a ring levee at the San José-Santa Clara Regional Wastewater Treatment Plant.						
Existing	Flood	7	Environmental Services	High	Grants (HMGP, FMA), Sanitary Sewer Fees	Long-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SJ-33—Ensure temporary homeless shelters are prepared to conduct outreach and shelter in the event of flooding and extreme temperature events.						
Existing	Flood, Severe Weather	4, 5, 9	Housing	Low	General Fund, Grants	Ongoing
SJ-34—Provide public outreach for, as well as encourage and support homeowners to retrofit structures (such as brace and bolt of mobile home structures) of vulnerable structures.						
Existing	Earthquake	4, 8	Planning, Building and Code Enforcement	Medium	General Fund, Grants (HMGP, PDM)	Short-term
SJ-35—Eliminate homeless encampments within waterways.						
Existing	Flood, Levee Failure	2, 4	Housing	High	General Fund, Grants, State and Federal Funding	Ongoing
SJ-36—Develop emergency response and continuity plans for city departments as appropriate.						
New	All Hazards	2	Emergency Services	Medium	General Fund, Grants	Long-term
SJ-37—Ensure pump stations in flood-prone areas are appropriately sized and maintained.						
Existing	Flood	8	Public Works, Transportation	Medium	General Fund, Grants (HMGP, FMA)	Ongoing
SJ-38—Continue to integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.						
New and Existing	All Hazards	2, 4,	Planning, Building and Code Enforcement and Public Works	Low	Staff Time, General Funds	Ongoing
SJ-39— Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Office of Emergency Services	Low	Staff Time, General Funds	Short-term
SJ-40— Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Public Works	Low	Staff Time, General Funds	Ongoing
SJ-41— Install and maintain flow gauges in waterways.						
New and Existing	Flood	2, 4	Public Works, Transportation	Low	Grants, General Funds	Short term
SJ-42— Partner with local agencies and engage in projects to implement flood control and flow remediation improvements to waterways.						
New and Existing	Flood	2, 4	Public Works, Transportation	High	General Funds	Short term

Table 13-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
SJ-1	3	Medium	Low	Yes	No	Yes	Medium	Low
SJ-2	2	Medium	Medium	Yes	Yes	Yes	Low	Low
SJ-3	1	Medium	Medium	Yes	Yes	No	Low	Low
SJ-4	2	High	High	Yes	Yes	No	High ^{b, c}	High
SJ-5	1	High	High	Yes	Yes	No	Medium	Medium
SJ-6	1	Medium	Medium	Yes	Yes	Yes	Medium	Low
SJ-7	1	Medium	Medium	Yes	No	Yes	Medium	Low
SJ-8	2	Low	High	No	Yes	No	Low	Low
SJ-9	1	Medium	Low	Yes	Yes	Yes	Medium	Medium
SJ-10	2	Low	Low	Yes	No	No	Low	Low
SJ-11	1	High	High	Yes	Yes	Yes	Low	Low
SJ-12	1	Medium	Medium	Yes	Yes	No	Medium	Medium
SJ-13	1	Medium	Medium	Yes	Yes	No	Medium	Medium
SJ-14	4	Medium	Medium	Yes	Yes	No	Medium	Medium
SJ-15	1	Medium	Medium	Yes	No	No	Low	Low
SJ-16	1	Low	Low	Yes	No	Yes	Medium	Low
SJ-17	2	High	High	Yes	Yes	No	High ^{b, c}	High
SJ-18	2	High	High	Yes	Yes	Yes	Medium	High
SJ-19	4	High	High	Yes	Yes	No	High ^{b, c}	High
SJ-20	4	High	High	Yes	Yes	Yes	High	High
SJ-21	4	High	High	Yes	Yes	No	High ^b	High
SJ-22	1	Medium	Low	Yes	No	Yes	Medium	Low
SJ-23	3	Medium	Medium	Yes	Yes	No	Medium	Medium
SJ-24	3	Medium	Low	Yes	No	Yes	Medium	Low
SJ-25	3	High	Medium	Yes	Yes	Yes	High	High
SJ-26	4	Medium	Low	Yes	No	No	Low	Low
SJ-27	2	High	Medium	Yes	Yes	Yes	High	Medium
SJ-28	3	Medium	Medium	Yes	Yes	No	Low	Low
SJ-29	2	Low	Medium	No	Yes	Yes	Medium	Medium
SJ-30	3	Low	Medium	No	Yes	Yes	Medium	Medium
SJ-31	2	High	High	Yes	Yes	No	High ^b	High
SJ-32	1	High	High	Yes	Yes	No	Medium	Medium
SJ-33	3	High	Medium	Yes	Yes	No	Medium	Medium
SJ-34	2	Medium	Low	Yes	Yes	No	Low	Low
SJ-35	2	High	High	Yes	Yes	No	High ^b	High
SJ-36	1	Medium	Medium	Yes	Yes	No	Medium	Medium
SJ-37	1	High	High	Yes	Yes	Yes	Medium	Medium
SJ-38	2	Medium	Low	Yes	No	Yes	High	Low
SJ-39	2	Low	Low	Yes	No	Yes	High	Low
SJ-40	6	Medium	Low	Yes	No	Yes	High	Low

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
SJ-41	2	Medium	Low	Yes	Yes	Yes	High	High
SJ-42	2	High	High	Yes	Yes	No	Medium	High

a. See the introduction to this volume for explanation of priorities.

b. High priority for City; however, funding has not been secured

c. Action can be initiated in the short-term once funding is secured

Table 13-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Dam Failure	SJ-20, SJ-21, SJ-38, SJ-39	SJ-20, SJ-21	SJ-2, SJ-3, SJ-4, SJ-9		SJ-5, SJ-6, SJ-7, SJ-12, SJ-13, SJ-15, SJ-23, SJ-27, SJ-36	SJ-17, SJ-18, SJ-20, SJ-21	
Drought	SJ-31, SJ-32, SJ-38, SJ-39		SJ-9	SJ-29, SJ-30	SJ-12, SJ-13, SJ-15, SJ-23, SJ-27, SJ-36	SJ-17	SJ-8
Earthquake	SJ-20, SJ-24, SJ-31, SJ-34, SJ-38, SJ-39	SJ-20	SJ-2, SJ-3, SJ-4, SJ-9, SJ-10, SJ-16, SJ-24, SJ-34		SJ-5, SJ-6, SJ-7, SJ-8, SJ-12, SJ-13, SJ-15, SJ-23, SJ-27, SJ-36	SJ-17, SJ-18, SJ-19, SJ-20, SJ-31	SJ-8
Flood	SJ-1, SJ-11, SJ-20, SJ-21, SJ-26, SJ-28, SJ-29, SJ-30, SJ-31, SJ-32, SJ-35, SJ-36, SJ-38, SJ-39, SJ-40, SJ-41	SJ-1, SJ-11, SJ-20, SJ-21, SJ-26, SJ-32, SJ-36, SJ-40	SJ-1, SJ-2, SJ-3, SJ-4, SJ-9, SJ-10, SJ-11, SJ-16, SJ-22, SJ-40	SJ-28, SJ-29, SJ-30, SJ-35	SJ-5, SJ-6, SJ-7, SJ-12, SJ-13, SJ-14, SJ-15, SJ-23, SJ-27, SJ-33, SJ-35, SJ-36, SJ-41	SJ-17, SJ-18, SJ-20, SJ-21, SJ-28, SJ-31, SJ-32, SJ-36, SJ-42	SJ-21, SJ-32
Landslide	SJ-38, SJ-39		SJ-4, SJ-9, SJ-10, SJ-16		SJ-5, SJ-12, SJ-13, SJ-15, SJ-23, SJ-27, SJ-36	SJ-17, SJ-18	
Levee Failure	SJ-20, SJ-21, SJ-31, SJ-35, SJ-38, SJ-39	SJ-20, SJ-21	SJ-2, SJ-3, SJ-4, SJ-9	SJ-35	SJ-5, SJ-6, SJ-7, SJ-12, SJ-13, SJ-15, SJ-23, SJ-27, SJ-35, SJ-36	SJ-17, SJ-18, SJ-20, SJ-21, SJ-31	
Severe Weather	SJ-38, SJ-39		SJ-4, SJ-5, SJ-9	SJ-29, SJ-30	SJ-4, SJ-5, SJ-12, SJ-13, SJ-15, SJ-23, SJ-27, SJ-33, SJ-36	SJ-17	
Wildfire	SJ-1, SJ-25, SJ-29, SJ-30, SJ-38, SJ-39	SJ-1	SJ-1, SJ-4, SJ-9, SJ-10, SJ-16	SJ-29, SJ-30	SJ-5, SJ-6, SJ-7, SJ-8, SJ-12, SJ-13, SJ-15, SJ-23, SJ-27, SJ-36	SJ-17, SJ-18	

a. See the introduction to this volume for explanation of mitigation types.

13.10 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

14. CITY OF SANTA CLARA

14.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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E-mail: lschoenthal@santaclaraca.gov

Alternate Point of Contact

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Santa Clara Fire Department
777 Benton Street
Santa Clara, CA 95050
Phone: (408) 615-4900
E-mail: wkelly@santaclaraca.gov

14.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—July 5, 1852
- **Current Population**—123,752 as of January 1, 2016
- **Population Growth**—Based on the data tracked by the state Department of Finance, the City of Santa Clara has experienced a gradual rate of growth since the year 2000. The overall population has increased by 4.14 percent since 2010 and growth averaged 1.23 percent per year from 2000 to 2014. The City is an important employment center and houses approximately 122,000 jobs. The City is projected by the Association of Bay Area Governments (ABAG) in 2030 to have a resident population of 141,700 and to support 137,480 jobs.
- **Location and Description**—The City of Santa Clara encompasses 18.41 square miles, and is located 45 miles south of San Francisco and 382 miles north of Los Angeles. The City of Santa Clara is situated near to the south end of San Francisco Bay in Santa Clara County, also known as Silicon Valley in recognition of the region's leadership in worldwide technology innovations. The City boundaries are completely urbanized, and the City is bordered by other urbanized areas, including San José, Cupertino and Sunnyvale. The City is developed on relatively flat terrain and drained by three seasonal creeks, San Tomas Aquino, Saratoga and Calabazas creeks, all of which empty into the southern portion of San Francisco Bay. The Guadalupe River, which also drains into the Bay, defines part of the city's eastern boundary.
- **Brief History**—By 1850, when California became a state, Santa Clara was an established frontier settlement. In 1851, Santa Clara College, now Santa Clara University, was founded on the Mission site. The incorporation of Santa Clara as a City followed in 1852. In 1866, the City officially established a grid street system to accommodate anticipated growth. The City of Santa Clara, "The Mission City," has been transformed over the past century, from a small agricultural town to a major employment and community center in Silicon Valley. It is called the "Mission City" in reference to the Mission Santa Clara de Asis, which opened in 1777 as one of 21 Spanish missions established by Franciscan padres along El Camino Real in California. The central core of the City grew outward from the original downtown and the Old

Quad residential area around the University and Agnew Village - a satellite area that established a base for residential neighborhoods in north Santa Clara. Primarily an agricultural community through the mid-1900s, the City of Santa Clara evolved to become a family-oriented, suburban community of comfortable neighborhoods in the post-World War II era, and as the heart of Silicon Valley in the electronics industry boom of the 1970s. In 2014, Levi's Stadium opened in Santa Clara as the home of the San Francisco 49ers football team and a premier sports and entertainment venue that hosted Super Bowl 50.

- **Climate**—The City of Santa Clara's climate is Mediterranean in nature, with mild temperatures year-round. January is on average the coolest month with an average low temperature of 42°F and an average high temperature of 58°F. July is on average the warmest month with an average low temperature of 58°F and an average high temperature of 82°F. Average annual rainfall is 14 inches, with rain concentrated in the winter months (November through March).
- **Governing Body Format**—Santa Clara is a Charter City with a City Council - City Manager form of government, with the City Manager and City Attorney appointed by City Council. The City of Santa Clara is governed by a seven-member city council. The Police Chief and City Clerk are elected positions. The City Manager is responsible for hiring all other City staff, preparing an annual budget, and general oversight of City operations, including the City's utilities. The City consists of fourteen departments: Community Development, Electric Utilities (Silicon Valley Power), Finance, Fire, Human Resources, Information Technology, Library, Parks and Recreation, Public Works, Police, Water and Sewer Utilities, City Attorney's Office, City Clerk's Office and the City Manager's Office. The City also has a separate Stadium Authority and Housing Authority which are overseen by the City Council. The City has nine commissions which report to the City Council. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.

14.3 DEVELOPMENT TRENDS

The City of Santa Clara has seen remarkable interest and activity in both commercial and residential development during 2015 and 2016, and economic forecasts anticipate this to continue at a steady level in the next few years. Building permit valuations projected for permit activities in 2015-16 show \$1.4 billion in valuation attributed to 8,000 building permits, versus \$890 million in valuation attributed to 7,180 building permits in the previous fiscal year. The strength of the economy has spurred a number of new developments, in addition to advancing a number of significant private development projects that were previously approved by the City prior to the last recession. These projects are providing construction jobs and tenant employment, leading to secondary jobs, new rental housing and home sales, and consumer and business spending. Table 14-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

14.4 CAPABILITY ASSESSMENT

14.4.1 Resources for the 2017 Planning Initiative

This sections lists the technical reports, plans, and regulatory mechanisms reviewed to provide information for inclusion in the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume 1 and Volume 2 (Santa Clara Annex).

Table 14-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan?	No					
• If yes, give the estimated area annexed and estimated number of parcels or structures.	N/A					
Is your jurisdiction expected to annex any areas during the performance period of this plan?	Yes					
• If yes, please describe land areas and dominant uses.	Small leftover areas, generally vacant and adjacent to creeks. All are infill parcels.					
• If yes, who currently has permitting authority over these areas?	County of Santa Clara.					
Are any areas targeted for development or major redevelopment in the next five years?	Yes					
• If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	General Plan contains nine focus areas where significant development is anticipated, plus substantial redevelopment is expected in various employment areas, particularly in many areas north of the Caltrain tracks. The entire City is in an area of earthquake risk, and many of the areas expected to redevelop may be subject to flooding hazards, especially in North Santa Clara.					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	35	49	74	42	58
	Multi-Family	15	7	2	23	11
	Other (commercial, mixed use, etc.)	1704	1775	1895	1965	2388
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	<ul style="list-style-type: none"> • Special Flood Hazard Areas: Yes, average 3-4 per year • Landslide: N/A • High Liquefaction Areas: No. According to the USGS map, the high liquefaction area is approximately 3 miles west of Guadalupe River along Northeast of City of Santa Clara boundary. The land uses are mostly open land with a small area of low and medium densities of residential, mixed use, and industrial. • Tsunami Inundation Area: N/A • Wildfire Risk Areas: N/A 					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Appendix 8.12-B of the Housing Element has an inventory of underutilized sites. Santa Clara is mostly built-out, and most development opportunity sites involve redevelopment and intensification of parcels that are currently developed.					

All of the below items were additionally reviewed as part of the full capability assessment for Santa Clara.

- **City of Santa Clara 2010-2035 General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives. The General Plan provides a comprehensive set of goals and policies for the delivery of City services as well as a long term plan for land use (Land Use Element). The Land Use Element takes into consideration hazard avoidance, such as floodplains, when establishing allowed land uses. The Land Use Element is supported by policies which require avoidance of hazardous conditions for new land development. The General Plan includes policies which address safety within other topic areas (e.g., rail safety, bicycle and pedestrian safety, etc.), policies related to public safety through the delivery of Police and Fire services, and specific safety goals and policies related to environmental issues such as avoidance of safety impacts due to flooding, hazardous materials, airport operations, seismic, geologic and soil hazards and noise. The City's Climate Action Plan is one of the

General Plan Appendices. The Climate Action Plan identifies steps to reduce Citywide greenhouse gas emissions, which relate to avoidance of drought and severe weather events.

- **City of Santa Clara Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **The City of Santa Clara Emergency Operations Plan (EOP)**—This plan was reviewed to complete the Planning Documents portion of this Annex.
- **Technical Reports and Information** – Outside resources and references used to complete the City of Santa Clara Annex are identified in Section 1.10 of this Annex.

14.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 14-2. An assessment of fiscal capabilities is presented in Table 14-3. An assessment of administrative and technical capabilities is presented in Table 14-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 14-5. An assessment of education and outreach capabilities is presented in Table 14-6. Classifications under various community mitigation programs are presented in Table 14-7. Development and permitting capabilities are presented in Table 14-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 14-9.

Table 14-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: 2016 Building Code Adopted; Santa Clara Muni Code Title 15: Buildings and Construction	Yes	No	Yes	Yes
Zoning Code Comment: Update underway; Santa Clara Muni Code Title 18: Zoning	Yes	No	Yes	Yes
Subdivisions Comment: Updated in 2003; Santa Clara Muni Code Chapter 17.05 Subdivisions	Yes	Yes	Yes	No
Stormwater Management Comment: Santa Clara Muni Code 13.20 Original in 1994, Updated in May 20, 2014 by Ordinance 1925 City of Santa Clara protects stormwater quality via Municipal Regional NPDES Permit compliance activities which include: municipal operations, new and redevelopment controls, commercial/industrial facility inspections, illegal discharge/illicit connection enforcement, active construction site inspections, public education, trash load reduction, mercury and PCB reduction, and pesticide toxicity reduction programs. The City has a Long term Trash load Reduction Plan in place and is working to prepare a Green Infrastructure Plan. Regionally, the Santa Clara Valley Urban Runoff Pollution Prevention Program is in progress of preparing a Basin Plan.	Yes	Yes	Yes	Yes
Post-Disaster Recovery Comment: None Located	No	No	No	No
Real Estate Disclosure Comment: Cal. Civ. Code §1102 et seq.	No	No	Yes	No
Growth Management Comment: General Plan policies; no separate ordinance; Cal. Gov. Code §65300 et seq.	Yes	No	Yes	Yes
Site Plan Review Comment: Conducted pursuant to the City's Zoning Code	Yes	Yes	Yes	Yes

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Environmental Protection Comment: Pursuant to General Plan, Zoning, and Building Code requirements; California Environmental Quality Act (Guideline: California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387)	Yes	Yes	Yes	Yes
Flood Damage Prevention Comment: Pursuant to Floodplain Ordinance; Santa Clara Muni Code Chapter 15.45: Prevention of Flood Damage Code	Yes	Yes	Yes	Yes
Emergency Management Comment: Pursuant to City Charter Chapter 2.140	Yes	No	Yes	Yes
Climate Change Comment: Climate Action Plan adopted; California SB-379	Yes	Yes	Yes	Yes
Other: Comment: None Located	No	No	No	No
Planning Documents				
General Plan Is the plan compliant with Assembly Bill 2140? Yes City of Santa Clara General Plan, adopted in 2010 and updated regularly (most recently in November 2016) is compliant with AB 2140.	Yes	Yes	Yes	Yes
Capital Improvement Plan How often is the plan updated? Annually Comment: State mandated: City Charter Sec 1312 Capital project funds, Charter Chapter 11 of State Statutes of 2000	Yes	No	Yes	Yes
Floodplain or Watershed Plan Comment: City adopted the FEMA flood damage prevention code in 1987. General Plan Safety Goals in Section 5.10.5 address floodplain and watershed protections.	Yes	Yes	Yes	Yes
Stormwater Plan Comment: Storm Drain Maser Plan prepared in Dec. 2015	Yes	Yes (SCVWD)	Yes	Yes
Urban Water Management Plan Comment: Adopted November 22, 2016	Yes	No	Yes	Yes
Habitat Conservation Plan Comment: Santa Clara Valley Habitat Plan	No	Yes	No	No
Economic Development Plan Comment: Pursuant to General Plan	Yes	No	No	Yes
Shoreline Management Plan Comment: Santa Clara does not have shoreline; however, the Bay Conservation and Development Commission has jurisdiction over San Francisco Bay shoreline modifications.	No	Yes	No	No
Community Wildfire Protection Plan Comment: N/A	No	No	No	No
Forest Management Plan Comment: N/A	No	No	No	No
Climate Action Plan Comment: Climate Action Plan was adopted in December 2013.	Yes	Yes	Yes	Yes
Comprehensive Emergency Management Plan Comment: Santa Clara County Emergency Operations Plan, City Emergency Operations Plan (EOP)	Yes	Yes	Yes	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: UASI THIRA - 2016	No	Yes	Yes	No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Post-Disaster Recovery Plan Comment: part of EOP	Yes	Yes	Yes	Yes
Continuity of Operations Plan Comment: N/A	No	No	No	No
Public Health Plan Comment: County Public Health has authority	No	Yes	Yes	No
Other: Comment: None Located	No	No	No	No

Table 14-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes, though voter approval required
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	No, voter approval required
Incur Debt through Special Tax Bonds	No, voter approval required
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes, nexus study required
Other working capital reserves	Yes

Table 14-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Com Dev/Director
Engineers or professionals trained in building or infrastructure construction practices	Yes	DPW, Utilities/Directors
Planners or engineers with an understanding of natural hazards	No	Com Dev, DPW, Utilities/Directors
Staff with training in benefit/cost analysis	Yes	Finance/Director
Surveyors	Yes	Land Surveyor, DPW
Personnel skilled or trained in GIS applications	Yes	DPW, IT, Com Dev, Utilities
Scientist familiar with natural hazards in local area	No	NA
Emergency manager	Yes	Fire, ESC
Grant writers	Yes	Fire, Police, DPW, IT, Parks and Rec

Table 14-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Community Development
Who is your floodplain administrator? (department/position)	Director of Community Development
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	1987, revision in process
Does your floodplain management program meet or exceed minimum requirements?	May not currently meet minimum NFIP requirements N/A
<ul style="list-style-type: none"> If exceeds, in what ways? 	
When was the most recent Community Assistance Visit or Community Assistance Contact?	5-year Cycle Visit in 2012
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
<ul style="list-style-type: none"> If so, please state what they are. 	
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
<ul style="list-style-type: none"> If no, please state why. 	
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes
<ul style="list-style-type: none"> If so, what type of assistance/training is needed? 	Training on the CRS Manual
Does your jurisdiction participate in the Community Rating System (CRS)?	Yes
<ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving CRS Classification? Is your jurisdiction interested in joining the CRS program? 	Yes (currently class 8) N/A
How many flood insurance policies are in force in your jurisdiction?	955 ^a
<ul style="list-style-type: none"> What is the insurance in force? What is the premium in force? 	\$279,319,600 ^a \$735,904 ^a
How many total loss claims have been filed in your jurisdiction?	29 ^a
<ul style="list-style-type: none"> How many claims were closed without payment/are still open? What were the total payments for losses? 	CWOP = 15 Still open = 0 ^a \$309,753.09 ^a

a. According to FEMA statistics as of October 31, 2016

Table 14-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes
<ul style="list-style-type: none"> If yes, please briefly describe. 	The Fire Department has an emergency preparedness webpage that includes links to various resources.
Do you utilize social media for hazard mitigation education and outreach?	Yes
<ul style="list-style-type: none"> If yes, please briefly describe. 	Twitter, Facebook and NextDoor
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
<ul style="list-style-type: none"> If yes, please briefly describe. 	Web-based notification such as Enotify and Nixle
Do you have any established warning systems for hazard events?	Yes
<ul style="list-style-type: none"> If yes, please briefly describe. 	Countywide Alert SCC program

Table 14-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	8	5/1/2002
Building Code Effectiveness Grading Schedule	No	99	N/A
Public Protection	Yes	2	2015
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 14-8. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Community Development
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	Yes

Table 14-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment Question	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comment: None provided	
Jurisdiction-level monitoring of climate change impacts	Medium
Comment: Sea level rise is expected to have minimal impacts to Santa Clara properties	
Technical resources to assess proposed strategies for feasibility and externalities	High
Comment: None provided	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Medium
Comment: Climate Action Plan contains a comprehensive inventory, and the update of the Climate Action Plan in the next 1-3 years will include an inventory update	
Capital planning and land use decisions informed by potential climate impacts	High
Comment: General Plan principles, including the Climate Action Plan criteria, consider climate implications	
Participation in regional groups addressing climate risks	Medium
Comment: Staff participates in regular regional climate change meetings as time permits	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High
Comment: Climate Action Plan is incorporated into the General Plan and is considered as part of the decision-making process	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: The Climate Action Plan (CAP) addresses statewide GHG reduction goals through 2020, and the City expects to update the CAP in the next 1 – 3 years to address the new statewide GHG reduction goals for 2030 and 2050.	
Identified strategies for adaptation to impacts	Medium
Comment: None provided	
Champions for climate action in local government departments	Medium
Comment: Hiring of new sustainability manager is expected in 1-2 months. Initial multi-departmental working group convening now.	
Political support for implementing climate change adaptation strategies	Medium
Comment: Sustainability is continually gaining additional support in the community and with the Council.	

Adaptive Capacity Assessment Question	Jurisdiction Rating
Financial resources devoted to climate change adaptation Comment: None provided	Medium
Local authority over sectors likely to be negatively impacted Comment: None provided	Medium
Public Capacity	
Local residents knowledge of and understanding of climate risk Comment: Some members are highly educated. More City outreach could contribute to overall knowledge base.	Medium
Local residents support of adaptation efforts Comment: None provided	Medium
Local residents' capacity to adapt to climate impacts Comment: None provided	High
Local economy current capacity to adapt to climate impacts Comment: None provided	High
Local ecosystems capacity to adapt to climate impacts Comment: None provided	Medium

14.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

14.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- **General Plan**—Considers land use integration, environmental impacts of development, and long-term sustainability for new development and city operations. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate.
- **Climate Action Plan**—Integrated into the General Plan, the CAP identifies steps for the City to take in its own operations and in review/approval of new development to reduce greenhouse gas emissions. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the Climate Action Plan as appropriate.

14.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

As the City continues to update its policies and ordinances, including but not limited to updates to the Building Code (next scheduled for adoption in 2019), the General Plan (anticipated in the next 3-8 years), Zoning Ordinance (expected in the next 1-2 years) and Climate Action Plan (expected in next 1-3 years), the City will evaluate consistency with the hazard mitigation plan and incorporate recommendations as needed.

14.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 14-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 14-10. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Weather	-	1-8-17	\$65,000
Wildfire	2465	9-23-16	\$34,199
Wildfire	2766	5-22-2008	\$362,378
Hurricane Evacuation	3248	9-13-2005	\$988,951
Severe Weather / High Wind	1203	6-21-2001	\$80,757
Earthquake	845	10-17-1989	\$100,000

14.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- There are a number of older structures built before modern building codes.

14.8 HAZARD RISK RANKING

Table 14-11 presents the ranking of the hazards of concern.

Table 14-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Severe Weather	33	Medium
3	Flood	18	Medium
3	Dam and Levee Failure	18	Medium
4	Drought	9	Low
5	Landslide	0	Low
6	Wildfire	0	Low

14.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for the City of Santa Clara can be found in Appendix D of this volume.

14.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 14-12 lists the actions that make up the City of Santa Clara hazard mitigation action plan. Table 14-13 identifies the priority for each action. Table 14-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

Table 14-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SC-1—Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to prevent future structure damage. Give priority to properties with exposure to repetitive losses						
New and existing	All hazards	1-9	OES/Fire and Community Development	High	PDM, HMGP, Local Budget (local match)	Dependent on Funding (Short-term)
SC-2—Continue to support the Planning Area-wide actions identified in this plan.						
New and Existing	All hazards	1-9	OES/Fire	Low	Local Budget	Ongoing
SC-3—Actively participate in the plan maintenance strategy identified in this plan.						
New and Existing	All hazards	1-9	OES/Fire	Low	Local Budget	Ongoing
SC-4—Consider participation in incentive-base programs such as Tree City and Storm ready.						
New and Existing	All hazards	1-9	Community Development and Public Works	Low	Local Budget	Ongoing
SC-5—Maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an updated, adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on floodplain requirements and impacts. Continue participating in the Santa Clara County Multi-jurisdictional Program for Public Information.						
New and Existing	Flood	1-9	Community Development and Public Works	Low	Local Budget	Ongoing
SC-6—Integrate the Hazard Mitigation Plan into other plans, programs, or resources that dictate land use or redevelopment, such as the General Plan, Climate Action Plan, Zoning Ordinance, Building Code, etc..						
New and Existing	All hazards	1-9	All City Departments	Low	Local Budget	Ongoing
SC-7—Based on EOC staffing capabilities assessment, ensure that mandated training is provided to all employees in SEMS, FEMA ICS-100, ICS-200, IS-700, and IS-800; and ensure that employee training records are securely maintained.						
Existing	All hazards	1,2,4,9	OES/Fire	Low	Local Budget	Ongoing
SC-8—Based on EOC staffing capabilities assessment, ensure that mandated training is provided to employees who require advanced knowledge and application of the ICS, such as primary and alternate EOC Section Chiefs and senior field personnel, to include at least ICS-300, ICS-400, and the FEMA Professional Development Series; and ensure that employee training records are securely maintained.						
Existing	All hazards	1,2,4,9	All City Departments	Medium	Local Budget	Ongoing
SC-9—Based on EOC staffing capabilities assessment, ensure that all Fire and Police Department staff who may be assigned the role of incident commander at an emergency/disaster scene have received Incident Commander training; and ensure that employee training records are securely maintained.						
Existing	All hazards	1,2,4,9	OES, Fire and Police	Medium	Local Budget	Ongoing
SC-10—Monitor local availability of upcoming training opportunities for city staff regarding incident staffing, disaster response, and recovery.						
Existing	All hazards	1,2,4,9	All City Departments	Medium	Local Budget	Ongoing
SC-11—Continue to conduct EOC tabletop exercise(s) to evaluate capabilities and train employees in their assigned EOC role(s).						
N/A	All hazards	1,2,4,9	OES/Fire	Medium	Local Budget, UASI, HSGP	Long-term
SC-12—Develop and exercise a Disaster Debris Management Plan.						
New	Dam failure, Earthquake, Flood, Severe weather	1,2,3,4,5,6,7,8	Public Works OES/Fire	Medium	Local Budget, HSGP, UASI	Long-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SC-13—Enhance public education and awareness of natural and manmade hazards in the community and public understanding of disaster preparedness, including foreign language translations.						
New	All hazards	1,3,4,5,8,9	OES/Fire	Medium	Local Budget, UASI	Long-term
SC-14—Develop improved capabilities to incorporate GIS technology by all departments into services provided to the public and for use during emergency/disaster incidents.						
Existing	Dam Failure, Earthquake, Flood,	1,2,3,6,9	OES/Fire	Medium	Local Budget, PDM	Long-term
SC-15—Conduct a test of emergency communications and information systems interoperability, to establish baseline capabilities for employee call-back, communications between the EOC and incident command, and communications with the Operational Area and Mutual Aid resources.						
Existing	All hazards	1,5,6,9	OES/Fire	Medium	Local Budget, UASI, HSGP	Long-term
SC-16—Conduct a gap analysis of the Santa Clara City Emergency/Disaster preparedness and response program, to include a comprehensive review of employee training requirements and needs, plans and procedures, EOC equipment and staffing capabilities, and related analyses.						
New	All hazards	1-9	OES/Fire	Medium	Local Budget, HSGP	Long-term
SC-17 - Acquire a mobile Emergency Operations Center.						
New	All hazards	1,4,8,9	OES/Fire	High	Local Budget, UASI, HSGP	Long-term
SC-18—Develop unmanned aerial vehicle (UAV) capability for hazard mitigation surveys and post-disaster damage assessments; and develop policies, procedures and staff training guidelines for UAV use.						
New	Dam Failure, Flood, Earthquake, Severe Weather	2,4,6,8,9	OES, Fire, Police	High	Local Budget, PDM, HMGP	Long-term
SC-19—Enhance Fire Department field inspection system using portable computers for engine company inspections and Fire Prevention inspections, to integrate inspections, re-inspections, invoicing, permits, CUPA and business license data.						
Existing	All hazards	1,2,3,6,8	Fire	Low	Local Budget, UASI	Ongoing
SC-20—Conduct seismic and functional assessment of Emergency Operations Center.						
Existing	All hazards	1,2,4,8,9	OES/Fire	Medium	Local Budget, PDM, HMGP	Ongoing
SC-21—Acquire emergency generators for the City's critical facilities, specifically Fire Stations 5, 7, 8 and 9.						
Existing	All hazards	6,8,9	Public Works	Low	Local Budget, PDM, HMGP	Short-term
SC-22—Maintain and improve Water and Sewer Utilities as necessary to ensure systems are able to maintain their functionality in response to potential hazards such as drought, flood or earthquakes.						
Existing	Drought, Flood, Earthquake	1,2,3,4,5,6,7,8	Water and Sewer	High	Local Budget, PDM, HMGP	Long-term
SC-23—Integrate climate change and natural hazards planning in to current city plan revisions and future planning initiatives.						
New and Existing	All hazards	1-9	Community Development	Low	Local Budget, Grants	Ongoing
SC-24—Develop and maintain a landscape design manual to provide general guidance and education to the public on water efficiency in landscaping and to serve as a resource for water efficient landscape design and installation in compliance with the State Water Efficiency Landscape Ordinance (as amended), including lists of recommended site appropriate native and drought-tolerant plant species.						
New and Existing	Drought	1-9	Community Development	Low	Local Budget, Grants	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SC-25—Continue to improve the City's bike network in coordination with partner agencies, such as the Valley Transportation Authority.						
New and Existing	All hazards	3, 5, 6	Public Works and Community Development	Medium	Local Budget, Grants	Ongoing
SC-26—Hire or assign a management-level staff member as the Sustainability Manager to coordinate sustainability efforts among different departments and outside agencies.						
New and Existing	All hazards	1-9	OES/Fire	Low	Local Budget, Grants	Ongoing
SC-27—Continue to implement and monitor the current 2014 Climate Action Plan (CAP) and prepare a comprehensive update to the CAP to comply with state greenhouse gas reduction targets. Include adaptation strategies within the updated CAP.						
New and Existing	All hazards	1-9	All City Departments	Medium	Local Budget, Grants	Ongoing
SC-28—Increase situational awareness capacity in the EOC by expanding GIS resources and providing air to ground communications.						
New and Existing	All hazards	1, 2, 5, 6, 7, 9	OES/Fire	Medium	Local Budget, PDM	Ongoing
SC-29—Secure all critical infrastructure in the EOC, the EOC perimeter, and immediate vicinity.						
New and Existing	All hazards	1, 2, 3, 6, 7, 8, 9	OES/Fire and Police	Medium	Local Budget, PDM	Long-term
SC-30— Restore the original storage capacity of the Westside Water Retention Basin to hold additional storm water and reduce flooding risk by desilting the basin.						
Existing	Flood	1, 2, 3, 6, 7, 8	Public Works	High	Local Budget	Short-term

Table 14-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
SC-1	9	High	High	Yes	Yes	No	Medium	High
SC-2	9	Medium	Low	Yes	No	Yes	High	Low
SC-3	9	Medium	Low	Yes	Yes	Yes	High	Medium
SC-4	9	Medium	Low	Yes	No	Yes	Medium	Low
SC-5	4	Medium	Low	Yes	No	Yes	High	Low
SC-6	9	Medium	Low	Yes	No	Yes	High	Low
SC-7	4	Medium	Low	Yes	No	Yes	Medium	Low
SC-8	4	Medium	Low	Yes	No	Yes	Medium	Low
SC-9	4	Medium	Low	Yes	No	Yes	Medium	Low
SC-10	4	Low	Low	Yes	No	Yes	Low	Low
SC-11	4	High	Medium	Yes	Yes	Yes	High	High
SC-12	8	Medium	Medium	Yes	Yes	Yes	Medium	Medium
SC-13	6	Medium	Medium	Yes	Yes	Yes	Medium	Medium
SC-14	5	Medium	Medium	Yes	Yes	Yes	Medium	Medium
SC-15	4	High	Medium	Yes	Yes	Yes	High	High
SC-16	9	Medium	Medium	Yes	Yes	Yes	Medium	Medium
SC-17	4	High	Medium	Yes	Yes	No	Medium	Medium
SC-18	5	Medium	Medium	Yes	Yes	Yes	Medium	Medium
SC-19	5	High	Low	Yes	Yes	Yes	High	High
SC-20	5	High	Medium	Yes	Yes	Yes	Medium	High
SC-21	3	Medium	Low	Yes	Yes	Yes	High	High
SC-22	9	High	High	Yes	No	Yes	High	Low
SC-23	9	High	Low	Yes	Possibly	Yes	High	Medium
SC-24	1	Medium	Low	Yes	Possibly	Yes	Medium	Medium
SC-25	8	Low	Medium	No	Possibly	Yes	Medium	Medium
SC-26	9	High	Low	Yes	Possibly	Yes	High	Medium
SC-27	9	High	Medium	Yes	Possibly	No	Medium	High
SC-28	6	Medium	Medium	Yes	Yes	No	Medium	Medium
SC-29	7	High	Medium	Yes	Yes	No	Medium	High
SC-30	6	High	High	Yes	Possibly	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 14-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Dam and Levee Failure	SC-2, SC-3, SC-4, SC-5, SC-6, SC-12, SC-14, SC-19, SC-23	SC-1, SC-5, SC-19, SC-21, SC-22, SC-29	SC-2, SC-3, SC-4, SC-5, SC-13, SC-19, SC-25, SC-28		SC-2, SC-4, SC-7, SC-8, SC-9, SC-10, SC-11, SC-15, SC-16, SC-17, SC-18, SC-28, SC-29	SC-29	SC-2, SC-3, SC-4, SC-5, SC-6, SC-12, SC-14, SC-19, SC-23
Drought	SC-2, SC-3, SC-6, SC-14, SC-23, SC-27	SC-1, SC-29	SC-2, SC-3, SC-13, SC-26, SC-27, SC-28	SC-24, SC-26, SC-27	SC-2, SC-7, SC-8, SC-9, SC-10, SC-11, SC-15, SC-16, SC-17, SC-28, SC-29	SC-29	SC-2, SC-3, SC-6, SC-14, SC-23, SC-27
Earthquake	SC-2, SC-3, SC-6, SC-12, SC-14, SC-19, SC-23	SC-1, SC-19, SC-20, SC-21, SC-22, SC-29	SC-2, SC-3, SC-13, SC-19, SC-25		SC-2, SC-7, SC-8, SC-9, SC-10, SC-11, SC-15, SC-16, SC-17, SC-18, SC-28, SC-29	SC-29	SC-2, SC-3, SC-6, SC-12, SC-14, SC-23
Flood	SC-2, SC-3, SC-4, SC-5, SC-6, SC-14, SC-19, SC-23	SC-1, SC-4, SC-5, SC-19, SC-21, SC-22, SC-29	SC-2, SC-3, SC-4, SC-5, SC-13, SC-19, SC-25, SC-28	SC-4, SC-5	SC-2, SC-4, SC-5, SC-7, SC-8, SC-9, SC-10, SC-11, SC-5, SC-16, SC-17, SC-18, SC-28, 2 SC-9	SC-29	SC-2, SC-3, SC-4, SC-5, SC-6, SC-14, SC-19, SC-23
Severe Weather	SC-2, SC-3, SC-4, SC-6, SC-12, SC-14, SC-19, SC-23, SC-27	SC-1, SC-19, SC-21, SC-22, SC-27, SC-29	SC-2, SC-3, SC-4, SC-13, SC-19, SC-25, SC-26, SC-27, SC-28	SC-4, SC-26, SC-27	SC-2, SC-4, SC-7, SC-8, SC-9, SC-10, SC-11, SC-15, SC-16, SC-17, SC-18, SC-28, SC-29	SC-29	SC-2, SC-3, SC-4, SC-6, SC-12, SC-14, SC-19, SC-23, SC-27

a. See the introduction to this volume for explanation of mitigation types.

14.11 ADDITIONAL RESOURCES

2015 Urban Water Management Plan - <http://santaclaraca.gov/home/showdocument?id=48088>

1989 Loma Prieta Earthquake Damage - [Seismic Study by G&E Engineering report](#)

City's General Plan - <http://www.santaclaraca.gov/government/departments/community-development/planning-division/general-plan>

Climate Action Plan - <http://www.santaclaraca.gov/home/showdocument?id=10170>

15. CITY OF SARATOGA

15.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Michael Taylor, Recreation & Facilities Director, Risk Manager
19655 Allendale Avenue
Saratoga, CA 95070
Telephone: 408-868-1250
e-mail Address: mtaylor@saratoga.ca.us

Alternate Point of Contact

James Lindsay, City Manager
13777 Fruitvale Avenue
Saratoga, CA 95070
Telephone: 408-868-1213
e-mail Address: jlindsay@saratoga.ca.us

15.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—1956
- **Current Population**—30,219 (January 1, 2016)
- **Population Growth**—Based on data from the State Department of Finance, the City of Saratoga is a “slow growth” City with an overall population increase of approximately 0.5 percent per year since 2010.
- **Location and Description**—Tucked away in the foothills of the Santa Cruz Mountains of California, Saratoga is a residential community with a small-town feel, located south of San José and Cupertino, and northwest of Los Gatos. The City is well known for its excellent schools, fine dining, unique shops, and distinctive cultural institutions. Saratoga offers a high quality of life to its residents and a chance to escape the hustle of Silicon Valley.
- **Brief History**—From a frontier town to an industrial settlement, from a village of fruit orchards to a residential city, Saratoga has continually evolved over its colorful 160-year history. It began with a sawmill. Before long, the sawmill was joined by a tannery, furniture factory, and paper and flour mills. The community that grew up around them was known for short periods of time as Tollgate, McCartysville, and Bank Mills. The settlement received a permanent name after residents discovered a mineral spring in the early 1860s. The spring’s mineral content was quite similar to that of Congress Spring at Saratoga Springs in New York, and in 1865 the town was officially named Saratoga. At the same time, industry in Saratoga gradually gave way to fruit orchards and vineyards. From cherries and apricots to French prunes, Saratoga’s bountiful fruit harvests made it a popular trading post. In 1890, renowned winemaker Paul Masson opened his Mountain Winery in Saratoga, planting a variety of grapes in the Santa Cruz mountain soil. Saratoga’s identity continued to transform throughout the 1900s, as orchards were replaced by homes and the estates of the valley’s wealthy businessmen and politicians. One of the most impressive of these is Villa Montalvo, established in 1912 by United States Senator James Phelan, and now a hub for Saratoga’s art and music scene. The valley’s shift towards suburban and urban living in the years after World War II cemented Saratoga’s status as a residential community and its

reputation as an excellent place to live. In 1956, wary of potential annexation plans from San José, the residents of Saratoga voted to incorporate and establish their own City government.

- **Climate**—Saratoga weather is typical of the Northern California coast, with mild summers and cool, wet winters. It rarely freezes in the winter and it is rarely hot in the summer. Annual average rainfall is over 40 inches, with 80 percent of that falling from November through April. The average year-round temperature is 59°F. Humidity averages 72 to 87 percent. Prevailing winds are from the north and average 5 mph.
- **Governing Body Format**—The City of Saratoga is a General Law City governed by a Council-City Manager form of government with a five-member city council, who are elected to overlapping four-year terms. The Mayor is selected annually by the City Council. The Mayor and Council appoint the City Manager who is charged with implementing policy decisions made by the elected Council, which the City Manager accomplishes through delegation to appropriate departments. The City consists of five departments: Administrative Services, Community Development, Public Works, Recreation & Facilities, and the City Manager's Office. The City is a minimum services City that contracts many municipal services, including the Santa Clara County Sheriff's Office for law enforcement services. The Santa Clara County Library and two sanitary districts also provide services. The City has six commissions and two committees, which report to the City Council. The City Council assumes responsibility for adoption of this plan, City staff will oversee its implementation under the direction of the City Manager.

15.3 DEVELOPMENT TRENDS

Anticipated development levels for Saratoga are low, consisting primarily of residential infill development.

Table 15-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

15.4 CAPABILITY ASSESSMENT

15.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume I and Volume II (Saratoga Annex). All of the below items were additionally reviewed as part of the full capability assessment for Saratoga.

- **Saratoga General Plan**—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- **Saratoga Municipal Code**—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects. The Fiscal Year 2016/17 Operating & Capital Budget is available at: <http://www.saratoga.ca.us/civicax/filebank/blobdload.aspx?BlobID=9697>
- **Technical Reports and Information**—Outside resources and references used to complete the Saratoga Annex are identified in the pertinent Sections of this Annex and in Section 15.11.

Table 15-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes Quarry Park (64 acres)					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	No N/A N/A					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	No N/A					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	3	5	5	6	5
	Multi-Family	0	0	0	0	0
	Other (commercial, mixed use, etc.)	0	0	0	0	0
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Development has occurred throughout the city during the performance period for this plan. For those hazards with a clearly defined extent and location, the City cannot estimate development impacts. For those hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was subject to the regulatory capabilities identified in this annex.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Housing Element has list of vacant land. A small percentage of home remodels have occurred in hillside areas. New development is expected to consist primarily of infill development.					

15.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 15-2. An assessment of fiscal capabilities is presented in Table 15-3. An assessment of administrative and technical capabilities is presented in Table 15-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 15-5. An assessment of education and outreach capabilities is presented in Table 15-6. Classifications under various community mitigation programs are presented in Table 15-7. Development and permitting capabilities are presented in Table 15-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 15-9.

Table 15-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: Chapter 16 of Municipal Code adopted by reference the 2016 California Building Standards Code; 2016 Fire Code Incorporated by reference. Saratoga Fire District and County of Santa Clara Fire Department are responsible for administration; California Building Standards Commission promulgates model Statewide Uniform Code every 3 years.	Yes	Yes	Yes	Yes
Zoning Code Comment: Chapter 15 of Municipal Code contain City's Zoning Regulations. Authority derived from CA State Planning, Zoning Development Laws for General Law Cities.	Yes	No	Yes	Yes
Subdivisions Comment: Chapter 14 of Municipal Code contain City's Subdivision Ordinance. Authority derived from CA State Planning, Zoning Development Laws for General Law Cities.	Yes	No	Yes	Yes
Stormwater Management Comment: Required by Zoning Code 15-47.060. Santa Clara Valley Water District; West Valley Clean Water Program; CA Dept. of Fish & Wildlife Services.	Yes	Yes	Yes	Yes
Post-Disaster Recovery Comment: None Located.	No	No	No	Yes
Real Estate Disclosure Comment: CA Department of Real Estate. CA State Real Estate Law Cal. Civ. Code §1102 et seq.	No	Yes	Yes	Yes
Growth Management Comment: General Plan. Governor's Office of Planning and Research; CA Dept. of Housing and Community Development. Cal. Gov. Code §65300 et seq.	Yes	Yes	No	Yes
Site Plan Review Comment: Design Review required by Zoning Code. Authority derived from CA State Planning, Zoning Development Laws for General Law Cities.	Yes	No	Yes	Yes
Environmental Protection Comment: Authority derived from CA Environmental Quality Act (CEQA). Santa Clara Valley Water District and Federal Government. California Fish and Wildlife authority derived from CA Environmental Quality Act (CEQA).	Yes	Yes	Yes	Yes
Flood Damage Prevention Comment: Authority from City Code Article 16-66 – Flood Plain Management. Santa Clara Valley Water District and Federal Government.	Yes	Yes	Yes	Yes
Emergency Management Comment: Association of Bay Area Governments (ABAG) Pooled Liability Assurance Network (PLAN)	Yes	Yes	No	Yes
Climate Change Comment: Bay Area Air Quality Mgmt. District; Environmental Protection Agency. SB-32 California Global Warming Solutions Act of 2006 and SB-379 Land use: general plan: safety element	No	Yes	Yes	Yes
Other: Comment: None Located.	No	N/A	N/A	N/A
Planning Documents				
General Plan Is the plan compliant with Assembly Bill 2140? YES. Safety Element adopted 2/20/2103. Governor's Office of Planning and Research; CA Dept. of Housing and Community Development. Authority derived from CA State Planning, Zoning Development Laws for General Law Cities. Comment: General Plan is available at: http://www.saratoga.ca.us/cityhall/cd/general_plan.asp	Yes	Yes	Yes	Yes
Capital Improvement Plan How often is the plan updated? Annually Comment: Available at: http://www.saratoga.ca.us/civicax/filebank/blobdload.aspx?BlobID=9697	Yes	No	No	Yes
Floodplain or Watershed Plan Comment: Authority from City Code Article 16-66 – Flood Plain Mgmt. Santa Clara Valley Water District and Federal Government.	Yes	Yes	Yes	Yes

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Stormwater Plan Comment: Authority from City Code Article 16-66 – Flood Plain Mgmt. Santa Clara Valley Water District and Federal Government.	Yes	Yes	Yes	Yes
Urban Water Management Plan Comment: N/A	No	No	No	No
Habitat Conservation Plan Comment: N/A	No	No	No	No
Economic Development Plan Comment: N/A	No	No	No	No
Shoreline Management Plan Comment: N/A	No	No	No	No
Community Wildfire Protection Plan Comment: Santa Clara County Fire, Santa Clara County Community Wildfire Protection Plan	No	Yes	No	Yes
Forest Management Plan Comment: Tree preservation plans are needed in some instances	Yes	No	No	Yes
Climate Action Plan Comment: Bay Area Air Quality Mgmt. District	None adopted	Yes	No	Yes
Comprehensive Emergency Management Plan Comment: Santa Clara County Operational Area	Yes	Yes	No	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: Santa Clara County Operational Area	Yes	Yes	Yes	Yes
Post-Disaster Recovery Plan Comment: N/A	No	No	No	Yes
Continuity of Operations Plan Comment: N/A	No	No	No	Yes
Public Health Plan Comment: Santa Clara County Health Department	No	Yes	No	Yes
Other: Comment: N/A	No	No	No	No

Table 15-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes – part of Santa Clara County Joint Powers Authority
Capital Improvements Project Funding	Yes – part of Annual Budget
Authority to Levy Taxes for Specific Purposes	Yes – subject to Prop 218 and local politics
User Fees for Water, Sewer, Gas or Electric Service	No – political resistance
Incur Debt through General Obligation Bonds	Yes – subject to local political will
Incur Debt through Special Tax Bonds	Yes – subject to local political will
Incur Debt through Private Activity Bonds	Yes – highly unlikely
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes – subject to local political will
Other	Yes

Table 15-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	City of Saratoga Community Development Director; Planning/Building staff
Engineers or professionals trained in building or infrastructure construction practices	Yes	John Cherbone, Public Works Director; Iveta Harvancik, Senior Civil Engineer; Poh Yee, Sr. Plan Checker/Building Inspector
Planners or engineers with an understanding of natural hazards	Yes	Community Development Director
Staff with training in benefit/cost analysis	Yes	Community Development Director; Mary Furey, Finance & Admin Service Director
Surveyors	Yes	Mark Helton, Contract City Surveyor
Personnel skilled or trained in GIS applications	Yes	Sung Kwon, Senior Planner Iveta Harvancik, Sr. Civil Engineer
Scientist familiar with natural hazards in local area	Yes	Ted Sayres, Contract City Geologist
Emergency Manager	Yes	James Lindsay, City Manager; Michael Taylor, Recreation & Facilities Director
Grant writers	Yes	John Cherbone, Public Works Director; Community Development Director

Table 15-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Public Works and Community Developments
Who is your floodplain administrator? (department/position)	City Manager or designee per City Code Section 16-66.070
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date of adoption of your flood damage prevention ordinance?	1996
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	May Not Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes Update in regulation implementation
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	No N/A No
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	177 ^a \$57,046,900 ^a \$87,916 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	16 ^a 7 / 9 ^a \$26,680.53 ^a

a. According to FEMA statistics as of October 31, 2016

Table 15-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes – City Manager's Office
Do you have personnel skilled or trained in website development?	Yes – City Manager's Office
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes CERT, PEP, Safety Element, Associated Maps
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes CERT, PEP
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes – Planning Commission and City Council
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes KSAR Community Access TV
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes – AlertSCC Crisis Communications Plan

Table 15-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection (Santa Clara County Fire Department)	Yes	2/2Y	December 2015
Storm Ready	No	N/A	N/A
Firewise	Yes	N/A	N/A

Table 15-8. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Saratoga Community Development Department
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	Yes

Table 15-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Low
Comment: None provided.	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: None provided.	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment: None provided.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment: None provided.	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment: None provided.	
Participation in regional groups addressing climate risks	Low
Comment: None provided.	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comment: None provided.	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment: None provided.	
Identified strategies for adaptation to impacts	Low
Comment: None provided.	
Champions for climate action in local government departments	Low
Comment: None provided.	
Political support for implementing climate change adaptation strategies	Low
Comment: None provided.	
Financial resources devoted to climate change adaptation	Low
Comment: None provided.	
Local authority over sectors likely to be negative impacted	Low
Comment: None provided.	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Low
Comment: None provided.	
Local residents support of adaptation efforts	Low
Comment: None provided.	
Local residents' capacity to adapt to climate impacts	Low
Comment: None provided.	
Local economy current capacity to adapt to climate impacts	Low
Comment: None provided.	
Local ecosystems capacity to adapt to climate impacts	Low
Comment: None provided.	

15.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

15.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- General Plan Safety Element—Includes all policies and maps. At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate. The General Plan is available at:
<http://www.saratoga.ca.us/civicax/filebank/blobdload.aspx?blobid=3501>
- Geotechnical Clearance—Clearance is required for any new building or structure, or addition to any existing building or structure, located in areas with geologic and geotechnical hazards and constraints. A Ground Movement Map is available at:
http://www.saratoga.ca.us/cityhall/pw/engineering/geotechnical_clearance/ground.asp

15.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration.

- Annual Capital Improvement Budget—Actions and programs identified in the hazard mitigation plan will be integrated into the annual capital improvement budget as is feasible and appropriate.
- Legal and Regulatory Capabilities—Those capabilities identified as providing an integration opportunity in Table 15-1 will be reviewed and updated to include information on hazard risk reduction as feasible and appropriate.

15.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 15-10 lists all past occurrences of natural hazards within the jurisdiction.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Drought	3023	01/20/1977	Not available
Severe Weather (Wind/Rain)	758	02/12/1986	Not available
Earthquake	845	10/17/1989	Not available
Severe Weather (Freeze)	894	12/19/1990	Not available
Severe Weather (Wind/Rain)	1044	01/03/1995	Not available
Severe Weather (Wind/Rain)	1155	12/28/1996	Not available
Severe Weather (Wind/Rain)	1203	02/02/1998	Not available
Severe Weather (Wind/Rain)	N/A	12/15/2002	Not available.
Drought	N/A	01/15/2012	Not available
Severe Weather (Wind/Rain)	N/A	12/03/2014	Not available

15.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- The City of Saratoga shares a significant reliance on technology and communications that could be disrupted during a hazard event.

15.8 HAZARD RISK RANKING

Table 15-11 presents the ranking of the hazards of concern.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	48	High
2	Wildfire	45	High
3	Severe Weather	36	High
4	Landslide	18	Medium
5	Flood	15	Medium
6	Drought	9	Low
7	Dam and Levee Failure	0	None

15.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for the City of Saratoga can be found in Appendix D of this volume.

15.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 15-12 lists the actions that make up the City of Saratoga hazard mitigation action plan. Table 15-13 identifies the priority for each action. Table 15-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

15.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 15-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SAR-1—Norton/Villa Montalvo Emergency Route. Construction of an emergency access road connecting Montalvo with Norton Road (evacuation route).						
New	Earthquake	7, 8	Public Works	High (\$1,000,000)	HMGP, CIP	Short Term
SAR-2—Install El Camino Grande Storm Drain Pump to reduce flood risk to assets in the area.						
New	Flood	7, 8	Public Works	High (\$361,000)	HMGP, FMA, CIP	Short Term
SAR-3—Build the Damon Lane Retaining Wall to reduce the potential for damage to assets in likely slide areas.						
New and Existing	Landslide	7, 8	Public Works	High (\$190,000)	HMGP, HR	Short Term
SAR-4—Engage in annual storm drain upgrades to improve drainage throughout the City.						
New and Existing	Flood	7, 8	Public Works	High (\$200,000)	CIP, Possibly HMGP or FMA	Ongoing
SAR-5—Engage in curb and gutter maintenance and repairs to improve drainage throughout the City.						
New and Existing	Flood	7, 8	Public Works	High (\$50,000)	CIP, Possibly HMGP or FMA	Ongoing
SAR-6—Conduct bridge maintenance and repairs to mitigate against risk from the earthquake hazard.						
Existing	Earthquake	7, 8	Public Works	High (\$200,000)	HMGP, CIP	Long Term
SAR-7—Improve Saratoga Hills Storm Drains to reduce flood risk to assets in the area.						
New and Existing	Flood	7, 8	Public Works	High (\$200,000)	CIP, Possibly HMGP or FMA	Ongoing
SAR-8—Conduct Well Drilling Project to increase redundancy in the City's water supply.						
New	Drought/Earthquake	7, 8	Public Works	High (\$1,000,000)	HMGP, CIP	Long Term
SAR-9— Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Planning and Public Works	High	HMGP, PDM, FMA, CDBG-DR	Short-term
SAR-10—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community						
New and Existing	All Hazards	2, 4,	Planning	Low	Staff Time, General Funds	Ongoing
SAR-11—Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	Recreation and Facilities Department	Low	Staff Time, General Funds	Short-term
SAR-12—Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> • Update the flood damage prevention ordinance with required changes and adopt those changes • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Public Works	Low	Staff Time, General Funds	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SAR-13—Provide incentives for private owners to retrofit soft story buildings. These incentives could take the form of reduced planning application, building permit and inspection fees, or other suitable incentives.						
Existing	Earthquake	4, 8	Planning	Low	Staff Time, General Funds, Possible HMGP or PDM	Ongoing
SAR-14—Recognize that a multi-agency approach is needed to mitigate flooding by having flood control districts, cities, counties, and utilities meet at least annually to jointly discuss their capital improvement programs for most effectively reducing the threat of flooding. Work toward making this process more formal to insure that flooding is considered at existing joint-agency meetings.						
New and Existing	Flood	1, 2, 5	Santa Clara Valley Water District; Community Development and Public Works	Low	Staff Time, General Funds	Ongoing

Table 15-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
SAR-1	2	High	High	Yes	Yes	No	Medium	High
SAR-2	2	Medium	High	No	Yes	No	Low	Medium
SAR-3	2	High	High	Yes	Yes	No	Medium	High
SAR-4	2	Medium	High	No	Possibly	No	Low	Medium
SAR-5	2	Medium	High	No	Possibly	No	Low	Medium
SAR-6	2	High	High	Yes	Yes	No	Medium	High
SAR-7	2	Medium	High	No	Possibly	No	Low	Medium
SAR-8	2	Medium	High	No	Yes	No	Low	Medium
SAR-9	5	High	High	Yes	Yes	No	Medium	High
SAR-10	2	Medium	Low	Yes	No	Yes	High	Low
SAR-11	2	Low	Low	Yes	No	Yes	High	Low
SAR-12	6	Medium	Low	Yes	No	Yes	High	Low
SAR-13	2	High	Low	Yes	Possibly	Yes	High	High
SAR-14	3	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 15-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Severe Weather	SAR-10, SAR-11	SAR-9					
Wildfire	SAR-10, SAR-11	SAR-9,					
Earthquake	SAR-10, SAR-11, SAR-13	SAR-6, SAR-8, SAR-9, SAR-13	SAR-13		SAR-1		
Landslide	SAR-10, SAR-11	SAR-9,				SAR-3	
Flood	SAR-10, SAR-11, SAR-12, SAR-14	SAR-2, SAR-3, SAR-4, SAR-5, SAR-9, SAR-12	SAR-12		SAR-2	SAR-7	
Drought	SAR-10, SAR-11	SAR-9,					SAR-8
Dam and Levee Failure	SAR-10, SAR-11, SAR-12	SAR-9, SAR-12	SAR-12				

a. See the introduction to this volume for explanation of mitigation types.

16. CITY OF SUNNYVALE

16.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Vinicio Mata, Lt. / OES Coordinator
700 All America Way
Sunnyvale, CA 94088
Telephone: 408-730-7198
e-mail Address: vmata@sunnyvale.ca.gov

Alternate Point of Contact

Shawn Ahearn, Captain
700 All America Way
Sunnyvale, CA 94088
Telephone: 408-730-4503
e-mail Address: sahearn@sunnyvale.ca.gov

16.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—1912
- **Current Population**—148,372 (CA Department of Finance January 2016 estimate)
- **Population Growth**—Based on the data tracked by the state Department of Finance, Sunnyvale has experienced an increase of 1.2 percent growth in population within the last year. This makes it the fifth largest city in the San Francisco Bay Area and the second largest in Santa Clara County. The population projection for Sunnyvale for 2030 is approximately 164,732. This number is based on projections from the 2009 ABAG (Association of Bay Area Governments) projection and the Draft Sunnyvale LUTE (Land Use and Transportation Element) projection.
- **Location and Description**—The City of Sunnyvale is located in Santa Clara County, California. It encompasses 24 square miles. Santa Clara County makes up the southern portion of the San Francisco Bay Area. Sunnyvale is bordered by the San Francisco Bay and portions of San José to the north, Moffett Federal Airfield to the northwest, Mountain View to the west, Los Altos to the southwest, Cupertino to the south and Santa Clara to the east. US highway 101 and the historic El Camino Real traverse the city.
- **Brief History**—Sunnyvale’s history has always been based on its economy. Initially, the area’s vast open space and fertile soil were ideal for the fruit orchards that supported the settlement’s first residents. With the arrival of the railroad in 1864, the economic base of the community was able to expand, as canneries to process the fruit from the surrounding orchards were built near the rail lines. In 1906, the Hendy Iron Works relocated from San Francisco to Sunnyvale, continuing the area’s industrial development.

By 1940, the population had grown to about 4,400 and the Hendy Iron Works was taken over by Westinghouse to support the war effort. After the war, the defense-related industry arrived, capitalizing on the pleasant climate and Moffett Naval Air Station. Lockheed Missiles & Space Company moved to Sunnyvale in 1956, and soon became Sunnyvale’s largest employer. The 1950s and 1960s became the periods of largest growth for the community, resulting in a population of 96,000 in 1970.

The defense era gave way to the high-tech era when the microprocessor was introduced in 1971. During the years that followed, companies with foresight saw the potential of computers and the power of

semiconductors. The City became the nexus of research, development and manufacturing that created Silicon Valley, and that legacy continues today in the era of the Internet.

- **Climate**—Sunnyvale’s weather is typical of the Northern California coast, which can be categorized as a Mediterranean climate. It has mild, moist winters and comfortably warm very dry summers. The average precipitation in inches per year is approximately 15.71. The average temperature ranges from 71 to 53 degrees Fahrenheit. Average daytime summer temperatures are in the high 70s, and during the winter, average daytime high temperatures rarely stay below 50 °F (10 °C).
- **Governing Body Format**—The City of Sunnyvale is a charter city. The charter authorizes the creation of the city and outlines its powers, functions, and organization. The original Charter of the City of Sunnyvale was established by vote of the people of the City of Sunnyvale as the organic law of the City under the authority of the Constitution of the State of California and became effective May 18, 1949. The municipal government provided by the Charter is known as the “Council-Manager” form of government. The elective officers of the City consist of a City Council composed of seven members. The Mayor and Vice-Mayor are not directly elected. They are selected from the City Council members by the City Council serving two-year and one-year terms, respectively.

The City of Sunnyvale consists of 11 departments: City Attorney, City Manager, Community Development, Environmental Services, Finance, Human Resources, Information Technology, Library and Community Services, NOVA Workforce Services, Public Safety and Public Works.

The City of Sunnyvale has a strong tradition of community participation, one of which is through service on a board or commission. There are 10 boards and commissions that report to the City Council.

The City Council assumes responsibility for the adoption of this plan, while the City Manager will oversee its implementation.

16.3 DEVELOPMENT TRENDS

The development levels for the City of Sunnyvale can be categorized from moderate to high within the last number of years consisting of residential as well as commercial development. The City of Sunnyvale adopted its general plan in 2011. Sunnyvale’s General Plan consists of a Community Vision and five supporting chapters addressing the physical development of the City. These chapters group related topics together such as Community Character, Safety and Noise, and Environmental Management.

The top five industries by employment in the city consist of: Professional, Scientific and Technical Services; Manufacturing; Information; Health Care and Social Assistance; Recreation/Hospitality. The top 10 employers in Sunnyvale include: Lockheed Martin Space Systems; Network Appliance, Inc.; Apple, Inc.; Northrop Grumman Marine; Yahoo! Inc.; LinkedIn Corp.; Juniper Networks; Intuitive Surgical, Inc.; Google; A2Z Development Center, Inc. (Lab 126). Table 16-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 16-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes The City annexed 5.3 acres of land along Wolfe Road between El Camino Real and Fremont Ave. It has not been subdivided yet.					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	No N/A N/A					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes After major delays on the Sunnyvale Downtown Specific Plan, the downtown redevelopment project is back on track with a new developer. It will include entertainment as well as mixed use housing/commercial. The Lawrence Station Specific Plan identifies opportunities for higher-density housing development as well as mixed-use in proximity to transit. There is also a Peery Park Specific Plan which addresses a vision and broad policy concepts to guide development in that area which consists of 77% industrial use, 12% commercial and less than 1% residential. Continued development of the Moffet Park Specific Plan which addresses a large commercial and industrial area of the city. None of the anticipated development is in known hazard risk areas.					
How many building permits were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Total	4,370	4,758	5,027	5,387	6,020
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	Special Flood Hazard Areas- 3 Landslide- N/A High Liquefaction Areas- 0 Tsunami Inundation Area - 0 Wildfire Risk Areas – N/A					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The City is considered to be at 90 percent build out.					

16.4 CAPABILITY ASSESSMENT

16.4.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for inclusion into the 2017 Multi-Jurisdiction Hazard Mitigation Plan for both Volume I and Volume II (City of Sunnyvale). All of the below items were additionally reviewed as part of the full capability assessment for the City of Sunnyvale.

- Sunnyvale General Plan—The General Plan, including the Land Use and Safety Elements, were reviewed for information regarding goals and policies consistent with hazard mitigation for carry over as goals and objectives.
- Sunnyvale Municipal Code—The Municipal Code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.

- **Flood Damage Prevention Ordinance**—The Flood Damage Prevention Ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvements Plan**—The Capital Improvements Plan was reviewed to identify cross-planning initiatives for inclusion as mitigation projects.
- **City of Sunnyvale Climate Action Plan**—The Climate Action Plan was reviewed to identify areas that have been addressed by the plan and potential cross-planning initiatives.
- **2015 Urban Water Management Plan**—The Urban Water Management Plan was reviewed for cross-referencing purposes.
- **Sunnyvale Local Hazard Mitigation Plan June 11, 2012**—The Local Hazard Mitigation Plan, was reviewed for information regarding goals, policies and projects consistent with hazard mitigation for carry over as goals and objectives.
- **Technical Reports and Information**—Outside resources and references used to complete the Sunnyvale Annex are identified in Section 16.11 of this Annex.

16.4.2 Full Capability Assessment

An assessment of legal and regulatory capabilities is presented in Table 16-2. An assessment of fiscal capabilities is presented in Table 16-3. An assessment of administrative and technical capabilities is presented in Table 16-4. Information on National Flood Insurance Program (NFIP) compliance is presented in Table 16-5. An assessment of education and outreach capabilities is presented in Table 16-6. Classifications under various community mitigation programs are presented in Table 16-7. Development and permitting capabilities are presented in Table 16-8, and the community's adaptive capacity for the impacts of climate change is presented in Table 16-9.

Table 16-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code Comment: 2016 California Building Code adopted Nov. 15, 2016. Ordinance 3100-16.	Yes	Yes	Yes	Yes
Zoning Code Comment: Sunnyvale Municipal Code Title 19 Zoning	Yes	No	No	No
Subdivisions Comment: Sunnyvale Municipal Code Title 18 Subdivisions	Yes	No	No	No
Stormwater Management Comment: Sunnyvale Municipal Code 12.60 / San Francisco Bay Regional Water Quality Control Board via Order No. R2-2015-0049, NPDES Permit No. CAS612008 issued Nov. 19, 2015 / Permit requires development of a Green Infrastructure Master Plan by June 30, 2019.	Yes	Yes	Yes	Yes
Post-Disaster Recovery Comment: None Located	No	No	Yes	No
Real Estate Disclosure Comment: Cal. Civ. Code §1102 et seq.	No	No	Yes	No
Growth Management Comment: Cal. Gov. Code §65300 et seq.	No	No	Yes	No
Site Plan Review Comment: None located.	No	No	No	No
Environmental Protection Comment: California Environmental Quality Act (Guideline: California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387)	Yes	No	Yes	No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Flood Damage Prevention Comment: Standards for construction in flood zones is regulated by FEMA and the State. Local ordinance was most recently updated in 2010 (Ordinance #2916-10)	Yes	Yes	Yes	No
Emergency Management Comment: Emergency Operations Plan (2005) New plan is being finalized (will probably be approved by Council 2017)	Yes	Yes	Yes	Yes
Climate Change Comment: City has adopted a Climate Action Plan in May 2014 specifying actions to reduce communitywide GHG emissions from Sunnyvale. California SB-379: Land Use: General Plan: Safety Element	Yes	No	Yes	Yes
Other: Comment: None Located	N/A	N/A	N/A	N/A
Planning Documents				
General Plan Is the plan compliant with Assembly Bill 2140? Yes Comment:	Yes	Yes	Yes	Yes
Capital Improvement Plan How often is the plan updated? Comment: The CIP is updated every two years.	Yes	No	No	Yes
Floodplain or Watershed Plan Comment: None Located.	No	No	No	No
Stormwater Plan Comment: None Located.	No	No	No	No
Urban Water Management Plan Comment: Adopted by City Council on June 21, 2016. Resolution 758-16. It meets the requirement to the California Urban Water Management Planning Act, Water Code Division 6, Part 2.6, sections 10610 through 10656.	Yes	Yes	Yes	No
Habitat Conservation Plan Comment: None Located.	No	No	No	No
Economic Development Plan Comment: Economy is addressed in the General Plan Land Use and Transportation element	Yes	No	No	No
Shoreline Management Plan Comment: None Located.	No	No	No	No
Community Wildfire Protection Plan Comment: None Located.	No	No	No	No
Forest Management Plan Comment: The Urban Forest Management Plan is not scheduled for routine updates, only as needed. Last adopted in September 2014.	Yes	No	No	No
Climate Action Plan Comment: Adopted May 20, 2014 / Completed by the Community Development Department. The plan was completed following guidelines from the California Environmental Quality Act (CEQA)	Yes	No	No	Yes
Comprehensive Emergency Management Plan Comment: The new Emergency Operations Plan has been completed and will be adopted by City Council on 2017.	Yes	Yes	Yes	Yes
Threat & Hazard Identification & Risk Assessment (THIRA) Comment: None Located.	No	No	No	No
Post-Disaster Recovery Plan Comment: There is not one in place, however there are plans to develop a Post-Disaster Recovery Plan	No	No	No	Yes

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Continuity of Operations Plan	No	No	No	No
Comment: There is not one in place, however there are plans to develop a Continuity of Operations Plan				
Public Health Plan	No	No	No	No
Comment: None Located.				
Other:	N/A	N/A	N/A	N/A
Comment: None Located.				

Table 16-3. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

Table 16-4. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development Department/ Planners Department of Public Works / Director, Assistant Director, Senior Engineer, Civil Engineer, Engineering Assistant II
Engineers or professionals trained in building or infrastructure construction practices	Yes	Community Development Department/Engineers Department of Public Works / Director, Assistant Director, Senior Engineer, Civil Engineer, Engineering Assistant II
Planners or engineers with an understanding of natural hazards	Yes	Community Development Department/ Planners
Staff with training in benefit/cost analysis	Yes	Finance Department
Surveyors	Yes	Community Development Department
Personnel skilled or trained in GIS applications	Yes	Information Technology/Senior Programmer Analyst
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Department of Public Safety/Special Operations /Office of Emergency Services Coordinator
Grant writers	Yes	Department of Public Safety / Special Operations / Management Analyst Department of Public Works / Varies (no staff specifically assigned) NOVA Workforce Services / Workforce Development Analysts, Employment Training Manager

Table 16-5. National Flood Insurance Program Compliance

Criteria	Response
What local department is responsible for floodplain management?	Community Development Department
Who is your floodplain administrator? (department/position)	Community Development Department/ Director
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date of adoption of your flood damage prevention ordinance?	Most recent ordinance adopted 1994. Have made minor revisions in 2010.
Does your floodplain management program meet or exceed minimum requirements?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	March 12, 2015
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	Yes (Class 7) No N/A
How many flood insurance policies are in force in your jurisdiction? • What is the insurance in force? • What is the premium in force?	1,057 \$275, 627, 200 ^a \$996,831 ^a
How many total loss claims have been filed in your jurisdiction? • How many claims were closed without payment/are still open? • What were the total payments for losses?	10 ^a 5/0 ^a \$68,655.19 ^a

a. According to FEMA statistics as of October 31, 2016.

Table 16-6. Education and Outreach

Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes Information regarding the process as well as a survey has been uploaded to the Department of Public Safety Emergency Preparedness web page. Information regarding Floodplain Management and Flood and Storm safety is included on the Department of Public Works web page.
Do you utilize social media for hazard mitigation education and outreach? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes We provide emergency preparedness information.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	No
Do you have any other programs already in place that could be used to communicate hazard-related information? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes We are migrating to a new website. There is a plan to make the LHMP available. In the last few years, our social media presence has increased. We are planning to use social media for hazard related information.
Do you have any established warning systems for hazard events? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes AlertSCC (Santa Clara County's emergency notification system); Community Notification system (currently Nixle and transitioning to Everbridge); social media platforms; 1680 AM radio station; Access to Emergency Alerting System.

Table 16-7. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	7	May 1, 2009
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	Yes	2	July 1, 2013
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A

Table 16-8. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? <ul style="list-style-type: none"> If no, who does? If yes, which department? 	Yes Community Development
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	No

Table 16-9. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts Comment: Most staff is aware of issues, but more could be done to provide information on specific impacts and how to address.	Medium
Jurisdiction-level monitoring of climate change impacts Comment: Project specific impacts including greenhouse gas emissions as well as compliance with the City's Climate Action Plan are evaluated on project by project basis during California Environmental Quality Act (CEQA) review. If project does not meet the State allowances, mitigation measures are required but the City Council can still approve the project with "overriding considerations" if the project will result in significant Green House Gas (GHG) emissions beyond what can be mitigated. Sunnyvale does not currently have the resources/tools to conduct jurisdiction-level monitoring of climate change impacts.	Low
Technical resources to assess proposed strategies for feasibility and externalities Comment: Do not have this capacity.	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory Comment: Sunnyvale has conducted GHG emissions inventories and plans to conduct them biennially per City's Climate Action Plan.	High
Capital planning and land use decisions informed by potential climate impacts Comment: Project specific impacts including greenhouse gas emissions as well as compliance with the City's Climate Action Plan are evaluated on project by project basis during California Environmental Quality Act (CEQA) review. If project does not meet the State allowances mitigation measure are required but the City Council can still approve the project with "overriding considerations" if the project will result in significant GHG emissions beyond what can be mitigated.	Medium
Participation in regional groups addressing climate risks Comment: City staff participate in several regional groups addressing climate risks including but not limited to Joint Venture Silicon Valley Public Sector Climate Protection Task Force, Santa Clara Valley Water District South Bay Shoreline Study, and County of Santa Clara Silicon Valley 2.0 Risk Assessment Tool. However, each of these forums tends to be more information sharing. South Bay lacks unified approach to adaption planning and response. It seems there are multiple entities involved but not a single lead agency.	Medium
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes Comment: Sunnyvale's adopted Climate Action Plan and Adaptation Chapter. Action A.3.1 calls for City to "analyze and disclose possible impacts of climate change on the project or plan area with an emphasis on sea level rise." Project specific impacts including greenhouse gas emissions as well as compliance with the City's Climate Action Plan are evaluated on project by project basis during California Environmental Quality Act (CEQA) review. If project does not meet the State allowances mitigation measure are required but the City Council can still approve the project with "overriding considerations" if the project will result in significant GHG emissions beyond what can be mitigated.	Low
Identified strategies for greenhouse gas mitigation efforts Comment: City Council adopted Sunnyvale's Climate Action Plan in May 2014. City is currently implementing; however, while plan will meet the State's near-term 2020 target, CAP does not meet 2030 or 2050 GHG reduction targets. City Council considering actions to update CAP to meeting long-term targets and formally adopt State targets as local goal.	Medium
Identified strategies for adaptation to impacts Comment: Sunnyvale's CAP includes a chapter on Adaptation; however, the identified actions are general and emphasize participation on regional groups. The City could benefit through the development of a City specific adaption plan; however, resources and capacity are limited.	Low
Champions for climate action in local government departments Comment: Most staff are generally aware of Climate Change issues, especially CDD, DPW, ESD involved in CAP and development projects. Staff could benefit from more information about specific climate impacts to Sunnyvale and by having more tools and resources on how to address adaption as a part of their work.	Medium
Political support for implementing climate change adaptation strategies Comment: Elected officials, Sustainability Commission, and community groups (SunnyvaleCool, Livable Sunnyvale, etc.) are actively engaged on climate issues and supportive of City action.	High
Financial resources devoted to climate change adaptation Comment: City currently has no funding dedicated to climate change adaptation; any funding would have to come from the General Fund.	Low

Adaptive Capacity Assessment	Jurisdiction Rating
Local authority over sectors likely to be negative impacted	Low
Comment:	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Medium
Comment: Small group of Sunnyvale resident community is aware and actively engaged; broader community is aware but not engaged.	
Local residents support of adaptation efforts	Low
Comment: Small group of Sunnyvale resident community is aware and actively engaged; broader community is aware but not engaged or interested in changing their behaviors or taking actions on climate issues.	
Local residents' capacity to adapt to climate impacts	Medium
Comment: Not a lot of information on specific adaptation actions a resident can take; broader community may be aware but not engaged or interested in changing their behaviors or taking actions on climate issues.	
Local economy current capacity to adapt to climate impacts	Medium
Comment: Most large companies in area are engaged and take precautions to adapt/mitigate their own effects on climate. Mid-size and small companies may not have the resources to address or engage on the issue.	
Local ecosystems capacity to adapt to climate impacts	Low
Comment: North Sunnyvale borders the South San Francisco Bay and its wetland and marsh habitats. This area is included in the South San Francisco Shoreline Study. The goal of the Shoreline Study is to protect the parts of Santa Clara County's shoreline with the highest potential damages and threats to human health and safety from flooding, using a combination of flood protection levees and wetlands. This approach using natural infrastructure would provide increased flood protection and restored Bay habitats, as well as a flood protection system that can evolve in the future. The Shoreline Study is coordinated with another project in the area, the South Bay Salt Pond Restoration Project, which seeks to restore historic wetlands on 15,100 acres of former salt ponds in the South Bay. This study is moving forward in phases and the first phase selected is the Alviso reach which does not include Sunnyvale.	
Lack specific information on how other aspects of our local ecosystem would adapt such as open space areas and urban forest.	

16.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction's process for integrating the hazard mitigation plan into local planning mechanisms.

16.5.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan.

City of Sunnyvale General Plan

The following are excerpts from the plan illustrating how hazard mitigation has been integrated into the plan:

- General Plan
 - The City actively encourages and requires property owners to maintain their properties and to preserve the safety and integrity of their structures through the Neighborhood Preservation Program. The City's Public Safety Department is one of the oldest fully-integrated Police, Fire, and Emergency Medical Services public entities in the United States. Each of the City's 201 sworn officers is highly trained and certified to perform the functions of police officer, firefighter, and emergency medical technician services. Together with the City management team, the staff prepares contingency plans to address possible future emergencies, ranging from an industrial explosion with toxic materials to a major earthquake. A 2015 community satisfaction survey indicated a rating of 78% on the overall quality of life and an 83% overall feeling of safety among Sunnyvale residents. Sunnyvale has a relatively low risk factor for fire loss and past fire experience has demonstrated Sunnyvale to be a relatively fire-safe community. The City maintains a trained and well equipped fire service to respond

to fires and other incidents. While the potential for extraordinary disaster always exists, and while the aging process of the City and its buildings will have some adverse impact on fire loss, the overall environment is comparatively fire-safe.

- The majority of Sunnyvale is located in the 100-year floodplain, although a 100-year flood event has never occurred in the City. The Santa Clara Valley Water District maintains Calabazas Creek, Stevens Creek, and the Sunnyvale East and West flood control channels, and has made numerous improvements to the channels to increase their capacity. These channels, coupled with the City's 150 mile storm drain system, take the majority of surface run-off to the Bay. In addition, low lying areas in the northern areas of the City are assisted by two pumping stations. Within the next few years, the Santa Clara Valley Water District has planned additional improvements to local creeks to ensure they will be able to contain the runoff from a 100-year flood. Sunnyvale enforces specific building code requirements in the flood prone areas to minimize potential property damage, including minimum foundation pad heights above the projected flood depth as specific on the Flood Insurance Rate Map (FIRM). The City participates in the National Flood Insurance Program Community Rating System. Without the present system of dikes and levees, parts of Sunnyvale would be subjected to flooding by tides. If these dikes and levees were to fail or their banks overflow, tidal flooding could occur. In 2006, the City's Department of Public Works completed a capital improvement project to repair and strengthen the levees surrounding the holding ponds, reducing the chance that the levees would fail in the event of a major earthquake. Maintenance work continues to be completed in this area.

- Land Use Element

- Sunnyvale is nearly fully developed; only 0.5% of land is vacant. The City of Sunnyvale does not build housing, but through its land use regulations it can influence and control the type and quality of housing that is developed. With regard to commercial and industrial space, the adopted 1997 Land Use and Transportation Element of the General Plan would accommodate a total of 49 million square feet, about 14 million square feet more than currently exists. At today's intensity of building use, this would yield a total of about 160,000 jobs. When this figure is compared to the City's 2025 projection of 109,570 jobs for the city, it is apparent that Sunnyvale has more than adequate capacity for projected job growth.

- Housing Element

- Under the Sunnyvale General Plan, the State-required Housing element has become the Housing and Community Revitalization Sub-element, and is found under a broader Community Development element that includes Community Design, Open Space, and Seismic Safety. The City actively participates in the State of California Seismic Hazards Mapping Program. All geotechnical reports received by the City are forwarded to the State of California for additional review. Un-reinforced masonry (URM) buildings are particularly susceptible to ground shaking. In compliance with URM legislation enacted 1986, Sunnyvale is continuing to perform hazard mitigation on URM buildings. Only ten URM buildings remain in Sunnyvale, all of which are located in the South Murphy Avenue historical area which is exempt from the State URM legislation; none of these URM's are residential structures.

- Seismic Safety- Safety Sub-Element

- The purpose of the Seismic Safety –Safety Sub-Element to Sunnyvale's General Plan is to examine seismic safety and other safety issues in Sunnyvale and to establish a planning document to guide land use decisions. The City believes that incorporating knowledge of existing safety hazards into the planning and development review process is essential.

- Planning and Development—The majority of industrial zoned land lies in the northern portion of the City, which is considered to be more vulnerable to damage resulting from an earthquake. As the land is at or below sea level, a system of dikes and levees is necessary to maintain its status.
- Water Resources Sub-Element
 - Sunnyvale’s Water Resources Sub-Element to the General Plan details the City’s water supply reliability issues and infrastructure replacement needs. The three key goals outlined in this document are to acquire and manage an adequate supply of water, to maintain reliable water distribution system infrastructure, and to ensure that water meets all quality, health, and regulatory standards.
 - Water Supply—Sources of the City’s water supply include local groundwater wells, imported supplies from the Santa Clara Valley Water District (SCVWD) and the San Francisco Public Utilities Commission (SFPUC), and interagency connections with other local water suppliers in case of an emergency. Recycled water is also a source of water and acts as a drought-resistant supply for the City. This document assures that barring catastrophic events, the City of Sunnyvale has adequate supply commitments and facilities to reliably meet the projected water needs of its residents and businesses for the foreseeable future. It is a goal of the City to provide a redundancy in the water supply system so that potable water demand and fire suppression requirements can be met under both normal and emergency circumstances. The SFPUC system, however, needs to be upgraded and designed to current seismic standards so that it is able to deliver water even in the event of a major earthquake. SFPUC is therefore undertaking a Water System Improvement Program that will enhance the ability of its water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply.
 - In 2002, San Francisco and the SFPUC were required to prepare an emergency response plan, in consultation with the Bay Area Water Users Association, focusing on how water service can be restored promptly after an earthquake and prohibiting discrimination against wholesale customers in the allocation of water during such a crisis. The Bay Area Water Supply and Conservation Agency monitors the progress of SFPUC’s Capital Improvements Program, in particular regional projects to enhance seismic safety. SCVWD has an active conjunctive use program to optimize the use of groundwater and surface water, and to prevent groundwater overdraft and land subsidence. The SCVWD completed a Water Infrastructure Reliability Project in 2005 that assessed the vulnerability of its regional raw and treated water delivery systems. The study identified the following hazards as those that pose a risk to system functionality: San Andreas Fault magnitude 7.0 earthquake, Southern Hayward Fault magnitude 6.67 earthquake, 100 year flood, 500 year flood, and a regional electric power outage.
 - Water System and Infrastructure—Approximate 80% of the water main pipelines serving Sunnyvale were constructed in the 1960s and the remainder in the 1980s. The 1960s pipelines will reach their estimated 50 year useful service life within the next several years and will need to be improved. Sunnyvale has established methods to provide resources for the repair, replacement, and rehabilitation of the water system and these projects are of high priority in the City’s Capital Improvements Plan. The City’s fire hydrants are also continuously maintained so they can be used to mitigate fire hazards.
 - Water Demand and Demand Management—Ongoing water conservation efforts have led to the City decreasing the amount of water used in Sunnyvale per day. Increased use of recycled water is another City controlled method to reduce demand for potable supply. The City’s drought response is based on the Sunnyvale Water Conservation Plan. This plan includes mandatory and voluntary water use restrictions associated with different levels of reduction and approaches for enforcement. In the 2015 Urban Water Management Plan the City projects increased water demands in the commercial sector, however water demand in the residential sector is expected to level off as old housing developments are replaced with high density more water efficient developments.

At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into the General Plan as appropriate.

Flood Damage Prevention Ordinance (Floodplain Management Ordinance)

In an effort to reduce the risk of loss of life, health, and property due to periodic flood inundation, the City of Sunnyvale has developed a Prevention of Flood Damage Ordinance. The ordinance is designed to minimize the expenditure of public money for flood control projects, the need for rescue and relief efforts, business interruptions, and damage to public facilities and utilities. The ordinance also ensures that if potential buyers inquire, they are informed if a property is in an area of special flood hazard and that those who occupy property in those areas are held responsible for their actions. The Director of Community Development is responsible for enforcing this ordinance.

One of the provisions of this plan is that a development permit must be obtained before any construction or development begins and that certain construction standards such as; anchoring, building with flood resistant materials, and elevating and flood proofing, are required within an area of special flood hazard. The plan also enforces that new and replacement water and sanitary sewage systems should be designed to minimize flood water infiltration and discharge into flood waters.

Standards are also included for subdivisions and manufactured homes. Since floodways are extremely hazardous, no new development is permitted to be constructed in these areas unless certification by a professional engineer or architect is provided demonstrating that the development will not increase base flood elevations. This ordinance also has special regulations for new development within a coastal high hazard area. These regulations ensure that new construction is located on the landward side of the reach of mean high tide, the space below the lowest floor is free of obstructions or constructed with breakaway walls and is not used for human habitation, there is no manmade alteration of sand dunes, and that fill is not used as structural support of a building.

Capital Improvements Plan

The City of Sunnyvale lists various projects in their Capital Improvement Program (CIP) that are currently being undertaken by the Public Works Department, many of which may help mitigate potential hazards. In the downtown section, an investigation and remediation of HAZMAT is taking place. Numerous street and traffic projects such as bridge repairs, roadway and pavement rehabilitation, installing bike and pedestrian corridors, sidewalk replacement, curb and gutter replacement and traffic signal replacement are designed to maintain roads and minimize traffic and pedestrian accidents. Undergrounding of overhead utilities is being considered to reduce potential hazards from down power lines. An inspection and evaluation of bridges and levees is scheduled to take place in an effort to ensure safety and to create a database of the study's findings. Replacement, maintenance, and emergency backup of infrastructure for the City's storm/sanitary and water systems are also listed as active projects in Sunnyvale's CIP. These projects may mitigate a possible utility mishap within the City.

Downtown Revitalization

The City of Sunnyvale created an Environmental Impact Report for their Downtown Improvement Program to describe the potential impacts the project has on soil and geologic conditions and to identify mitigations for potentially significant effects. It has been determined that the project site would not be subject to land sliding or other slope instability hazards because it is situated on generally level land. In addition, erosion hazards during construction are expected to be low due to the gentle slopes and relatively high percentage of existing impervious surfaces. Therefore, since no significant impact has been identified, no mitigation strategies have been required. Downtown development and infrastructure improvements facilitated by the project may be subject to foundation and infrastructure damage from expansive soils or settlement of soils. In an effort to mitigate this potentially significant impact, the City should follow normal procedures and require and review of geologic reports that

describe potential hazards and identify engineering specifications necessary to reduce all ground failure risks to an acceptable level.

All urban development in the region are subject to strong to very strong seismic shaking and possible liquefaction in the event of a major earthquake on the Hayward, San Andreas, or Calaveras fault systems. This project would be designed and in accordance with the Uniform Building Code guidelines for Seismic Zone 4 to avoid or minimize potential damage from seismic shaking. These measures would be expected to reduce project-related seismic safety impacts to less than significant levels. Although this project has experienced significant delays, it is now back in track with a new developer.

16.5.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- Climate Action Plan (CAP)—The CAP is fairly new plan. As a result of the hazard mitigation plan review process it has been determined that there is an excellent opportunity for future integration between these two plans.
- Post Disaster Recovery Plan—This plan has not been written. Once it is completed, it offers an opportunity for integration with the hazard mitigation plan.
- Legal and Regulatory Capabilities—Those capabilities identified as providing an integration opportunity in Table 16-1 will be reviewed and updated to include information on hazard risk reduction as feasible and appropriate.

16.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 16-10 lists all past occurrences of natural hazards within the jurisdiction.

Table 16-10. Natural Hazard Events			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storms	1203	2/2/98	N/A
Earthquake	845	10/17/1998	N/A

16.7 JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include:

- Ten URM buildings remain in Sunnyvale, all of which are located in the South Murphy Avenue historical area, which is exempt from the State URM legislation; none of these URM's are residential structures.
- A major industrial zone in the City is in an area considered to be more vulnerable to damage resulting from an earthquake. This land is at or below sea level and is protected by a system of dikes and levees.
- The San Francisco Public Utilities Commission system needs to be upgraded and designed to current seismic standards so that it is able to deliver water even in the event of a major earthquake.

16.8 HAZARD RISK RANKING

Table 16-11 presents the ranking of the hazards of concern.

Table 16-11. Hazard Risk Ranking			
Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	54	High
2	Severe Weather	33	Medium
3	Flood	24	Medium
4	Drought	9	Low
5	Dam and Levee Failure	6	Low
6	Landslide	0	None
6	Wildfire	0	None

16.9 STATUS OF PREVIOUS PLAN ACTIONS

The status of previous actions from the 2011 ABAG LHMP for Sunnyvale can be found in Appendix D of this volume.

16.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 16-12 lists the actions that make up the City of Sunnyvale hazard mitigation action plan. Table 16-13 identifies the priority for each action. Table 16-14 summarizes the mitigation actions by hazard of concern and the six mitigation types.

16.11 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 16-12. Hazard Mitigation Action Plan Matrix						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SNY-1—Flex couplings being added to the Mary Carson Water Tank #1. This is a water storage tank owned by the City. This is in progress.						
Existing	Earthquake	2, 8	Dept. of Public Works	Low	Staff time, General Funds	Ongoing
SNY-2—Flex coupling will be added to the Mary Carson Water Tank #2. This project is in the design stage.						
Existing	Earthquake	2, 8	Dept. of Public Works	Low	Staff time, General Funds	Short term
SNY-3—Widening and retrofitting to meet current seismic requirements of the Fair Oaks Overpass Bridge. This project is in the design stage.						
Existing	Earthquake	2, 8	Dept. of Public Works	Medium	Staff time, General Funds, HMGP, PDM	Short term
SNY-4—Widening and retrofitting to meet current seismic requirements of the Old Mountain View-Alviso Overpass Bridge. This project is in the design stage.						
Existing	Earthquake	2, 8	Dept. of Public Works	Medium	Staff time, General Funds, HMGP, PDM	Short term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SNY-5—Flood related improvement project on the East Channel. This project is in the permitting stage.						
Existing	Flood	2, 3, 8	Santa Clara Valley Water District* Sunnyvale Environmental Services Dept.	Medium	Possibly FMA, HMGP	Short term
SNY-6—Flood related improvement project on the West Channel. This project is in the permitting stage.						
Existing	Flood	2, 3, 8	Santa Clara Valley Water District* Sunnyvale Environmental Services Dept.	Medium	Possibly FMA, HMGP	Short term
SNY-7—Develop a disaster recovery plan.						
New	All Hazards	1, 2, 3, 5,	Dept. of Public Safety* Finance Dept.	Low	Staff time, General Funds	Short term
SNY-8—Review/update the debris management plan.						
Existing	All Hazards	1, 2, 3, 5,	Dept. of Public Safety* Environmental Services Dept.	Low	Staff time, General Funds	Ongoing
SNY-9—Enhance emergency preparedness page on City website by cross-referencing different City department mitigation efforts like flood control projects and climate change initiatives.						
Existing	All Hazards	4	Dept. of Public Safety	Low	Staff time, General Funds	Short term
SNY-10—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.						
Existing	All Hazards	4, 5, 6, 7, 8	Community Development and Public Works	High	HMGP, PDM, FMA, CDBG-DR	Short-term
SNY-11—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.						
New and Existing	All Hazards	2, 4,	Community Development	Low	Staff Time, General Funds	Ongoing
SNY-12— Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.						
New and Existing	All Hazards	1, 5	OES Coordinator	Low	Staff Time, General Funds	Short-term
SNY-13— Continue to maintain good standing and compliance under the National Flood Insurance Program (NFIP). This will be accomplished through the implementation of floodplain management programs that will, at a minimum, meet the requirements of the NFIP:						
<ul style="list-style-type: none"> Enforcement of the flood damage prevention ordinance Participate in floodplain identification and mapping updates Provide public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood	1, 2, 3, 4, 7, 8	Community Development	Low	Staff Time, General Funds	Ongoing

Table 16-13. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
SNY- 1	2	Low	Low	Yes	No	Yes	High	Low
SNY-2	2	Low	Low	Yes	No	Yes	High	Low
SNY-3	2	Medium	Medium	Yes	Yes	Yes	High	Medium
SNY-4	2	Medium	Medium	Yes	Yes	Yes	High	Medium
SNY-5	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
SNY-6	3	Medium	Medium	Yes	Yes	Yes	Medium	Medium
SNY-7	4	Medium	Low	Yes	No	Yes	High	Low
SNY-8	4	Medium	Low	Yes	No	Yes	High	Low
SNY-9	1	Medium	Low	Yes	No	Yes	Medium	Low
SNY-10	5	High	High	Yes	Yes	No	Medium	High
SNY-11	2	Medium	Low	Yes	No	Yes	High	Low
SNY-12	2	Low	Low	Yes	No	Yes	High	Low
SNY-13	6	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 16-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Dam and Levee Failure	SNY-11, SNY-12, SNY-13	SNY-5, SNY-6, SNY-10, SBY-13	SNY-9, SNY-13		SNY-7, SNY-8, SNY-9		
Drought	SNY-11, SNY-12	SNY-10	SNY-9		SNY-7, SNY-8, SNY-9		
Earthquake	SNY-11, SNY-12	SNY-1, SNY-2, SNY-3, SNY-4, SNY-10	SNY-9		SNY-7, SNY-8, SNY-9	SNY-3, SNY-4	
Flood	SNY-11, SNY-12, SNY-13	SNY-5, SNY-6, SNY-10, SBY-13	SNY-9, SNY-13		SNY-7, SNY-8, SNY-9		
Severe Weather	SNY-11, SNY-12	SNY-5, SNY-6, SNY-10	SNY-9		SNY-7, SNY-8, SNY-9		

a. See the introduction to this volume for explanation of mitigation types.

17. SANTA CLARA COUNTY FIRE DEPARTMENT

17.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Brian Glass, Battalion Chief
14700 Winchester Blvd.
Los Gatos, Ca 95032
Telephone: 408-455-9129
e-mail Address: brian.glass@sccfd.org

Alternate Point of Contact

Deborah Stocksick, Staff Battalion Chief
14700 Winchester Blvd.
Los Gatos, Ca 95032
Telephone: 408-960-9165
e-mail Address: deborah.stocksick@sccfd.org

17.2 JURISDICTION PROFILE

17.2.1 Overview

Established in 1947, the Central Fire Protection District (dba) Santa Clara County Fire Department (SCCFD) provides fire services for Santa Clara County, California and the communities of Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, and Saratoga. The department also provides protection for the unincorporated areas adjacent to those cities. Wrapping in an approximately 20 mile arc around the southern end of "Silicon Valley," the SCCFD has grown to include 15 fire stations, an administrative headquarters, a maintenance facility, five other support facilities, 19 pieces of apparatus and 3 command vehicles, to cover 128.3 square miles (267 square km) and a population of approximately 250,000. The department employs over 288 fire prevention, suppression, investigation, administration, and maintenance personnel; daily emergency response consists of 66 employees. The department's suppression force is also augmented by approximately 30 volunteer firefighters. This staffing model and service trend are anticipated to remain consistent through the 2017 plan performance period. The anticipated service trend will remain consistent with a possibility for a slight increase in service over the next five years.

The SCCFD is a "Special Fire Protection District" formed under California Health and Safety Code, Section 13862, which empowers the Department to provide fire protection services, rescue services, emergency medical services, hazardous materials emergency response services, and other services relating to the protection of lives and property.

The Department's authority is granted by the California Health and Safety Code, Div. 12, Part 2.7, of the Fire Protection District Law of 1987, also known as the Bergeson Fire District Law. The Santa Clara County Board of Supervisors, sitting as the Department's Board of Directors, governs the Department. As such, the Department is classified as a dependent district. The Fire Chief is appointed by the Board of Supervisors, and is responsible for the proper administration of all affairs of the Department. The primary funding method for the fire district is through property taxes. The Central Fire Protection District was formed in 1947 and during the mid 1990s began contracting fire protection services to several communities in Santa Clara County.

The Santa Clara County Board of Supervisors assumes responsibility for the adoption of the hazard mitigation plan and the Fire Chief or designee of the Santa Clara County Fire department will oversee the plans implementation, maintenance, training, exercise, and revision of the plan.

17.2.2 Assets

Table 17-1 summarizes the critical assets of the district and their value.

Table 17-1. Special District Assets	
Asset	Value
Property	
Approximately 10 acres of land	\$5,000,000
Critical Infrastructure and Equipment	
Fire Engines	\$12,500,000
Fire Trucks	\$4,000,000
Hazmat Unit	\$1,000,000
Command Vehicles	\$1,000,000
Rescues	\$2,500,000
Total:	\$21,000,000
Critical Facilities	
Cupertino Fire Station	\$8,600,000
Seven Springs Fire Station	\$6,200,000
SCCFD Headquarters	\$13,000,000
Redwood Fire Station	\$1,000,000
Monta Vista Fire Station	\$4,800,000
Quito Fire Station	\$3,500,000
West Valley Fire Station	\$2,200,000
Total:	\$39,300,000

17.3 CAPABILITY ASSESSMENT

17.3.1 Resources for the 2017 Planning Initiative

The following technical reports, plans, and regulatory mechanisms were reviewed to inform the 2017 Multi-Jurisdiction Hazard Mitigation Plan for Volume 2, the Santa Clara County Fire Department Annex. All of the below items were additionally reviewed as part of the full capability assessment for the Santa Clara County Fire Department.

- SCCFD Business Plan—Outlines current business operations of the fire district.
- SCCFD Strategic Plan—Outlines long term strategic planning of the fire district.
- California Health and Safety Code, Section 13862—Provides the Fire Districts its authority.
- SCCFD Policy 303, 934 & 1037—Policies related to disasters and staffing in disasters.
- Fire Resource and Assessment Program (FRAP)—Outlines wildland fire hazard zones
- SCCFD Community Wildfire Protection Plan (CWPP)—Provides an analysis of fire-related conditions in the community and includes proposed projects developed through community workshops.
- Technical Reports and Information—Outside resources and references used to complete the Santa Clara County Fire Department Annex are identified in the pertinent Sections of this Annex and in Section 17.9.

17.3.2 Planning and Regulatory Capabilities

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- Regulatory
 - California Health and Safety Code, Section 13862
- Planning Capability
 - SCCFD Business Plan
 - SCCFD Strategic Plan
 - SCCFD Headquarters Evacuation Plan
 - SCCFD Continuity of Operations Plan
 - SCCFD CWPP

17.3.3 Fiscal, Administrative and Technical Capabilities

An assessment of fiscal capabilities is presented in Table 17-2. An assessment of administrative and technical capabilities is presented in Table 17-3.

Table 17-2. Fiscal Capability

Financial Resources	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes with a 2/3 voter approval
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Federal-Sponsored Grant Programs	Yes

Table 17-3. Administrative and Technical Capability

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	No	
Engineers or professionals trained in building or infrastructure construction practices	Yes	Fire Protection Engineers
Planners or engineers with an understanding of natural hazards	Yes	Fire Protection Engineers
Staff with training in benefit/cost analysis	Yes	Emergency Manager
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Full time GIS Staff
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Emergency Manager
Grant writers	Yes	Staff that has successfully written grants
Information Technology	Yes	Full time IT Staff

17.3.4 Education and Outreach Capabilities

An assessment of education and outreach capabilities is presented in Table 17-4.

Table 17-4. Education and Outreach	
Criteria	Response
Do you have a Public Information Officer or Communications Office?	Yes; Full time public information officer on staff, ICS qualified Type 1
Do you have personnel skilled or trained in website development?	Yes; Full time IT staff
Do you have hazard mitigation information available on your website? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes Seasonal Safety Information. Available online at: http://www.sccfd.org/community-education/safety-information-referral-assistance/seasonal-safety-information
Do you utilize social media for hazard mitigation education and outreach? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes Twitter and Facebook
Do you have any citizen boards or commissions that address issues related to hazard mitigation? <ul style="list-style-type: none"> If yes, please briefly specify. 	No
Do you have any other programs already in place that could be used to communicate hazard-related information? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes Emergency Preparedness program includes: <ul style="list-style-type: none"> • Be Ready: Seniors Prepared! • Business Emergency Planning • Community emergency Response Team • Personal Emergency Preparedness (PEP) • School Emergency Planning & Safety • Wildland Urban Interface Preparedness. More information available online at: http://www.sccfd.org/community-education/emergency-preparedness
Do you have any established warning systems for hazard events? <ul style="list-style-type: none"> If yes, please briefly describe. 	Yes Alert SCC, Social Media

17.3.5 Adaptive Capacity Assessment

An assessment of the jurisdiction's adaptive capacity for the impacts of climate change is presented in Table 17-5.

Table 17-5. Adaptive Capacity for Climate Change

Adaptive Capacity Assessment Question	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comment: None provided.	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: None provided.	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment: None provided.	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment: None provided.	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment: None provided.	
Participation in regional groups addressing climate risks	Low
Comment: None provided.	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Medium
Comment: None provided.	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment: None provided.	
Identified strategies for adaptation to impacts	Low
Comment: None provided.	
Champions for climate action in local government departments	Low
Comment: None provided.	
Political support for implementing climate change adaptation strategies	Low
Comment: None provided.	
Financial resources devoted to climate change adaptation	Low
Comment: None provided.	
Local authority over sectors likely to be negative impacted	Low
Comment: None provided.	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Medium
Comment: None provided.	
Local residents support of adaptation efforts	Medium
Comment: None provided.	
Local residents' capacity to adapt to climate impacts	Medium
Comment: None provided.	
Local economy current capacity to adapt to climate impacts	Medium
Comment: None provided.	
Local ecosystems capacity to adapt to climate impacts	Medium
Comment: None provided.	

17.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The following describe the jurisdiction’s process for integrating the hazard mitigation plan into existing plans and programs.

17.4.1 Existing Integration

The following plans and programs currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan:

- SCCFD Strategic Plan— SCCFD Strategic Plan outlines in Goal 7 & 8 Objectives for Emergency Management which includes hazard mitigation.
- Santa Clara County Emergency Operations Plan
- SCCFD Strategic Plan Goals 7 & 8
- Santa Clara County Community Wildfire Protection Plan
- SCCFD Space Needs Analysis and Facilities Master Plan Vol. 2

At the time of the next update, information obtained in the update of the hazard mitigation plan will be integrated into these plans and programs as appropriate.

17.4.2 Opportunities for Future Integration

The following plans and programs do not currently integrate the goals, risk assessment and/or recommendations of the hazard mitigation plan, but provide an opportunity for future integration:

- SCCFD Continuity of Operations Plan (COOP)—An opportunity exists for the integration of the Hazard Mitigation Plan to be integrated with the current revision of the SCCFD COOP. Information obtained in the risk assessment will be used to revise and update the plan as appropriate.

17.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 17-6 lists all past occurrences of natural hazards within the jurisdiction.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Wildfire	Loma	2016	Not available
Flooding	West Side of County	2010	Not available
Wildfire	Stevens	2003	Not available
Flash Flood	West Side of County	1997	Not available
Earthquake	Loma Prieta (DR-845)	1989	Not available
Wildfire	Lexington (DR-739)	1985	Not available

17.6 JURISDICTION-SPECIFIC VULNERABILITIES

Noted vulnerabilities the jurisdiction include:

- The various SCCFD facilities have a wide range of construction types, but most utilize a form of lightweight wood construction. Compared against ever increasing standards for seismic structural design, virtually all of the facilities have some level of seismic deficiency that should be addressed.

17.7 HAZARD RISK RANKING

Table 17-7 presents the ranking of the hazards of concern.

Table 17-7. Hazard Risk Ranking			
Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	51	High
2	Wildfire	39	High
4	Landslide	21	High ^a
3	Severe Weather	30	Medium
5	Drought	15	Low
6	Flood	10	Medium ^b
7	Dam and Levee Failure	9	Low

- a. Although the risk rating score for the landslide hazard resulted in a medium ranking, SCCFD staff concluded that the ranking should be high based on potential impacts to District assets and staff.
- b. Although the risk rating score for the flood hazard resulted in a low ranking, SCCFD staff concluded that the ranking should be high based on potential impacts to District assets and staff.

17.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 17-8 lists the actions that make up the Santa Clara County Fire Department hazard mitigation action plan. Table 17-9 identifies the priority for each action. Table 17-10 summarizes the mitigation actions by hazard of concern and the six mitigation types.

17.9 ADDITIONAL RESOURCES

The hazard mitigation plan annex development tool-kit was used in the development of this annex to the Santa Clara Operational Area Hazard Mitigation Plan.

Table 17-8. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SCCFD-1—Conduct structural seismic retrofits of fire stations.						
Existing	Earthquake	2, 8	SCCFD	Medium (\$15 million)	HMGP, PDM	Long-term
SCCFD-2—Conduct non-structural seismic retrofits of fire stations.						
Existing	Earthquake	2, 8	SCCFD	Medium	General Funds, HMGP, PDM	Long-term
SCCFD-3—Update the Community Wildfire Protection Plan and integrate it with the hazard mitigation plan.						
Existing	Wildfire	1,3,4,5,7	SCCFD	Medium (\$25,000)	Possible State Grants, General Funds	Short-term
SCCFD-4—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.						
New and Existing	All hazards	1, 5	SCCFD	Low	Staff Time, General Funds	Short-term
SCCFD-5—Integrate the hazard mitigation plan into other plans and programs in the District. Use information obtained in the risk assessment, goals and objectives, and identified actions to inform updates and enhancements.						
New and Existing	All hazards	2, 4,	SCCFD	Low	Staff Time, General Funds	Ongoing
SCCFD-6—Continue to offer the wide variety of emergency preparedness programs and seek ways to educate program participants on the importance of mitigation.						
New and Existing	All hazards	2, 4, 5, 6	SCCFD	Low	General Funds, Possible State and Federal Grants	Ongoing

Table 17-9. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Implementation Priority ^a	Grant Pursuit Priority ^a
SCCFD-1	2	High	Medium	Yes	Yes	Yes	Medium	High
SCCFD-2	2	High	Medium	Yes	Yes	Yes	Medium	High
SCCFD-3	5	Medium	Medium	Yes	Possible	Yes	High	Medium
SCCFD-4	2	Low	Low	Yes	No	Yes	High	Low
SCCFD-5	2	Low	Low	Yes	No	Yes	High	Low
SCCFD-6	4	High	Low	Yes	Possible	Yes	High	Medium

a. See the introduction to this volume for explanation of priorities.

Table 17-10. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type ^a						
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects	7. Climate Resilient
Earthquake	SCCFD-4, SCCFD-5	SCCFD-1, SCCFD-2	SCCFD-6		SCCFD-1, SCCFD-2		
Wildfire	SCCFD-3, SCCFD-4, SCCFD-5		SCCFD-3, SCCFD-6	SCCFD-3			
Landslide	SCCFD-4, SCCFD-5		SCCFD-6				
Severe Weather	SCCFD-4, SCCFD-5		SCCFD-6				
Drought	SCCFD-4, SCCFD-5		SCCFD-6				
Flood	SCCFD-4, SCCFD-5		SCCFD-6				
Dam and Levee Failure	SCCFD-4, SCCFD-5		SCCFD-6				

a. See the introduction to this volume for explanation of mitigation types.

Santa Clara Operational Area Hazard Mitigation Plan

Appendix A. Planning Partner Expectations

A. PLANNING PARTNER EXPECTATIONS

ACHIEVING DMA COMPLIANCE FOR ALL PLANNING PARTNERS

One of the goals of the multi-jurisdictional approach to hazard mitigation planning is to achieve compliance with the Disaster Mitigation Act (DMA) for all participating members in the planning effort. DMA compliance must be certified for each member in order to maintain eligibility for the benefits under the DMA. Whether our planning process generates ten individual plans or one large plan that has a chapter for each partner jurisdiction, the following items must be addressed by each planning partner to achieve DMA compliance:

- **The Estimated level of effort.** It is estimated that the total time commitment to meet these “participation” requirements for a planning partner not participating on the Steering Committee would be approximately 40 hours over the 6 to 8 month period. Approximately sixty percent of this time would be allocated to meeting items F through L described below. This time is reduced somewhat for special purpose districts.
- **Participate in the process.** It must be documented in the plan that each planning partner “participated” in the process that generated the plan. There is flexibility in defining “participation”. Participation can vary based on the type of planning partner (i.e.: City or County, vs. a Special Purpose District). However, the level of participation must be defined and the extent for which this level of participation has been met for each partner must be contained in the plan context.
- **Consistency Review.** Review of existing documents pertinent to each jurisdiction to identify policies or recommendations that are not consistent with those documents reviewed in producing the “parent” plan or have policies and recommendations that complement the hazard mitigation actions selected (i.e.: comp plans, basin plans or hazard specific plans).
- **Action Review.** For Plan updates, a review of the strategies from your prior action plan to determine those that have been accomplished and how they were accomplished; and why those that have not been accomplished were not completed.
- **Update Localized Risk Assessment.** Personalize the Risk Assessment for each jurisdiction by removing hazards not associated with the defined jurisdictional area or redefining vulnerability based on a hazard’s impact to a jurisdiction. This phase will include:
 - A ranking of the risk
 - A description of the number and type of structures at risk
 - An estimate of the potential dollar losses to vulnerable structures
 - A general description of land uses and development trends within the community, so that mitigation options can be considered in future land use decisions.
- **Capability assessment.** Each planning partner must identify and review their individual regulatory, technical and financial capabilities with regards to the implementation of hazard mitigation actions.
- **Personalize mitigation recommendations.** Identify and prioritize mitigation recommendations specific to the each jurisdiction’s defined area.
- **Create an Action Plan.**

- **Incorporate Public Participation.** Each jurisdiction must present the Plan to the public for comment at least once, within two weeks prior to adoption.
- **Plan must be adopted by each jurisdiction.**

One of the benefits to multi-jurisdictional planning is the ability to pool resources. This means more than monetary resources. Resources such as staff time, meeting locations, media resources, technical expertise will all need to be utilized to generate a successful plan. In addition, these resources can be pooled such that decisions can be made by a peer group applying to the whole and thus reducing the individual level of effort of each planning partner. This will be accomplished by the formation of a steering committee made up of planning partners and other “stakeholders” within the planning area. The size and makeup of this steering committee will be determined by the planning partnership. This body will assume the decision making responsibilities on behalf of the entire partnership. This will streamline the planning process by reducing the number of meetings that will need to be attended by each planning partner. The assembled Steering Committee for this effort will meet monthly on an as needed basis as determined by the planning team, and will provide guidance and decision making during all phases of the plan’s development.

With the above participation requirements in mind, each partner is expected to aid this process by being prepared to develop its section of the plan. To be an eligible planning partner in this effort, each Planning Partner shall provide the following:

14. A “Letter of Intent to participate” or Resolution to participate to the Planning Team (see exhibit A).
Already completed
15. Designate a lead point of contact for this effort. This designee will be listed as the hazard mitigation point of contact for your jurisdiction in the plan. **Already Completed**
16. Support and participate in the selection and function of the Steering Committee selected to oversee the development of this plan.
17. Provide support in the form of mailing list, possible meeting space, and public information materials, such as newsletters, newspapers or direct mailed brochures, required to implement the public involvement strategy developed by the Steering Committee.
18. Participate in the process. There will be many opportunities as this plan evolves to participate. Opportunities such as:
 - a. Steering Committee meetings
 - b. Public meetings or open houses
 - c. Workshops/ Planning Partner specific training sessions
 - d. Public review and comment periods prior to adoption
19. At each and every one of these opportunities, attendance will be recorded. Attendance records will be used to document participation for each planning partner. No thresholds will be established as minimum levels of participation. However, each planning partner should attempt to attend all possible meetings and events.
20. There will be one ***mandatory*** workshop that all planning partners will be required to attend. This workshop will cover the proper completion of the jurisdictional annex template which is the basis for each partner’s jurisdictional chapter in the plan. Failure to have a representative at this workshop will disqualify the planning partner from participation in this effort. The schedule for this workshop will be such that all committed planning partners will be able to attend.
21. After participation in the mandatory template workshop, each partner will be required to complete their template and provide it to the planning team in the time frame established by the Steering Committee. Failure to complete your template in the required time frame may lead to disqualification from the partnership.

22. Each partner will be expected to perform a “consistency review” of all technical studies, plans, ordinances specific to hazards to determine the existence of any not consistent with the same such documents reviewed in the preparation of the County (parent) Plan. For example, if your community has a floodplain management plan that makes recommendations that are not consistent with any of the County’s Basin Plans, that plan will need to be reviewed for probable incorporation into the plan for your area.
23. Each partner will be expected to review the Risk Assessment and identify hazards and vulnerabilities specific to its jurisdiction. Contract resources will provide the jurisdiction specific mapping and technical consultation to aid in this task, but the determination of risk and vulnerability will be up to each partner.
24. Each partner will be expected to review and determine if the mitigation recommendations chosen in the parent plan will meet the needs of its jurisdiction. Projects within each jurisdiction consistent with the parent plan recommendations will need to be identified and prioritized, and reviewed to determine their benefits vs. costs.
25. Each partner will be required to create its own action plan that identifies each project, who will oversee the task, how it will be financed and when it is estimated to occur.
26. Each partner will be required to sponsor at least one public meeting to present the draft plan to its constituents at least 2 weeks prior to adoption.
27. Each partner will be required to formally adopt the plan.

Templates and instructions to aid in the compilation of this information will be provided to all committed planning partners. Each partner will be expected to complete their templates in a timely manner and according to the timeline specified by the Steering Committee.

**** Note**:** Once this plan is completed, and DMA compliance has been determined for each partner, maintaining that eligibility will be dependent upon each partner implementing the plan implementation-maintenance protocol identified in the plan. At a minimum, this means completing the on-going plan maintenance protocol identified in the plan. Partners that do not participate in this plan maintenance strategy may be deemed ineligible by the partnership, and thus lose their DMA eligibility.

Exhibit A

Example Letter of Intent to Participate

Santa Clara County Hazard Mitigation Planning Partnership

C/O Jessica Cerutti, Tetra Tech, Inc.

1999 Harrison, Suite 500

Oakland, CA 94612

Dear Santa Clara County Planning Partnership,

Please be advised that the _____ (*insert City or district name*) is committed to participating in the update to the Santa Clara County Regional Hazard Mitigation Plan. As the jurisdictional representative tasked with this planning effort, I certify that we will commit all necessary resources in order to meet Partnership expectations as outlined in the “Planning Partners expectations” document provided by the planning team, in order to obtain Disaster Mitigation Act (DMA) compliance for our jurisdiction.

Mr./Ms. _____ will be our jurisdiction’s point of contact for this process and they can be reached at (*insert: address, phone number and e-mail address*).

Sincerely,

Name _____

Title _____

Exhibit B**Planning Team Contact information**

Name	Representing	Address	Phone	e-mail
Darrell Ray	SCC OES	55 W. Younger Ave. Suite 450 San José, California 95110-1721	(208) 577-4750	Darrell.Ray@oes.sccgov.org
Rob Flaner	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	(208) 939-4391	Rob.flaner@tetrattech.com
Jessica Cerutti	Tetra Tech, Inc.	1999 Harrison, Suite 500 Oakland, CA 94612	(510) 302-6304	Jessica.Cerutti@tetrattech.com
Chris Godley	Tetra Tech, Inc.	1999 Harrison, Suite 500 Oakland, CA 94612	(858) 775-6132	Christopher.Godley@tetrattech.com
Carol Bauman	Tetra Tech, Inc.	1020 SW Taylor St., Ste. 530 Portland, Oregon 97205	(503) 223-5388	Carol.Baumann@tetrattech.com
Stephen Veith	Tetra Tech, Inc.	1020 SW Taylor St., Ste. 530 Portland, Oregon 97205	(503) 223-5388	Stephen.veith@tetrattech.com

Exhibit C

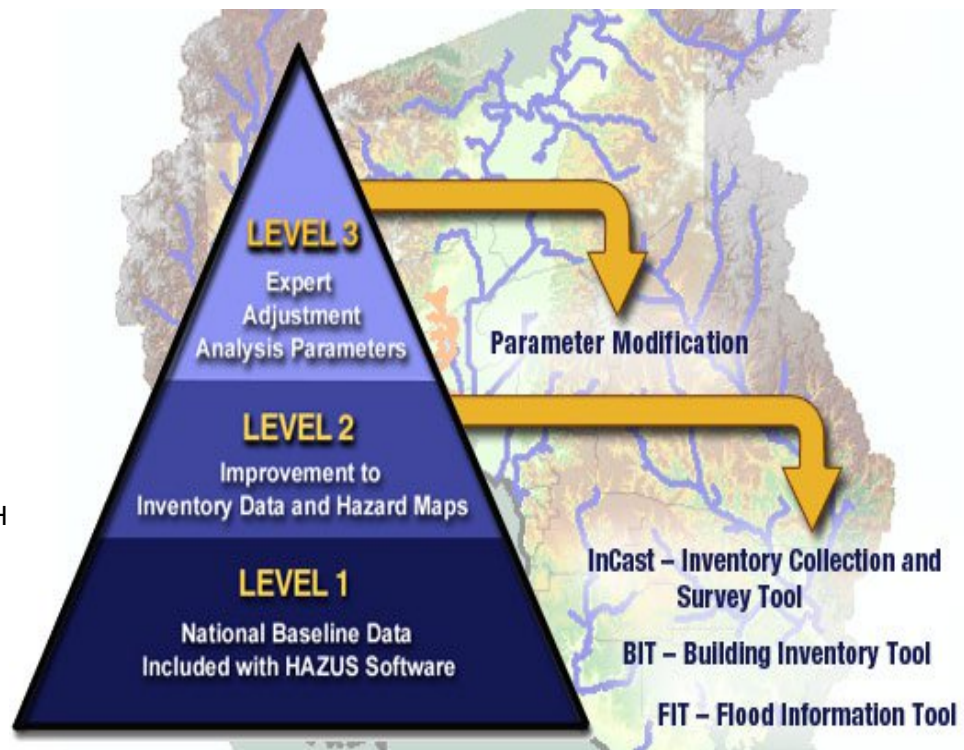
Overview of HAZUS

Overview of HAZUS-MH (Multi-Hazard)

http://www.fema.gov/hazus/dl_mhpres.shtm HAZUS-MH, is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from earthquakes, floods, and hurricane winds.

HAZUS-MH was developed by the Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences (NIBS). NIBS maintains committees of wind, flood, earthquake and software experts to provide technical oversight and guidance to HAZUS-MH development. Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods, and earthquakes.

Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness, and response and recovery planning.



HAZUS-MH uses state-of-the-art geographic information system (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on populations. The latest release, HAZUS-MH MR1, is an updated version of HAZUS-MH that incorporates many new features which improve both the speed and functionality of the models. For information on software and hardware requirements to run HAZUS-MH MR1, see HAZUS-MH [Hardware and Software Requirements](#).

HAZUS-MH Analysis Levels

HAZUS-MH provides for three levels of analysis:

- A **Level 1** analysis yields a rough estimate based on the nationwide database and is a great way to begin the risk assessment process and prioritize high-risk communities.



- A **Level 2** analysis requires the input of additional or refined data and hazard maps that will produce more accurate risk and loss estimates. Assistance from local emergency management personnel, city planners, GIS professionals, and others may be necessary for this level of analysis.
- A **Level 3** analysis yields the most accurate estimate of loss and typically requires the involvement of technical experts such as structural and geotechnical engineers who can modify loss parameters based on the specific conditions of a community. This level analysis will allow users to supply their own techniques to study special conditions such as dam breaks and tsunamis. Engineering and other expertise is needed at this level.

Three data input tools have been developed to support data collection. The **Inventory Collection Tool (InCAST)** helps users collect and manage local building data for more refined analyses than are possible with the national level data sets that come with HAZUS. InCAST has expanded capabilities for multi-hazard data collection. HAZUS-MH includes an enhanced Building Inventory Tool (BIT) allows users to import building data and is most useful when handling large datasets, such as tax assessor records. The **Flood Information Tool (FIT)** helps users manipulate flood data into the format required by the HAZUS flood model. All Three tools are included in the HAZUS-MH MR1 Application DVD.

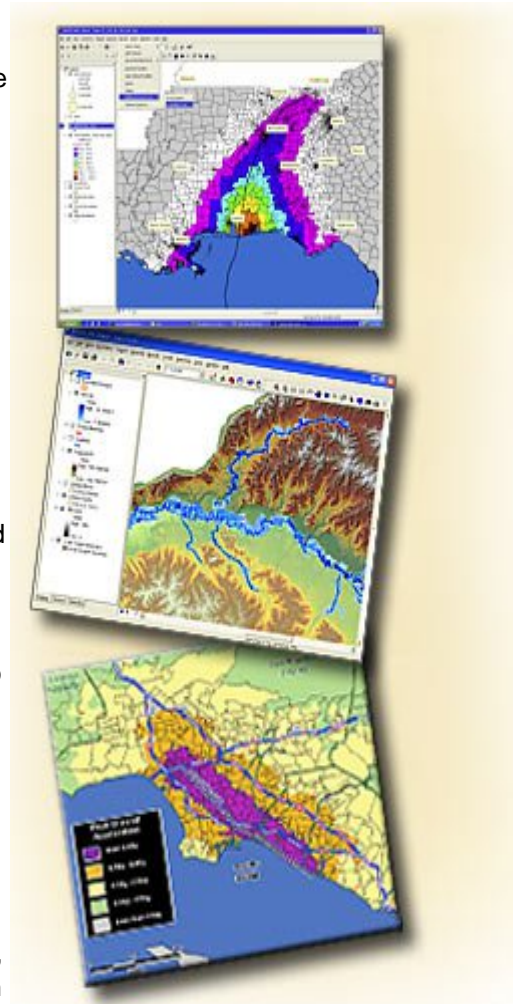
HAZUS-MH Models

The **HAZUS-MH Hurricane Wind Model** gives users in the Atlantic and Gulf Coast regions and Hawaii the ability to estimate potential damage and loss to residential, commercial, and industrial buildings. It also allows users to estimate direct economic loss, post-storm shelter needs and building debris. In the future, the model will include the capability to estimate wind effects in island territories, storm surge, indirect economic losses, casualties, and impacts to utility and transportation lifelines and agriculture. Loss models for other severe wind hazards will be included in the future. [Details about the Hurricane Wind Model.](#)

The **HAZUS-MH Flood Model** is capable of assessing riverine and coastal flooding. It estimates potential damage to all classes of buildings, essential facilities, transportation and utility lifelines, vehicles, and agricultural crops. The model addresses building debris generation and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, and building interiors. The effects of flood warning are taken into account, as are flow velocity effects. [Details about the Flood Model.](#)

The **HAZUS-MH Earthquake Model**, The HAZUS earthquake model provides loss estimates of damage and loss to buildings, essential facilities, transportation and utility lifelines, and population based on scenario or probabilistic earthquakes. The model addresses debris generation, fire-following, casualties, and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, inventory, and building interiors. The earthquake model also includes the Advanced Engineering Building Module for single- and group-building mitigation analysis. [Details about the Earthquake Model.](#)

The updated earthquake model released with HAZUS-MH includes:



- The (September 2002) National Hazard Maps
- Project '02 attenuation functions
- Updated historical earthquake catalog (magnitude 5 or greater)
- Advanced Engineering Building Module for single and group building mitigation analysis

Additionally, HAZUS-MH can perform multi-hazard analysis by providing access to the average annualized loss and probabilistic results from the hurricane wind, flood, and earthquake models and combining them to provide integrated multi-hazard reports and graphs. HAZUS-MH also contains a third-party model integration capability that provides access and operational capability to a wide range of natural, man-made, and technological hazard models (nuclear and conventional blast, radiological, chemical, and biological) that will supplement the natural hazard loss estimation capability (hurricane wind, flood, and earthquake) in HAZUS-MH.

Santa Clara Operational Area Hazard Mitigation Plan

Appendix B. Procedures for Linking to Hazard Mitigation Plan

B. PROCEDURES FOR LINKING TO HAZARD MITIGATION PLAN

Not all eligible local governments are included in the Santa Clara Operational Area Hazard Mitigation Plan. Some or all of these non-participating local governments may choose to “link” to the Plan at some point to gain eligibility for programs under the federal Disaster Mitigation Act (DMA). The following “linkage” procedures define the requirements established by the planning team for dealing with an increase in the number of planning partners linked to this plan. No currently non-participating jurisdiction within the defined planning area is obligated to link to this plan. These jurisdictions can choose to do their own “complete” plan that addresses all required elements of Section 201.6 of Chapter 44 of the Code of Federal Regulations (44 CFR).

INCREASING THE PARTNERSHIP THROUGH LINKAGE

Eligibility

Eligible jurisdictions located in the planning area may link to this plan at any point during the plan’s performance period. Eligible jurisdictions located in the planning area may link to this plan at any point during the plan’s performance period (5 years after final approval). Eligibility will be determined by the following factors:

- The linking jurisdiction is a local government as defined by the Disaster Mitigation Act.
- The boundaries or service area of the linking jurisdiction is completely contained within the boundaries of the planning area established during the 2016 hazard mitigation plan development process.
- The linking jurisdiction’s critical facilities were included in the critical facility and infrastructure risk assessment completed during the 2016 plan development process.

Requirements

It is expected that linking jurisdictions will complete the requirements outlined below and submit their completed template to the lead agency Santa Clara County Office of Emergency Services for review within six months of beginning the linkage process:

- The eligible jurisdiction requests a “Linkage Package” by contacting the Point of Contact (POC) for the plan:

Darrell G. Ray Jr., CEM
Emergency Management Specialist
Santa Clara County Fire Department
Santa Clara County Office of Emergency Services
55 W. Younger Ave. Suite 450
San José, California 95110-1721
Office: 408.808.7800
Cell: 408.963.3168

- The POC will provide a linkage procedure package that includes linkage information and a linkage tool-kit:
 - Linkage Information
 - Procedures for linking to the multi-jurisdictional hazard mitigation plan
 - Planning partner's expectations for linking jurisdictions
 - A sample "letter of intent" to link to the multi-jurisdictional hazard mitigation plan
 - A copy of Section 201.6 of 44 CFR, which defines the federal requirements for a local hazard mitigation plan.
 - Linkage Tool-Kit
 - Copy of Volume 1 and 2 of the plan
 - A special purpose district or municipality template and instructions
 - A catalog of hazard mitigation alternatives
 - A sample resolution for plan adoption
- The new jurisdiction will be required to review both volumes of the Santa Clara Operational Area Hazard Mitigation Plan, which include the following key components for the planning area:
 - Goals and objectives
 - The planning area risk assessment
 - Comprehensive review of alternatives
 - Countywide actions
 - Plan implementation and maintenance procedures.

Once this review is complete, the jurisdiction will complete its specific annex using the template and instructions provided by the POC.

- The development of the new jurisdiction's annex must not be completed by one individual in isolation. The jurisdiction must develop, implement and describe a public involvement strategy and a methodology to identify and vet jurisdiction-specific actions. The original partnership was covered under a uniform public involvement strategy and a process to identify actions that covered the planning area described in Volume 1 and Volume 2 of this plan. Since new partners were not addressed by these strategies, they will have to initiate new strategies and describe them in their annex. For consistency, new partners are encouraged to develop and implement strategies similar to those described in this plan.
- The public involvement strategy must ensure the public's ability to participate in the plan development process. At a minimum, the new jurisdiction must solicit public opinion on hazard mitigation at the onset of the linkage process and hold one or more public meetings to present the draft jurisdiction-specific annex for comment at least two weeks prior to adoption by the governing body. The POC will have resources available to aid in the public involvement strategy, including:
 - The questionnaire utilized in the plan development
 - Presentations from public meeting workshops and the public comment period
 - Flyers and information cards that were distributed to the public
 - Press releases used throughout the planning process
 - The plan website.
- The methodology to identify actions should include a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard and a description of the process by

which chosen actions were identified. As part of this process, linking jurisdictions should coordinate the selection of actions amongst the jurisdiction's various departments.

- Once their public involvement strategy and template are completed, the new jurisdiction will submit the completed package to the POC for a pre-adoption review to ensure conformance with the multi-jurisdictional plan format and linkage procedure requirements.
- The POC will review for the following:
 - Documentation of public involvement and action plan development strategies
 - Conformance of template entries with guidelines outlined in instructions
 - Chosen actions are consistent with goals, objectives and mitigation catalog of the Santa Clara Operational Area Hazard Mitigation Plan
 - A designated point of contact
 - A completed FEMA plan review crosswalk.
- Plans will be reviewed by the POC and submitted to California Governor's Office of Emergency Services (Cal OES) for review and approval.
- Cal OES will review plans for state compliance. Non-compliant plans are returned to the lead agency for correction. Compliant plans are forwarded to FEMA for review with annotation as to the adoption status.
- FEMA reviews the linking jurisdiction's plan in association with the approved plan to ensure DMA compliance. FEMA notifies the new jurisdiction of the results of review with copies to Cal OES and the approved plan lead agency.
- Linking jurisdiction corrects plan shortfalls (if necessary) and resubmits to Cal OES through the approved plan lead agency.
- For plans with no shortfalls from the FEMA review that have not been adopted, the new jurisdiction governing authority adopts the plan and forwards adoption resolution to FEMA with copies to lead agency and Cal OES.
- FEMA regional director notifies the new jurisdiction's governing authority of the plan's approval.

The new jurisdiction plan is then included with the multi-jurisdiction hazard mitigation plan and the linking jurisdiction is committed to participate in the ongoing plan maintenance strategy identified in Chapter 19, Volume 1 of the hazard mitigation plan.

Santa Clara Operational Area Hazard Mitigation Plan

Appendix C. Annex Instructions

C. ANNEX INSTRUCTIONS AND TEMPLATES

Insert .pdf file

Santa Clara Operational Area Hazard Mitigation Plan

Appendix D. Status of Prior Actions

D. STATUS OF PRIOR ACTIONS

This annex provides the status of prior actions identified by the planning partnership in the Association of Bay Area Governments (ABAG) regional hazard mitigation planning effort.

- Santa Clara County
- City of Campbell
- City of Cupertino
- City of Gilroy
- Town of Los Altos Hills
- Town of Los Gatos
- City of Monte Sereno.
- City of Morgan Hill
- City of Mountain View
- City of Palo Alto
- City of Santa Clara
- City of Saratoga
- City of Sunnyvale

Not all current planning partners obtained coverage under the DMA through the ABAG plan, thus, not all planning partners have status updates in this annex. It should be noted that the City of Los Altos and the City of San José may have participated in the plan, but no actions were identified and no proof of formal adoption was located.

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
City of Campbell						
Soft-Story Buildings	1	Require all new construction, including public facilities, to be built according to the most recent Building and Fire Codes.	Public Works department, Community Development department	Complete	Yes	The City is currently using the 2016 Building Code for soft-story buildings. The City has also completed an inventory of soft-story multi-family units in Campbell. See CB-12.
Soft-Story Buildings	2	Consider County Ordinance to require retrofitting of multi-family soft story structures. Consistent with the ABAG definition, "multi-family" buildings consist of three or more families.	Public Works department, Community Development department	No Progress	No	The City is not aware of the status of the County Ordinance.
Soft-Story Buildings	3	Address liability concerns and obtain full access to SJSU CDM soft story inventory. Poll building owners to find out how many have already retrofitted their soft-story buildings, or if they are consistent with current code.	Public Works department, Community Development department	No Progress	No	This recommendation has not been implemented and is no longer being considered.
Soft-Story Buildings	4	Support City of San José initiative to develop Soft-Story Mitigation Program via UASI funding. Program will entail public education materials, engineering standards and financial incentives.	Public Works department, Community Development department	No Progress	No	The status of San José's program is unknown.

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Soft-Story Buildings	5	Create financial incentives and remove disincentives.	Public Works department, Community Development department	No Progress	No	We are not considering this option any longer
Soft-Story Buildings	6	Implement time limits on retrofitting mandates and incentives.	Public Works department, Community Development department	Some Progress	No	We are currently working on completing our URM program. See CB-7
Soft-Story Buildings	7	Advocate expansion of State and federal relocation assistance funds and programs to aid persons and businesses displaced from hazardous buildings.	Public Works department, Community Development department	No Progress	No	We are not considering this option any longer
Dam Failure	8	Create and distribute evacuation route maps	Public Works department, Community Development department	No Progress	No	Our current EOP addresses issues related to evacuation and we now have a robust CERT program in Campbell, which we didn't have when the ABAG plan was created.
	HSNG-e-4	Adopt one or more of the following strategies as incentives to encourage retrofitting of privately- owned seismically vulnerable residential buildings: (a) waivers or reductions of permit fees, (b) below-market loans, (c) local tax breaks, (d) grants to cover the cost of retrofitting or of a structural analysis, (e) land use (such as parking requirement waivers) and procedural incentives, or (f) technical assistance.	Building Department	No Progress	No	This recommendation has not been implemented and is no longer being considered.
	LAND-c-5	Encourage new development near floodways to incorporate a buffer zone or setback from that floodway to allow for changes in stormwater flows in the watershed over time.	Community Development	No Progress	No	This recommendation has not been implemented and is no longer being considered.
	LAND-c-6	For purposes of creating an improved hazard mitigation plan for the region as a whole, ABAG, and Bay Area cities and counties, jointly request geographically defined repetitive flooding loss data from FEMA for their own jurisdictions.	Community Development	Complete	No	We received this data as part of this process

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
City of Cupertino						
Soft-Story Buildings	1	Require all new construction, including public facilities, to be built in accordance with the most recent Building and Fire Code standards.	Public Works department, Community Development department	Ongoing	Yes	Incorporate these projects in the City's Capital Improvement Plan as appropriate, and seek funding from HMGP (See CPT-1).
	ECON-b-1	Require engineered plan sets for voluntary or mandatory soft-story seismic retrofits by private owners until a standard plan set and construction details become available.	Building Dept.	Complete	No	Addressed through adopted building codes.
	ENVI-a-3	Continue to enforce and/ or comply with State- mandated requirements, such as the California Environmental Quality Act and environmental regulations to ensure that urban development is conducted in a way to minimize air pollution. For example, air pollution levels can lead to global warming, and then to drought, increased vegetation susceptibility to disease (such as pine bark beetle infestations), and associated increased fire hazard.	Environmental Programs, Environmental Affairs, Community Development	Ongoing	Yes	2005 General Plan includes Sustainability Section outlining methods to achieve these goals. The city is seeking funding (\$200k) to develop a Sustainable Land Use Plan and Green Building Policy that would expand these land-use based mitigation strategies (see CPT-2) .
	ENVI-b-11	Increase recycling rates in local government operations and in the community.	Public Works Sustainability	Ongoing	Yes	See CPT-4
	GOVT-a-4	Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical buildings from being functional after major natural disasters. Such contents and equipment includes computers and servers, phones, files, and other tools used by staff to conduct daily business.	Public Works, IT	Ongoing	Yes	See CPT-5
	ENVI-b-13	Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution.	Environmental Affairs	Ongoing	Yes	See CPT-6
City of Gilroy						
	1	Establish a relationship with local service providers to ensure a backup system/ process for telephonic communication with a local PSAP.	Police Department, Fire OES	On-Going	Yes	Continue/ maintain a relationship with local service providers to ensure a backup system/ process for telephonic communication with a local PSAP (see GIL-1).

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
	2	Using the identified soft story maps to target the existing structures, develop a program to retrofit soft story apartment buildings in Gilroy.	Community Development Department; Building, Life, and Environmental Safety Division	Cancelled	No	Cancelled due to lack of funding and programmatic will
	3	Develop a plan for a cooperative program to retrofit or tear down unreinforced masonry buildings (downtown).	Community Development Department; Building, Life, and Environmental Safety Division	On-Going	Yes	Continue/ maintain a plan for a cooperative program to retrofit or tear down unreinforced masonry buildings (downtown) (see GIL-2).
	4	Reinforce/ retrofit existing structure to meet current building code standards for essential facility seismic safety	Public Works Department	On-Going	Yes	Continue/ maintain to reinforce/ retrofit existing structure to meet current building code standards for essential facility seismic safety (see GIL-3).
	5	Provide stand-by generators to Las Animas Fire Station, Senior Center, Wheeler Auditorium, and Community Room at Las Animas Park.	Public Works Department	Incomplete	Yes	Consider various means and alternates to supplying all city essential facilities with backup power generation capability. Examples of critical facilities include, but are not limited to: City Hall, Fire Stations, Senior Centers, Auditorium, Community Room's, alert and warning facilities etc. (See GIL-4).
LAND-c-6		For purposes of creating an improved hazard mitigation plan for the region as a whole, ABAG, and Bay Area cities and counties, jointly request geographically defined repetitive flooding loss data from FEMA for their own jurisdictions.		Cancelled	No	No longer ABAG planning effort

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
City of Monte Sereno						
	1	The City of Monte Sereno is seeking to implement an effective hillside emergency response plan including evacuation route mapping in the next few years. The Hillside plan should also include an effective evaluation of at risk structures based on available building permit information, location of site and topography of the site.	Building Dept.	No Progress	Yes	Continually develop and improve the means and methods of integrating more fully the EM decision making processes of the City of Monte Sereno and the Town of Los Gatos to improve both jurisdiction's EM programs and planning capability through all phases of the EM cycle, including Post-Disaster policies/ plans (See MTS-2).
	2	Create an outreach program for city residents on actions they can take to reduce the impacts of disasters to their properties.	Planning Dept.	Ongoing	Yes	Develop a public outreach and education program for city residents to learn about actions they can take to reduce the impacts of disasters to their properties and integrate with any applicable Operational Area's public engagement strategies (see MTS-11).
	INFR-c-2	Develop a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard (including wildfire threat areas and in wildland-urban-interface areas).	Building Dept.	Ongoing	Yes	Participate, as appropriate, in the update and improvement of the Operational Area CWPP (see MTS-6).
City or Morgan Hill						
	1	Butterfield Channel - Inlets/ outlets at road crossings become overgrown with volunteer reeds and willows. Annual task of clearing vegetation requires extensive hand labor in a difficult to access location. Construct concrete aprons at culvert openings and drain outlets to keep areas clear of vegetation growth to allow water flow and visibility for inspection.	City of Morgan Hill	No Progress	Yes	Continue with plans for concrete aprons. Annual program to remove vegetation from channel has lessened the need for the aprons (see MGH-16).
	2	E. Dunne at Flaming Oaks valley gutter at top of slope - Slope above this location on E. Dunne has had slides each winter for the past few years. Concrete valley gutter above slope is in poor condition. Concrete v-ditch needs reconstruction	City of Morgan Hill	Complete	No	Action is complete.

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
	3	Spring St. & Bisceglia - Frequent flooding due to slow drainage to creek. While it would not resolve the problem completely, installing a new outlet in the creek channel on the south side of Spring, at a lower elevation than existing, would delay flooding and speed drainage.	City of Morgan Hill	No Progress	Yes	Most effective if outlet is lowered after Upper Llagas Flood Control project. Most likely time for that is 2020 (see MGH-17).
	4	Burnett at Monterey - Flooding at intersection due to slow drainage. Nowhere for water to go once ditch on the west side of Monterey is full. Need facilities to direct stormwater out of this area or increase retention capacity	City of Morgan Hill	No Progress	Yes	Pages 38 & 39 of FY 2011/17 CIP (see MGH-18).
	6	Main at Casa - High School parking lot floods when ditch on Main fills up. Need facilities to direct stormwater out of this area or increase retention capacity	City of Morgan Hill	No Progress	Yes	No identified funding source. See MGH-19.
	7	Mission View & Half Road - Flooding. Raise pavement level at intersection or install storm drains	City of Morgan Hill	Ongoing	Yes	Most likely method for accomplishment is development activity in the area. See MGH-20.
	8	1390 Llagas below Castle Hill - Flooding over roadway and onto residential property three inlets become clogged. Improve inlets, ditch across street from house	City of Morgan Hill	Complete	No	Action is complete.
	9	Trail Dr. drainage channels (4) - Channels erode and silt up downstream catch basins. Construct series of step pools to slow flow and reduce silting in each channel (includes channel above Jackson School)	City of Morgan Hill	Complete	No	Action is complete.
	10	Circle Lane & Oak View - Inlet silts up. Install concrete and/ or riprap	City of Morgan Hill	No Progress	Yes	To be re-evaluated to determine the appropriate repair (see MGH-21).
	11	Cochrane Circle - Area floods frequently - storm drains are full of roots and likely damaged. Need to use root cutter throughout then video inspection to assess condition	City of Morgan Hill	Complete	No	Action is complete.
	12	Llagas Rd between Castle Ridge & Glen Ayre - Inlets on uphill side of road fill with dirt every year. Need to build up retaining structure at each inlet	City of Morgan Hill	Unclear/ Unactionable Strategy	No	This recommendation has not been implemented and is no longer being considered.
	13	Sabini Ct. - Resident filled in ditch on his own property so street floods during heavy storms. Need drain to nearby channel	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).
	14	16355 Oak Canyon Dr. - Inlet fills with dirt. Needs concrete apron	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
	15	Hill Rd. & E. Dunne Ave. - Inlet in dirt field is too low and fills with dirt. Streets crew has to place straw wattles around inlet every year. Raise inlet level and install surrounding concrete apron	City of Morgan Hill	Complete	No	Action is complete.
	16	16817 Gallop Dr. - Inlet above Gallop needs re-work, some cobbles are loose. Re-design to reduce sediment build up, provide access from street (currently have to use resident's driveway)	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).
	17	17661 Peak Ave. - Alley drain can't receive water volume so back yard floods. Increase inlet capacity	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).
	18	Fisher Creek retention basin - During big storm of 10/ 13/ 09 Fisher Creek flooded but large retention pond had little water in it. Lower elevation of large pond inlet so it retains more water during major storms	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).
	19	17910 Woodland Ave - Erosion near booster station, undermining edge of road. Repair erosion damage	City of Morgan Hill	Complete	No	Action is complete.
	20	Teresa Ditch (behind homes on Teresa Lane) - Sediment from dirt ditch regularly clogs downstream storm drain. Improve ditch to reduce silting	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).
	21	Downtown storm drains - Some storm catch basins in the old part of town are made of brick. Would need to do a survey to identify locations. Replace brick catch basins	City of Morgan Hill	No Progress	No	This recommendation has not been implemented and is no longer being considered.
	22	2776 Hayloft Ct - Water collects at bottom of driveway, has nowhere to go and asphalt curb is deteriorating. Investigate installing a catch basin & replacing curb/ gutter area	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).
	23	16115 Condit, at Ramada Inn - Catch basin in street in front of the Ramada collects water from the parking lot but is not connected to any storm drain. Extend storm drain so water from parking lot and street drain. This location floods during major storms.	City of Morgan Hill	No Progress	Yes	Future drainage project (see MGH-22).
	24	Butterfield Channel between Diana & Main - Sediment has raised bottom of channel to level higher than storm drain invert in two locations. Remove sediment from channel to designed level	City of Morgan Hill	Complete	No	Action is complete.

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
	25	6" pump to pump out flooded areas - Areas subject to flooding that could require use of a large pump: Monterey underpass, Biscaglia, Tennant & Railroad, California Ave. (sewer). Public Works has one 6" pump but needs another to be able to pump more than one location at a time as would be likely during a major storm	City of Morgan Hill	Complete	No	Action is complete.
	26	A 1% flood on Llagas Creek will affect more than 1,100 homes, 500 commercial and industrial buildings, and 1,300 agricultural acres. Llagas Creek Flood Protection Project	U.S. Army Corps of Engineers, Santa Clara County	Ongoing	Yes	Sponsor for project is Santa Clara Valley Water District. This project included in their CIP (see MGH-23).
City of Mountain View						
	3	Funding to develop and maintain a Business Continuity Plan and Disaster Recovery Plan. A Business Continuity Plan includes minimizing interruptions to the City's ability to provide its services, ensuring the health and safety of all personnel, minimizing financial loss, and being able to resume critical operation within a specified time after a disaster. A Disaster Recovery Plan describes how the City will deal with potential disasters and details the precautions that need to be taken so that the effects of a disaster will be minimized and the City will be able to either maintain or quickly resume mission-critical functions.	Fire Dept./ Office of Emergency Services	No Progress	Yes	See actions MTV-1 and MTV-2
City of Palo Alto						
	1	To mitigate the potential loss of the Civic Center (City Hall) complex, which houses the Police Department, the Fire Department, the 911 Dispatch Center, the legacy Emergency Operations Center, and other essential operations, the Palo Alto Police Department acquired and has now deployed a Mobile Emergency Operations Center vehicle, capable of sustaining 911 PSAP, Dispatch, EOC, and other command functions for a sustained period, even with the loss of the Civic Center. However, the need to replace critical infrastructure and facilities, such as the public safety building, remains.	City of Palo Alto	Ongoing	Yes	The Public Safety Building is currently in initial design stages. It is a City Council priority and funding has been programmed for this project. We hope to see groundbreaking of this project within five years (See PA-10).

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
	3	The city plans to seek grant funding and is spending current budget on mitigation measures in the foothills Wildland Urban Interface (WUI), both for fire as well as law enforcement missions.	City of Palo Alto	Ongoing	Yes	Palo Alto provides annual General Funds for mitigation measures following the Foothills Fire Protection Plan. In 2016 Palo Alto updated the Foothills Fire Protection Plan and also completed an annex to the Santa Clara County Community Wildfire Protection Plan (CWPP) (See PA-27).
	4	Communications - The city is beginning work on exploring new off-the-grid (solar powered, etc.) data communications systems and related technologies that would 1) support the continuity of key government functions and 2) would also tie-in community entities (businesses, neighborhoods, NGOs). Augmentation of existing GIS and computer aided dispatch (CAD) systems are also envisioned.	City of Palo Alto	In-progress	Yes	See PA-14.
	6	The City is also negotiating with PG&E and other parties to establish an additional electric transmission feed to the city. Existing connections to the city are vulnerable to being impacted by aircraft from the local airport. The new electric transmission feed will provide an alternate source in case the existing connections are interrupted.	City of Palo Alto	Ongoing	Yes	The Utilities Department will continue to work with PG&E and community stakeholders to assess the feasibility of this effort over the next five year period (See PA-21).
	7	Develop a comprehensive flood control plan for San Francisquito Creek to minimize the risk of flooding.	San Francisquito Creek Joint Powers Authority, US Army Corps of Engineers	Ongoing	Yes	In conjunction with the SFCJPA, Palo Alto has developed a flood control plan to mitigate flooding along the San Francisquito Creek. The initial flood control project is underway, and funding mechanisms are in place to execute additional flood control projects in the near and long term. (Several specific projects identified in action plan)

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
City of Santa Clara						
	1	Upgrade the City's storm water pump stations. The City is in hopes of requesting pre-disaster mitigation grant funding as a possible solution for upgrades and equipment replacement for the aging infrastructure.	City of Santa Clara Public Works Department	Complete	No	Complete
	2	Recoat the at grade steel tanks to extend the useful life of these assets. The City's Downtown Tank is a welded steel water storage tank built in 1975 with a capacity of 4.5 million gallons. The original tank coating has reached the end of its useful life and is in need of replacement. The project scope of work includes abrasive blasting and recoating of the interior and exterior of the tank, replacement of the existing ladders and water level indicator, upgrade of the existing access hatches, piping modifications, and other safety improvements. A Water Tank Improvement Project was recently awarded by the Santa Clara City Council on March 29, 2011. This Water Capital Improvement Multi-year Plan is for like work on the remaining five at-grade steel water storage tanks	City of Santa Clara Public Works Department	Complete	No	Complete
	GOVT-d-2	Recognize that emergency services is more than the coordination of police and fire response; it also includes planning activities with providers of water, food, energy, transportation, financial, information, and public health services.	City of Santa Clara Public Works Department	Complete	No	Complete
City of Saratoga						
Earthquakes	1	Implement mitigation strategies (placement of engineered fill, construction of retaining walls) in order to eliminate the potential for landslide areas to become critical hazards.	Public Works Development	ONGOING	YES	The City has identified a minimum of \$1 million in existing landslide mitigation projects; however, we currently do not have funding to undertake this work (see SAR-3).

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Earthquakes	2 (ECON b-3, b-4, b-7; HSNG c-3, c-4, c-7)	Provide incentives for private owners to retrofit soft story buildings. These incentives could take the form of reduced planning application, building permit and inspection fees, or other suitable incentives. The City of Saratoga has approximately 50 privately owned soft story buildings that have not been retrofitted to meet current seismic standards.	Community Development	ONGOING	YES	The City has inventoried existing soft story buildings within its jurisdiction (See SAR-13)
Flood	3 (INFR Flooding d-5, d-6)	Install new underground storm drainage throughout most vulnerable areas in the City, particularly in the Monte Vista/ El Camino Grande and Chester Avenue areas.	Public Works Development	ONGOING	YES	The City currently has approximately \$750,000 in needed storm drain upgrades; however, we do not have funding to pursue these improvements (see SAR-2, 4, 5, 7)
	GOVT-d-3	Recognize that a multi-agency approach is needed to mitigate flooding by having flood control districts, cities, counties, and utilities meet at least annually to jointly discuss their capital improvement programs for most effectively reducing the threat of flooding. Work toward making this process more formal to insure that flooding is considered at existing joint-agency meetings.	Santa Clara Valley Water District	ONGOING	YES	See SAR-14
City of Sunnyvale						
	1	To mitigate the failure of the water system, the City is proposing to retrofit the key water infrastructure components at risk.		In-progress	Yes	See SNY-1 and SNY-2
	INFR-a-4	Retrofit or replace critical lifeline infrastructure facilities and/ or their backup facilities that are shown to be vulnerable to damage in natural disasters.	Public Works, Field Services and Environmental Divisions	In-progress	Yes	See SNY-1 through SNY-5 and SNY-10

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
	GOVT-a-1	Assess the vulnerability of critical facilities (such as city halls, fire stations, operations and communications headquarters, community service centers, seaports, and airports) to damage in natural disasters and make recommendations for appropriate mitigation.	Community Services, Facilities, Public Works, Field Services	Ongoing	No	<p>PWs conducted a vulnerabilities assessment of the City's water system 2004. Other efforts are ongoing.</p> <p>1. The City has all buildings that are regularly occupied inspected on an annual basis for safety and hazard issues. These include internal wiring, storage of hazardous materials, tripping hazards, proper furniture anchoring, etc.</p> <p>2. Emergency back-up power has been evaluated and identified as including equipment that is old, though rarely used. Plans are being developed to update, replace or back-up emergency generators to provide increased assurance of operation in the case of a loss of primary power. The City also has service agreements with two vendors to provide on-call service when necessary to the emergency power systems.</p> <p>3. A number of City buildings are in close proximity to very large redwood trees, that could cause significant damage if they come down on adjacent buildings. This includes City Hall, City Hall Annex, South Annex, Library and various fire stations. The trees are inspected annually for weakness or disease. See SNY-10.</p>

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Santa Clara County (Unincorporated Areas)						
Wildland Urban Interface	10.a	County-Wide CWPP - Create an integrated county-wide CWPP and get it online. Communities have very different needs and these would have to be addressed. Market and promote collaboration of agencies in WUI areas with signs, etc.... CWPP would need approval from Board of Supervisors, CalFire and the local fire agency. There is a strong feeling that active involvement from the county-wide stakeholders would make a huge difference. a. Create defensible space programs on a county-wide basis.	County Fire Funding: FY 2010 Assistance to Firefighters Grant Program Fire Prevention and Safety Grants; HMGP, PDM	In-progress	Yes	The CWPP was completed in September, 2016. Need to get all signatory entities to accept the county-wide CWPP, which is in progress (see SCC-1).
Wildland Urban Interface	13	Tactical Database - Prepare tactical information database and accurate maps ready for Incident Commanders to access when necessary. Refer to the "Los Padres model. Develop an evacuation plan for isolated communities. Evacuation routes serve the tri-role of evacuation, response and fire lines. We need to bring it all together with appropriate stakeholders (CalTrans, CHP, etc....) (Example CHP closes Highway 17 @Madrone Drive due to Wildfire. If 17 traffic goes Into Redwood Estates it's a narrow maze. If 17 traffic goes to Old Santa Cruz Highway they have 2 ways out. Does CHP know this? Sheriff's Office? Signage could be critical. Need Focused Tactical Planning for problem areas).	Funding is provided by grants from federal, state and private resources.	In-progress	Yes	Continue to prepare resources (electronic, guideline references, checklists, maps, plans, etc.) in collaboration with CalFire and Santa Clara County (See action SCC-35)
Wildland Urban Interface	14	County-Wide Task Force - Establish a county-wide Wildfire Mitigation Task Force to study the problem and coordinate efforts. Get critical stakeholders involved early in the process. A core body and extended body could be used to make efficient use of time.	Coordinate with CAL Division of Forestry, local Fire Departments & USFS; BLM	In-progress	Yes	Cal Fire and County Fire have been working together for several years to study areas susceptible to vegetation fire and develop pre-plans for response. Also included both Cal Fire and County Fire advising the FireSafe Council on projects we feel are higher priorities. (See actions SCC-2 and SCC-3)

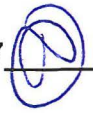
Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Wildland Urban Interface - Supplemental	17	Research and evaluate best practices. The Lexington Hills model built relationships with private property owners. Association of Bay Area Governments (ABAG) has resources available for reference. San Bernardino County and San Diego County have had frequent practice and collaboration within this area	Santa Clara County FireSafe Council	Complete	Yes	County Fire/ Cal Fire/ FireSafe Council and others continue to collaborate with other entities regarding latest research on best practices (i.e. Be Ember Aware). This is done through conferences, seminars and invitations to attend other area FireSafe Council meetings. Many of the local and regional stakeholders and interested parties have participated in guided tours through areas which have suffered significant wildfire events (Valley Fire in 2015 and Loma Fire in 2016). (See action SCC-3)
Information-Sharing	19	Create a Santa Clara County Infrastructure Council (or equivalent) as an institutional receptacle for matters pertaining to infrastructure data-sharing efforts.	County OES/ EOAC/ ISD	Not started	Yes	Create/ Incorporate Santa Clara County Information Sharing Council (or equivalent) as an institutional receptacle for matters pertaining to infrastructure data-sharing efforts. (See SCC-5)
Information-Sharing	19.a	Santa Clara County Infrastructure Council - Approach infrastructure providers and ask them to become partners in this council.	County OES/ EOAC/ ISD	Not Started	Yes	Reach out to the departments and agencies who maintain data that can be used for Emergency Management. Also, consider inviting the local private sector to the council. (See SCC-5)
Information-Sharing	19.b	Santa Clara County Infrastructure Council - Create an agenda in cooperation with council partners. Anticipated agenda items are: i. Recognize the legitimate concerns of the private sector in sharing critical infrastructure information, and address those concerns with reasonable measures (PCII, need-to-know, encryption, etc....) ii. Initially focus on water and/ or power providers to build success and momentum.	County OES/ EOAC/ ISD	Not started	Yes	Create an agenda in cooperation with council partners. Anticipated agenda items are: i. Recognize the legitimate concerns of the private sector in sharing critical infrastructure information, and address those concerns with reasonable measures (PCII, need-to-know, encryption, etc....) ii. Initially focus on water and/ or power providers to build success and momentum. (See SCC-5)

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Information-Sharing	19.c	Santa Clara County Infrastructure Council - Host Council meetings and meet on a quarterly basis.	County OES/ EOAC/ ISD	Not started	Yes	Host Council meetings and meet on a quarterly basis. (See SCC-5)
Information-Sharing	19.e	Santa Clara County Infrastructure Council - Develop a common architecture interface for data to be shared between members. Request utilities provide agreed-upon information in digital, dynamic format and create a commonality of layers. Use WebEOC infrastructure for mitigation and emergency response efforts.	ISD/ GIS	On-Going	Yes	Develop, or discover, a common architecture interface for data to be shared between members. Request utilities provide agreed-upon information in digital, dynamic format and create a commonality of layers. (See SCC-5, SCC-8 and SCC-10)
Information-Sharing - Supplemental	19.g	Santa Clara County Infrastructure Council - Invite Santa Clara County FireSafe Council to join and give them access to information through WebEOC that they need. For example, they can't build a fuel break without authorization due to property boundaries. Good GIS information can facilitate this process. Well-mapped evacuation routes should be available to stakeholder agencies and the public. "Blue hydrants" could be mapped for the local fire departments.	County OES/ EOAC/ ISD	Not started	Yes	Invite Santa Clara County FireSafe Council to join and give them permission to contribute and access information through sharing portals which may include WebEOC that they need. For example, they can't build a fuel break without authorization due to property boundaries. Good infrastructure GIS information can facilitate this process. Well-mapped evacuation routes should be available to stakeholder agencies and the public. Assessment of "Blue hydrants" could be mapped for the mapping by local fire departments (see SCC-5).
Information-Sharing - Supplemental	22	Coordinate with the private sector on prioritization of critical facilities before and during restoration of utility services.	ISD/ GIS	Incomplete	Yes	Coordinate with the private sector on prioritization of critical facilities before and during restoration of utility services (See SCC-35)

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Flood Mitigation	23	Survey the cities to verify their plan for replacing and/ or upgrading localized flooding pump systems and generating alternate power. Based on results, scope potential project to upgrade systems county-wide.	Council, SCVWD, Santa Clara City and San José Funding: County Staff Time, HMGP or PDM	Complete	No	Santa Clara City and San José are concerned that water is pumped up and over levees into the Guadalupe River. Streets are lower than the levee. If the power goes down, residents are at risk if the pumps are not operating. Gilroy and Morgan Hill do not have this risk, only risk to cities that touch the bay. The problem will be exacerbated by sea level rise.
Flood Mitigation	24	Build a GIS layer of localized flooding "hot spots" throughout the County.	Funding: County Staff Time, HMGP, PDM (any grants or potential for funds from SCVWD?)	Complete	Yes	Maintain and update a GIS layer of localized flooding "hot spots" throughout the County (see SCC-6).
Flood Mitigation	25	Scope potential projects to make localized flooding hot spots deeper and bigger.		Unclear/ Unactionable Strategy	No	The intent of this action is not clear.
Flood Mitigation	26	Scope potential projects to mitigate existing at-risk levee bridges.		No Progress	No	Dependent on completion of other actions. To be considered at a later date.
Flood Mitigation	27	Scope potential vegetation removal projects to expedite the flow of water away from communities and into water outlets. target high priority waterways; walk/ drive channels		Unclear/ Unactionable Strategy	No	The intent of this action is not clear.
Flood Mitigation	28	Verify with the Water District their plans for managing the risks of the oldest levees in County.		Not started	No	Dependent on completion of other actions. To be considered at a later date.
Catastrophic Dam Failure - Supplemental	34	Use GIS to evaluate catastrophic dam failure scenarios.	SCVWD	Complete	Yes	Maintain and update GIS to evaluate catastrophic dam failure scenarios. (See SCC-7)
Catastrophic Dam Failure - Supplemental	40	Evaluate "Domino Dam Effect" for potential mitigation.	SCVWD	Unclear/ Unactionable Strategy	No	Status of action is unclear as mead agency did not participate in plan update.

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Town of Los Altos Hills						
		Create resources to assist neighbors in knowing and helping neighbors.	Los Altos Hills County Fire District, LAH Parks & Red, LAH City Manager/ Office of Emergency Services	Ongoing	Yes	See Action LAH-1
		Continue tree trimming programs, brush clearance, and other defensible space outreach efforts as necessary to minimize the potential for road blockage. Maintenance of brush and vegetative growth for fire prevention is addressed in Section 4-2.115 and 4-2.116 of the Los Altos Hills Municipal Code.	LAHCFD and Public Works	Ongoing	Yes	See Action LAH-2
		Develop additional public education and outreach programs.	City Manager/ OES	Ongoing	Yes	See Action-LAH-3
		Prepare a comprehensive evacuation plan focusing on potential wildland fire threats and identifying potential evacuation routes.	City Manager/ OES/ Fire/ Law/ Public information officer	Ongoing	Yes	See Action LAH-4
		Participate in County organized efforts to develop a countywide Community Wildfire Protection Plan.		Ongoing	Yes	See Action LAH-5
		Evaluate options and resources available to support home owners in completing seismic retrofits.		Ongoing	Yes	See Action LAH-6
		Coordinate with the appropriate state and county agencies to develop a comprehensive list of bridges and overpasses within Los Altos Hills and who is responsible for their maintenance.		Ongoing	Yes	See Action LAH-7
Town of Los Gatos						
Soft-story buildings	1	The Town will inventory and map, using GIS, the location of soft-story buildings. The maps will be available to first responders during emergencies.	Town of Los Gatos	Ongoing	Yes	See LGT-12.

Category	2011 No.	2011 Strategy	Responsible Agency	Status	Carry Forward to New Plan?	Comments
Soft-story buildings	2	The Town will also consider developing a retrofit grant program for building owners. The grant program would be made more possible if the Town is able to secure mitigation grants through having an adopted Hazard Mitigation Plan. This project would also be consistent with General Plan Safety Element Policy SAF Policy 1.5, which calls for the Town to provide incentives for seismic retrofits of structures.	Town of Los Gatos	No Progress	Yes	See LGT-13.
Wildfire	1	The Town will coordinate with Santa Clara County Fire Department to develop and distribute fire prevention preparedness education information, including evacuation plans for residents. This project would also be consistent with General Plan Safety Element SAF Action 3.3.	County Fire	Complete	No	County fire lead. The Town worked with County Fire to establish evacuation routes and install signs. The Town portion of the item is complete.
Dam failure	1	The Town will coordinate with surrounding jurisdictions that are in the inundation area of the Lexington Reservoir Lenihan Dam to implement a siren warning system.	Town of Los Gatos	No Progress	Yes	See LGT-14.
Dam failure	2	Marketing and public education campaigns for dam failures will also be implemented.	Town of Los Gatos	No Progress	Yes	See LGT-15.
	ENVI-b-4	Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit.	Town of Los Gatos	Ongoing	Yes	See LGT-16.
	ENVI-b-5	Increase the use of clean, alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology.	Town of Los Gatos	Ongoing	Yes	See LGT-17.
	ENVI-b-6	Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money.	Town of Los Gatos	Ongoing	Yes	See LGT-18.
	HSNG-k-12	Develop a program to provide at-cost NOAA weather radios to residents of flood hazard areas that request them, with priority to neighborhood watch captains and others trained in their use.	Town of Los Gatos	Some Progress	No	Radios were distributed to schools, but a program is not planned for development



RESOLUTION NO. _____

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY
OF SUNNYVALE ADOPTING VOLUME I AND
SUNNYVALE'S ANNEX WITHIN VOLUME II OF THE 2017
SANTA CLARA COUNTY OPERATIONAL AREA HAZARD
MITIGATION PLAN**

WHEREAS, in July of 2016, a coalition of Santa Clara County public agencies embarked on a planning process to prepare for and lessen the impacts of specified natural hazards by updating the Santa Clara County Operational Area Hazard Mitigation Plan (HMP or Plan), which is the blueprint for reducing the Operational Area's vulnerability to disasters and hazards; and

WHEREAS, the partnership was formed to respond to federal mandates in the Disaster Mitigation Act of 2000 (Public Law 106-390), to pool resources, and to create a uniform hazard mitigation strategy that can be consistently applied to the defined county-wide planning area and used to ensure eligibility for specified grant funding success; and

WHEREAS, an HMP outlines strategies for long-term reduction of hazard vulnerability, and effective HMP can potentially reduce the enormous cost of disasters to property owners and all levels of government, protect critical community facilities, reduce exposure to liability, and minimize post-disaster community disruption; and

WHEREAS, the result of the county-wide organizational effort is a two volume HMP, which will be a FEMA and California Office of Emergency Services (CalOES) approved multi-jurisdictional, multi-hazard mitigation plan; and

WHEREAS, each jurisdiction has been responsible for the review and approval of their individual sections of the Plan and the Plan presents the accumulated information in a unified framework to ensure a comprehensive and coordinated hazard mitigation plan that covers the entire Santa Clara County Operational Area planning area that is aligned with the goals, objectives and priorities of the State's multi-hazard mitigation plan; and

WHEREAS, adoption of the Plan, which has been approved by FEMA, will allow the jurisdictional partners to collectively and individually become eligible to apply for hazard mitigation project funding.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SUNNYVALE THAT:

1. The Council of the City of Sunnyvale hereby approves and adopts Volume I and Sunnyvale's Annex within Volume II of the 2017 Santa Clara County Operational Area Hazard Mitigation Plan, incorporated herein by reference.

Adopted by the City Council at a regular meeting held on _____, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

RECUSAL:

ATTEST:

APPROVED:

City Clerk
(SEAL)

Mayor

APPROVED AS TO FORM:

City Attorney



City of Sunnyvale

Agenda Item

16-1103

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Approve New First Mortgage Refinance Loan of \$3.3 Million in Housing Funds to MidPen Housing Corp. and Modification of Outstanding Loans to Finance Phase Two of Eight Trees Apartments Rehabilitation at 183 Acalanes Drive, Sunnyvale; and Approve Budget Modification No. 26 to Appropriate Funding from the Housing Fund for the New Loan

BACKGROUND

Eight Trees Apartments (Eight Trees) was acquired in 2002 by a non-profit homeless shelter operator now known as HomeFirst SCC (HomeFirst) with City assistance in the form of several Housing loans and a private first mortgage (the "Combs loan"). The outstanding loan amounts and related details are provided in Attachment 5. Eight Trees was built in the early 1960's as a two-story market-rate apartment building with 24 modest units, surface and carport parking, limited perimeter landscaping and a small pool in a central courtyard.

HomeFirst was not able to obtain the project-based vouchers it had hoped to obtain to support its vision for the property to provide affordable housing to: clients transitioning out of homelessness, and other very low income households. After struggling to maintain and manage the property and make the required loan payments for the first 10-12 years, HomeFirst staff approached City of Sunnyvale Housing staff to discuss options for stabilizing Eight Trees. Ultimately, following some executive staff turnover at HomeFirst, by 2016 HomeFirst had decided that it wanted to exit the business of rental housing management and focus on its core mission of operating homeless shelters and providing services to homeless clients. HomeFirst notified staff that it was seeking a non-profit rental housing provider to take over the property and the existing debt. Around that time, MidPen Housing Corp. (MidPen) was looking for sites in Sunnyvale for a new affordable housing project, including possible acquisition and rehabilitation of existing housing. The high price of market-rate properties of any kind was making that process very difficult.

Given the circumstances, staff cross-referred these agencies and suggested they consider options for Eight Trees, although staff also provided HomeFirst with the names of other local housing providers, to provide a range of options. Eventually both non-profits (MidPen and HomeFirst) reached agreement on initial terms for the transfer. The two agencies approached staff at the City, County, and Housing Authority to discuss options for stabilizing this at-risk property. MidPen applied for project-based vouchers from the Housing Authority, but was denied because the Housing Authority was only accepting proposals for newly built projects at that time. The County was only interested in providing funding to convert the property into permanent supportive housing for County clients. That would have displaced most of the families currently renting there, so that was not considered feasible or desirable. With no viable funding sources from the County or Housing Authority, the parties focused on structuring a proposal for City approval, which was required for the transfer due to terms in the City loan documents. MidPen also began analyzing the potential for an application for tax

credits to refinance the existing debt. The existing debt was at much higher interest rates than are currently available, and was creating an unsustainable debt burden for the property.

In June 2016 (RTC No. 16-0442), City Council approved the property transfer, and assignment and assumption of the outstanding City debt, from HomeFirst to MidPen. That report also included a two-phased plan and term sheet proposed to stabilize the property financially and generate funds for a substantial rehabilitation project. Phase One consisted of MidPen's assumption of the property and its existing debt, and a new City loan of \$600,000 to MidPen for urgent repairs and related costs to stabilize the property for the short term. Phase Two as proposed then (and currently pending) consisted of refinancing and rehabilitating the property to make it sustainable for the long-term, including a tax credit syndication. This report provides an update on the progress made to date in implementing Phase One, and an overview of the updated funding proposal for Phase Two.

In August 2016, the property title transferred from HomeFirst to MidPen, and escrow closed on the new City loan to MidPen for urgent repairs. The loan funds were made available, on a reimbursement basis, for urgent repairs, an interim operating reserve, preliminary design work for the Phase Two rehabilitation, and to pay off the outstanding balance (approximately \$100,000) on one of the original City loans that was due in June 2016. Most of the urgent repairs were completed by the end of 2016, with a few minor repairs completed more recently. The 2016 assignment and assumption agreement also included an agreement by the City, as lender, to suspend certain loan payments that were otherwise due semi-annually under one of the older City loans, until all of the outstanding debt could be restructured during Phase Two, pending City Council approval of the funding proposal described below. In June 2016 it was noted in the Report to Council that Phase Two funding was conceptual and subject to change based on the availability of various funding sources.

EXISTING POLICY

General Plan, Housing Element

Goal A: Assist in the provision of adequate housing to meet the diverse needs of Sunnyvale's households of all income levels.

Goal B: Maintain and enhance the condition and affordability of existing housing in Sunnyvale.

Pursuant to Sunnyvale Charter Section 1305, at any meeting after the adoption of the budget, the City Council may amend or supplement the budget by motion adopted by affirmative votes of at least four members so as to authorize the transfer of unused balances appropriated for one purpose to another, or to appropriate available revenue not included in the budget.

ENVIRONMENTAL REVIEW

This project is exempt from the requirements of the California Environmental Quality Act (CEQA) as a Class 1 project involving only rehabilitation of existing structures involving negligible or no expansion of use beyond that presently existing. (CEQA Guidelines section 15301(d).) No federal funds will be used for this project, therefore federal environmental review under the National Environmental Policy Act (NEPA) is not required.

DISCUSSION

MidPen has worked with staff to further refine the scope and design for the substantial rehabilitation work and the financial restructuring plan, including the federal low-income housing tax credits (LIHTC) application that, if successful, would generate an estimated private equity investment of

approximately \$9.44 million for the project. MidPen has submitted a planning application for the proposed rehabilitation, and the project will be scheduled for a Zoning Administrator public hearing for a decision on proposed modifications to the site. In exchange for the proposed new loan and restructure of the outstanding loans, the required term of affordability would be extended for 55 years from the date of recordation of the new regulatory agreement. The affordability restrictions currently in effect will expire in 2023 (HOME) and 2046 (CDBG).

Consistent with the two-phased plan attached to the 2016 RTC, MidPen has applied for a new loan for Phase Two through an open Request for Proposals (RFP) issued by the Housing Division. Since that time, MidPen has refined the rehabilitation scope of work to meet current Building, Fire, and Planning requirements as well as address functional needs for the project. Those refinements, as well as general escalations in construction costs, resulted in slightly higher project cost estimates, which then impacted the project's refinancing plan. After analyzing various options for funding Phase Two, staff and MidPen have concluded that a City loan of approximately \$3.3 million, plus an application for an allocation of LIHTC, is the most feasible option, for the reasons explained below. The proposal also requests the modification of four outstanding City loans on the property to forgive a combined total of approximately \$670,000 in interest accrued to date, extend the maturity dates to coincide with that of the new loan, adjust the interest rates to zero, and add residual receipts payment requirements to all of them, as explained below. A vicinity map of the project site is provided in Attachment 1. An updated term sheet is provided in Attachment 2. The funding application form is provided in Attachment 3. The rehabilitation scope of work and budget is provided in Attachment 4. The Proposed Debt Restructure is provided in Attachment 5.

Rehabilitation Scope of Work

The Eight Trees property is dated, as it has not been significantly renovated since it was built more than fifty years ago. Renovation is needed to extend the useful life of the buildings, improve energy- and water-efficiency, add common areas for resident services and property management, and improve safety and comfort within the units and throughout the property. A fire sprinkler system will be added as well. The proposed renovations will also improve the property's appearance from the public street and within the property. To qualify for tax credits, several units need to be reconfigured: eight 2-bedroom units will be converted into four 1-bedroom units and four 3-bedroom units. Currently the property includes mostly 2-bedroom units, but more 3-bedroom units are required to qualify for the tax credits, to accommodate larger households. A small community building will be added in the courtyard between the two apartment structures, replacing the existing swimming pool with a community room and leasing office. The new community building will provide space for resident meetings and services and a property management office. Please see Attachment 4 for the detailed scope of work and project budget. The applicant has structured the physical rehabilitation scope, financing plan, and other aspects of the proposed project strategically to maximize the likelihood of obtaining an LIHTC award during the next application period, and estimates that the project has a strong chance of success. If the project does not receive the LIHTC allocation during the first round, the applicant will reapply in the following application period in June 2018.

Refinancing Proposal

There are four outstanding City loans on the property with a combined outstanding principal balance of \$1.75 million, and approximately \$670,000 in accrued interest (see Attachment 5 for details). In addition, the private first mortgage loan has a projected pay-off amount of about \$2.35 million by January 2018. The interest rate on the senior loan will increase to 9% in February based on the current loan terms. At that point the first mortgage payment would exceed the existing rental income

generated by the property, posing a risk of default on that loan if the proposed refinance does not occur.

The refinancing proposal consists of the following requested City assistance:

- New City HMF loan of \$3.3 million, with 55-year loan term, at 0% interest, with annual residual receipts (RR) payments;
- Forgive all interest accrued to date on outstanding City loans (approximately \$670,000) and adjust interest rates on all loans to 0% for balance of terms;
- Extend maturity dates of existing loans to 55 years, with an end date consistent with that of new HMF loan;
- New affordability restrictions will be placed on the property by the City ensuring its affordability to lower-income households for another 55 years.

While the above loan terms differ slightly from the City's typical preferred Housing loan terms (i.e., 3% interest), this approach will help the project earn a more competitive score on its LIHTC application. If it does not score high enough, it will most likely not win an LIHTC allocation, which appears to be the most feasible way to stabilize this property in which the City has already invested significant housing funds. Staff encouraged MidPen to seek other possible sources of matching funds, in addition to the tax credits, such as the Silicon Valley Housing Trust, State funding, Measure A, and/or Housing Authority vouchers. MidPen researched all these possibilities and contacted all these agencies, and none of them have any available funding programs that would work for this project, for various reasons: project type is ineligible, no funding available, loan or program not compatible with project, etc.

MidPen had initially submitted a proposal requesting a new City loan of \$2.7 million (Alternative 2), with a refinancing plan that would have included obtaining a private first mortgage of approximately \$670,000 to complete the necessary permanent financing. However, MidPen and City staff thought that, given the City's substantial existing investment in this property, and potential new funding, it would not be ideal for the City to remain in second lien position to a senior lender with such a small loan amount. In addition, increasing the amount of the City loan to eliminate the need for a private first mortgage will also significantly increase the project's score when applying for tax credits. Nonetheless, staff has included this option as Alternative 2 for City Council's consideration.

Aside from the above alternatives, the only other alternative to preserve the City's existing investment and avoid default would be to sell the property at market value by releasing the current affordability restrictions, which would most likely displace the current tenants, and might create compliance issues and/or logistical difficulties for the City related to the initial use of federal funds (CDBG and HOME) for this project.

Available City Funds

Staff issued a Request for Proposals (RFP) in early 2015, making available \$10 million in Housing funds for new affordable housing capital projects. Since then, the City has awarded funding to two proposals through that RFP: one to First Community Housing, which is still a conditional award pending satisfaction of certain funding conditions (RTC No. 16-0302), and another to Charities Housing (RTC No. 16-0785), which has been funded and the rehabilitation work is in progress. Those two funding commitments equaled nearly \$6.5 million in total, leaving \$3.5 million still available through this RFP. The Eight Trees application is the only application staff has received since the last

two commitments were made, although several inquiries have been received. Additional funding remains available in several Housing funds beyond the amount made available through this RFP, and additional Housing revenues are projected based on approved projects in the development pipeline.

Proposal Evaluation

Housing staff evaluated the proposal based on the qualifications of the proposer, the need for the proposed project, and other criteria set forth in the RFP. MidPen Housing is one of the largest developers and owners of high-quality affordable rental housing in Northern California. MidPen Housing has collaborated with the City of Sunnyvale on many projects including Homestead Park, Aster Park, Garland Plaza, Fair Oaks Plaza, Morse Court, and Onizuka Crossing, among others. The proposal is largely consistent with the plan for Eight Trees presented to Council in 2016. Phase two is urgently needed to prevent a default under the existing senior loan, which poses risks for the property's long-term affordability and stability, as well as to address the needs for physical improvements.

MidPen has prepared a community outreach plan to engage residents in the proposed renovation plan. Before beginning the rehabilitation work, MidPen will hold outreach meetings with the tenants to discuss the work and address any questions or concerns. Service providers will assist tenants with temporary relocation, to the extent necessary, and any support tenants might need during the construction period. Funding for tenant assistance and temporary relocation is included in the budget.

The proposed project aligns with the goals and objectives of the RFP and City policy. The rehabilitation work will create a safer and better living environment for residents, preserve Eight Trees as an affordable housing resource, and extend the term of affordability for another 55 years.

FISCAL IMPACT

The recommended action will not impact the General Fund, but it would create a new expenditure of \$3.3 million in Housing Mitigation Fee Revenue, which is held in the Housing Mitigation Fund (HMF) in the form of a 55-year residual receipts loan to be secured by the property. The recommended debt restructuring would result in forgone interest payments of approximately \$670,000 accrued to date on the acquisition loans, as shown in Attachment 5. However, based on the financial projections for the property following project completion, the new loan could generate more in residual receipts payments for the City over the long-term than the forgiven interest amount, particularly if the rental income stream remains consistent.

Funding for the recommended new loan is available in the HMF but has not been appropriated to the project, so staff has prepared a budget modification (below) for Council consideration. The HMF and other Housing funds exist to finance affordable housing projects, and the recommended action is consistent with that purpose and various City policies regarding affordable housing.

Budget Modification No. 26 has been prepared to allocate \$3.3 million in HMF to the Eight Trees Phase Two Rehabilitation Project, 183 Acalanes Dr.

Budget Modification No. 26 FY 2017/18

Current	Increase/ (Decrease)	Revised
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Housing FundReserves

Housing Mitigation Reserve	\$27,314,456	(\$3,300,000)	\$24,014,456
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Expenditures

New Project - Eight Trees Phase Two Rehabilitation Project, 183 Acalanes Dr.	\$0	\$3,300,000	\$3,300,000
--	-----	-------------	-------------

PUBLIC CONTACT

Public contact was made through posting the Council agenda on the City's official-notice bulletin board, on the City's website, and the availability of the agenda and report in the Office of the City Clerk.

Housing and Human Services Commission Action

The Housing and Human Services Commission (HHSC) considered the Eight Trees Phase Two proposal at a special meeting on November 1, 2017. The HHSC voted 6-0 to recommend to Council Alternative 1: Approve a new first mortgage refinance loan of \$3.3 million in Housing Mitigation Funds for the Eight Trees Phase Two Project and authorize the City Manager to execute the new first mortgage refinance loan documents and amendments to the existing City loans to forgive accrued interest and adjust interest rates to 0%, as further described in Attachments 2 and 5 of the report. See Attachment 6 for an excerpt of the draft minutes of that meeting. The HHSC did not consider the proposed budget modification, as that is under Council's authority, however the HHSC report noted that a budget modification would be prepared for Council approval as part of the Report to Council on this item.

RECOMMENDATION

1) Find that the action is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15301(d); 2) Approve a new first mortgage refinance loan of \$3.3 million in Housing Mitigation Funds for the Eight Trees Phase Two Project and authorize the City Manager to execute the new first mortgage refinance loan documents and amendments to the existing City loans to forgive accrued interest and adjust interest rates to 0%, as further described in Attachments 2 and 5 of the report and to execute any other document or instrument and take any additional action as may be necessary to carry out the purposes the new first mortgage refinance loan; and, 3) Approve Budget Modification No. 26 to Appropriate \$3.3 million from the Housing Mitigation Fund balance to a new Project: Eight Trees Phase Two Rehabilitation Project, 183 Acalanes Drive.

Staff recommends the above three actions as they would give the City more leverage over the property as the senior lender. Given the relatively small difference in loan amount required, staff recommends this extra investment to position the City as senior lienholder. The new loan will enable MidPen to complete Phase Two of this acquisition/rehabilitation project, improve resident services, establish long-term reserves for maintenance and contingencies, and add much more functional common areas and amenities for the residents. The project is consistent with the City's Housing Element goals to maintain the quality of the City's existing affordable rental housing stock and preserve at-risk affordable properties. As noted above, Alternative 2 is also a possibility, however staff does not recommend it due to the less favorable lien position for the City, and because it would

make it less likely that the project would be successful in obtaining an allocation of tax credits.

Prepared by: Katrina L. Ardina, Housing Programs Analyst

Reviewed by: Suzanne Isé, Housing Officer

Reviewed by: Trudi Ryan, Director, Community Development

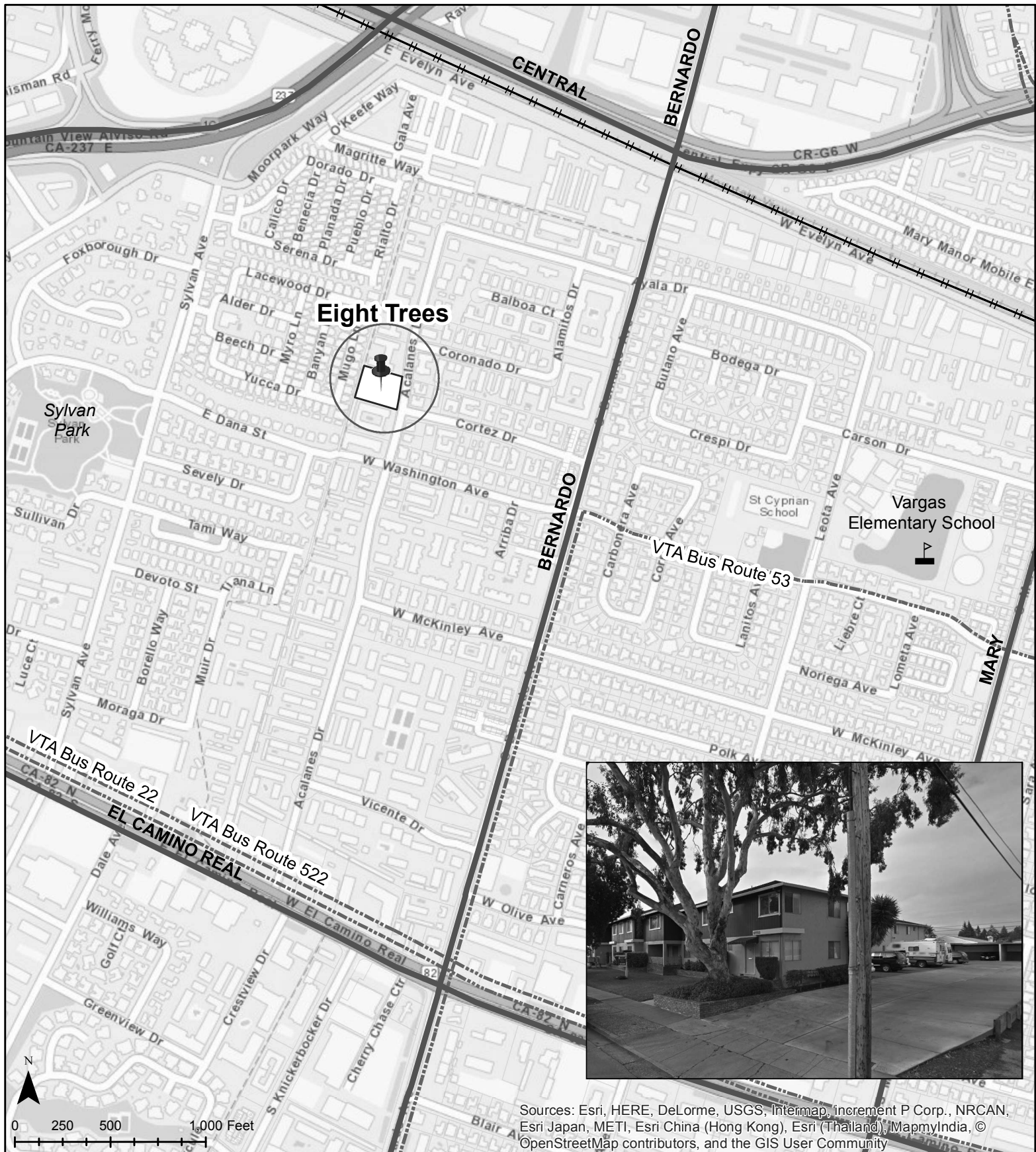
Reviewed by: Timothy J. Kirby, Director, Finance Department

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. Vicinity Map
2. Updated Term Sheet
3. Application Form
4. Scope of Work and Budget
5. Proposed Debt Restructure
6. Excerpt of Draft Minutes of HHSC Meeting of November 1, 2017



Vicinity Map

Eight Trees

183 Acalanes Dr,
Sunnyvale, CA 94086



UPDATED TERM SHEET
Eight Trees Apartments
183 Acalanes Dr., Sunnyvale, CA 94086

	Existing Conditions in June 2016	Proposed Terms (as of June 2016)	Updated Proposal Sept. 2017
Units	24 Units: 1-bedroom: Four Units 2-bedroom: Eighteen Units 3-bedroom: Two Units	No Change	Reconfigure several units to result in: 1-bedrooms: Eight 2-bedrooms: Ten 3-bedrooms: Six; 24 Units total
Owner / Borrower	HomeFirst SCC (HF)	MidPen Housing Corp. Affiliate (MP)	MP Eight Trees LLC (MidPen Affiliate)
Loans	<ul style="list-style-type: none"> First Mortgage of ~\$2.1M held by private tax-exempt bond holder 4 City Loans with total outstanding balance of slightly over \$1.8 million (see Attach. 2 for details) City loan funding sources: CDBG, HOME, Housing Mitigation 	<p>Phase 1:</p> <ul style="list-style-type: none"> MP to assume all existing debt; Add new \$600K City loan for immediate repair needs and other immediate needs (subject to approval of CDD Director) <p>Phase 2 (refinancing):</p> <ul style="list-style-type: none"> Pay off 1st mortgage with new tax credit equity; Consolidate and restructure existing City debt; Seek additional City/other financing for substantial rehabilitation project 	<p>Phase 1: completed;</p> <p>Phase 2:</p> <ul style="list-style-type: none"> Pay off 1st mortgage in January with new City Loan of \$3.3 million; Restructure existing City debt; Apply for 9% tax credits in March 2018 Apply for County funds and/or project-based vouchers (PBVs) Complete property rehabilitation following TCAC award (if successful)
City Loan Terms	Mix of amortizing and fully deferred loans; most with interest rates at 5% simple	<p>Phase 1, post-closing:</p> <ul style="list-style-type: none"> Convert all to 3% simple deferred, residual receipts, 55-years; 	<p>Phase 1, post-closing:</p> <ul style="list-style-type: none"> Restructure deferred to Phase 2;

UPDATED TERM SHEET
 Eight Trees Apartments
 183 Acalanes Dr., Sunnyvale, CA 94086

	Existing Conditions in June 2016	Proposed Terms (as of June 2016)	Updated Proposal Sept. 2017
		<ul style="list-style-type: none"> Combine loans of same funding source into single loan <p>Phase 2:</p> <ul style="list-style-type: none"> Consider MP additional funding request of up to \$2.4M for substantial rehab project; Coordinate with MP to facilitate tax credit application and identify other potential soft lenders 	<p>Phase 2:</p> <ul style="list-style-type: none"> New City loan of \$3.3M at 0%, residual receipts; Restructure existing debt: <ul style="list-style-type: none"> Reduce interest rate to 0%, add residual receipts; Forgive accrued interest; Combine loans of same funding source into single loan (see Attachment 5) Coordinate with MP to facilitate 9% tax credit application in March and identify other potential soft lenders and/or apply for PBVs
Loans Maturity Date	Ranges from 6/30/2016 to 2033	55 years	55 years from new loan closing

UPDATED TERM SHEET
 Eight Trees Apartments
 183 Acalanes Dr., Sunnyvale, CA 94086

	Existing Conditions in June 2016	Proposed Terms (as of June 2016)	Updated Proposal Sept. 2017
Afford- ability Restrict- ions	Mix of Extremely Low, & Very Low (ELI & VLI)	<p>Phase 1: Adjust to Low for Restructuring Period (tenant rents will not be changed): necessary to support additional financing for rehabilitation project</p> <p>Phase 2:</p> <ul style="list-style-type: none"> • New tax credit financing will include mix of ELI, VLI, and Low; • Seek award of project-based vouchers to provide deeper affordability and improve cash flow 	<p>Phase 1: Adjusted all units except 1 HOME unit to Low (50-80% AMI) for restructuring period (tenant rents will not be changed); 1 HOME unit at VLI 50% AMI.</p> <p>Phase 2:</p> <ul style="list-style-type: none"> • New tax credit financing will include mix of ELI, VLI, and Low; • Applied for project-based vouchers to provide deeper affordability and improve cash flow • Current ELI/VLI tenants remain onsite.

UPDATED TERM SHEET
 Eight Trees Apartments
 183 Acalanes Dr., Sunnyvale, CA 94086

TIMELINE

Milestone Responsible Party: MidPen	Target Date	Status
<i>Property Acquisition</i>	<i>July 2016</i>	<i>Completed</i>
<i>Perform immediate repairs with Critical Repairs Loan from City</i>	<i>September 2016-November 2016</i>	<i>Completed</i>
<i>Apply for City Housing Mitigation Funds (HMF)</i>	<i>October 2016</i>	<i>Completed</i>
<i>Submit Planning Application to City for Renovations</i>	<i>July 2016</i>	<i>Completed</i>
Zoning Administrator Hearing on Proposed Renovations	October 2017	Pending
Housing and Human Services Commission Hearing on new HMF Loan Proposal	October 18, 2017	Pending
City Council Hearing on HMF Proposal	November 7, 2017	Pending
Close new HMF Loan with City	December 2017	Pending
Pay off First Mortgage with new City HMF Loan	February 2018	Pending
Apply for 9% Tax Credits	March 2018	Pending
TCAC Awards Announced	June 2018*	Pending
Close Construction Loan/Start Renovation Work	December 2018	Pending
Finish Renovation Work	December 2019	Pending
Certificate of Occupancy	January 2020	Pending

City of Sunnyvale Request for Proposals
Housing Mitigation and BMR In-Lieu Funds

APPLICATION FORM

City of Sunnyvale Request for Proposals

Housing Mitigation and BMR In-Lieu Funds for
Affordable Housing Projects



RFP Issued:

March 5, 2015

Proposals Due:

**Ongoing until
Funds Exhausted**

Note: HPRR Applicants: Do not use this form. See Part B of RFP for submittal requirements.

PART I: APPLICATION FORM**PROJECT APPLICANT****1. Project Applicant:**Applicant Name (Organization/Agency): MidPen Housing CorporationPrincipal (with Power of Attorney): Matthew O. FranklinPrimary Contact Person: Helen Tong-IshikawaAddress: 303 Vintage Park Drive, Suite 250, Foster City, CA 94404Phone No.: 650-356-2968 Fax No.: 650-357-9766E-Mail: htongishikawa@midpen-housing.org Federal Tax ID No.: 23-7089977

What is the role of the Applicant in the project? (check all that apply):

- ☐ Ownership Entity
☐ Managing Partner or Managing Member
☒ Sponsoring Organization
☒ Developer
☐ Other (describe):

2. Legal Status of Applicant:

- ☐ General Partnership ☐ Limited Partnership ☐ Corporation
☐ Joint Venture¹ ☒ Nonprofit Organization
☐ Other (specify):

3. Status of Organization:

- ☒ In good standing
☐ Other (describe):

4. Name(s) of individual(s)/entities who will be General Partner(s) or Principal Owner(s):

(you have only 6 lines worth of text in this box)

The Principal Owner of the property and project site is currently MP Eight Trees LLC, of which the sole member/manager is Mid-Peninsula Baker Park Inc., a wholly-controlled affiliate of MidPen Housing Corporation.

A new limited partnership structure with MP Eight Trees, LLC as the general partner will be formed at tax credit syndication. The new Limited Partnership formed will be the owner with the LLC as the general partner and the equity investor as the limited partner.

¹ If the Applicant is a Joint Venture, a Joint Venture Agreement is required, clearly describing: the roles and responsibilities of each partner. Explain who is the lead partner, or if the responsibilities are approximately equally split between the partners.

PROJECT DESCRIPTION5. **Project Name:** Eight Trees Apartments**Project Address:** 183 Acalanes Drive, Sunnyvale, CA 94086**Assessor's Parcel No.:** 161-16-003**Census Tract:** 5091.076. **Project Type (check all that apply):**

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> Rental | <input type="checkbox"/> Ownership | <input type="checkbox"/> SRO/Studio Apartments |
| <input checked="" type="checkbox"/> Family | <input type="checkbox"/> Special Needs | |
| <input type="checkbox"/> Senior | <input type="checkbox"/> Other (describe): | |

7. **Project Activity (check all that apply):**

- ☐ Acquisition
☒ Rehabilitation
☐ Redevelopment
☒ New Construction - New community building addition
☐ Expiring Tax Credit/Section 8 Property
☐ Mixed Income
☐ Mixed Use
☒ Other (please specify): Tax credit syndication/refinancing

8. **Project Description:**

No. Units: 24

No. Res. Bldgs.: 2

No. Stories: 2

Land Area: 38,333 SF (.88 acres)

Residential Floor Area: 21,005 SF (existing)

Community Room(s): 705 SF (new)

Floor Areas:

Other Uses (specify):

Commercial/Office Uses (specify):

Offices for staff will be included in the new 1,385 SF building addition.

Commercial Floor Area: 0

Office Floor Area: 281 SF (new)

Elevators: 0

N/A

City of Sunnyvale 2015 HMF/BMR Funds RFP

APPLICATION FORM

9. **Parking:**

Total Parking Spaces: 36
 Parking Type: surface parking, carports, garage spaces
 Residential Spaces and Ratio: 1.5
 Guest Spaces: 0
 Commercial Spaces and Ratio: 0
 Office Spaces and Ratio: 0

10. **Number of Housing Units by Income Category:**

Category	Number of Units	Percentage of Units
0% to 30% AMI (Extremely Low-Income)	<u>0</u>	<u>0</u>
31% to 50% AMI (Very Low-Income)	<u>1</u>	<u>4</u>
51% to 80% AMI (Low-Income)	<u>22</u>	<u>92</u>
Unrestricted	<u>1</u>	<u>4</u>

11. **Unit Amenities (air conditioning, laundry in unit, balconies, etc.):**

Full kitchen, with refrigerators, kitchen sinks, dishwashers, electric cooktops/wall ovens. Bathrooms contain sinks, tub-shower surrounds, toilets, and showers. Eight of the units have balconies overlooking the central courtyard area. A common laundry room is on-site for residents.

12. **Number of Unit Types:**

Studio 0
 1 Bedroom 8
 2 Bedroom 10
 3 Bedroom 6

PROJECT NARRATIVE13. **Project Description:**

Provide a brief narrative summary of the proposed project. Please include location, project type (new versus rehab), target population and any unique project characteristics.

The property was first built in 1964 and contains two 2-story apartment buildings with a total of 24-units serving primarily families. MidPen Housing Corporation officially acquired the property and the existing debt from Homefirst (a local non-profit) in 2016 with the assistance of the City.

14. **Project Design:**

Provide a description of the project's architectural and site plan concepts and how these concepts address the opportunities and limitations of the site and location.

The overall building footprint will not change, though the proposed renovation will replace the central courtyard pool with a much-needed community building space for the residents. The proposed rehab will also convert eight 2-bedroom units into four 3-bedroom units and four 1-bedroom units.

15. **Green Building Features:**

Describe the green building features that will be incorporated into the project.

Green building will be incorporated through the following measures: dual pane windows, Energy Star appliances, and LED site lighting. Through the design process, we will continue to review energy features in order to realize maximum savings for the property and our residents.

16. **On-Site Amenities:**

Describe any on-site amenities, including any project characteristics that address the special needs of the population you intend to serve.

We are proposing to replace the current pool area with a new 1,385 SF building addition. This new addition will include property management/services offices, the laundry room, a computer lab, and community room with kitchen. There will also be gated bicycle parking available on-site.

17. **Neighborhood/Off-Site Amenities:**

Describe the property location, neighborhood, transportation options, local services and amenities within 1/4-mile and 1/2-mile of the site.

The property is a quarter mile from a bus stop and half mile from many amenities such as a park, schools, gas stations, restaurants, and many job centers. Please see #17 in Exhibit A for more details.

18. **Potential Development Obstacles:**

Are there any known issues or circumstances that may delay or create challenges for the project? If yes, list issues below, including an outline of steps that will be taken and the time frame needed to resolve these issues.

We are applying for tax credits in March 2018. This is a competitive process where we may not be funded in the first round. If we are not awarded tax credits in this first round, we will continue strategizing with City staff to submit a more competitive application for the June 2018 round.

SITE INFORMATION

19. **Site Control:**

- a. Site control must be obtained by the time that the proposal is submitted. What is the level of site control currently held by the applicant?

MP Eight Trees LLC (wholly-controlled affiliate of MidPen Housing Corporation) currently owns the property.

- b. Will site acquisition be a purchase or long-term lease?

N/A

- c. What is the purchase price of the land?
(For proposed leaseholds, indicate the amount of the annual lease payment, the term of the lease, and the basis for determining the annual payment amount).

N/A

- e. What is the appraised value of the site? Briefly describe the type of valuation cited.

\$8,440,000 is the as-is market value. Please see the attached appraisal in Attachment 3.

- f. Who is the current property owner and what is their address and contact information?

MP Eight Trees LLC (wholly-owned affiliate of MidPen Housing Corporation)
303 Vintage Park Drive, Suite 250
Foster City, CA 94404
Attn: Helen Tong-Ishikawa, Phone: 650-356-2968

20. **Site Information:**

- a. Total square footage of site: 38,333 SF
- b. Existing uses on the site and the approximate square footage of all structures:

Uses are for Residential Medium Density and total gross building floor area of 22,087 square feet.

- c. Planned use of on-site existing structures:

☐ Demolish ☒ Rehabilitate

☐ Other (describe):

- d. Provide the following information for each on-site building to be retained as part of this project:

Square Footage: 22,087 Date Built: January 1, 1964 No. of Stories: 2 each

- e. Provide a brief description of the condition of any buildings to be rehabilitated.

A physical needs assessment by a third party found both buildings to be in "satisfactory" condition. The complex is functional but it has portions in need of rehabilitation, including plumbing, seismic upgrades, energy standards, building envelope upgrades (including windows), and balconies.

- f. Describe unique site features (Heritage trees, parcel shape, etc.).

The parcel is slightly trapezoidal in shape because of the angle formed by Acalanes Drive along the frontage. The site provides a generous front setback and that contains a lawn with full landscaping and mature trees. There are no heritage trees on-site.

- g. Identify problematic site conditions (high noise levels, ingress/egress issues, etc.).

There are no major problematic site conditions at this time. The concrete drive-aisles display some amounts of cracking in the rear area which will be addressed with the rehab. Due to site's current space limitations, no additional parking can be added to the property.

- h. Is the site in a floodplain? Yes ☐ No ☒ Map used:

If yes, type of floodplain (number of years): N/A

- i. Describe adjoining land uses:

West: To the immediate west crosses into Mountain View city limits, where there is a mobile home park

East: Across Acalanes Drive are multifamily apartment complexes

North: Multifamily apartment complexes

South: Multifamily apartment complexes

21. **Zoning:**

- a. What is the current zoning of the project site? R3 – Med. Density Residential

- b. Is the proposed project consistent with the existing zoning status of the site?

☒ Yes ☐ No (explain)

N/A

- c. Indicate any discretionary review permits required for the project (Special Development Permit, Design Review Permit, etc.).

We have submitted a planning permit application for the renovation work. The current scope will require a Use Permit and Variance which will require review by the Zoning Administrator.

- d. If rezoning is required, identify the requested zoning district for the project.

N/A

22. Community Priorities:

- a. Explain how this project meets the objectives of the housing goals and priorities identified in this RFP and the goals and objectives of the Housing Element of the City's General Plan.

This project preserves existing at-risk affordable housing stock in the City of Sunnyvale. MidPen Housing seeks to maintain the affordability of these units and improve the quality of the housing asset through the rehabilitation work. Please see #22 Exhibit A for more information.

PROJECT FUNDING**23. Project Budget:**

- a. City Funds Requested: \$ 3,324,036 City Funds Per Assisted Unit: \$ 138,502
- b. Total Project Cost: \$ 12,760,168 Total Cost Per Assisted Unit: \$ 531,674
- c. Other Sources of Permanent Financing (not including private bank loans):

Type of Funding	Amount
<input checked="" type="checkbox"/> 9% Low-Income Housing Tax Credits	<u>9,436,032</u>
<input type="checkbox"/> 4% Low-Income Housing Tax Credits	<u></u>
<input type="checkbox"/> CalHFA/Conventional Lender	<u></u>
<input type="checkbox"/> Tax-Exempt Multi-Family Bonds	<u></u>
<input type="checkbox"/> Multi-Family Housing Program (MHP)	<u></u>
<input type="checkbox"/> Affordable Housing Program (AHP)	<u></u>
<input type="checkbox"/> County of Santa Clara, Office of Affordable Housing	<u></u>
<input type="checkbox"/> Santa Clara County Housing Trust	<u></u>
<input checked="" type="checkbox"/> Other: General Partner Equity	<u>100</u>

- d. How will the requested City funding be used?

The City funding will be primarily used to pay off the First Mortgage (approximately \$2.3MM) on the property in February 2018. The remaining balance will go towards both hard construction costs and soft costs (architecture, engineering, financing costs) for the project.

- e. Amount of developer fee and percentage of project cost:

\$1,366,755 or 10.7% of the project cost.

- f. Assess the chances of the project securing required funding and steps that will be taken to make the project competitive. What is the self-scored nine percent (9%) tax credit tie breaker score for the project (if applicable)?

The project will apply for competitive 9% tax credit funding in 2018. The City's HMF funds will assist in increasing the project's tiebreaker score. The tie breaker score will be established once the final project sources and uses are confirmed.

DEVELOPER EXPERIENCE

Developers must have successfully completed a minimum of three affordable housing projects of similar size and complexity as the proposed project to qualify for this RFP.

24. Provide a summary of affordable housing experience:

Years Experience:	47
Number of Projects:	105
Number of Projects in Santa Clara County:	42
Average Size of Projects:	70
Number of Units Placed in Service:	7,362

25. Describe awards given to projects completed in the last 10 years.

MidPen Housing Corporation has a long-standing history of developing noteworthy developments throughout the Bay Area. In the last 10 years, MidPen has received over 25 local and national awards recognizing its ability and dedication to develop beautiful, sustainable affordable housing for a wide range of communities with varying needs. Recently in 2016, Half Moon Village won two major awards: Gold Nugget Grand Award from Pacific Coast Builders Conference and San Francisco Business Times' Best Affordable Residential Real Estate Development of the Year. In the last three years, the Urban Land Institute has given two MidPen communities its Award for Excellence. In 2012, Fair Oaks Plaza in Sunnyvale received Affordable Housing Finance Magazine's award for senior project of the year. Onizuka Crossing, a Sunnyvale project that completed construction in 2016, received the Structures Award from the Silicon Valley Business Journal under the Affordable Residential Project category.

26. Describe three projects completed in the last ten years that are similar to the proposed project and provide photographs of each project:

a. Project 1

Name of Project: Maryce Freelen (2013 rehabilitation)

Location: 2230 Latham Street, Mountain View, CA 94040

Number of Units: 74

Type of Development (senior, family, etc.): Family

Name of Project Manager: Peter Villareal

Number of Stories: 2

Unit Types (studio, 1-bedroom, etc.): 1, 2, and 3 bedroom units

Type of Construction: Wood frame with composition shingle roofs

Project Amenities: Courtyard; swimming pool; play structure; community room; community room

Entitlement Date: n/a

Occupancy Date: n/a occupied rehab

Funding Sources: City of Mountain View CDBG, HOME and Redevelopment funds

b. Project 2

Name of Project: Morse Court (2016 rehabilitation)

Location: 825 Morse Avenue, Sunnyvale, CA 94085

Number of Units: 35

Type of Development (senior, family, etc.): Family

Name of Project Manager: Barbara Sanders

Number of Stories: 2

Unit Types (studio, 1-bedroom, etc.): 16 one bedroom, 15 two bedroom, 4 three bedroom

Type of Construction: Wood frame with composition shingle roofs

Project Amenities: Landscaped courtyards; private balconies or patios; tot lot; laundry

Entitlement Date: n/a

Occupancy Date: n/a occupied rehabilitation

Funding Sources: HUD Section 8; CalHFA; City of Sunnyvale Housing Mitigation

City of Sunnyvale 2015 HMF/BMR Funds RFP

ATTACHMENT 3
APPLICATION FORM

c. Project 3

Name of Project: Homestead Park (rehabilitation)

Location: 1601 Tenaka Place, Sunnyvale, CA 94087

Number of Units: 211

Type of Development (senior, family, etc.): Families and seniors

Name of Project Manager: Matt Lewis

Number of Stories: 3

Unit Types (studio, 1-bedroom, etc.): 20 studio, 20 one bedroom, 96 two bedroom, 65 three bedroom

Type of Construction: Wood frame with composition shingle roofs

Project Amenities: Tot lots; outdoor common areas; community room with kitchen;

Entitlement Date: n/a

Occupancy Date: n/a occupied rehabilitation

Funding Sources: HUD 236 and Section 8; CalHFA; City of Sunnyvale Housing Mit

27. **Personnel:**

List the names of key members of the applicant's development team, their titles, responsibilities and their years of experience in affordable housing:

Project Staff	Name	Role in Proposed Project	Years of Hsg Devt Experience	Years with this Developer
Project Manager	Helen Tong-Ishikawa	Day-to-day project management, strategy, project oversight	4.5	4.5
Director of Real Estate Development	Jan M. Lindenthal	Oversight of the Development Team	26	9
Executive Director	Matthew O. Franklin	President	22	8
Chief Financial Officer	Art Fatum	Finance/Accounting	12	3
Other	Peter Villareal	Development Director	13	9
Other	Bruce Brackett	Construction Manager	32	14
Other	Kris Adhikari	Development Support	1	1

28. Other Team Members:

Indicate which of the following development team members have been selected and identify them:

Developer, if Different from Applicant MidPen Housing Corporation

Architect(s)/Engineer(s) Dahlin Group

Attorney(s) and/or Tax Professionals Gubb and Barshay

Property Management Agent MidPen Property Management Corporation

Financial and Other Consultant(s) California Housing Partnership Corporation (CHPC)

General Contractor TBD

Investor TBD

29. List all other participants and affiliates (people, businesses and organizations) proposing to participate in the project:

Name	Address
MidPen Property Management Corporation	303 Vintage Park Drive, Suite 250, Foster City, CA 94404
MidPen Resident Services Corporation	303 Vintage Park Drive, Suite 250, Foster City, CA 94404

30. Property Management:

Describe how the property will be managed, including the number of staff, locations and management office hours.

Eight Trees is managed by MidPen Property Management Corporation. The property will have three key staff members. An on-site community manager, a part-time maintenance technician, and a part time Services coordinator. The on-site management office is open Monday through Friday from 10am-2pm.

31. If the project will be managed by a company other than the project applicant, describe the project applicant's role in the ongoing management of the project and resolution of management issues.

Eight Trees will continue to be managed by an affiliate of the project applicant, called MidPen Property Management Corporation. Once rehabilitation is completed, MidPen Housing Corporation will continue to be actively involved in the ongoing management of the project.

32. List the names of key property management staff, their titles, responsibilities and their years of experience managing affordable housing:

Name	Title (e.g., project manager, intake staff)	Job Responsibilities	Years Experience in Affordable Housing
Debra Sobeck	VP of Property Management	Oversight of Management Team	23
Monica Arteaga	Assistant Operations Manager	Onsite community manager	6 (market-rate housing)
Erica Pulido	Operations Manager	Oversees onsite manager	10
Kim Wolcott	Director & General Manager	Oversees and ensures overall integrity	11

33. Explain your marketing strategy and tenant selection process, and the establishment and management of waiting lists.

We are marketing any vacancies through GoSection8.com, with flyers, and with information posted at the property as well. The waitlist is currently open and we began it upon acquisition of the property. It is established on a first-come, first-served basis. See #33 in Exhibit A for more information.

We are also working collaboratively with the City of Sunnyvale housing staff to share vacancy information to share with prospective applicants. There is currently one vacancy on the property. We are processing applications now and will be filling the vacancy in the next couple of weeks.

34. Scoring

Please provide a description of your proposal's attributes for each of the categories below. You have 5 lines of text in each box. You may attach up to one page of additional supporting material for each category. For categories 5 and 6, simply fill out the blanks provided. The category descriptions and maximum points available are provided in the "Scoring Sheet" on page 8 of the RFP.

Category:**1. Organizational Capacity and Relevant Experience**

Since MidPen's inception over 40 years ago, it has developed approximately 7,400 affordable units in ten counties and has acquired/rehabilitated many properties to maintain affordability. The development team brings extensive and diversified experience to developing and managing affordable housing; some of whom specialize in acquisition/rehab projects. In the City of Sunnyvale, we own and manage 10 properties, with 1 project currently in development. See Exhibit B for more information.

2. Project Need

By obtaining and rehabilitating this property MidPen Housing seeks to maintain these units as affordable, and improve them to provide stable, affordable, high-quality living space for many years to come. Further, it will help address needs identified in the Housing Element by easing housing cost burdens, protecting renters against housing overpayment. By preserving its affordability, Eight Trees will continue to provide opportunities for low-income individuals and families within the area to access affordable housing. See Exhibit C for more information.

3. Project Design and Readiness

The project has submitted plans to the City and is currently awaiting final approval at a Zoning Administrator Hearing scheduled in the next couple of weeks. Once financing is secured, the project will immediately apply for building permits. The proposed project's hard costs budget will continue to go through a rigorous review and bid process to ensure that the project's costs are low while ensuring that the building's significant rehab needs are addressed. Operating costs will also be reviewed to ensure that they are feasible for the long-term. See Exhibit D for more information.

4. Budget and Financial Management

MidPen's solid financial position allows it to deliver on its mission to develop and maintain high-quality affordable housing. MidPen and affiliates have the capacity to set aside sufficient operating reserves and provide discretionary working capital for asset management and new development projects. Furthermore, MidPen has a strong standing of financial and regulatory compliance for its portfolio and day-to-day operation of the organization. MidPen also has accounting capacity for financial management, which allows it to thoroughly track budgets. See Exhibit E for more information.

5. Percentage of Matching Funds (Leverage)

Total Project Cost* as stated in Project Budget: \$	12,760,168
* Include capital costs only, not long-term operating costs	
Amount of City HM Funds Requested:	3,324,036
Amount of Matching Funds (<i>Project Cost - City HM Funds Requested</i>) =	9,436,132
Percentage of Matching Funds (<i>Matching Funds / Project Cost</i>) =	73.9%

6. Affordability Level

24

Total # of Units in Project: _____

units affordable to ELI households 0 = 0 % of total units in Project

units affordable to VLI households 1 = 4 % of total units in Project

Please round all numbers provided to the nearest whole number or percentage (i.e., 15%, not 15.34%).

City of Sunnyvale 2015 HMF/BMR Funds RFP

APPLICATION FORM

Applicant Certification

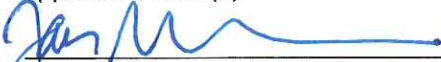
I certify that the information submitted in this application and all supporting materials is true, accurate and complete to the best of my knowledge. I acknowledge that if facts and/or information herein are found to be misrepresented, it shall constitute grounds for disqualification of my proposal.

I further certify that all of the following statements are true, except if I have indicated otherwise on this certification:

- a. I have not sold any of the projects listed on the "10-Year Projects" list;
- b. No mortgage on a project listed on this application has ever been in default, assigned to the government or foreclosed, nor has mortgage relief by the mortgagee been given;
- c. I have not experienced defaults or noncompliance under any contract or regulatory agreement nor issued IRS Form 8823 on any Low-Income Housing Tax Credit (LIHTC) project on the "10-Year Projects" list;
- d. To the best of my knowledge, there are no unresolved findings raised as a result of Agencies' audits, management reviews or other investigations concerning me or my projects for the past ten years;
- e. I have not been suspended, debarred or otherwise restricted by any state agency from participating in the LIHTC program or other affordable housing programs; and
- f. I have not failed to use state funds or LIHTC allocated to me in any state.

Statements above (if any) to which I cannot certify have been deleted by striking through the words with a pen. I have initialed each deletion (if any) and have attached a true and accurate signed statement (if applicable) to explain the facts and circumstances which I think helps to qualify me as a responsible principal for participation in this RFP.

Applicant Name(s)



Signature/Date

Jan M. Lindenthal, VP of Real Estate Development

Print Name and Title

This application and all supporting material are regarded as public records under the California Public Records Act.

Part II: REQUIRED ATTACHMENTS

The following supporting materials must be attached to each proposal:

1. Cover Letter

Provide a brief summary of the proposed project and discuss your agency's qualifications and why your proposal should be selected for funding. The cover letter must be on the applicant agency's letterhead and signed by a person authorized by the agency to submit the proposal.

2. Evidence of Site Control

By the time the proposal is submitted, the developer must have control of the proposed project site, consisting of either fee title ownership, a long-term lease, an option to purchase, or similar legally enforceable means of site control. The developer must show that if the proposal is selected, site control can be maintained at a minimum until a conditional funding award is made and, through completion of the entitlement process, until the property can be acquired. As evidence of site control, one of the following documents must be submitted with the application.

- Purchase agreement, with an escrow period sufficient to hold the property until the anticipated date of purchase.
- Option to purchase or lease, binding on seller or landlord, including evidence that the option period extends to or is renewable until the anticipated date of purchase.
- A long-term lease agreement with a term of not less than 55 years.
- Executed land sales contract or other enforceable agreement for acquisition.
- A grant deed to the developer
- Other commonly accepted and legally enforceable evidence of the applicant's site control.

Land acquisition costs must be justified and represent a competitive market price. Prior to closing on any City funding, the City may commission its own appraisal to confirm property value, at applicant's expense.

3. Appraisal

Attach an appraisal that has been completed within the past six (6) months of the application deadline. The appraisal must conform to the Uniform Standards of Professional Appraisal Practice and the appraisal requirements of the Appraisal Institute's Regulation 3. All appraisers must be licensed and certified by the State of California. The appraisal must include a separate as-is value for any improvements to be retained, or a demolition cost for any to be removed. Site value must be as-is, with no assumptions such as a future rezoning or environmental cleanup.

4. **Preliminary Title Report**

A preliminary title report dated within thirty (30) days of the application deadline.

5. **Ten-Year Projects List (Do not include projects listed under item 26 of application form)**

For each project the applicant has completed in the past ten (10) years, provide the following information on a separate attachment, in a consistent format. If more than six (6) projects have been completed, provide information for the last six (6) projects.

- Name of Project:
- Location (street address, city, county, zip code):
- Type of Development (senior, family, etc.):
- Number of Units:
- Mix of Unit Sizes:
- Number of Affordable Units and Level of Affordability:
- Number of Stories:
- Type of Construction:
- Project Amenities:
- Total Project Cost:
- Funding Sources and Amounts:
- Entitlement Date:
- Occupancy Date:
- Name of Project Manager:

6. **Rehabilitation Scope of Work, Property Inspection and Cost Estimate**

If the project involves rehabilitation, include the following information:

- Preliminary Scope of Work;
- A third-party physical needs assessment, property inspection report or predesign report;
- A preliminary independent cost estimate; and
- Basic unit configurations/plans.

7. Relocation Plan

If the project involves temporary (less than 12 months) or permanent relocation of current residential or commercial tenants, please provide a narrative Relocation Plan and Relocation Budget that complies with state relocation law, and federal law, if any federal funds are included in applicant's budget. Projects requiring permanent relocation of residential or business tenants are highly discouraged. The Relocation Plan should include:

- A description of the applicable relocation requirements (i.e., state and/or federal) and relocation benefits to be provided;
- A reasonable cost estimate of the relocation expenses;
- Identification of the number of households or businesses to be displaced;
- The current rent roll for the existing structures on site; and
- A description of the proposed advisory services that will be provided to the displaced households/businesses.

8. Community Outreach Plan

Provide a plan for conducting community outreach to current tenants and/or neighbors of the project site and interested community groups, to be implemented if the project receives a conditional funding award. The Outreach Plan should describe how the developer intends to build support for the project and address community concerns.

9. Development Schedule

Provide a detailed project schedule, identifying all major tasks and timelines. The schedule must include major milestones for development approval, acquisition, if not already owned, community outreach, financing applications, close of escrow, project construction and lease-up.

10. Resident Services Plan

Provide a Resident Services Plan that describes any services to be provided to tenants on site (i.e., child care, computer training, etc.) and demonstrates how supportive and social services for the tenant population will be provided and funded long-term. Projects with units set aside for formerly homeless households or special needs groups must provide sufficient supportive services for the target population and show sufficient funding commitments for services.

11. Management Companies

If the proposal includes the use of a property management company other than the applicant, provide detailed information on that company, including:

- Company name and three client references;
- Total number of projects and units managed;
- List of projects managed and their locations;
- Number of employees; and
- Management philosophy.

12. Marketability of Mixed-Use Projects

Proposals for development of housing with commercial space must include evidence of demand for commercial/retail and marketability of space by submitting a market study or a survey of comparables and vacancy rates, or have at least half of the commercial/retail space preleased.

13. Detailed Development Budget

Provide a detailed development budget that includes all anticipated funding sources and provides a breakdown of all development costs. State whether the budget assumes payment of federal and/or State prevailing wages and if so, which funding sources require payment of prevailing wages. The following requirements should be considered in preparing the budget:

- Construction Contingency

The City requires a minimum 10 percent construction contingency, which should be factored into the development budget. For projects involving extensive rehabilitation work, a 20 percent or greater construction contingency is required.

- Insurance and Bonding Requirements

The selected agency will be required to comply with the City's insurance and bonding requirements for construction contracts and general contractors, which should be factored into the project budget. These requirements are available upon request from the City.

14. Detailed Operating Budget and 30-Year Pro Forma Analysis (Rental Projects Only)

For rental proposals, please submit a detailed operating budget and 30-year pro forma analysis based on the assumptions described below:

- Five percent (5%) annual vacancy/collection loss for family and senior projects.

- Ten percent (10%) annual vacancy/collection loss for efficiency studio, SRO or special needs projects.
- Three and one-half percent (3.5%) annual increase for expenses (other than property taxes and replacement reserve deposit).
- Two and one-half percent (2.5%) annual increase for income.
- Tenant utility allowances should be based on the Housing Authority of Santa Clara 2010 Utility Allowance Table available at www.hacsc.org/p_rentlimits.php.
- If Section 8 or other rental or operating assistance is assumed, an additional pro forma should be included that assumes the contract will expire after its initial term. Applicants are encouraged to budget transition reserves due to the risk that rental assistance contracts may not be renewed.
- Partnership/Asset Management fees (for tax credit projects only) may not exceed a combined total of \$25,000 annually but may increase by 3 percent per year.
- The interest rate on the City's funds for low-income housing tax credit projects is generally set at 3 percent simple interest per annum, for projects that generate cash flow. City loan payments will be due from surplus cash flow (after payment of operating costs, senior debt, reserves and deferred developer fee). To the extent cash flow does not generate sufficient payments, any balance may be deferred for the term of the loan. All loans are due in full on sale, refinancing or transfer.

The pro forma should clearly list all assumptions and include information on all financing, including loan term, interest rate, and payee.

The pro forma should also include information on the number of units, sizes, rent and utility levels, targeted levels of affordability and basis of rent calculations.

15. Developer Financial Reports

Provide independent audit reports for the last three (3) years, including copies of management letters. This should include complete financial statements, including balance sheets, income statements and statement of cash flows with notes for the last three (3) years.

16. Experience and References

Provide résumés and project experience for all key staff working on the project, including, but not limited to, principals, project manager, project staff and financial officer. Indicate the level of experience of the project manager with projects similar to the proposal. Provide at least three (3) references from the city or county staff involved with the projects completed in the last six (6) years.

17. **Partnership Agreement or Corporate Articles and Bylaws (if applicable)**

18. **501(c)(3) Letter of Determination from IRS (if applicable)**

19. **Photos**

Attach recent, clearly labeled photos of the project site and surrounding area, including at least one street view and one aerial view.

20. **Site Plan**

Attach a simple site plan (black and white line drawing) showing the property boundaries and general footprint of the structures to be developed or rehabilitated.

21. **Board of Directors**

Provide the name and city of residence of each member of the developer's Board of Directors. (maximum 30 lines of text)

Mark Battey - Chairman; Half Moon Bay
Beth Bartlett - Vice Chairperson; Portola Valley
Daniel Seubert - Secretary; Palo Alto
Erik Doyle; Portola Valley
Kim Le; San Jose
Koonal Gandhi; San Francisco
Monique Moyer - Treasurer; San Mateo
Paul Staley - Vice Chairperson; San Francisco
Richard Slaton; Oakland
Susan Smartt; Tiburon
Terry Freeman; Woodside
Julia M. Baigent; Woodside
Gina Diaz; San Francisco
Brandi E. Thomas; San Jose

Eight Trees Apartments

SOURCES AND USES		
CONSTRUCTION SOURCES		per unit
Construction Loan	\$ 8,010,904	333,788
City Housing Mitigation Funds	\$ 3,324,036	138,502
Tax Credit Investor Proceeds	\$ 943,603	39,317
GP Equity	\$ 100	4
		per unit
<i>total</i>	\$ 12,278,643	\$ 511,610
PERMANENT SOURCES		per unit
City Housing Mitigation Funds	\$ 3,324,036	138,502
Tax Credit Investor Proceeds	\$ 9,436,032	393,168
GP Equity	\$ 100	4
<i>total</i>	\$ 12,760,168	\$ 531,674
PERMANENT USES		
Loan Repayment	total	per unit
Loan Repayment	\$ 2,347,092	97,796
		\$ -
<i>Total Refinance Costs</i>	\$ 2,347,092	\$ 97,796
HARD COSTS		
Resid. Site Work and Structures	\$ 4,480,587	186,691
Commercial Costs	\$ -	-
Escalation Contingency	\$ 224,029	9,335
Overhead & Profit/GC/Ins. Bond	\$ 1,317,293	54,887
Owner Contingency	\$ 903,286	37,637
<i>Total Hard Costs</i>	\$ 6,925,195	288,550
SOFT COSTS		
Architecture and Engineering	\$ 475,800	19,825
Construction Loan interest and fees	\$ 477,733	19,906
Legal Fees	\$ 120,500	5,021
Reserves	\$ 136,200	5,675
Permits and Fees	\$ 67,989	2,833
Other Soft Costs (Audit, TCAC fees, Appraisal, Syndication Consultant, etc.)	\$ 249,059	10,377
Soft Cost Contingency	\$ 182,845	7,619
Relocation	\$ 411,000	17,125
Developer Fee	\$ 1,366,755	56,948
<i>Total Soft Costs</i>	\$ 3,487,882	145,328
TOTAL DEVELOPMENT COSTS	\$ 12,760,168	\$ 531,674
SURPLUS / (GAP)	\$	(0)

SCOPE OF WORK

1. Existing Building Exteriors:

- a. Replace siding, stucco, and trim; paint;
- b. Replace windows, doors
- c. Replace balconies;
- d. Dry rot repairs;
- e. Add insulation to walls and attics;
- f. Seismic upgrades
- g. Roof renovation
- h. Repair and replace damaged handrails on stairs
- i. Replace elastomeric coating on stairs.
- j. Remove garage doors from tuck under garage parking spaces

2. Unit Reconfiguration:

- a. Convert eight 2-bedrooms into four 1-bedroom units and four 3-bedroom units.
- b. Convert existing office back to a 3-bedroom unit.
- c. Convert 10% of units to accessible units.

3. Existing Building Interiors as specified in Owner's replacement chart:

- a. Replace flooring;
- b. Replace cabinets and countertops;
- c. Replace sinks and toilets;
- d. Replace appliances;
- e. Replace doors and door hardware;
- f. Repaint walls, ceilings and interior trim.

4. Mechanical, Electrical, and Plumbing System Upgrades:

- a. Replace heaters in specified units;
- d. Describe sewer repairs if necessary after review of sewer lateral videos;
- e. Upgrade site lighting and wiring;
- f. Coordinate security system additions (fobs and security cameras)
- g. Energy Code compliance.
- h. Design and provide functional master satellite and cable television distribution system.
- i. Add fire sprinkler system

5. Site Work:

- a. Replace landscaping and planters;
- b. Add community garden;
- c. Replace signage and mailboxes;
- d. Add bike parking;
- e. Parking lot repairs (cracking and damage on concrete-paved driveway); restriping
- f. Carports: replace roof;
- g. Add property gates with door king system.
- h. Build Trash Enclosure
- g. Upgrade accessible path features as needed to existing buildings and new addition.

6. Potential Energy Upgrades

**Eight Trees Phase Two
Scope of Work and Budget**

ATTACHMENT 4

7. New Community Building/Office spaces over Existing Pool Area

A 1,385-square foot, one-story addition will be added to building #2 to provide a multi-purpose room, offices, computer room, kitchen, laundry room, and restroom.

PROJECT BUDGET

Loan Repayment	total	per unit
Loan Repayment	\$ 2,347,092	\$ 97,796
		\$ -
<i>Total Acquisition Costs</i>	<i>\$ 2,347,092</i>	<i>\$ 97,796</i>
HARD COSTS		
Resid. Site Work and Structures	\$ 4,480,587	\$ 186,691
Commercial Costs	\$ -	\$ -
Escalation Contingency	\$ 224,029	\$ 9,335
Overhead & Profit/GC/Ins. Bond	\$ 1,317,293	\$ 54,887
Owner Contingency	\$ 903,286	\$ 37,637
<i>Total Hard Costs</i>	<i>\$ 6,925,195</i>	<i>288,550</i>
SOFT COSTS		
Architecture and Engineering	\$ 475,800	\$ 19,825
Construction Loan interest and fees	\$ 477,733	\$ 19,906
Legal Fees	\$ 120,500	\$ 5,021
Reserves	\$ 136,200	\$ 5,675
Permits and Fees	\$ 67,989	\$ 2,833
Other Soft Costs	\$ 431,904	\$ 17,996
Relocation	\$ 411,000	\$ 17,125
Developer Fee	\$ 1,366,755	\$ 56,948
<i>Total Soft Costs</i>	<i>\$ 3,487,882</i>	<i>145,328</i>
TOTAL DEVELOPMENT COSTS	\$ 12,760,168	\$ 531,674

Outstanding City Loans as of September 20, 2017

Loan Date	Funding Source	Principal	Accrued Interest	Total Balance	Maturity Date	Interest Rate
12/20/2002	HMF	\$ 565,000	\$ 417,016	\$ 982,016	1/1/2033	5%
12/20/2002	HOME	\$ 185,000	\$ 136,545	\$ 321,545	1/1/2033	5%
6/1/2006	CDBG	\$ 400,000	\$ 116,733	\$ 516,733	6/30/2026	5%
8/30/2016	HMF	\$ 600,000	*	\$ 600,000	12/31/2071	3%
Total, Original City Loans		\$ 1,150,000	\$ 670,294	\$ 1,820,294		
Total, All Outstanding City loans		\$ 1,750,000	\$ 670,294	\$ 2,420,294		

* Loan has not yet been fully disbursed. Interest does not accrue for first three years.

Senior Loan (Combs)

Loan Date	Funding Source	Original Principal	Accrued Interest	Pay-off Amount, Jan 2018	Maturity Date	Interest Rate
12/20/2002	Seller Carry-Back	\$ 2,600,000	(amortizing)	\$ 2,347,092	2033	7.5% - 9%

Proposed Debt Restructure

Loan Date*	Funding Source	Principal	Accrued Interest	Total Balance	Maturity Date	Interest Rate
8/30/2016	HMF	\$ 1,165,000	Forgiven	\$ 1,165,000	2073	0%
12/20/2002	HOME	\$ 185,000	Forgiven	\$ 185,000	2073	0%
12/20/2002	CDBG	\$ 400,000	Forgiven	\$ 400,000	2073	0%
1/15/2018	HMF**	\$ 3,300,000	n/a	\$ 3,300,000	2073	0%
Total		\$ 5,050,000	\$ -	\$ 5,050,000		

* HOME & CDBG loan terms may be adjusted by loan amendment; 2002 & 2016 HMF loans may be combined.

** Combs loan will be paid off through new City HMF loan.

Total forgiven interest = \$670,300 accrued to date; plus additional potential accrual through original maturity dates.



City of Sunnyvale

Meeting Minutes - Draft (Excerpt) Housing and Human Services Commission

Wednesday, November 1, 2017

7:00 PM

Council Chambers, City Hall, 456 W. Olive
Ave., Sunnyvale, CA 94086

Special Meeting

- 2 [17-0806](#) Consider New First Mortgage Refinance Loan of \$3.3 Million in Housing Funds to MidPen Housing Corp. and Modification of Outstanding Loans to Finance Phase Two of Eight Trees Apartments Rehabilitation at 183 Acalanes Drive, Sunnyvale

Housing Officer Suzanne Ise gave some historical background on the Eight Trees Apartments property and noted that MidPen staff was also present to answer questions.

MidPen Project Manager, Helen Tong-Ishikawa, provided an overview of requested City financing and loan restructure, and the proposed rehabilitation project.

Commissioners asked questions of staff and MidPen representatives regarding details of the project, funding details, and the tax credit scoring and application process.

Chair Grossman opened and closed the public hearing at 7:44 p.m. noting that there were no requests to speak.

After some discussion, Chair Grossman asked for a motion.

MOTION: Commissioner Gilbert moved and Commissioner Evans seconded the motion to recommend to Council Alternative 1: Approve a new first mortgage refinance loan of \$3.3 million in Housing Mitigation Funds for the Eight Trees Phase Two Project and authorize the City Manager to execute the new first mortgage refinance loan and amendments to the existing City loans to forgive accrued interest and adjust interest rates to 0%, as further described in Attachments 2 and 5 of the report.

The motion carried by the following vote:

Yes: 6 - Chair Grossman
Commissioner Evans
Commissioner Gilbert
Commissioner Hiremath
Commissioner Kwok
Commissioner Stetson

No: 0

Absent: 1 - Vice Chair Singh



City of Sunnyvale

Agenda Item

17-1091

Agenda Date: 11/28/2017

SUBJECT

Adopt Ordinance No. 3128-17 to Amend 19.38.040 (Individual Lockable Storage Space for Multiple-Family Residential) of Chapter 19.38 (Required Facilities) of Title 19 (Zoning) of the Sunnyvale Municipal Code

RECOMMENDATION

Adopt Ordinance No. 3128-17.

ATTACHMENT

1. Ordinance No. 3128-17

ORDINANCE NO. 3128-17

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SUNNYVALE TO AMEND 19.38.040 (INDIVIDUAL LOCKABLE STORAGE SPACE FOR MULTIPLE-FAMILY RESIDENTIAL) OF CHAPTER 19.38 (REQUIRED FACILITIES) OF TITLE 19 (ZONING) OF THE SUNNYVALE MUNICIPAL CODE

THE CITY COUNCIL OF THE CITY OF SUNNYVALE DOES ORDAIN AS FOLLOWS:

SECTION 1. SECTION 19.38.040 AMENDED. Section 19.38.040 of Chapter 19.38 (Required Facilities) of Title 19 (Zoning) of the Sunnyvale Municipal Code is hereby amended to read as follows:

Section 19.38.040. Individual lockable storage space for multiple-family residential.

(a)-(e) [Text unchanged]

(f) **Location.** The storage space may be accessible from inside or outside the dwelling unit such as a patio, deck, balcony, interior or exterior hallway, interior room or separate structure. If storage space is attached to a bedroom it must be in addition to a bedroom closet. Required storage space shall not be located in an attic. A two-car garage meeting the minimum area and dimensions shall satisfy the lockable storage requirement.

(g) [Text unchanged]

SECTION 2. CEQA - EXEMPTION. The City Council finds, pursuant to Title 14 of the California Code of Regulations, Section 15061(b)(3), that this ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) in that it is not a Project which has the potential for causing a significant effect on the environment.

SECTION 3. CONSTITUTIONALITY; SEVERABILITY. If any section, subsection, sentence, clause or phrase of this ordinance is for any reason held to be invalid, such decision or decisions shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance, and each section, subsection, sentence, clause and phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid.

SECTION 4. EFFECTIVE DATE. This ordinance shall be in full force and effect thirty (30) days from and after the date of its adoption.

SECTION 5. POSTING AND PUBLICATION. The City Clerk is directed to cause copies of this ordinance to be posted in three (3) prominent places in the City of Sunnyvale and to cause publication once in The Sun, the official publication of legal notices of the City of Sunnyvale, of a notice setting forth the date of adoption, the title of this ordinance, and a list of places where copies of this ordinance are posted, within fifteen (15) days after adoption of this ordinance.

Introduced at a regular meeting of the City Council held on November 7, 2017, and adopted as an ordinance of the City of Sunnyvale at a regular meeting of the City Council held on _____, 2017, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

RECUSAL:

ATTEST:

APPROVED:

City Clerk

Date of Attestation: _____

Mayor

(SEAL)

APPROVED AS TO FORM:

City Attorney



City of Sunnyvale

Agenda Item

17-1092

Agenda Date: 11/28/2017

SUBJECT

Adopt Ordinance No. 3129-17 to Amend Sections 19.92.050 (General Plan Amendment Proceedings) and 19.92.060 (Zoning Amendment Proceedings) of Chapter 19.92 (General Plan and Zoning Amendments) of Title 19 (Zoning) of the Sunnyvale Municipal Code

RECOMMENDATION

Adopt Ordinance No. 3129-17.

ATTACHMENT

1. Ordinance No. 3129-17

ORDINANCE NO. 3129-17

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY
OF SUNNYVALE TO AMEND SECTIONS 19.92.050
(GENERAL PLAN AMENDMENT PROCEEDINGS) AND
19.92.060 (ZONING AMENDMENT PROCEEDINGS) OF
CHAPTER 19.92 (GENERAL PLAN AND ZONING
AMENDMENTS) OF TITLE 19 (ZONING) OF THE
SUNNYVALE MUNICIPAL CODE

THE CITY COUNCIL OF THE CITY OF SUNNYVALE DOES ORDAIN AS
FOLLOWS:

SECTION 1. SECTION 19.92.050 AMENDED. Section 19.92.050 of Chapter 19.92 (General Plan and Zoning Amendments) of Title 19 (Zoning) of the Sunnyvale Municipal Code is hereby amended to read as follows:

Section 19.92.050. General plan amendment proceedings.

(a)-(b) [Text unchanged]

(c) Planning Commission Recommendation. Following a public hearing, the planning commission shall make a recommendation on the general plan amendment. A recommendation for approval shall be by the affirmative vote of a majority of its members and based on Section 19.92.080 (Finding). In the event the vote is tied or lacks the majority required to recommend either approval or denial, and cannot be resolved by subsequent motions, the vote shall be deemed a recommendation for denial.

(d) [Text unchanged]

SECTION 2. SECTION 19.92.060 AMENDED. Section 19.92.060 of Chapter 19.92 (Zoning Amendment Proceedings) of Title 19 (Zoning) of the Sunnyvale Municipal Code is hereby amended to read as follows:

Section 19.92.060. Zoning amendment proceedings.

(a)-(c) [Text unchanged]

(d) Planning Commission Recommendation. Following a public hearing, the planning commission shall make a recommendation on the zoning amendment. A recommendation for approval shall be by the affirmative vote of a majority of its members and based on Section 19.92.080 (Finding). In the event the vote is tied or lacks the majority required to recommend either approval or denial, and cannot be resolved by subsequent motions, the vote shall be deemed a recommendation for denial.

(e) [Text unchanged]

SECTION 3. CEQA - EXEMPTION. The City Council finds, pursuant to Title 14 of the California Code of Regulations, Section 15061(b)(3), that this ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) in that it is not a Project which has the potential for causing a significant effect on the environment.

SECTION 4. CONSTITUTIONALITY; SEVERABILITY. If any section, subsection, sentence, clause or phrase of this ordinance is for any reason held to be invalid, such decision or decisions shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance, and each section, subsection, sentence, clause and phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid.

SECTION 5. EFFECTIVE DATE. This ordinance shall be in full force and effect thirty (30) days from and after the date of its adoption.

SECTION 6. POSTING AND PUBLICATION. The City Clerk is directed to cause copies of this ordinance to be posted in three (3) prominent places in the City of Sunnyvale and to cause publication once in The Sun, the official publication of legal notices of the City of Sunnyvale, of a notice setting forth the date of adoption, the title of this ordinance, and a list of places where copies of this ordinance are posted, within fifteen (15) days after adoption of this ordinance.

Introduced at a regular meeting of the City Council held on November 7, 2017, and adopted as an ordinance of the City of Sunnyvale at a regular meeting of the City Council held on _____, 2017, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

RECUSAL:

ATTEST:

APPROVED:

City Clerk

Date of Attestation: _____

Mayor

(SEAL)

APPROVED AS TO FORM:

City Attorney



City of Sunnyvale

Agenda Item

17-0240

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Appoint an Applicant to the Board of Building Code Appeals

DISCUSSION

The City has ten Council-appointed boards and commissions to recommend and advise City Council on specific policy-related issues for possible Council study and action, and to provide a forum and opportunity for broad community participation in the identification and prioritization of those issues. The term length for boards and commissions is four years, with staggered terms expiring June 30 of each year. Council makes appointments annually in May/June to fill seats with expiring terms to serve terms effective July 1, and fills vacancies as necessary quarterly throughout the year. The current vacancy is for an unexpired term on the Board of Building Code Appeals due to a resignation, and the applicants are listed below:

Board of Building Code Appeals (1 term to 6/30/2019)

Marc Ketzel

Andrew LaManque

The term will be effective November 29, 2017. Following appointment, the new member is required to take the Oath of Office, sign the Model of Excellence and attend the Board and Commission Orientation hosted by the Office of the City Clerk. A ceremonial oath will be offered to the incoming member.

Per Council Policy 7.2.19, *Boards and Commissions* appointments of board and commission members are placed on the City Council meeting agenda. The appointment process is conducted according to one of the following two methods, at the discretion of the Mayor:

Individual Candidate Votes: The Mayor will announce by board or commission each vacancy including its term, and then will read each applicant's name. Council will vote on each applicant. The candidate receiving the most affirmative votes and at least four affirmative votes will be appointed. The process is repeated for each board or commission.

Paper Votes: The Mayor will announce each board or commission in an order predetermined by the City Clerk to facilitate a speedy process and to accommodate applicants who specify multiple preferences. The City Clerk will distribute individual voting sheets to be completed by each Councilmember. The candidate receiving the most votes and at least four affirmative votes will be appointed.

Resolving ties: Should a tie between the candidates receiving the most affirmative votes occur, the affected applicants will be voted on again. If a tie remains, and the affected applicants each have

received at least four affirmative votes, the Mayor would ask the city attorney to draw the name of the person to be appointed.

Should no candidate receive at least four affirmative votes, the vacancy will remain.

EXISTING POLICY

Council Policy 7.2.19 *Boards and Commissions*, Section 2.D provides that the appointments may be conducted by either individual candidate votes or paper votes, at the discretion of the Mayor.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

ALTERNATIVES

1. Appoint a board member from the applicants listed in this report.
2. Provide other direction to staff on how to proceed.

STAFF RECOMMENDATION

Staff makes no recommendation.

Prepared by: Lisa Natusch, Deputy City Clerk

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager



City of Sunnyvale

Agenda Item

17-0988

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Approve the Purchase and Sale Agreement for 1050 Innovation Way and 1060 Innovation Way, Sunnyvale (A Portion of Former Onizuka Air Force Station) and Approve Budget Modification No. 22

BACKGROUND

On February 7, 2017, Council considered RTC No.16-0664, which provided background, history and possible options for the sale of 1050 and 1060 Innovation Way property (the "Onizuka Property"). Council authorized staff to proceed with a Request for Proposal (RFP) for real estate broker services for the sale of the property on the open market. The services also included determining the benefits and risks associated with increasing the density, which requires going through a planning process, and the possible concerns with extending the timeline of the sale in order to increase the density.

On April 25, 2017, Council authorized the City Manager to execute an agreement with Kimley, Horn and Associates not to exceed \$200,000 to complete the environmental document to amend the Moffett Park Specific Plan (MPSP) and rezone 1050 & 1060 Innovation Way. The purpose of the amendment to the Moffett Park Specific Plan was to look at removing the restriction on the use of the development reserve with the current zoning of Moffett Park Industrial zoning district (MP-I) and examine amending the land use designation and zoning to Moffett Park-Transit Oriented Development zoning district (MP-TOD). MP-I has a base zoning of 35% Floor Area Ratio (FAR) with potential for 50% and 60% FAR, based on green building achievements. MP-TOD has a base zoning of 50% FAR with potential for 70% and 80% FAR, based on green building levels. (RTC No. 17-0365).

On May 9, 2017, Council authorized the City Manager to execute an agreement for real estate brokerage services with Cushman & Wakefield. Cushman & Wakefield completed an analysis to maximize the City's benefit from the sale and provide answers as to whether the Onizuka Property should be sold with FAR 35%, or the City should initiate an amendment to the MPSP to increase density. After conducting a comparative analysis of 66 land sales considering density verses sales price, Cushman and Wakefield recommended that it was in the City's best interest to sell the property with its current FAR in an as-is condition. This is because higher density triggers higher construction costs, thus making the increase in the sales price of higher density properties insignificant considering the time it takes to go through the planning process to increase density. Therefore, the environmental work by Kimley, Horn and Associates was ceased.

EXISTING POLICY

Council Policy 1.2.7 Acquisition, Leasing and Disposition of City-Owned Real Property Section 3: Disposing of surplus property shall be done in a manner to maximize the benefit to the community and should be done whenever real estate market conditions are favorable to the City.

Section 3.D: The City may use any of the following methods or combination thereof to maximize the benefit to the community. Methods of disposition should be determined on a case-by-case basis and may include:

- Auction
- Negotiated Sale
- Exchange
- Lease
- Request for Proposal

Discounts will not be negotiated unless an extraordinary need or circumstance is recognized by the City Council prior to negotiation, setting forth the amount of the discount and the justification for it. The purpose of this requirement is to demonstrate to the community that the City is not making a gift of public assets.

Section 3.E: Costs associated with the disposition of property shall come from proceeds of the sale or charged to the fund which owns the property. Unless otherwise directed by the City Council, net proceeds from disposition of surplus property owned by the General Fund shall be placed into the General Fund Reserve for Capital Improvements. Proceeds from the sale of land or facilities originally purchased with monies from a specific fund shall be returned to that fund, except when a fund no longer exists, it will be at the direction of City Council.

Council Policy 7.1E Reserve Policies, Policy E.1.2: The sale of surplus property owned by the General Fund and any other one-time revenues shall be placed in a Reserve for Capital Improvement Projects to be used for capital improvement or expansion.

Pursuant to Sunnyvale Charter Section 1305, at any meeting after the adoption of the budget, the City Council may amend or supplement the budget by motion adopted by affirmative votes of at least four members so as to authorize the transfer of unused balances appropriated for one purpose to another, or to appropriate available revenue not included in the budget.

ENVIRONMENTAL REVIEW

Approving a Purchase and Sale Agreement for the disposition of City-owned real property does not constitute a "project" within the meaning of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines section 15378(a) as it has no potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. Any future development shall be subject to the CEQA requirements.

DISCUSSION

The Onizuka Property totals about 5.01 acres. As per the MPSP, the Onizuka Property is zoned as MP-I with a maximum FAR of 35%. An appraisal report completed in March 2017 estimated the value at \$20,000,000 assuming the FAR can be increased to the range of 50% to 60%. The Onizuka Property was offered on the open market for sale as-is by an Offering Memorandum completed by Cushman & Wakefield on September 5, 2017. The Offering Memorandum was advertised in the Co-star from September 14 until September 21. Also a list of 68 targeted potential buyers, including some of the large developers that are currently active in the local market, were contacted by the broker as well as Foothill De Anza College. The City received 4 offers from 4 different proposers which included (listed in random order):

1. Google LLC
2. Four Corner Properties
3. Grupo SEB DBA Concept Silicon Valley LLC
4. An entity to be formed by the Jay Paul Company

All proposals were similar in terms with purchase prices ranging from \$17,000,000 to \$20,000,000. On September 26 during closed session, staff was directed to go back to all four proposers and ask them to submit final offers. All four proposers submitted updated offers with purchase prices ranging from \$19,050,000 to \$21,000,000. In Closed Session on October 3, 2017, staff was directed to commence negotiations with the highest bidder, Google LLC. A Purchase and Sale Agreement between the City of Sunnyvale and Google LLC has been drafted for Council consideration (Attachment 1).

Summary of Terms and conditions:

- Purchase price is \$21,000,000 and will be sold in “as is” condition.
- A deposit of \$600,000 will be received five days after the signing of the Purchase and Sale agreement by both parties.
- An additional deposit of \$600,000 will be paid following the expiry of the due diligence period on December 5, 2017.
- Closing and final payment of \$19,800,000 will be delivered to the City within 15 to 60 days following the expiry of the due diligence period.

FISCAL IMPACT

Completing the sale will eliminate expenses associated with security and maintenance for the property. Longer term redevelopment of the property by the buyer will result in higher property tax and business tax revenues to the City.

Proceeds from the sale was assumed in the FY2016/17 Adopted Budget at an estimate of \$20,000,000 to be allocated to the General Fund Capital Improvements Project Reserve. Since this sale is recommended to occur in FY 2017/18, Budget Modification No. 22 is recommended to reflect the sale proposed in this memorandum in the current fiscal year. Funding in the General Fund - Capital Improvements Projects Reserve is allocated for use on future capital projects consistent with Council Policy. It is important to note that as part of the funding discussions for the Civic Center Modernization Project, the Onizuka sale was included as a potential funding source for Civic Center improvements.

Budget Modification No. 22 FY 2017/18

	Current	Increase/ (Decrease)	Revised
General Fund			
<u>Reserves</u>			
Fund Balance, July 1	\$139,707,033	(\$20,000,000)	\$119,707,033
<u>Revenue</u>			
Sale of Property	\$0	\$21,000,000	\$21,000,000

Reserves

Capital Improvement Projects	\$41,039,649	\$1,000,000	\$42,039,649
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PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

ALTERNATIVES

1. Authorize the City Manager to execute the Purchase and Sale Agreement between the City of Sunnyvale and Google LLC, in substantially the same form as Attachment 1, for the sale of the Onizuka Property and approve Budget Modification No. 22 in the amount of \$1,000,000.
2. Do not authorize the City Manager to execute the Purchase and Sale Agreement between the City of Sunnyvale and Google LLC and authorize staff to market the property for sale again and do not approve Budget Modification No. 22 in the amount of \$1,000,000.
3. Direct Staff to resume negotiations with Google LLC regarding different terms in the Purchase and Sale Agreement as determined by Council and do not approve Budget Modification No. 22 in the amount of \$1,000,000.

STAFF RECOMMENDATION

Alternative 1: Authorize the City Manager to execute the Purchase and Sale Agreement between the City of Sunnyvale and Google LLC, in substantially the same form as Attachment 1 to the report, for the sale of the Onizuka Property and approve Budget Modification No. 22 in the amount of \$1,000,000.

Prepared by: Sherine Nafie, City Property Administrator
Reviewed by: Craig Mobeck, Interim Director, Public Works
Reviewed by: Timothy J. Kirby, Director of Finance
Reviewed by: John Nagel, City Attorney
Reviewed by: Teri Silva, Interim Assistant City Manager
Approved by: Kent Steffens, Interim City Manager

ATTACHMENT

1. Purchase and Sale Agreement with Google LLC for 1050 and 1060 Innovation Way, Sunnyvale California

PURCHASE AND SALE AGREEMENT
Innovation Way, Sunnyvale, California

THIS PURCHASE AND SALE AGREEMENT (this “**Agreement**”) is dated as of the Effective Date (as defined below), by and between the CITY OF SUNNYVALE, a California municipal corporation (the “**Seller**”), and GOOGLE LLC, a Delaware limited liability company or its assignee (the “**Buyer**”), collectively referred to as “the Parties”. The date this Agreement is executed by the last of Buyer and Seller shall be the “**Effective Date**” hereof.

IN CONSIDERATION of the respective agreements hereinafter set forth, Seller and Buyer agree as follows:

1. Property Included in Sale. Seller hereby agrees to sell and convey to Buyer, and Buyer hereby agrees to purchase from Seller, subject to the terms and conditions set forth herein, the following:

(a) Real Property. All that certain real property consisting of approximately 5.01 gross acres of land located in the City of Sunnyvale, County of Santa Clara, State of California, as more particularly described in Exhibit A attached hereto (the “**Real Property**”);

(b) Appurtenances. All rights, privileges, easements and rights-of-ways appurtenant to, or used in connection with the beneficial use and enjoyment of, the Real Property (collectively, the “**Appurtenances**”), including, without limitation, (i) all easements, rights of way, privileges, licenses, rights, benefits, tenements and appurtenances pertaining to the Real Property; (ii) any strips or gores of land adjoining the Real Property; (iii) any land lying in or under the bed of any street, alley, road or right-of-way open or proposed, abutting or adjacent to the Real Property, (iv) riparian rights, and rights of ingress or egress or other interests in, on or to any land, highway, street, road or avenue, open or proposed in, on, across, in front of abutting or adjoining the Real Property, and (v) mineral, oil, gas and similar estates and rights;

(c) Improvements. All improvements and fixtures located on the Real Property, excluding any fixtures owned by tenants or leased by Seller from third parties, but including any structures presently located on the Real Property, and all apparatus, equipment and appliances (if any) owned by Seller and used in connection with the ownership, use, operation or occupancy of the Real Property (collectively, the “**Improvements**”), including without limitation, the satellite dish and related appurtenances currently located at the Property (collectively, the “**Satellite Dish**”);

(d) Intangible Property. All right, title and interest of Seller in and to any intangible personal property now or hereafter owned by Seller and used exclusively in the ownership, use and operation of the Real Property and Improvements, in each case only to the extent assignable, including the right to use any trade name now used in connection with the Real Property, and all certificates, permits, approvals and development rights, entitlements, plans and specifications related to the Real Property and Improvements, if any, and any contract or lease rights, agreements, utility contracts or other rights relating to the ownership, use and operation of the Property (as defined below) (collectively, the “**Intangible Property**”); and

All of the items referred to in Sections 1(a), 1(b), 1(c) and 1(d) above are hereinafter collectively referred to as the “**Property**.”

2. Purchase Price.

(a) Purchase Price. The purchase price for the Property is Twenty-One Million Dollars (\$21,000,000) (the “**Purchase Price**”).

(b) Payment of Purchase Price. The Purchase Price shall be paid as follows:

(i) Deposit. Within five (5) Business Days after the Effective Date, Buyer shall deposit in escrow with First American Title Insurance Company with an address of 1737 North First Street, Suite 500, San Jose, California 95112; Attn: Mike Hickey (email mhickey@firstam.com) (“**Escrow Holder**”), an initial deposit in the amount of Six Hundred Thousand Dollars (\$600,000) (the “**Initial Deposit**”). If Buyer elects to proceed with the purchase of the Property pursuant to Section 4(f) below, Buyer shall, within five (5) Business Days following the expiration of the Due Diligence Period (as defined below), deposit an additional amount of Six Hundred Thousand Dollars (\$600,000) (the “**Additional Deposit**”), and the Initial Deposit and Additional Deposit shall collectively be defined herein as the “**Deposit**” and shall thereafter be fully non-refundable other than in the event of the failure of a condition precedent benefiting Buyer beyond any appreciable cure period, Seller’s default hereunder, or as otherwise provided in this Agreement. All sums constituting the Deposit shall be held in an interest-bearing account as directed by Buyer, and interest accruing thereon shall be held for the account of Buyer. If the sale of the Property as contemplated hereunder is consummated, the Deposit plus interest accrued thereon shall be credited against the Purchase Price. If the sale of the Property is not consummated for any reason other than Buyer’s default hereunder, beyond any applicable notice and cure period, then the Deposit plus interest accrued thereon shall immediately be returned to Buyer. If the sale is not consummated because of Buyer’s default hereunder, the Deposit shall be paid to and retained by Seller as liquidated damages and Seller’s sole and exclusive remedy.

THE PARTIES HAVE AGREED THAT SELLER'S ACTUAL DAMAGES, IN THE EVENT OF A FAILURE TO CONSUMMATE THIS SALE BECAUSE OF A BUYER DEFAULT WOULD BE EXTREMELY DIFFICULT OR IMPRACTICABLE TO DETERMINE. AFTER NEGOTIATION, THE PARTIES HAVE AGREED THAT, CONSIDERING ALL THE CIRCUMSTANCES EXISTING ON THE DATE OF THIS AGREEMENT, THE AMOUNT OF THE DEPOSIT IS A REASONABLE ESTIMATE OF THE DAMAGES THAT SELLER WOULD INCUR IN SUCH EVENT; PROVIDED, HOWEVER, THAT THIS PROVISION WILL NOT LIMIT SELLER'S RIGHT TO RECEIVE REIMBURSEMENT FOR ATTORNEYS' FEES NOR SELLER'S RIGHTS TO BUYER'S EXPRESS INDEMNITY OBLIGATIONS UNDER THIS AGREEMENT. THE PAYMENT OF SUCH AMOUNT IS NOT INTENDED AS A FORFEITURE OR PENALTY, BUT IS INTENDED TO CONSTITUTE LIQUIDATED DAMAGES TO SELLER PURSUANT TO CALIFORNIA CIVIL CODE §§1671, 1676 AND 1677. SELLER HEREBY WAIVES THE PROVISIONS OF CALIFORNIA CIVIL CODE §3389. BY PLACING ITS INITIALS BELOW, EACH PARTY SPECIFICALLY CONFIRMS THE ACCURACY OF THE STATEMENTS MADE ABOVE AND THE FACT THAT EACH PARTY WAS REPRESENTED BY COUNSEL WHO EXPLAINED, AT THE TIME THIS AGREEMENT WAS MADE, THE CONSEQUENCES OF THIS LIQUIDATED DAMAGES PROVISION. NOTWITHSTANDING ANYTHING IN THIS AGREEMENT TO THE CONTRARY, BUYER SHALL NOT BE IN DEFAULT WITH RESPECT TO ANY OF ITS OBLIGATIONS HEREUNDER (OTHER THAN ANY MONETARY OBLIGATIONS OF BUYER HEREUNDER) UNLESS AND UNTIL BUYER RECEIVES NOTICE FROM SELLER SPECIFYING SUCH DEFAULT AND BUYER FAILS TO CURE SUCH DEFAULT WITHIN FIVE (5) DAYS AFTER

RECEIPT OF SUCH NOTICE. FURTHER, NOTWITHSTANDING ANYTHING IN THIS AGREEMENT TO THE CONTRARY, IF SELLER OBTAINS ACTUAL KNOWLEDGE, PRIOR TO THE CLOSE OF ESCROW, THAT BUYER HAS BREACHED ANY COVENANT HEREUNDER (UNLESS SUCH BREACH RESULTED FROM BUYER'S WILLFUL ACTS), IF SELLER NONETHELESS ELECTS TO PROCEED TO THE CLOSE OF ESCROW, THEN ANY SUCH BREACH SHALL BE DEEMED WAIVED FOR PURPOSES HEREO. NOTWITHSTANDING ANYTHING TO THE CONTRARY SET FORTH IN THIS AGREEMENT, IN NO EVENT WHATSOEVER WILL EITHER BUYER OR SELLER BE ENTITLED TO RECOVER FROM THE OTHER ANY PUNITIVE, CONSEQUENTIAL OR SPECULATIVE DAMAGES.

INITIALS: Seller _____ Buyer _____

(ii) Balance of Purchase Price. At the Closing, the balance of the Purchase Price shall be paid to Seller in cash. Said cash sum shall be reduced by the amount of the Deposit plus accrued interest thereon (which shall be released by Escrow Holder to Seller at Closing) and by any credits due Buyer hereunder.

(iii) Independent Consideration. The Deposit being delivered by Buyer includes the amount of One Hundred No/100 Dollars (\$100.00) as independent consideration for Seller's performance under this Agreement ("**Independent Consideration**"), which shall be retained by Seller in all instances. If the Closing occurs or if this Agreement is terminated for any reason, then Escrow Holder shall first disburse to Seller from the Deposit, the Independent Consideration. The Independent Consideration shall be nonrefundable under all circumstances and shall not be applied to the Purchase Price at Closing. The Independent Consideration, plus Buyer's agreement to pay the costs provided in this Agreement, has been bargained for as consideration for Seller's execution and delivery of this Agreement and for Buyer's review, inspection and termination rights during the Due Diligence Period, and such consideration is adequate for all purposes under any applicable law or judicial decision.

3. Title to the Property.

(a) Title Policy. At the Closing, Seller shall convey to Buyer marketable and insurable fee simple title to the Property, by duly executed and acknowledged grant deed in the form attached hereto as **Exhibit B** (the "**Deed**"). Evidence of delivery of marketable and insurable fee simple title shall be the issuance by First American Title Insurance Company (the "**Title Company**") of an Extended Coverage Owner's Policy of Title Insurance, in the full amount of the Purchase Price, insuring fee simple title to the Property in Buyer, subject only to the following:

- (i) the Title Company's standard printed exceptions;
- (ii) zoning ordinances and regulations and other laws or regulations governing the Property;
- (iii) such other exceptions listed in the Title Report and approved or deemed approved by Buyer pursuant to Section 4(a) below, but excluding the **Excluded Exceptions** (as defined below);
- (iv) matters affecting title created by Buyer;
- (v) liens to secure taxes and assessments not yet due and payable; and

- (vi) matters that would be revealed by a current survey.

All such exceptions listed in Sections 3(a)(i) through (vii) are defined herein as the “**Permitted Exceptions**,” and the title policy described in this Section 3 is defined herein as the “**Title Policy**”. Notwithstanding the foregoing, (i) deeds of trust and/or mortgages, mechanic’s liens or other monetary liens or encumbrances on the Property (collectively, “**Liens**”), (ii) property taxes and assessments that may become delinquent prior to Closing, and (iii) exceptions or encumbrances to title which are created by Seller after the date of this Agreement (collectively, “**Excluded Exceptions**”) shall not be Permitted Exceptions hereunder, whether Buyer gives written notice of such or not, and shall be paid off, satisfied, discharged, cured and/or removed by Seller at or before Closing, the same being a condition precedent for the benefit of Buyer hereunder. Buyer may elect at Closing to effect cure of any Excluded Exceptions not cured by Seller by payment, from the proceeds otherwise constituting the Purchase Price, of amounts required to satisfy and cure such Excluded Exceptions.

4. Due Diligence Inspection.

(a) Title and Survey Review. Buyer’s obligation to purchase the Property is conditioned upon Buyer’s review and approval, in Buyer’s sole discretion, of title to the Property as follows:

(i) Title Review Documents. Within five (5) Business Days following the Effective Date, Buyer shall obtain from the Title Company a current preliminary title report on the Real Property (the “**Title Report**”), together with copies of the documents referred to in the Title Report. At the time of delivery of the Due Diligence Items (as defined below), Seller shall deliver to Buyer a copy of any existing survey of the Real Property and Improvements currently in the possession or control of Seller (any such survey being defined as the “**Existing Survey**”) or, if no Existing Survey exists, Seller shall so notify Buyer in writing. Seller shall not be required to obtain any additional survey, or any update, recertification or revision to the Existing Survey (if any). At Buyer’s option and sole cost, Buyer may obtain a recertification, revision or update to the Existing Survey (if any), or a new survey of the Property and Improvements by a licensed surveyor or civil engineer, containing such information as may be required to provide the basis for the Title Policy (any such recertified, revised, updated or new survey, the “**Updated Survey**”).

(ii) Title Review Procedure.

(A) Title Objection Period. Buyer shall advise Seller, not later than five (5) days prior to the expiration of the Due Diligence Period (the “**Title Objection Period**”), what exceptions to title will be accepted by Buyer. If Buyer elects at its sole option to obtain an Updated Survey, the Title Objection Period shall be extended with respect to any title exceptions which relate to the Updated Survey (the “**Survey-Related Exceptions**”) such that Buyer shall have until the earlier of two (2) Business Days after actual receipt of the Updated Survey or one (1) Business Day prior to expiration of the Due Diligence Period (the “**Survey Review Period**”) to review and approve or disapprove the Updated Survey and all Survey-Related Exceptions, provided, however that (i) prior to expiration of the scheduled Title Objection Period, Buyer shall provide Seller with a list of title exceptions that will require review of the Updated Survey in order to determine whether they are acceptable, (ii) Buyer shall provide Seller with a copy of the Updated Survey promptly upon its receipt, (iii) Buyer shall use commercially reasonable efforts to obtain the Updated Survey as soon as possible, and (iv) Buyer shall advise Seller what Survey-Related Exceptions will be accepted by Buyer prior to

expiration of the Survey Review Period. Buyer's failure to notify Seller of any objections to title exceptions shall, upon expiration of the Title Objection Period (as it may be extended), constitute Buyer's approval of the Title Report and all exceptions (other than any Excluded Exceptions) and of the condition of title to the Property, and of all matters revealed by the Existing Survey and any Updated Survey.

(B) Seller's Response. Seller shall have until the earlier of three (3) Business Days after receipt of Buyer's objections to title matters and one (1) Business Day prior to expiration of the Due Diligence Period (as such date may be extended with respect to Survey-Related Exceptions) to give Buyer notice: (x) that Seller will remove any objectionable exceptions from title and provide Buyer with evidence satisfactory to Buyer of such removal, or provide Buyer with evidence satisfactory to Buyer that said exceptions will be removed on or before the Closing; or (y) that Seller elects not to cause such exceptions to be removed.

(C) Buyer's Termination Option. If Seller gives Buyer notice under clause (y) in Section 4(a)(ii)(B) above, Buyer shall have until the later of (i) the end of the Due Diligence Period or (ii) three (3) Business Days after receipt of Seller's response with respect to any Survey-Related Exceptions to elect to proceed with the purchase and take the Property subject to such exceptions, or to terminate this Agreement. If Buyer fails to give Seller notice of its election prior to the date specified in the preceding sentence, Buyer shall be deemed to have approved the condition of title to the Property, including without limitation any Survey-Related Exceptions, but subject to Seller's obligations with respect to any Excluded Exceptions. If Seller gives notice pursuant to clause (x) in Section 4(a)(ii)(B) above and fails to remove any such objectionable exceptions that Seller has committed to remove from title prior to the Closing Date (as defined below), and Buyer is unwilling to take title subject thereto, such failure shall be deemed a Seller default if not cured by Seller within five (5) days after receipt of written notice from Buyer and, in addition to the other remedies set forth in this Agreement, Buyer may elect to terminate this Agreement and recover Buyer's Costs (as defined in Section 12(a)). If Buyer elects to terminate this Agreement pursuant to this Section 4(a), the Deposit and interest accrued thereon shall be returned to Buyer, and neither party shall have any further liability or obligations hereunder, except for Buyer's indemnification obligations hereunder that expressly state they will survive termination of this Agreement.

(D) Title Update or Supplement. Other than in connection with any Survey-Related Exceptions, which are addressed above, if any supplemental title report or update issued subsequent to the date of the original Title Report discloses any adverse matters not set forth on the original Title Report, then, no later than the later of (i) the expiration of the Title Objection Period, or (ii) three (3) Business Days after Buyer's receipt of such updated Title Report, Buyer shall have the right to object to any such matter, in which event the same procedures for response, termination and waiver set forth above in Section 4(a)(ii) including, without limitation, Seller's obligations with respect to the Excluded Exceptions, shall apply to such new objections, with Closing and all other dates set forth for performance of the parties' obligations hereunder adjusted accordingly.

(b) Due Diligence Review. Buyer's obligation to purchase the Property is conditioned upon Buyer's review and approval, prior to the expiration of the Due Diligence Period and in Buyer's sole discretion, of all matters pertaining to the physical, structural, electrical, mechanical, soil, drainage, environmental, economic, tenancy, zoning, land use and other governmental compliance matters

and conditions respecting the Property, including without limitation the Due Diligence Items (as defined below), all as provided in this Section 4(b). Within two (2) days following the Effective Date, Seller shall provide Buyer with the items listed on Exhibit D attached hereto (the “**Due Diligence Items**”). All references herein to the “**Due Diligence Period**” shall refer to the period which begins upon execution of this Agreement and ends at 6:00 p.m. Pacific Time on December 5, 2017, subject to extension pursuant to Section 4(a)(ii)(A) (with respect to Survey-Related Exceptions only) and/or Section 4(d) (with respect to the Phase II Report only). All references herein to the “**Due Diligence Contingency**” shall refer to the conditions benefiting Buyer that are described in Section 4(a) and this Section 4(b). In addition to the Due Diligence Items, Seller shall make available to Buyer at Seller’s offices located in Sunnyvale, California during the Due Diligence Period, upon reasonable prior notice and during normal business hours, any and all records and correspondence in Seller’s possession or control related to the Property (the “**Property Files**”). Buyer expressly agrees that Seller is furnishing the Due Diligence Items to Buyer and providing Buyer with access to the Property Files for informational purposes only and without representation or warranty as to the accuracy or completeness of the contents of such materials except as expressly provided in this Agreement.

(c) Entry. During the Due Diligence Period, Seller shall provide Buyer with reasonable access to the Property in accordance with the terms and conditions of this Section 4(c) in order for Buyer to investigate the Property and the physical conditions thereof, including without limitation such environmental, engineering and economic feasibility inspections and testing as Buyer may elect. Such access, investigation, inspections and tests shall be on the following terms and conditions:

(i) Buyer shall pay for all inspections and tests ordered by Buyer.

(ii) In connection with any entry by Buyer or its agents, employees or contractors onto the Property, Buyer shall give Seller reasonable advance notice of such entry. Without limiting the foregoing, prior to any entry to perform any on-site testing (including drilling, extracting soil samples and other invasive testing), Buyer shall give Seller written notice thereof, including the identity of the company or persons who will perform such testing and the proposed scope of the testing. Seller or its representative may, at Seller’s option, be present to observe any testing or other inspection performed on the Property.

(iii) Buyer shall maintain, and shall assure that its contractors maintain, public liability and property damage insurance in amounts and in form and substance consistent with the requirements agreed upon by the Parties in Section 6 of the Right of Entry and Access Agreement dated October 25, 2017, and adequate to insure against all liability of Buyer and its agents, employees or contractors arising out of any entry or inspections of the Property pursuant to the provisions hereof, and Buyer shall provide Seller with evidence of such insurance coverage upon request by Seller.

(iv) Buyer shall repair any damage to the Property caused by Buyer’s entry or testing and restore the Property to its condition prior to such testing, at Buyer’s sole cost and expense if this transaction does not close. Until restoration is complete, Buyer will take commercially reasonable steps to cause any conditions on the Property created by Buyer’s testing to not create any dangerous conditions on the Property. The foregoing covenant shall survive any termination of this Agreement.

(v) Buyer shall indemnify and hold Seller harmless from and against any costs, damages, liabilities, losses, expenses, liens or claims (including, without limitation, reasonable attorneys’ fees) resulting from any entry on the Property by Buyer, its agents, employees or contractors in the course of performing the inspections, tests or inquiries

provided for in this Agreement (but not including any claims resulting from the discovery or disclosure of pre-existing physical or environmental conditions or the non-negligent aggravation of pre-existing physical or environmental conditions on, in, under or about the Property). The foregoing indemnity shall survive the termination of this Agreement.

(d) Phase II Review. If Buyer elects in its sole discretion to obtain a Phase II Environmental Report with respect to the Property (the “**Phase II Report**”), the Due Diligence Period shall be extended with respect to any matters to be investigated and/or that are revealed by the Phase II Report, such that Buyer shall have until five (5) Business Days after actual receipt of the Phase II Report (the “**Phase II Review Period**”) to review and approve or disapprove the Phase II Report and all matters revealed by the Phase II Report; provided, however, that (i) within two (2) Business Days after receipt of a current Phase I Environmental Report with respect to the Property (which Buyer will order promptly following the Effective Date) Buyer shall notify Seller of Buyer's election to obtain a Phase II Report and shall order the Phase II Report, (ii) Buyer shall provide Seller with a list of matters to be investigated as part of the Phase II Report, (iii) Buyer shall provide Seller with a copy of the Phase II Report promptly upon its receipt, (iv) Buyer shall use commercially reasonable efforts to obtain the Phase II Report as soon as possible, and (v) Buyer shall advise Seller whether Buyer approves the Phase II Report and all environmental matters related to the Property prior to expiration of the Phase II Review Period.

(e) Service Contracts. Copies of all service contracts and other contracts and agreements (if any) currently in effect, relating to the ownership, operation and maintenance of the Property and entered into by Seller (collectively, the “**Service Contracts**”) are included in the Due Diligence Items; provided, however, that the term “**Service Contracts**” shall not include any existing property management agreement to which Seller is a party or any other agreement between Seller and its affiliates (which excluded agreements shall, as a condition to Buyer's obligation to close, be terminated by Seller at its expense on or prior to the Closing Date). Buyer shall have the right to approve, in its sole discretion and during the Due Diligence Period, the Service Contracts Buyer elects to assume upon Closing. At or prior to expiration of the Due Diligence Period, Buyer shall provide to Seller a schedule setting forth the list of all the Service Contracts that shall be assigned to, and assumed by, Buyer at the Closing, if any (the “**Assumed Contracts**”), which schedule will be attached to the Assignment of Service Contracts and Intangible Property as Exhibit B. Prior to Closing, Seller will terminate, at Seller's cost, for the benefit of Buyer all of the Service Contracts other than the Assumed Contracts. Without limiting the preceding sentence, at Buyer's request at any time after Buyer's satisfaction or waiver of the Due Diligence Contingency, Seller will deliver any required notices terminating such Service Contracts as Buyer may designate, as a courtesy to Buyer and without cost or liability to Seller.

(f) Approval of Condition of Property. If, prior to the expiration of the Due Diligence Period (as it may be extended pursuant to Section 4(a)(ii)(A) (with respect to Survey-Related Exceptions only) and/or Section 4(d) (with respect to the Phase II Review only), based upon such review, examination or inspection, Buyer determines in its sole and absolute discretion that it no longer intends to acquire the Property, then Buyer shall promptly notify Seller of such determination in writing, whereupon this Agreement, and the obligations of the parties to purchase and sell the Property hereunder, shall terminate. If, however, on or before the expiration of the Due Diligence Period, Buyer determines that the foregoing matters are acceptable to Buyer and that it intends to proceed with the acquisition of the Property, then Buyer shall promptly notify Seller of such determination in writing (“**Approval Notice**”), which Approval Notice will establish satisfaction or waiver of the Due Diligence Contingency. If Buyer fails to deliver the Approval Notice to Seller on or before the expiration of the Due Diligence Period, Buyer shall be deemed to have disapproved of all of the foregoing matters, this Agreement and the obligations of the parties hereunder shall terminate, and Escrow Holder shall promptly release the Deposit and interest accrued thereon to Buyer.

(g) Satisfaction of Due Diligence Contingency. If the Due Diligence Contingency is not satisfied on or before the end of the Due Diligence Period (or such later time as may be expressly provided herein or by mutual written agreement of Buyer and Seller), Seller will not be deemed to be in default and Buyer's sole remedy will be to terminate this Agreement and obtain the refund of the Deposit and interest accrued thereon, and neither party shall have any further obligation to or rights against the other except as expressly provided in this Agreement.

5. Conditions to Closing.

(a) Buyer's Conditions. In addition to the conditions set forth in Section 4, the following are conditions precedent to Buyer's obligation to purchase the Property:

(i) Accuracy of Seller's Representations and Warranties. Subject to Section 7(b), all of Seller's representations and warranties contained in or made pursuant to this Agreement shall be true and correct in all material respects as of the Closing Date.

(ii) No Seller Breach. There shall be no breach of Seller's covenants and obligations set forth in this Agreement beyond any applicable notice and cure period.

(iii) Seller's Deliveries. Seller shall have delivered the items described in Section 6(d) to Buyer or to Escrow Holder.

(iv) Title Insurance. As of the Closing, the Title Company will issue or have irrevocably committed to issue the Title Policy to Buyer, subject only to the Permitted Exceptions.

(v) No Change in Condition. On the Closing Date, the Property (including, without limitation, any Improvements) shall be in a state of repair at least as good as the state of repair as of the expiration of the Due Diligence Period, normal wear and tear alone excepted, and there shall be no material change in the physical or environmental condition of the Property as of the expiration of the Due Diligence Period.

The Closing pursuant to this Agreement shall be deemed a waiver by Buyer of all unfulfilled conditions hereunder benefiting Buyer.

(b) Seller's Conditions. It shall be a condition precedent to Seller's obligation to sell the Property that all of Buyer's representations and warranties contained in or made pursuant to this Agreement shall be true and correct in all material respects as of the Closing Date, that there shall be no breach of Buyer's covenants and obligations set forth in this Agreement beyond any applicable notice and cure period, and that Buyer shall have delivered the items described in Section 6(e) to Seller or to Escrow Holder. The Closing pursuant to this Agreement shall be deemed a waiver by Seller of all unfulfilled conditions hereunder benefiting Seller.

(c) Waiver of Conditions. The conditions set forth in Sections 4 and 5(a) are for the exclusive benefit of Buyer and the conditions set forth in Section 5(b) are for the exclusive benefit of Seller. If any of such conditions have not been satisfied or waived within the period provided, subject to Section 7(b), this Agreement may be terminated by the party benefiting from such condition, in which event the Deposit and all interest accrued thereon shall be returned to Buyer, and neither party shall have any further obligation to or rights against the other except as expressly provided in this Agreement. In the event that this Agreement terminates for a reason other than the default of Buyer or Seller under this Agreement, the cancellation charges required to be paid to Escrow Holder and the Title Company shall be

borne one-half (½) by Seller and one-half (½) by Buyer, and all other charges shall be borne by the party incurring same. In the event this Agreement terminates because of the default of Buyer or Seller, the defaulting party shall pay all such cancellation charges.

6. Closing and Escrow.

(a) Escrow Instructions. Upon execution of this Agreement, the parties hereto shall deposit an executed counterpart of this Agreement with Escrow Holder and this instrument shall serve as the instructions to Escrow Holder for consummation of the purchase and sale contemplated hereby. Seller and Buyer agree to execute such additional and supplementary escrow instructions as may be appropriate to enable Escrow Holder to comply with the terms of this Agreement; provided, however, that in the event of any conflict between the provisions of this Agreement and any supplementary escrow instructions, the terms of this Agreement shall control.

(b) Closing. The Closing of the purchase and sale of the Property pursuant to this Agreement (the “**Closing**”) shall be held and delivery of all items to be made at the Closing under the terms of this Agreement shall be made at the offices of Escrow Holder on the date that is selected by Buyer by not less than five (5) Business Days prior written notice to Seller, which date shall be no earlier than fifteen (15) days and no later than sixty (60) days after the expiration of the Due Diligence Period, or such other date prior thereto as Buyer and Seller may mutually agree in writing (the “**Closing Date**”). Such date may not be extended without the prior written approval of both Seller and Buyer, except as otherwise expressly provided in this Agreement. If the Closing does not occur on or before the Closing Date, Escrow Holder shall, unless it is notified by both parties to the contrary within five (5) days after the Closing Date, return to the depositor thereof items which may have been deposited hereunder (other than the Deposit, which shall be governed by Section 2(b)(i)). Any such return shall not, however, relieve either party hereto of any liability it may have for its wrongful failure to close.

(c) Seller's Deliveries. At or before the Closing, Seller shall deliver to Buyer the following:

(i) the duly executed and acknowledged Deed conveying to the Buyer the Real Property, the Appurtenances and the Improvements;

(ii) two (2) duly executed and acknowledged counterparts of the Assignment of Service Contracts and Intangible Property in the form attached hereto as **Exhibit C**;

(iii) an affidavit pursuant to Section 1445(b)(2) of the Federal Code, and on which Buyer is entitled to rely, that Seller is not a “**foreign person**” within the meaning of Section 1445(f)(3) of the Federal Code;

(iv) a properly executed California Franchise Tax Board Form 593-C certifying that Seller has a permanent place of business in California or is qualified to do business in California;

(v) a closing statement prepared by Escrow Holder and approved in writing by Seller;

(vi) such resolutions, authorizations, bylaws or other corporate and/or partnership documents or agreements relating to Seller as shall be reasonably required in connection with this transaction;

(vii) a certificate of Seller, duly executed by Seller, confirming that all of the representations and warranties of Seller contained in Section 7(a) hereof are true and correct in all material respects as of the Closing Date, subject to modification for matters disclosed pursuant to Section 7(b) hereof;

(viii) originals or copies of any Assumed Contracts; and

(ix) any other documents, instruments or records which are reasonably required by Escrow Holder to close the escrow and consummate the purchase of the Property in accordance with the terms hereof.

(d) Buyer Deliveries. At or before the Closing, Buyer shall deliver to Seller the following:

(i) Cash or other immediately available funds in the amount of the Purchase Price (including the Deposit);

(ii) two (2) duly executed and acknowledged counterparts of the Assignment of Service Contracts and Intangible Property in the form attached hereto as Exhibit E;

(iii) such resolutions, authorizations, bylaws or other corporate and/or partnership documents or agreements relating to Buyer as shall be reasonably required in connection with this transaction;

(iv) a closing statement prepared by Escrow Holder and approved in writing by Buyer; and

(v) any other documents, instruments or records which are reasonably required by Escrow Holder to close the escrow and consummate the purchase of the Property in accordance with the terms hereof.

(e) Prorations.

(i) General Prorations. Real property taxes and assessments, utility charges, amounts payable under any Assumed Contracts and other expenses normal to the operation and maintenance of the Property, shall be prorated as of 12:01 a.m. on the Closing Date on the basis of a 365-day year. Buyer and Seller hereby agree that if any of the aforesaid prorations described in this Section 6(f)(i) cannot be calculated accurately on the Closing Date, then the same shall be calculated within sixty (60) days after the end of the calendar year in which the Closing occurs, and either party owing the other party a sum of money based on such subsequent proration(s) shall promptly pay said sum to the other party.

(ii) Tax Refunds. If any reduction in real estate taxes or assessments affecting the Property shall be granted for the tax year in which the Closing occurs, Seller shall be entitled to receive its pro rata share of such reduction that accrued prior to the Closing Date, in the form of a refund from the taxing authority or payment from Buyer upon Buyer's receipt of a refund or credit against current taxes or assessments which is attributable to any such reduction.

The provisions of this Section 6(e) shall survive Closing.

(f) Closing Costs and Adjustments. Seller shall pay the cost of any documentary stamp taxes, transfer taxes or similar taxes applicable to the sale of the Property. Seller shall pay the premium for the portion of the Title Policy attributable to “standard” coverage, and Buyer shall pay the incremental premium to obtain “extended” coverage and the cost of any endorsements to the Title Policy requested by Buyer. Recording fees and all other costs and charges of the escrow for the sale shall be paid in the manner customary for the county in which the Property is located or, if there is no custom, shall be split equally between Buyer and Seller. Buyer shall also pay to Seller in addition to the Purchase Price, the actual out-of-pocket costs paid by Seller for the payment of the invoiced closing costs payable by Seller pursuant to this Section 6(f), in an amount not to exceed Fifty Thousand Dollars (\$50,000).

(g) Utilities. Seller shall cooperate with Buyer to transfer all utilities for the Property to Buyer's name as of the Closing Date. Seller shall be entitled to recover any and all deposits with respect to the Property held by any utility company as of the Closing Date. To the extent Buyer fails to provide replacement deposits to any utility company such that Seller has not recovered its deposit at Closing, or if any such deposits are assignable and Seller elects to assign them to Buyer, the amount of such deposits shall be credited to Seller at Closing and the Purchase Price shall be adjusted accordingly. If Seller later receives any utility deposit that was credited to Seller at Closing, Seller shall deliver such deposit to Buyer.

(h) Possession. Possession of the Property shall be delivered to Buyer on the Closing Date.

7. Representations and Warranties.

(a) Seller's Representations and Warranties. Seller hereby represents and warrants to Buyer that as of the date of this Agreement and, subject to Section 7(b) below, as of the Close of Escrow:

(i) No other person or entity has a contract or option to purchase, letter of intent, right of first refusal or first offer, or similar rights with respect to the Property that is now outstanding.

(ii) Seller now has or will obtain (at its cost) the right to consolidate and transfer fee simple ownership to the Property to Buyer prior to expiration of the Due Diligence Period.

(iii) Seller has received no written notice from any governmental authority with jurisdiction over the Property of any current violation by the Property of any laws or regulations applicable to the Property, and the Property is in compliance with any past notices of violations. Seller shall promptly provide Buyer with a copy of any such notices received after the Effective Date.

(iv) There are no Leases (as defined in Section 8(b) below) currently in effect with respect to the Property and there are no parties in possession of the Property, or any part thereof.

(v) There are no contracts or agreements relating to the ownership, operation and maintenance of the Property that will survive the Closing, other than the Service Contracts. To Seller's knowledge, there are no defaults under or with respect to the Service Contracts.

(vi) There is no litigation pending or threatened in writing against Seller with respect to the Property or Seller's ownership or operation of the Property.

(vii) No condemnation or eminent domain proceedings are pending or threatened against the Property.

(viii) Seller has provided to Buyer full and accurate copies of all material documents with respect to the Property that are in the possession of Seller, including the Due Diligence Items (including any Service Contracts and any and all information related to hazardous materials at the Property in Seller's or its authorized agents' or representatives' possession or of which Seller or its authorized agents or representatives are aware). The Due Diligence Items delivered to Buyer are true and complete copies of the same documents (originals or copies) that are in Seller's possession and used in connection with the operation and management of the Property. None of the Due Diligence Items provided to Buyer has been amended, modified or terminated except as disclosed in writing to Buyer.

(ix) Seller has received no notice of any violation of Environmental Laws or the presence or release of Hazardous Materials (as defined below) on or from the Property in violation of Environmental Laws except as may be disclosed in any environmental reports or assessments included in the Due Diligence Items. The term "**Environmental Laws**" means the Resource Conservation and Recovery Act and the Comprehensive Environmental Response Compensation and Liability Act and other federal laws governing the environment as in effect on the date of this Agreement, together with their implementing regulations, guidelines, rules or orders as of the date of this Agreement, and all state, regional, county, municipal and other local laws, regulations, ordinances, rules or orders that are equivalent or similar to the federal laws recited above or that purport to regulate Hazardous Materials.

(x) Seller has not entered into any contracts for the sale, exchange or other disposition of the Property, or any portion thereof, which are still in force and effect, nor has Seller granted any rights of first refusal or first offer, options or other rights of any Person to purchase all or any portion of the Property (other than Buyer's rights under this Agreement).

(xi) This Agreement and all documents executed by Seller which are to be delivered to Buyer at the Closing are or at the time of Closing will be duly authorized, executed, and delivered by Seller, and are or at the time of Closing will be legal, valid, and binding obligations of Seller.

(xii) Seller is duly organized, validly existing and in good standing under the laws of the State of California with full power to enter into this Agreement, and Seller is duly qualified to transact business in California. This Agreement and all other documents executed by Seller and delivered to Buyer prior to or at the Closing (i) have been, or will be when delivered, duly authorized, executed and delivered by Seller; (ii) are binding obligations of Seller; (iii) do not violate the provisions of any agreement to which Seller is party or which affects the Property; subject, however, to applicable bankruptcy, insolvency and other similar laws affecting the enforcement of creditors' rights generally, and to principles of equitable remedies.

(xiii) Seller (a) is not acting, directly or indirectly, for or on behalf of any person, group, entity or nation named by any Executive Order or the United States Department of the Treasury as a terrorist, "**Specially Designated and Blocked Persons**", or other banned or blocked person, group, entity, nation or transaction pursuant to any law, order, rule, or

regulation that is enforced or administered by the Office of Foreign Asset Control (“OFAC”) of the United States Department of the Treasury; and (b) is not engaged, directly or indirectly, in any dealings or transactions and is not otherwise associated with such person, group, entity or nation.

(xiv) There are no attachments, execution proceedings, assignments for the benefit of creditors, insolvency, bankruptcy, reorganization or other proceedings pending or, to Seller’s actual knowledge, threatened against Seller.

(xv) The Satellite Dish currently located at the Property (a) is not currently in operation, and (b) is owned by Seller. No third party has any lease, license, easement or other rights with respect to the placement, use, operation, maintenance or ownership of the Satellite Dish. From and after the Closing Date, Buyer shall have the right but not the obligation, in its sole and absolute discretion, to remove the Satellite Dish, subject to securing any required demolition or other permits required for such removal from the City of Sunnyvale.

(b) Notice of Breaches of Representations and Warranties.

(i) Seller shall promptly notify Buyer in writing of any changed condition, receipt of notice or documentation, or acquired knowledge, that would alter any representation or warranty of Seller contained herein of which Seller becomes aware (any such changed condition, received notice or documentation or acquired knowledge being defined as a “**Changed Condition**”). Within five (5) Business Days after notification in writing by Seller to Buyer of any such Changed Condition, Seller, at Seller’s own option and expense, may elect by written notice to Buyer to remedy the Changed Condition such that Seller’s representations are accurate, and the Closing Date may be extended for up to ten (10) days after the scheduled Closing Date in order for Seller to effectuate such remedy. If Seller does not elect to effectuate such remedy so as to cause Seller’s representations to be accurate, or if Seller so elects but then fails to complete such remedy within such ten (10) day period, then Buyer may elect, by written notice to Seller given at any time thereafter, to terminate this Agreement, in which event (1) neither Buyer nor Seller shall have any further obligation under this Agreement, except for the obligations which expressly survive the termination of this Agreement, and (2) the Deposit shall be returned to Buyer. If, notwithstanding Seller’s election not to effectuate such remedy, Buyer elects to consummate the purchase of the Property, Seller shall not be liable to Buyer as a result of any inaccuracy in any representation or warranty of Seller contained herein that results from such Changed Condition.

(ii) Buyer shall promptly notify Seller in writing of any material inaccuracy in any representation or warranty of Seller contained herein of which Buyer becomes aware prior to the Close of Escrow (“**Known Misrepresentation**”). Within five (5) Business Days after notification in writing by Buyer to Seller of any Known Misrepresentation, Seller shall cure or remedy the underlying condition giving rise to such Known Misrepresentation, if such Known Misrepresentation is susceptible of cure, and the Closing Date shall be extended for up to ten (10) days after the scheduled Closing Date in order for Seller to effectuate such cure or remedy. If Seller is unable, despite Seller’s commercially reasonable efforts, to so cure or remedy the underlying condition giving rise to such Known Misrepresentation such that Seller’s representations are accurate within such ten (10) day period, then Buyer may elect, by written notice to Seller given at any time thereafter, to terminate this Agreement, in which event (1) neither Buyer nor Seller shall have any further obligation under this Agreement, except for the obligations which expressly survive the

termination of this Agreement, and (2) the Deposit shall be returned to Buyer. Subject to the last sentence of this Section 7(b), if, notwithstanding Seller's failure to cure or remedy any Known Misrepresentation or Changed Condition, Buyer elects to consummate the purchase of the Property, Seller shall not be liable to Buyer as a result of the resulting breach of Seller's representations and warranties except to the extent arising from Seller's fraud. In addition, if Buyer has actual knowledge of a breach of a representation or warranty prior to the Closing, and fails to notify Seller of any material inaccuracy in any representation or warranty of Seller contained herein prior to Closing, Seller shall not be liable to Buyer for loss or damages resulting from such inaccuracy except to the extent arising from Seller's fraud. Notwithstanding the foregoing, if a Known Misrepresentation was intentionally made by Seller, Seller shall in breach of a material obligation under this Agreement and Buyer shall have the remedies set forth in Section 12(a).

(c) Representations and Warranties of Buyer. Buyer hereby represents and warrants to Seller that as of the date of this Agreement and as of the Close of Escrow:

(i) Buyer is duly organized and validly existing under the laws of the State of Delaware and is qualified to do business and in good standing under the laws of the State of California; this Agreement and all documents executed by Buyer which are to be delivered to Seller at the Closing are or at the time of Closing will be duly authorized, executed, and delivered by Buyer, and are or at the Closing will be legal, valid, and binding obligations of Buyer, and do not and at the time of Closing will not violate any provisions of any agreement or judicial order to which Buyer is a party or to which it is subject.

(ii) Buyer (a) is not acting for or on behalf of any person, group, entity or nation named by any Executive Order or the United States Department of the Treasury as a terrorist, "Specially Designated and Blocked Persons", or other banned or blocked person, group, entity, nation or transaction pursuant to any law, order, rule, or regulation that is enforced or administered by OFAC; and (b) is not engaged in any dealings or transactions and is not otherwise associated with such person, group, entity or nation.

(d) Continuation and Survival. All representations and warranties by the respective parties contained herein or made in writing pursuant to this Agreement shall survive the execution and delivery of this Agreement and the delivery of the deed and transfer of title, provided that the non-representing party must give the representing party written notice of any claim it may have against the representing party for a breach of any such representation or warranty within twelve (12) months after the Closing Date (the "**Survival Period**"); provided however, that the foregoing limitation and Survival Period shall not apply to Seller's representation and warranty set forth in Section 7(a)(xv) which shall survive indefinitely. Any claim which either party may have at any time, whether known or unknown, which is not asserted within the Survival Period shall not be valid or effective, and the representing party shall have no liability with respect thereto

8. Seller's Covenants. Between the Seller's execution of this Agreement and the Closing:

(a) Continuing Operations. Seller shall continue to maintain and operate the Property in the same manner as before the making of this Agreement.

(b) No Lease(s). Seller shall not enter into any leases, licenses or other similar occupancy agreements (collectively, "**Leases**") with respect to the leasing or occupancy of the Property or any portion thereof or modify any existing Leases in each case without the prior written consent of Buyer,

which Buyer may grant or withhold in its sole discretion. Buyer shall respond to any request for approval within five (5) Business Days after receipt of Seller's request.

(c) No New Contracts. Seller shall not enter into any new Service Contracts or modify any Service Contracts or other similar arrangements pertaining to the Property that would be binding on the Buyer or Property after Closing or waive any rights of Seller thereunder, without in each case obtaining the prior written consent of Buyer, which Buyer may grant or withhold in its sole discretion. Buyer shall respond to any request for approval within five (5) Business Days after receipt of Seller's request.

(d) Insurance. Seller shall maintain all insurance currently in force with respect to the Property.

(e) No Transfer or Encumbrance. Seller shall not sell, mortgage, pledge, hypothecate, subdivide, or otherwise transfer or dispose of or encumber the Property or any interest therein or part thereof, nor shall Seller initiate, consent to, approve or otherwise take any action with respect to zoning or any other governmental rules or regulations applicable to the Property. Seller will not make any material alterations to the physical condition of Property unless required to prevent imminent damage to the Property.

9. Buyer's Review and Seller's Disclaimer.

(a) Buyer's Opportunity for Review. Prior to the expiration of the Due Diligence Period, Buyer will be given full opportunity to make a complete review and inspection of the Property, including, without limitation, all of the Due Diligence Items and any and all other matters and information provided by Seller or obtained or obtainable by Buyer (regardless of whether Buyer in fact obtains and/or reviews such information) relating to the physical, legal, economic and environmental condition of the Property, including, without limitation, a review of the results of any economic reviews and analyses of the Property and inspections of the structural condition of any Improvements that Buyer desires to conduct, any leases and contracts affecting the Property, books and records maintained by Seller or its agents relating to the Property that are in the Due Diligence Items, compliance with health, safety, land use and zoning laws, regulations and orders (including analysis of any applicable records of the planning, building, public works or other governmental or quasi-governmental entity having or asserting authority over the Property), traffic patterns, and any other information pertaining to the Property that is in the Due Diligence Items, or otherwise obtained by Buyer. In addition, during the Due Diligence Period, Buyer will be permitted to make a complete review and inspection of the environmental condition (including the soil condition, and the existence of asbestos, PCBs, hazardous waste and other toxic substances) of the Property.

(b) Seller Disclosures and Buyer Acknowledgement. Buyer acknowledges the following:

(i) Other than those specifically set forth in this Agreement, Seller is not making and has not at any time made any warranty or representation of any kind, expressed or implied, with respect to the Property, including, without limitation, warranties or representations as to habitability, merchantability, fitness for a particular purpose, title (and Seller shall not have any liability to Buyer based upon any defect in the title acquired by Buyer), existing leases or tenants thereunder, zoning, tax consequences, latent or patent physical or environmental condition, utilities, operating history or projections, valuation, projections, compliance with law, or the truth, accuracy or completeness of the Due Diligence Items or Property Files.

(ii) Other than those specifically set forth in this Agreement, Buyer is not relying upon and is not entitled to rely upon any representations and warranties made by Seller or anyone acting or claiming to act on Seller's behalf.

(iii) The Due Diligence Items, Property Files and other information obtained from Seller may include reports, projections and data prepared for Seller by third parties on which Buyer has no right to rely, Buyer has conducted (or will conduct) an independent evaluation of the matters addressed in such reports, and Seller have made no representation whatsoever as to the accuracy, completeness or adequacy of any such reports except as expressly set forth in this Agreement.

(iv) Seller has made certain additional disclosures with respect to the Property, as shown on Exhibit E attached hereto. Buyer acknowledges and agrees that it has made its own assessment with respect to the matters so disclosed in deciding to purchase the Property pursuant hereto, and Seller is not making and has not made any warranty or representation of any kind, expressed or implied, including, without limitation, as to the truth, accuracy or completeness of the disclosures in Exhibit E and/or the Due Diligence Items related to such matters.

(c) "AS-IS, WHERE-IS AND WITH ALL FAULTS". BASED UPON BUYER'S FAMILIARITY WITH, AND DUE DILIGENCE RELATING TO, THE PROPERTY, AND PERTINENT KNOWLEDGE AS TO THE MARKET IN WHICH THE PROPERTY IS SITUATED, AND IN DIRECT CONSIDERATION OF SELLER'S DECISION TO SELL THE PROPERTY TO BUYER FOR THE PURCHASE PRICE, BUYER SHALL PURCHASE THE PROPERTY IN AN "AS IS, WHERE IS AND WITH ALL FAULTS" CONDITION ON THE CLOSING DATE AND ASSUMES FULLY THE RISK THAT ADVERSE LATENT OR PATENT PHYSICAL, ENVIRONMENTAL, ECONOMIC OR LEGAL CONDITIONS MAY NOT HAVE BEEN REVEALED BY ITS INVESTIGATIONS, SUBJECT ONLY TO SELLER'S EXPRESS REPRESENTATIONS AND WARRANTIES CONTAINED IN THIS AGREEMENT. SELLER AND BUYER ACKNOWLEDGE THAT THE COMPENSATION TO BE PAID TO SELLER FOR THE PROPERTY HAS TAKEN INTO ACCOUNT THAT THE PROPERTY IS BEING SOLD SUBJECT TO THE PROVISIONS OF THIS SECTION 10. EXCEPT AS EXPRESSLY PROVIDED IN SECTION 7(b), IF SELLER BREACHES ANY REPRESENTATION, WARRANTY, OR COVENANT HEREUNDER PRIOR TO CLOSING AND BUYER CLOSES ESCROW WITH ACTUAL KNOWLEDGE THEREOF, BUYER SHALL BE DEEMED TO WAIVE SUCH BREACH. THE CLOSING SHALL CONSTITUTE A REAFFIRMATION BY BUYER AND SELLER OF EACH OF THE PROVISIONS OF THIS SECTION 10 AND EACH OF THEM SHALL BE CONTINUING IN NATURE AND SHALL SURVIVE THE CLOSING. "ACTUAL KNOWLEDGE" OF BUYER FOR PURPOSES OF THIS SECTION 10 SHALL REFER TO THE ACTUAL KNOWLEDGE OF JAY BECHTEL, WITHOUT SUCH PERSON UNDERTAKING ANY INVESTIGATION OTHER THAN IN THE ORDINARY COURSE OF ITS RESPONSIBILITIES IN CONNECTION WITH THE ACQUISITION OF THE PROPERTY.

(d) Release. Consistent with the foregoing and subject solely to the representations and warranties set forth in Section 7(a) and the express indemnification provisions in this Agreement or in any document entered into by Seller pursuant to this Agreement, effective as of the Closing, Buyer, for itself and its agents, affiliates, successors and assigns, hereby releases and forever discharges Seller, its agents, employees, and affiliates (collectively, the "**Releasees**") from any and all rights, claims and demands at law or in equity, whether known or unknown at the time of this Agreement, which Buyer has or may have in the future, arising out of the physical, environmental, economic or legal condition of the Property. Without limiting the foregoing, Buyer, upon the Closing, shall be deemed to have waived,

relinquished and released Seller and all other Releasees from and against any and all matters arising out of latent or patent defects or physical conditions, violations of applicable laws and any and all other acts, omissions, events, circumstances or matters affecting the Property, except as expressly and specifically provided in (and as limited by) any provision of this Agreement or any document entered into by Seller pursuant to this Agreement with respect to any express covenant, representation, warranty or indemnity of Seller. For the foregoing purposes, Buyer hereby specifically waives the provisions of Section 1542 of the California Civil Code and any similar law of any other state, territory or jurisdiction. Section 1542 provides:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.

BUYER HEREBY SPECIFICALLY ACKNOWLEDGES THAT BUYER HAS CAREFULLY REVIEWED THIS SUBSECTION AND DISCUSSED ITS IMPORT WITH LEGAL COUNSEL AND THAT THE PROVISIONS OF THIS SUBSECTION ARE A MATERIAL PART OF THIS AGREEMENT.

Buyer

(e) Excluded Claims. Notwithstanding anything to the contrary herein, the waivers, releases and other provisions limiting Seller's liability set forth in this Section 10 shall be inapplicable to claims by Buyer arising out of (a) breach of Seller's express representations and warranties hereunder, subject to Section 7(b), (b) Seller's fraud or intentional tortious wrongdoing, or (c) the right of Buyer to name Seller or another Releasee as a defendant in any third party tort claim filed against Buyer or its agents, affiliates, successors or assigns, to the extent such claim arose as a result of an injury to person or damage to property that occurred during Seller's period of ownership of the Property and was not caused by the Buyer. The term of Section 10(a), 10(b) and 10(c) shall survive the Closing and not be merged therein.

10. Loss by Fire or Other Casualty; Condemnation.

(a) Casualty. Prior to the Closing, the entire risk of loss or damage to the Property by fire, earthquake, flood, windstorm or other casualty shall be borne by Seller, except as otherwise provided in this Section 10(a). If, prior to the Closing, any part of the Property is damaged or destroyed by fire or other casualty, Seller shall immediately notify Buyer of such fact. If such damage or destruction is Material Damage (defined below), Buyer shall have the option to terminate this Agreement upon notice to Seller given not later than ten (10) Business Days after receipt of Seller's notice of such Material Damage. For purposes hereof, "Material Damage" shall be deemed to be any damage or destruction to the Property where the cost of repair or replacement is estimated by Seller to be One Hundred Thousand Dollars (\$100,000) or more, or shall take more than sixty (60) days to repair, in Buyer's good faith judgment, or whether such damage or destruction is covered by insurance or not. Seller shall promptly provide Buyer with all information and documentation in Seller's possession or reasonably available to Seller relating to such damage or destruction, and any available insurance coverage, so that Buyer can make an informed decision as to whether or not it will proceed with the transaction or terminate the Agreement. If this Agreement is terminated pursuant to this Section 10(a), the provisions of Section 5(c) shall apply. If this Agreement is not terminated pursuant to this Section 10(a) or if the damage is not Material Damage, then Seller shall assign and turn over to Buyer all

insurance proceeds payable to Seller with respect to such damage or destruction and the parties shall proceed to the Closing pursuant to the terms hereof without modification of the terms of this Agreement and without any reduction in the Purchase Price. If this Agreement is not terminated pursuant to this Section 10(a), Buyer shall have the right to participate in any adjustment of the insurance claim, and Seller shall not adjust or settle any such claim without Buyer's prior written approval.

(b) Condemnation. If, prior to the Closing, any portion of the Property is taken, or if the access thereto is restricted, by any applicable governmental authority under power of eminent domain or otherwise (each, a "**Taking**"), or if the Property becomes subject to a pending, threatened or contemplated Taking which has not been consummated, Seller shall immediately notify Buyer of such fact. In the event of any Taking or pending, threatened or contemplated Taking which in Buyer's good faith judgment would materially and adversely affect the value of the Property, or Buyer's ability to operate the Property (including any material impact on access rights), then Buyer shall have the option, in its sole and absolute discretion, to terminate this Agreement upon written notice to Seller given not later than five (5) Business Days after receipt of Seller's notice. If this Agreement is so terminated, the provisions of Section 5(c) shall apply. If Buyer does not timely exercise its option to terminate this Agreement, upon the Close of Escrow, Seller shall assign and turn over, and Buyer shall be entitled to receive and keep, all awards for any such Taking and the parties shall proceed to the Close of Escrow pursuant to terms hereof, without modification of the terms of this Agreement and without any reduction in the Purchase Price. Unless or until this Agreement is terminated, Seller shall take no action with respect to the settlement of any such Taking proceeding without the prior written approval of Buyer.

11. Buyer's Remedies for Seller Default. If Closing fails to occur as a result of a default by Seller in the performance of its obligations under this Agreement then, upon notice by Buyer to Seller and Escrow Agent to that effect, Buyer shall elect, in Buyer's sole discretion, either to (i) terminate this Agreement and recover the Deposit (plus accrued interest), together with an additional sum from Seller equal to Buyer's actual out-of-pocket third party costs and expenses in connection with this transaction (including, without limitation, fees and other amounts paid to a lender, due diligence costs, attorneys' fees and costs), up to a maximum aggregate amount of One Hundred Thousand Dollars (\$100,000) ("**Buyer's Costs**"), or (ii) seek specific performance of Seller's obligations hereunder, plus recover the costs and expenses of enforcing this Agreement. Any conveyance of the Property pursuant to any such action for specific performance shall be deemed a waiver by Buyer of any breach by Seller of its representations, warranties or covenants under this Agreement of which Buyer has actual knowledge before commencing such action. Buyer shall be deemed to have elected to terminate this Agreement if Buyer fails to deliver to Seller written notice of its intent to assert a cause of action for specific performance within ninety (90) days following the scheduled Closing Date or, having given such notice, fails to file a lawsuit asserting such cause of action in the proper court within ninety (90) days following the Closing Date. Notwithstanding anything in this Section 11 to the contrary, the foregoing, if Buyer is unable to remedy a default by Seller with specific performance, or if Seller's default results from Seller's fraud, intentional misrepresentation or willful misconduct, then Buyer may recover actual damages arising out of Seller's default.

12. Miscellaneous.

(a) Notices. Any notice required or permitted to be given under this Agreement shall be in writing and (i) personally delivered, (ii) sent by United States registered or certified mail, postage prepaid, return receipt requested, (iii) sent by Federal Express or similar nationally recognized overnight courier service, or (iv) transmitted by electronic mail. Such notice shall be deemed to have been given upon the date of actual receipt or delivery (or refusal to accept delivery), as evidenced by the notifying party's receipt of written or electronic confirmation of such delivery or refusal, if received by the party to be notified between the hours of 8:00 A.M. and 6:00 P.M. Pacific Time on any Business Day, with

delivery made after such hours to be deemed received the following Business Day. In addition, within two (2) days of delivery of any notice given by Seller to Buyer under this Agreement which is transmitted through electronic mail, a copy of such notice shall also be sent to Buyer, in duplicate, by either of the methods provided in clauses (i) through (iii) of this Section 12(a). For purposes of notice, the addresses of the parties shall be as follows, provided that, any party, by written notice to the other in the manner herein provided, may designate an address different from that set forth below.

If to Seller: City of Sunnyvale
456 West Olive Avenue
P.O. box 3707
Sunnyvale, CA 94088-3707
Attention: City Property Administrator
Email: snafie@sunnyvale.ca.gov

with a copy to: City of Sunnyvale
456 West Olive Avenue
P.O. Box 3707
Sunnyvale, CA 94088-3707
— Attention: Office of the City Attorney
Email: jnagel@sunnyvale.ca.gov

If to Buyer: Google LLC
1600 Amphitheatre Parkway
Mountain View, CA 94043
Attn: VP, Real Estate and Work Place Services
Email: jbechtel@google.com

and

Google LLC
1600 Amphitheatre Parkway
Mountain View, CA 94043
Attn: Legal Department/RE Matters
Email: molly@google.com

with a copy to: SSL Law Firm LLP
575 Market Street, Suite 2700
San Francisco, CA 94105
Attn: Sally Shekou, Esq. and Diane Hanna, Esq.
Email: sally@sslfirm.com
Email: diane@sslfirm.com

or such other address as either party may from time to time specify in writing delivered to the other in accordance with this Section 12(a).

(b) Brokers and Finders. Neither party has had any contact or dealings regarding the Property, or any communication in connection with the subject matter of this transaction, through any licensed real estate broker or other person who can claim a right to a commission or finder's fee as a procuring cause of the sale contemplated herein, except for CBRE (representing Buyer) whose commissions, if any are due, shall be the responsibility of Buyer pursuant to a separate agreement, and Cushman and Wakefield (representing Seller) whose commissions, if any are due, shall be the

responsibility of Buyer pursuant to a separate agreement. If any other broker or finder perfects a claim for a commission or finder's fee based upon any such contract, dealings or communication, the party through whom the broker or finder makes his claim shall be responsible for said commission or fee and all costs and expenses (including reasonable attorneys' fees) incurred by the other party in defending against the same. The provisions of this Section 12(b) shall survive the Closing.

(c) Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, the parties hereto and their respective successors, heirs, administrators and permitted assigns. Buyer may not assign this Agreement, or any rights hereunder, without the prior written consent of Seller (which consent shall not be unreasonably withheld, conditioned or delayed). Notwithstanding the foregoing, Buyer may assign its rights hereunder with no less than five (5) days' prior written notice to but without the prior written consent of Seller to an entity which controls, is controlled by, or is under common control with Buyer.

(d) Amendments. Except as otherwise provided herein, this Agreement may be amended or modified only by a written instrument executed by Seller and Buyer.

(e) Governing Law. The parties hereto acknowledge that this Agreement has been negotiated and entered into in the State of California. The parties hereto expressly agree that this Agreement shall be governed by, interpreted under, and construed and enforced in accordance with the laws of the State of California, without reference to its choice of laws rules.

(f) Merger of Prior Agreements. This Agreement and the exhibits hereto constitute the entire agreement between the parties with respect to the purchase and sale of the Property and supersedes all prior agreements and understandings between the parties hereto relating to the subject matter hereof.

(g) Attorneys' Fees. In any judicial action or proceeding between or among the parties to enforce any of the provisions of this Agreement regardless of whether such action or proceeding is prosecuted to judgment and in addition to any other remedy, the non-prevailing party shall pay to the prevailing party all out-of-pocket costs and expenses (including reasonable attorneys' fees, which shall include the reasonable value of the services of any "in-house" staff attorney employed by the successful party) incurred therein by the prevailing party. For the purposes of this Section 12(g), the term "**prevailing party**" shall mean the party which obtains substantially the relief it sought to obtain.

(h) Business Day. As used herein, the term "**Business Day**" shall mean a day that is not a Saturday, Sunday or legal holiday in the state where the Property is located. In the event that the date for the performance of any covenant or obligation under this Agreement, or delivery of any notice, shall fall on a non-Business Day, the date for performance thereof shall be extended to the next Business Day.

(i) Time of the Essence. Time is of the essence of this Agreement.

(j) Construction. This Agreement has been negotiated by the parties who have had the opportunity to consult their respective counsel. This Agreement shall not be construed more strictly against one party hereto than against any other party hereto merely by virtue of the fact that it may have been prepared by counsel for one of the parties. The term "**including**" or "**includes**" or any other similar term or phrase of inclusion shall be deemed to be followed in each instance by the words "**but not limited to,**" so as to designate an example or examples of the described class and not to designate all members of that class (it being the intention of the parties that each hereby waives the benefits of Section 3534 of the California Civil Code). The term "**sole discretion**" or "**sole election**" shall mean the right to

make a decision or election solely in the interest of the party making such decision or election, as such party may choose to make that judgment, for any reason or for no reason, and without regard to the interests of the other party. Neither party shall have any liability or obligation to the other for the manner in which it exercises its sole discretion, nor for the results thereof.

(k) Exhibits. All exhibits are attached hereto and incorporated herein by this reference.

(l) Headings. Headings at the beginning of any paragraph or section of this Agreement are solely for the convenience of the parties and are not a part of this Agreement or to be used in the interpretation hereof.

(m) Waiver. No waiver by Buyer or Seller of a breach of any of the terms, covenants, or conditions of this Agreement by the other party shall be construed or held to be a waiver of any succeeding or preceding breach of the same or any other term, covenant or condition herein contained. No waiver of any default by Buyer or Seller hereunder shall be implied from any omission by the other party to take any action on account of such default if such default persists or is repeated, and no express waiver shall affect a default other than as specified in such waiver. The consent or approval by Buyer or Seller to or of any act by the other party requiring the consent or approval of the first party shall not be deemed to waive or render unnecessary such party's consent or approval to or of any subsequent similar acts by the other party.

(n) Severability. If any phrase, clause, sentence, paragraph, section, article, or other portion of this Agreement shall become illegal, null or void or against public policy, for any reason, or shall be held by any court of competent jurisdiction to be illegal, null or void or against public policy, the remaining portions of this Agreement shall not be affected thereby and shall remain in force and effect to the fullest extent permissible by law.

(o) Counterparts; Electronic Signatures. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, and all of which counterparts together shall constitute one agreement. This Agreement may be executed by a party's signature transmitted by electronic mail in pdf format ("**pdf**"), and copies of this Agreement executed and delivered by means of electronic signatures shall have the same force and effect as copies hereof executed and delivered with original signatures. All parties hereto may rely upon electronic signatures as if such signatures were originals. All parties hereto agree that an electronic signature page may be introduced into evidence in any proceeding arising out of or related to this Agreement as if it were an original signature page.

(p) Confidentiality and Return of Reports. Except to the extent required by applicable law or court order Buyer and Seller each acknowledge and agree that this Agreement and the terms and conditions set forth are to be kept confidential unless and until the Closing occurs in accordance with the terms of this Section 12(p). Each party shall be entitled to discuss and disclose the transaction with employees, agents, attorneys, accountants, consultants, lenders, clients, shareholders, partners, members, investors and representatives of such party. If this Agreement is terminated without Closing, promptly following such termination, Buyer shall return to Seller all Due Diligence Items and any other reports, studies, surveys and similar items that were delivered to Buyer from or on behalf of Seller in connection with the Property and that are in Buyer's possession. In addition, if and when Closing occurs, neither party shall make any public statement (including press releases, press or media statements, articles, case studies or any similar statement) regarding this Agreement or the terms and conditions set forth herein without in each instance first obtaining the written consent of the other party, which may be granted or withheld in such party's sole and absolute discretion. In connection with Treasury Regulation §1.6011-4 of the Internal Revenue Code of 1986, as amended, Buyer and Seller

hereby agree that each may disclose to any and all persons, without limitation of any kind, the U.S. tax treatment and U.S. tax structure of the transaction contemplated by this Agreement and all materials of any kind (including opinions or other tax analyses) that are provided to such Party relating to such U.S. tax treatment and U.S. tax structure, other than any information for which nondisclosure is reasonably necessary in order to comply with applicable securities laws.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date(s) written below next to their respective signatures.

BUYER:

Date: _____

**GOOGLE LLC,
a Delaware limited liability company**

By: _____
Name: _____
Its: _____

SELLER:

Date: _____

**CITY OF SUNNYVALE,
a California municipal corporation**

By: _____
Name: _____
Its: _____

Approved as to Form:

John A. Nagel, City Attorney

BY EXECUTION HEREOF, THE UNDERSIGNED ESCROW HOLDER HEREBY COVENANTS AND AGREES TO BE BOUND BY THE TERMS OF THIS AGREEMENT.

FIRST AMERICAN TITLE INSURANCE COMPANY

By: _____
Name: _____
Its: _____
Date: _____

EXHIBIT A

REAL PROPERTY DESCRIPTION

Real property in the City of Sunnyvale, County of Santa Clara, State of California, described as follows:

TRACT ONE

PARCEL ONE:

PARCEL D, AS SHOWN ON EXHIBIT A-1 ATTACHED TO THE QUITCLAIM DEED FROM THE UNITED STATES OF AMERICA TO THE CITY OF SUNNYVALE RECORDED MAY 17, 2013 AS INSTRUMENT NO. 22225715 OF OFFICIAL RECORDS.

PARCEL TWO:

A PERPETUAL AND ASSIGNABLE EASEMENT AND RIGHT OF WAY FOR ROAD AND APPURTENANCES IN, ON, OVER AND ACROSS PARCELS ONE AND TWO AS DESCRIBED IN THAT CERTAIN EASEMENT DEED RECORDED MARCH 26, 1969 IN BOOK 8477, PAGE 150 OF OFFICIAL RECORDS:

PARCEL THREE:

A NON-EXCLUSIVE EASEMENT FOR INGRESS, EGRESS AND UTILITIES AS RESERVED FROM PARCELS ONE AND PARCEL TWO AS DESCRIBED IN DEED TO THE UNITED STATES OF AMERICA RECORDED JANUARY 16, 1969 IN BOOK 8265, PAGE 381 OF OFFICIAL RECORDS.

EXCEPTING THEREFROM ANY PORTION LYING WITHIN PARCEL ONE ABOVE.

PARCEL FOUR:

AN EASEMENT FOR SANITARY SEWER FACILITIES AND INCIDENTAL PURPOSES, AS DESCRIBED IN THE DEED TO THE CITY OF SUNNYVALE RECORDED SEPTEMBER 18, 2105 AS INSTRUMENT NO. 23084650 OF OFFICIAL RECORDS.

NOTE: THIS LEGAL DESCRIPTION IS BEING USED TO FACILITATE THE ISSUANCE OF A PRELIMINARY REPORT AND SHOULD NOT BE USED TO CONVEY OR ENCUMBER SAID LAND.

APN: 110-27-041

TRACT TWO

PARCEL ONE:

PARCEL E, AS SHOWN ON EXHIBIT A-1 ATTACHED TO THE QUITCLAIM DEED FROM THE UNITED STATES OF AMERICA TO THE CITY OF SUNNYVALE RECORDED MAY 03, 2013 AS INSTRUMENT NO. 22204523 OF OFFICIAL RECORDS.

NOTE: THIS LEGAL DESCRIPTION OF PARCEL ONE HEREIN IS BEING USED TO FACILITATE THE ISSUANCE OF A PRELIMINARY REPORT AND SHOULD NOT BE USED TO CONVEY OR ENCUMBER SAID LAND.

PARCEL TWO:

A PERPETUAL AND ASSIGNABLE EASEMENT AND RIGHT OF WAY FOR ROAD AND APPURTENANCES IN, ON, OVER AND ACROSS PARCELS ONE AND TWO AS DESCRIBED IN THAT CERTAIN EASEMENT DEED RECORDED MARCH 26, 1969 IN BOOK 8477, PAGE 150 OF OFFICIAL RECORDS:

PARCEL THREE:

A NON-EXCLUSIVE EASEMENT FOR INGRESS, EGRESS AND UTILITIES AS
RESERVED FROM PARCELS ONE AND PARCEL TWO AS DESCRIBED IN DEED TO THE
UNITED STATES OF AMERICA RECORDED JANUARY 16, 1969 IN BOOK 8265, PAGE
381 OF OFFICIAL RECORDS.

EXCEPTING THEREFROM ANY PORTION LYING WITHIN PARCEL ONE ABOVE.

APN: APN: 110-27-042

APN: 110-27-041

EXHIBIT B
FORM OF DEED

RECORDING REQUESTED BY
WHEN RECORDED, RETURN TO:

THE UNDERSIGNED GRANTOR(s) DECLARE(s):

DOCUMENTARY TRANSFER TAX is \$ _____. CITY TAX \$ _____.

☐ Computed on full value of property conveyed, or ☐ Computed on full value less value of liens or encumbrances remaining at time of sale.

☐ Unincorporated area: City of _____.

GRANT DEED

FOR VALUE RECEIVED, _____, a _____, grants to _____, a _____, all that certain real property, located in the City of _____, County of _____, State of California, more particularly described in **Exhibit A**, attached hereto and incorporated herein by reference thereto.

IN WITNESS WHEREOF, Grantor has executed this Grant Deed as of this ____ day of _____, 20__.

Seller: _____,
a _____

By: _____
Its: _____

[NOTARY ACKNOWLEDGEMENT IN PROPER FORM]

Exhibit A to Grant Deed
Real Property Legal Description

EXHIBIT C

ASSIGNMENT AND ASSUMPTION OF CONTRACTS AND INTANGIBLES

THIS ASSIGNMENT AND ASSUMPTION OF CONTRACTS AND INTANGIBLES (the “**Assignment**”) dated as of _____, 20__ is between _____, a _____ (“**Assignor**”), and _____, a _____ (“**Assignee**”).

A. Assignor owns certain real property and improvements thereon located at _____ and more particularly described in **Exhibit A** attached hereto (the “**Property**”).

B. Assignor has entered into certain contracts which affect the Property, which contracts are described on **Exhibit B** attached hereto (the “**Contracts**”).

C. Assignor and Assignee have entered into an Agreement of Purchase and Sale dated as of _____, 20__ (the “**Agreement**”), pursuant to which Assignee agreed to purchase the Property from Assignor and Assignor agreed to sell the Property to Assignee, on the terms and conditions contained therein. Capitalized terms not otherwise defined here shall have the meaning given to such terms in the Agreement.

D. Assignor desires to assign its interest in the contracts and in certain intangible personal property with respect to the Property, and Assignee desires to accept the assignment thereof, on the terms and conditions below.

ACCORDINGLY, the parties hereby agree as follows:

1. As of the date on which the Property is conveyed to Assignee pursuant to the Agreement (the “**Conveyance Date**”), Assignor hereby assigns to Assignee all of its right, title and interest in and to the Contracts and any Intangible Property now owned by Assignor in connection with the Property.

2. As of the Conveyance Date, Assignee hereby assumes all of Assignor’s obligations under the Contracts originating or accruing on or subsequent to the Conveyance Date.

3. In the event of any dispute between Assignor and Assignee arising out of the obligations of the parties under this Assignment or concerning the meaning or interpretation of any provision contained herein, the losing party shall pay the prevailing party’s costs and expenses of such dispute, including, without limitation, reasonable attorneys’ fees and costs.

4. This Assignment shall be binding on and inure to the benefit of the parties hereto and their respective successors and assigns.

5. This Assignment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which taken together shall constitute one and the same instrument.

[SIGNATURE PAGE FOLLOWS]

written. Assignor and Assignee have executed this Assignment the day and year first above

ASSIGNOR: _____,
a _____

By: _____
Its: _____

ASSIGNEE: _____,
a _____

By: _____
Its: _____

Exhibit A to
Assignment and Assumption of Contracts and Intangibles
Real Property Description
[to come]

Exhibit B to
Assignment and Assumption of Contracts and Intangibles

[List]

EXHIBIT D

DUE DILIGENCE ITEMS

(A) Copies of any and all contracts and agreements (including consulting, leasing, management, maintenance, repair, service, supply and contracts or agreements of any kind or nature) affecting the Property (collectively, the “**Service Contracts**”);

(B) Any and all documentation which is in possession of Seller or its authorized representatives or agents in connection with the environmental condition of the Property (including any Phase I and Phase II reports, if available), any and all geotechnical, foundation and soils reports, all recorded documents and agreements affecting the Property, remediation and monitoring plans, and correspondence with governmental agencies;

(C) Current title reports on the Property including copies of Seller’s existing title policies, and any Existing Survey;

(D) Copies of any and all area calculations, surveys, plans and specifications, site plans, engineering reports, physical inspection reports, permits, governmental entitlements/approvals and similar documents in the possession or control of Seller or its authorized representatives or agents, together with any notices of violation or default received by any governmental authority with respect to the Property;

(E) Copies of any articles of incorporation, bylaws, rules and regulations, declarations and/or other documents filed, recorded or entered into by, on behalf of or in connection with any property owners association(s) (the “**Association**”) that manages or otherwise affects all or a portion of the Property (collectively, the “**Association Documents**”), together with any notices of violation or default received from the Association (if any) with respect to the Property;

(F) A Natural Hazard Disclosure Statement duly executed by Seller.

(G) Copies of recent property tax bills and assessor's statements of current assessed value.

(H) A detailed summary of all unresolved legal actions concerning the Property, including actions taken on behalf of or against the ownership of the Property.

(I) Copies of any lease, occupancy agreement, easement, license or other documentation pertaining to the satellite dish or any other improvements or structures located at the Property.

(J) Copies of any leases, subleases, licenses, occupancy agreements, or other similar agreements affecting the Property or any portion thereof.

EXHIBIT E
DISCLOSURE SCHEDULE



City of Sunnyvale

Agenda Item

17-0829

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Review and Approve Recommended Changes to the Community Event and Neighborhood Grant Program Eligibility Guidelines

SUMMARY OF SUBCOMMITTEE ACTION

As part of its annual grant award deliberations on June 20, 2017, the City Council approved a recommendation from the Community Event and Neighborhood Grant Distribution Subcommittee (Subcommittee) to review the eligibility guidelines for both the Community Event Grant Program (CEGP) and the Neighborhood Grant Program (NGP). This recommendation was made primarily in response to four questions that had arisen during the Subcommittee's FY 2017/18 grant review process:

1. Is the CEGP provision that requires a 500-person minimum level of attendance so restrictive that it creates an artificial barrier for potential applicants? (CEGP)
2. Is award eligibility determined by the nature of the applicant organization, by the nature of the proposed project or both? (NGP)
3. Should neighborhood grant proposals that span multiple neighborhoods be eligible for funding? (NGP)
4. Should neighborhood grants that seek to build community by advocating for a policy position be eligible for funding? (NGP)

The Subcommittee was asked to convene a special meeting prior to the end of the calendar year so that the review could take place prior to any changes in the Subcommittee composition that might occur in January. As such, a special meeting of the Subcommittee was held on September 20, 2017. The Report to Subcommittee and draft minutes from that meeting are enclosed as Attachments 1 and 3 respectively.

In order to clarify the issue of program eligibility, staff requested written guidance from the City Attorney. A copy of the memorandum from the Office of the City Attorney (Memorandum) that was provided to the Subcommittee is also enclosed as Attachment 2. The central finding of the City Attorney was that it is within the discretion of the Subcommittee to establish any guidelines they deem appropriate, provided that all guidelines are legal and serve a public purpose.

Community Event Grant Program (CEGP)

The Subcommittee discussed three issues related to the CEGP eligibility guidelines including: 1) factors that may have contributed to the receipt of only one applicant for FY 2017/18; 2) whether the criteria of drawing a crowd of at least 500 people was too high a threshold; and 3) whether the criteria should be altered to accommodate grant proposals for smaller educational events. Ultimately, the Subcommittee decided to keep the current eligibility criteria the same in the hope of encouraging and

incentivizing more groups to coordinate large community-wide events in the future.

As to the question of whether eligibility should be based on the nature of the applicant organization or the nature of the proposed project, the Subcommittee recommended adding language from the Memorandum related to public purpose to the “Who is Eligible to Apply” section. It is the opinion of the Subcommittee that this addition will clarify the goals of the program as well as encourage ideas for more large-scale events from different community groups throughout Sunnyvale thereby addressing the desire to increase the number of potential applications received.

This change to the CEGP Guidelines and Eligibility Criteria can be found in redline in Attachment 4.

Neighborhood Grant Program (NGP)

Public Purpose

The impetus for the discussion related to eligibility based on the nature of the applicant organization or the nature of the proposed project arose in the context of an application from a homeowner association. At issue was whether the fact that homeowners pay dues to their association for improvements should preclude them from receiving a City grant.

Based on the Memorandum, the Subcommittee recommends that the valid public purpose the organization proposes to advance should be the determining factor. The Subcommittee concluded that if homeowner associations propose to use grant funds for a valid public purpose (e.g., to build a sense of community in their neighborhood), they should not be excluded from applying to the program and therefore, recommended that homeowner associations be added to the list of groups that preference is given to in the “Who is Eligible to Apply” section of the guidelines.

Neighborhood Focus

The current guidelines limit projects to a single neighborhood, excluding the option for multiple neighborhood groups to come together and coordinate a project or event. It is the opinion of the Subcommittee that this provision does not align with the goal of fostering community spirit throughout the City. As such, it is the recommendation of the Subcommittee that the words “or groups” be added to the following sentence in the “Who is Eligible to Apply” section: *“Applicants must be representatives of a neighborhood group or groups.”*

Advocacy

It is the consensus of the Subcommittee that programs or events that take a position on a policy issue, either in support of or in opposition to, do not meet the program mission of strengthening neighborhoods and should not be eligible to receive funding. Therefore, the Subcommittee recommends the current guideline that lists potential ineligible activities that are political in nature be amended to include those that are in support of a “policy position.” It is also recommended the words “or opposition” be added when listing the activities. With the recommended changes, the statement would read: *Activities that are political in nature, including but not limited to, the support or opposition of a proposed initiative, ballot measure, policy position or candidate.*

To clarify project eligibility, the Subcommittee also recommended the creation of a sub-section under “Projects and/or Event Eligibility” to give specific examples of projects or events that are not eligible. This new section would include the statement about activities that are political in nature (described in the paragraph above), as well as additional examples from the Memorandum.

A final recommended revision relates to the reference to “projects that have worked well in other

cities” statement included in the “Project and/or Event Eligibility” section. The Subcommittee recommends that references to successes in other cities be removed as they are not relevant to the City’s processes.

The Subcommittee’s recommended changes to the NGP eligibility guidelines are shown in redline in Attachment 5.

Appropriation Recommendation

Not specifically related to program eligibility, the Subcommittee also requested that the future NGP recommended budget be allocated in increments of \$250. While the CEGP budget is currently divisible by \$250, the Subcommittee would like to ensure that future allocations continue to be divisible by \$250. The current level of appropriation results in an awkward distribution of funds (For FY 2017/18, the appropriated amounts were \$10,250 for the Community Event Grants and \$6,278 for the Neighborhood Grants).

Conclusion

Based on its review, the Subcommittee recommends the following changes be made to the FY 2018/19 CEGP and NGP guidelines:

1. Add the definition of public purpose from the Memorandum to the “Who is Eligible to Apply” section of the CEGP guidelines;
2. Add homeowner associations to the list of groups that preference is given to in the “Who is Eligible to Apply” section of the NGP guidelines;
3. Add the words “or groups” to the following sentence in the “Who is Eligible to Apply” section of the NGP guidelines: *“Applicants must be representatives of a neighborhood group or groups.”*;
4. Amend the provision related to ineligible political activities for the NGP to read, *“Activities that are political in nature, including but not limited to, the support or opposition of a proposed initiative, ballot measure, policy position or candidate;*
5. Add a new sub-section under “Projects and/or Event Eligibility” that includes specific examples of projects or events that are not eligible to the NGP guidelines;
6. Delete the reference to “projects that have worked well in other cities” in the “Project and/or Event Eligibility” section of the NGP guidelines; and
7. That the recommendation that future appropriations for both grant programs be made in increments of \$250 be considered as part of the FY18/19 budget process.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a “project” with the meaning of the California Environmental Quality Act (“CEQA”) pursuant to CEQA Guidelines sections 15378(b)(5) and 15378(b)(4) in that it is a governmental organizational or administrative and fiscal activity that does not involve any commitment to any specific project which may result in a potential significant impact on the environment.

FISCAL IMPACT

The subcommittee's recommendation to allocate funds in increments of \$250 should be referred to the annual budget process for consideration; however, adjusting the current NGP appropriation to allow for \$250 increments is not material and won't be a significant impact.

PUBLIC CONTACT

Public contact was made through posting of the Council agenda on the City's official-notice bulletin board, on the City's website, and the availability of the agenda and report in the Office of the City Clerk.

ALTERNATIVES

1. Approve Subcommittee recommendations as outlined in this Report to Council and as shown in the redline documents attached.
2. Take other action as determined by the City Council.

RECOMMENDATION

Staff makes no recommendation.

Prepared by: Alisha Rodrigues, Community Services Coordinator II

Reviewed by: Daniel Wax, Superintendent of Community Services

Reviewed by: Cynthia E. Bojorquez, Director of Library and Community Services

Approved by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager

ATTACHMENTS

1. Report to Subcommittee - September 20, 2017 Subcommittee Meeting
2. Memorandum from the Office of the City Attorney

Additional Attachments for Report to Council

3. Draft Minutes of September 20, 2017 Subcommittee Meeting
4. Redline Document - CEGP Guidelines and Eligibility Criteria
5. Redline Document - NGP Guidelines and Eligibility Criteria



City of Sunnyvale

Agenda Item

17-0827**Agenda Date: 9/20/2017**

REPORT TO SUBCOMMITTEE

SUBJECT

Review the Community Events and Neighborhood Grant Program Eligibility Guidelines

BACKGROUND

Each year, the City of Sunnyvale allocates funding to support community events and neighborhood groups through two programs: the Community Events Grant Program (CEGP) and the Neighborhood Grant Program (NGP) based on funding recommendations from the Community Event and Neighborhood Grant Distribution Subcommittee (Subcommittee).

The Subcommittee consists of three members of the City Council charged with conducting an annual grant review process that includes: 1) setting a meeting schedule; 2) reviewing the efficiency of the annual grants allocation process and making recommendations for any changes to the full Council as needed; and 3) serving as the official grant review committee.

During the FY 2017/18 grant application review meeting on April 28, 2017, the Subcommittee recommended evaluating and clarifying the program eligibility guidelines for both programs prior to the FY 2018/19 grant process. Draft meeting minutes from that Subcommittee meeting are included as Attachment 1. On June 20, 2017 at the City Council meeting, councilmembers also acknowledged the importance of evaluating the eligibility guidelines.

The purpose of this report is to provide the Subcommittee with a summary of the current program eligibility guidelines and to seek recommendations to further clarify what groups and organizations are eligible and the type of events or projects to which they can apply and receive grant funds. Should the Subcommittee wish to propose changes to the existing grant eligibility guidelines, a report from the Subcommittee would be scheduled for City Council consideration on October 17, 2017.

EXISTING POLICY

Council Policy 7.2.1, Community Engagement - Goals and Policies

Council Policy 7.2.18, Special Events

ENVIRONMENTAL REVIEW

The action being considered does not constitute a "project" with the meaning of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines section 15378 (b) (4) in that it is a fiscal activity that does not involve any commitment to any specific project which may result in a potential significant impact on the environment.

DISCUSSION

Below is an overview of the FY 2017/18 eligibility guidelines for the two grant programs.

Community Events Grant Program (CEGP)

Applications for the CEGP must be submitted by a non-profit or not-for-profit organization. Religious organizations are eligible to apply; however, the funds may not be used for a religious purpose including for the promotion of any sect, church, creed, or sectarian organization, nor to conduct any religious service or ceremony.

Events eligible to receive grant funding must:

- be held within Sunnyvale City limits,
- be of a citywide nature and be free and open to the public,
- demonstrate an ability to draw a crowd of at least 500 people,
- occur during the fiscal year calendar that the grant was awarded, and
- not be a fundraiser event.

See Attachment 2 for complete program eligibility guidelines for the CEGP.

Neighborhood Grant Program (NGP)

Applications for the NGP must be submitted by representatives of a neighborhood group. Preference is given to neighborhood associations, mobile home associations, and neighborhood groups that are interested in becoming a neighborhood association.

Events and projects eligible to receive grant funding must:

- Be neighborhood-focused, initiated and supported by residents living in the neighborhood and focus on one or more of the following areas:
 1. Increasing communication among neighbors;
 2. Building bridges between cultural groups
 3. Improving the physical condition of the neighborhood; or
 4. Enhancing neighborhood pride and identity.
- Not be political in nature, including but not limited to, the support of a proposed initiative, ballot measure or candidate.

See Attachment 3 for complete program eligibility guidelines for the NGP.

FY 2017/18 Grant Review Process and Funding Decisions

For FY 2017/18, the recommended budget for distribution through the grants process was \$10,250 for the CEGP and \$6,278 for the NGP.

The Sunnyvale Downtown Association (SDA) was the only organization that applied for the CEGP, submitting applications for four of their signature events. Council accepted the Subcommittee's recommendation to combine the four grant applications into a single grant agreement and award

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\$10,250 to SDA to be used for eligible expenses identified within the four events at their discretion.

Thirteen applications were submitted for the NGP - nine from neighborhood groups, two from Sunnyvale homeowner's associations (HOA) and two from advocacy groups. The Council approved the Subcommittee's recommendation to approve grants in the amount of \$6,278 to fund all nine neighborhood groups and to allocate \$900 from the Council Service Level Set Aside Fund to fund the two HOA's. The two advocacy groups were removed from consideration based on the Subcommittee's interpretation of the program eligibility guidelines.

During the FY 2017/18 grant review process, the Subcommittee recommended that the program eligibility guidelines be re-evaluated to clarify and provide direction to staff on the following:

- Eligibility of homeowner associations to receive grant funding, acknowledging that these homeowners pay property taxes and other resident taxes equal to other residents and that dues for homeowners associations are generally limited to repairs, maintenance, and common area services. At issue is whether homeowner associations should be eligible to receive grant funds and if so, how the City distinguish between those projects deemed appropriate for grant funding and those projects that could potentially be funded by a particular homeowner's association fee structure or whether these residents are being deprived equal access to tax funded programs for which they pay toward.
- Should the program allow for projects or events that span multiple neighborhoods? The current guidelines limit projects to a single neighborhood and a review of policy relative to collaborative efforts could be considered.
- Should proposals that seek to build community through advocacy be eligible for funding? During the FY16/17 grants process, a proposal was submitted that sought funding to organize the neighborhood about the issue of airport noise. The Subcommittee expressed concerns about funding projects with the potential to segment the community on a particular policy issue. In the end, the Subcommittee did not fund the project, but did suggest that the issue be re-evaluated for future cycles.

Staff will be working with the City Attorney's office with respect to the issues related to the eligibility of homeowner associations with the goal of providing guidance to the Subcommittee at their meeting. In addition to the items noted above, it is recommended that the Subcommittee review all provisions of the grant program guidelines to identify any additional areas for revision.

Should the Subcommittee wish to propose changes, a report from the Subcommittee would be scheduled for City Council consideration on October 17, 2017.

FISCAL IMPACT

No fiscal impact is anticipated with the proposed review of eligibility criteria as the amount of available funding will be addressed separately during the normal budget process.

PUBLIC CONTACT

Public contact was made through posting of the Subcommittee agenda on the City's official-notice bulletin board, on the City's website, and the availability of the agenda and report in the Office of the

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City Clerk.

ALTERNATIVES

1. Continue with the grant eligibility guidelines as currently written.
2. Recommend changes to the guidelines and bring to the full City Council for consideration.
3. Take other action as determined by Subcommittee.

RECOMMENDATION

Staff makes no recommendation.

Prepared by: Alisha Rodrigues, Community Services Coordinator II

Reviewed by: Daniel Wax, Superintendent of Community Services

Reviewed by: Cynthia E. Bojorquez, Director of Library and Community Services

Reviewed by: Walter C. Rossmann, Assistant City Manager

Approved by: Deanna J. Santana, City Manager

ATTACHMENTS

1. Draft Minutes of April 28, 2017 Subcommittee Meeting
2. CEGP Eligibility Guidelines
3. NGP Eligibility Guidelines



Office of the City Attorney

Memorandum

TO: Cynthia Bojorquez
Library & Community Services
Director

FROM: Melissa C. Tronquet
Assistant City Attorney

SUBJECT: Neighborhood Grants

DATE: September 19, 2017

The Department of Library and Community Services and the City Manager have requested a summary of key legal parameters related to the City's neighborhood grant program. The program is generally discretionary and funds may be awarded consistent with the policies established for this program by the Council. The main legal requirement related to the program is the broad rule that all public funds, however awarded, must be used for a public purpose.¹ In general, a public purpose is defined as an activity or service that is open and accessible to all members of the public regardless of race, creed, gender, sexual orientation, religious affiliation, etc., without restriction, and which does not promote a particular religion. Thus, the key legal consideration is not the nature of the organization applying for or receiving the grant, but whether the organization will use those grant funds for a valid public purpose.

The determination of a public purpose is liberally construed, lies with the Council, and is generally upheld unless it is totally arbitrary. Some factors that may demonstrate the public purpose of a funded program or service include:

- Whether the proposed project/service complements or enhances a service that the City also provides
- When there is an identifiable secondary, or indirect, benefit to the City
- When the organization provides a service the City could provide, but chooses not to

Examples of specific activities that would *not* be appropriate to fund through City neighborhood grants include:

- Political activities (including, but not limited to, lobbying, campaigns, or endorsements) and/or private interests²
- Payment of outstanding debts
- Services which are primarily commercial, religious or political in nature
- Permanent improvements to any non-City owned structure or property
- In most cases, operating expenses such as salaries, utilities, and rent expenses

¹ Cal. Const. art. XVI, § 6

² Cal. Gov't Code § 8314

Finally, it is important to note that concluding that an expenditure may have a public purpose is only the first step of the analysis; just because a grant might be “legal” does not mean that the City must provide money, or that it is the best use of City resources in light of all the City’s competing financial and policy demands. The Council is free to establish policies, parameters and guidelines for neighborhood grants that will help guide decision makers toward prioritizing and balancing the public purpose requirement with the competing financial and policy issues that often arise.



City of Sunnyvale

Meeting Minutes - Draft Community Event and Neighborhood Grant Distribution Subcommittee

Wednesday, September 20, 2017

9:00 AM

Council Conference Room, 456 W. Olive
Ave., Sunnyvale, CA 94086

CALL TO ORDER

Subcommittee Chair Smith called the meeting to order at 9:02 a.m. in the Council Conference Room.

ROLL CALL

Present: 3 - Member Larry Klein
Chair Nancy Smith
Member Russ Melton

CONSENT CALENDAR

- 1 [17-0924](#) Approve the Minutes of the April 28, 2017 Community Event and Neighborhood Grant Distribution Meeting.

Member Melton moved, and Member Klein seconded, approval of the consent calendar as presented. The motion carried by the following vote:

Yes: 3 - Member Klein
Chair Smith
Member Melton

No: 0

ORAL COMMUNICATIONS

None.

PUBLIC HEARING/GENERAL BUSINESS

2 [17-0827](#) Review the Community Events and Neighborhood Grant
Program Eligibility Guidelines

Director Bojorquez provided the staff report including a memorandum from the Office of the City Attorney summarizing key legal parameters related to the City's Neighborhood Grant program. Director Bojorquez noted that three items were identified for re-evaluation during the Subcommittee's FY 2017/18 grant application review meeting: 1) eligibility of homeowner associations; 2) applications for projects across multiple neighborhoods; and 3) funding of projects advocating for a particular policy position.

Upon completion of the staff report, the Subcommittee reviewed the Community Events Grant Program Guidelines & Eligibility Criteria. The Subcommittee deliberated on whether the guideline that events draw a crowd of at least 500 people might be prohibitive and a reason why all applications had come from a single entity.

MOTION: Member Klein moved, and Member Melton seconded, approval of the Community Events Grant Program guidelines and eligibility criteria as presented. The motion carried by the following vote:

Yes: 3 - Member Klein
 Chair Smith
 Member Melton

No: 0

After reviewing the memorandum from the City Attorney, the Subcommittee discussed whether inclusion of the language related to "providing a valid public purpose" into Community Events Grant Program Guidelines & Eligibility Criteria would help clarify the types of projects for which organizations could apply for funding.

MOTION: Chair Smith moved, and Member Klein seconded, to amend the "who is eligible to apply" section of the guidelines and eligibility criteria to include the following guidelines:

It is not the nature of the organization applying for or receiving the grant, but whether the organization will use those grant funds for a valid public purpose. Some factors that may demonstrate the public purpose of a funded program or service include:

- Whether the proposed project/service compliments or enhances a service that the City also provides
- When there is an identifiable secondary, or indirect, benefit to the City
- When the organization provides a service the City could provide, but chooses not to

The motion carried by the following vote:

Yes: 3 - Member Klein
Chair Smith
Member Melton

No: 0

Discussion ensued regarding the Neighborhood Grant Program Guidelines & Eligibility Criteria. The Subcommittee discussed the question of homeowner association eligibility.

MOTION: Member Klein moved, and Member Melton seconded, to amend the "who is eligible to apply" section of the guidelines and eligibility criteria to include "homeowner associations". The motion carried by the following vote:

Yes: 3 - Member Klein
Chair Smith
Member Melton

No: 0

The Subcommittee discussed identifying projects and/or events that are not eligible for Neighborhood Grant Program funds. Chair Smith recommended that the reference of projects that work in other cities be removed as it was not relevant to the City's program.

MOTION: Chair Smith moved, and Member Melton seconded, to amend the guidelines and eligibility criteria to: 1) add a "projects and/or events that are not eligible" section and 2) include items identified in the memorandum from the Office of the City Attorney regarding Neighborhood Grants. Items identified to be included in this section are as follows:

- Activities that are political in nature, including but not limited to, the support of a proposed initiative, ballot measure or candidate
- Payment of outstanding debts
- Services which are primarily commercial, religious or political in nature
- Permanent improvement to any non-City owned structure or property
- In most cases, operating expenses such as ongoing salaries, utilities and rent expenses

Yes: 3 - Member Klein
Chair Smith
Member Melton

No: 0

The Subcommittee reviewed whether applications which propose to serve multiple neighborhoods should be eligible for funding. Member Klein indicated that since the purpose of the grants was to encourage neighbors to work together, associations should be encouraged to learn and work with each other.

MOTION: Member Klein moved, and Member Melton seconded, to amend the "who is eligible to apply" section of the guidelines and eligibility criteria to include "or groups". The motion carried by the following vote:

Yes: 3 - Member Klein
Chair Smith
Member Melton

No: 0

The Subcommittee discussed the award of Neighborhood Grant funds for projects which propose to advocate for a policy position.

MOTION: Member Melton moved, and Member Klein seconded to amend a guideline in the "projects and/or events that are not eligible" section to include "policy position" as follows:

- Activities that are political in nature, including but not limited to, the support of a proposed initiative, ballot measure, policy position or candidate

AMENDMENT: Chair Smith offered a friendly amendment to include "or opposition" as follows:

- Activities that are political in nature, including but not limited to, the support or opposition of a proposed initiative, ballot measure, policy position or candidate

Member Melton accepted the friendly amendment. The motion carried by the following vote:

Yes: 3 - Member Klein
Chair Smith
Member Melton

No: 0

The Subcommittee discussed the odd dollar amount allocated for the Community Events Grant Program and the Neighborhood Grant Program and how it impacted the awards process.

MOTION: Member Klein moved, and Member Melton seconded, that future budgets for the Community Events Grant and the Neighborhood Grant Programs be allotted in increments of \$250. The motion carried by the following vote:

Yes: 3 - Member Klein
Chair Smith
Member Melton

No: 0

INFORMATION ONLY

None.

ADJOURNMENT

The meeting adjourned at 10:25 a.m.



City of Sunnyvale Community Events Grant Program Guidelines & Eligibility Criteria Fiscal Year 2017/18

Application Deadline: Friday April 7, 2017 by 5 p.m.

Thank you for your interest in the Community Events Grant Program. Please review the following guidelines and eligibility criteria to determine if your group qualifies. Funding requests will be considered as part of an annual competitive application process. While the City will accept applications through Friday April 7, 2017 by 5 p.m., the exact amount of grant funding available will be determined by City Council when the FY 2017/18 Budget is adopted in June 2017.

Program Mission

The Community Events Grant Program was created to support and encourage groups to build community and celebrate our unique culture by holding community events in Sunnyvale.

Who is Eligible to Apply?

- The sponsoring organizations must be non-profit or not-for-profit. Applicants must attach a copy of non-profit documentation if the organization has such documentation.
- Funds may be granted to religious organizations as long as the funds are not used for a religious purpose including for the promotion of any sect, church, creed, or sectarian organization, nor to conduct any religious service or ceremony. This eligibility criterion is an attempt to preserve separation of church and state while still allowing religious organizations to be eligible for grant funds.
- Organizations that are collaborating with the City in co-sponsoring an event are eligible to apply for grant funding, however, grant funds can only be used to defray expenses incurred by the co-sponsoring organization(s) rather than the City.
- Grants will not be awarded to organizations owing a debt to the City.
- Grants will not be awarded to individuals.
- The sponsoring organization must demonstrate the ability to produce a well-planned, safe event and demonstrate strong financial management and effective management controls, including cost-effectiveness.
- It is not the nature of the organization applying for or receiving the grant, but whether the organization will use those grant funds for a valid public purpose. Some factors that may demonstrate the public purpose of a funded program or service include:
 - Whether the proposed project/service compliments or enhances a service that the City also provides
 - When there is an identifiable secondary, or indirect, benefit to the City
 - When the organization provides a service the City could provide, but chooses not to

Event Eligibility and Evaluation Guidelines

- All proposed events must:
 - be held within Sunnyvale City limits,
 - be of a citywide nature,
 - demonstrate an ability to draw a crowd of at least 500 people,
 - be free and open to the public, and
 - occur between July 2017 and June 1, 2018.
- Fundraiser events are not eligible for grant funding. A “fundraiser” is defined as any event that solicits funds from attendees either through direct ticket sales or asking for a donation. Furthermore, any subcommittee or sub-organization of the sponsoring organization is barred from asking for funds in the form of raffle tickets, silent auction bids or items of similar intent.
- The event should encourage celebrations of community which focus on the character, diversity and quality of Sunnyvale and provide vitality and identity to the community.
- Higher priority will be given to encouraging new events as well as supporting existing events that have been highly successful in the past, subject to other grant criteria.
- The review team will consider the financial and budgetary capabilities of the sponsoring organization, the extent to which City funds will be leveraged with other funding sources, and the need for City funding. Community event grant funding from the City will represent no more than 40 percent of the total event budget, including the value of in-kind goods and services but excluding the value of volunteer time.
- Grant funding is not intended to be an ongoing funding source for the event. Funding in one year is not a guarantee of future funding. All applications are subject to a fresh review vis-à-vis competing applications each year.

Application Process and Next Steps

Submitting an Application: To apply for a community event grant, complete the attached Community Event Grant Program application and submit by Friday April 7, 2017 by 5 p.m. Incomplete applications or ones that are not submitted by the deadline will not be considered during this year’s grant review process.

When submitting the application, applicants must also:

- Submit an event budget, including an estimate of City services required.
- Include a four-year event sustainability plan.
- Identify other co-sponsors of the event. All co-sponsors must be approved by the City.

Application Review and Funding Decisions: A Council subcommittee will review each application. The Council subcommittee may choose to contact the applicant for more information or clarification regarding the details of the application during the review period and/or request an interview with any applicant. Final funding decisions will be made in June 2017 by the full City Council. Grant applicants will be notified, in writing, of final funding decisions in July 2017.

All grant awardees will be required to submit the following to the City of Sunnyvale within 30 days after your event was held and no later than June 15, 2018, whichever comes first:

1. A final report describing the project and use of funds.
2. All original receipts/invoices and an itemized description of each expense, for reimbursement.

Reimbursements: This program is reimbursable, meaning that any approved funds must first be spent by the grantee and receipts/invoices showing payment must be submitted to the City of Sunnyvale. Upon review of eligible receipts/invoices, the City will send a reimbursement to the grantee. The reimbursement process takes approximately 2 – 4 weeks.

Grant recipients may be reimbursed in partial payments for ongoing event expenses, rather than in a single lump-sum at the conclusion of the event. Decision to reimburse in multiple payments will require approval from the City of Sunnyvale and may be justified if recipient incurs significant expenses prior to the event. If that is the case, grant recipients must invoice the City on an ongoing basis for reimbursement of expenses incurred, up to the grant amount.

Special Event Permit and Use of City Facilities: All special events in Sunnyvale must also submit a Special Events Permit Application prior to the event date. To learn more about the City of Sunnyvale Special Events Permit Process, visit EventApplication.inSunnyvale.com. Applicant will be required to obtain required permits, clearances, insurance, and event authorization and pay any relevant fees in a timely manner. If you are proposing to use a City facility, applicant must submit a request in accordance with standard rental procedures.

City Co-sponsorship: Grant recipients (and their sponsors, if applicable) are entirely responsible for planning, promoting, and staffing their event. Grant approval does not equate to co-sponsorship from City of Sunnyvale. The City will not be involved in planning, promoting, or staffing the event, and is not considered a co-sponsor of the event. However, grant recipients should acknowledge the support of the City of Sunnyvale where appropriate (e.g. event marketing materials, etc.).

If City staff time is requested (such as public safety officers, etc.), please contact the relevant department to obtain a cost estimate, and include the cost estimate in your proposed budget. Staff participation is contingent upon their consent to participate, regardless of whether or not funds are granted.

Grant Spending Guidelines: Grant recipients must attempt to expend all grant funding within City limits. Grant funds must be used only for the event applied for, but may be used for any costs, including costs payable to the City. The City will not waive any fees for services associated with the event.

Questions and More Information

For questions or more information, please contact Alisha Rodrigues, Community Services Coordinator, at 408-730-7599 or ncs@sunnyvale.ca.gov.



City of Sunnyvale Neighborhood Grant Program Guidelines & Eligibility Criteria Fiscal Year 2017/18

Application Deadline: Friday April 7, 2017 by 5 p.m.

Thank you for your interest in the Neighborhood Grant Program. Please review the following guidelines and eligibility criteria to determine if your group qualifies. Funding requests will be considered as part of an annual competitive application process. Neighborhood Grant Program funding will be determined by City Council during the adoption of the FY 2017/18 Budget. If Council approves the funding, each neighborhood group is eligible to apply for and receive a grant of up to \$1,000.

Program Mission

Grant funds are the City's investment in strengthening neighborhood groups, improving the quality of life in local communities, and encouraging neighborhood groups or associations to become increasingly self-reliant. The mission of the Neighborhood Grant Program is to:

- Build community engagement in Sunnyvale;
- Help residents develop a sense of pride and ownership in their neighborhoods; and
- Continue to develop collaborative partnerships between Sunnyvale's neighborhoods and City Hall.

Who is Eligible to Apply?

- Applicants must be representatives of a neighborhood group or groups. Preference is given to neighborhood associations, mobile home associations, homeowner associations and neighborhood groups that are interested in becoming a neighborhood association.

Project and/or Event Eligibility

All proposed project and/or events must:

- Focus on one or more of the following areas:
 1. Increasing communication among neighbors;
 2. Building bridges between cultural groups (including: ethnicity, age, socio-economic, etc.);
 3. Improving the physical condition of the neighborhood; or
 4. Enhancing neighborhood pride and identity.
- Be neighborhood-focused, initiated and supported by residents living in the neighborhood.
- ~~Not be political in nature, including but not limited to, the support of a proposed initiative, ballot measure or candidate.~~
- Occur between July 2017 and June 1, 2018.

Projects and/or events that are not eligible include:

- Activities that are political in nature, including but not limited to, the support or opposition of a proposed initiative, ballot measure, policy position or candidate.
- Payment of outstanding debts
- Services which are primarily commercial, religious or political in nature
- Permanent improvements to any non-City owned structure or property
- In most cases, operating expenses such as ongoing salaries, utilities and rent expenses

Creative ideas for neighborhood projects are encouraged! Projects ~~that have worked well in other cities- could~~ include (but are not limited to): youth programs, volunteer projects, seed money for neighborhood special events that encourage neighbors to get to know each other, or neighborhood association fund raising activities/events.

Evaluation Guidelines

Grant applications will be evaluated on the criteria listed below:

- Is the project realistic within the given timeframe?
- Does the project focus on one or more of the following four areas?
 1. Increasing communication among neighbors
 2. Building bridges between different cultural groups
 3. Improving the physical condition of the neighborhood
 4. Enhancing neighborhood pride and identity
- Is the project well developed (clear project description, detailed project plan, adequate resources allocated, community need addressed)?
- Is the project an appropriate use of City funds?
- Will the project strengthen the neighborhood group and foster self-reliance?
- How many residents will benefit from the project?
- Will the completed project have any negative impact on residents, businesses, the City, or bordering neighborhoods?
- Is there adequate neighborhood support (resident participation, volunteer time, resources, etc.) for this project?

Application Process and Next Steps

To apply for a neighborhood grant, complete the attached Neighborhood Grant Program application and submit by Friday April 7, 2017 by 5 p.m. Applications not submitted by this deadline or submitted incomplete will not be considered during this year's grant review process.

A Council subcommittee will review each application. The Council subcommittee may choose to contact the applicant for more information or clarification regarding the details of the application during the review period. Final funding decisions will be made in June 2017 by the full City Council. Grant applicants will be notified, in writing, of final funding decisions in July 2017.

All grant awardees will be required to submit the following to the City of Sunnyvale within 30 days of the project or event conclusion and no later than June 15, 2018, whichever comes first:

1. A final report describing the project and use of funds
2. All original receipts/invoices for reimbursements

The Neighborhood Grant is reimbursable, meaning that any approved funds must first be spent by the grantee and receipts/invoices showing payment must be submitted to the City of Sunnyvale. Upon review of eligible receipts/invoices, the City will send a reimbursement to the grantee. The reimbursement process takes approximately 2 – 4 weeks.

Questions and More Information

For questions or more information, please contact Alisha Rodrigues, Community Services Coordinator, at 408-730-7599 or ncs@sunnyvale.ca.gov.



City of Sunnyvale

Agenda Item

17-1017

Agenda Date: 11/28/2017

REPORT TO CITY COUNCIL

SUBJECT

Discontinuation of Patent and Trademark Resource Center Services at the Sunnyvale Public Library

SUMMARY OF COMMISSION ACTION

The Board of Library Trustees considered this item on November 6, 2017.

The Board voted to approve the staff recommendation of Alternative 1: Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library. The vote was 4-0 with Board Member Hwang absent.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

ALTERNATIVES

1. Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library.
2. Maintain Patent and Trademark Resource services at the Sunnyvale Public Library.

STAFF RECOMMENDATION

Alternative 1: Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library.

With the decline in utilization of Patent and Trademark Resource Center services to be nearly non-existent, and the desire to re-purpose space and staff resources to support unmet needs such as group/individual study rooms, training labs, and dedicated spaces for teens, staff recommends discontinuation of Patent and Trademark Resource Center services at the Sunnyvale Public Library.

Prepared by: Steve Sloan, Administrative Librarian

Reviewed by: Cynthia E. Bojorquez, Director of Library and Community Services

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager

ATTACHMENT

1. Report to Board of Library Trustees 17-0981, November 6, 2017 (without attachments)

Additional Attachment for Report to Council

2. Excerpt of Draft Minutes of the Board of Library Trustees Meeting of November 6, 2017



City of Sunnyvale

Agenda Item

17-0981

Agenda Date: 11/6/2017

REPORT TO BOARD OF LIBRARY TRUSTEES

SUBJECT

Discontinuation of Patent and Trademark Resource Center Services at the Sunnyvale Public Library

BACKGROUND

Since 1963, the City of Sunnyvale has hosted a Patent and Trademark Resource Center (PTRC) through the Sunnyvale Public Library. On more than one occasion, the efficacy of continuing patent services was considered by the City Council. In 1994, the City of Sunnyvale partnered with the United States Patent and Trademark Office (USPTO) to deliver enhanced intellectual property services on a cost recovery basis. The partnership was known as Sc[i]³, the Sunnyvale Center for Innovation, Invention, and Ideas. Although charged with full cost recovery, the Sc[i]³ partnership was never able to achieve this goal. As a result, Council decided on March 28, 2006 to discontinue Sc[i]³ partnership services, but remain a Patent and Trademark Resource Center. At that time, the PTRC program offered unique services which were not available without visiting a PTRC location or the USPTO headquarters in Alexandria, Virginia.

City Council is scheduled to consider this item on November 28, 2017.

EXISTING POLICY

Library Collection

Action Statement 6.2A.3c Provide a collection of patents and trademarks.

Finding and Using Materials and Information

Action Statement 6.2B.1d Provide patent reference services based on demand and financial self-sufficiency for Sc[i]³ services.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a "project" with the meaning of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines section 15378(b)(5) in that it is a governmental organizational or administrative activity that will not result in direct or indirect changes in the environment.

DISCUSSION

The PTRC in the Sunnyvale Public Library is one of seven PTRCs located throughout the State of California. The other six sites include: Los Angeles, Riverside, Sacramento, San Diego, San Francisco and San Jose. The San Jose PTRC opened in January 2016 at the Dr. Martin Luther King, Jr. Library in downtown San Jose. In October 2015, the USPTO opened a new office in downtown San Jose, one from the San Jose PTRC creating a natural synergy of patent and trademark resources.

To be designated as an official PTRC, an agency must agree to the following:

- Assist the public in the efficient use of patent and trademark information resources;
- Provide free access to patent and trademark resources provided by the USPTO;
- Provide metrics on the use of patent and trademark services provided by the member library as stipulated by the USPTO;
- Provide metrics on outreach efforts conducted by the member library as stipulated by the USPTO; and
- Send representatives to attend the USPTO-hosted PTRC training seminars generally held on an annual basis.

In addition, the following costs are incurred:

- \$50 annual statutory fee
- \$1,700 attendance for annual training seminar, held in Alexandria, VA
- An estimated sixty staff hours annually for collection maintenance, reference assistance, programs, training

In return, a designated PTRC agency is authorized to provide access to the following unique resources:

- PubEAST - The "public" version of the Examiner's Automated Search Tool provides seamless access to multiple text data sources including the Pre-Grant Publications (US-PGPUB), U.S. Patents (USPAT), U.S. Optical Character Recognition (USOCR), European Patent Office (EPO) Abstracts, Japanese Patent Office (JPO) Abstracts, and Foreign Patent Retrieval System (FPRS) databases, as well as image data sources for full and clipped images. PubEAST provides a form-based search capability for novice users, and enables expert users to submit searches in Bibliographic Retrieval System (BRS) syntax and IS&R syntax. (Access via a PTRC Workstation)
- PubWEST - The "public" version of the Web-based Examiner's Search Tool offers a server-based application tool for searching patent full-text and abstract databases. It also uses the search language entitled Bibliographic Retrieval Services (BRS). PubWEST provides identical text and image data sources as PubEAST, having the following user and system functions: general patent database searches; searches bound to specific document sections; limited general and bound searches; display of search results based on a range of specified formats; display of page images of patents; user-managed collections of documents; user-managed cases containing searches; local and TCP/IP printing for patent image documents; links to online patent classification guides. (Access via a PTRC workstation)

Access to these databases is via a dedicated workstation that allows staff to sign into the USPTO's database with Virtual Private Network access. In the last decade, the USPTO has steadily increased its online offerings such that there is little remaining to the PTRC that makes it unique. Though no formal announcement has been made, Library staff has been informed by USPTO staff that they are working to make PubEAST and PubWEST available online in 2017.

With the opening of the USPTO's Silicon Valley Regional office in 2015 in downtown San Jose, as well as a PTRC at the San Jose Public Library in 2016, the demand for PTRC services at the Sunnyvale Public Library has steadily declined to the point of being nearly non-existent. Per the USPTO requirements, the Library is required to track and report usage metrics. The following chart provides a sample of metrics for the second quarter of 2016 compared to the same period in 2017:

	QTR 2, 2016	QTR 2, 2017
Walk-in	29	5
Electronic	13	0
Letter	1	0
Phone	17	18
Programs	7	2
Attendance	70	15

With respect to walk-in usage, it is estimated that only one person per quarter utilizes either PubEAST or PubWEST. The infrequency of the PubEAST/PubWEST requests makes it difficult for staff to remain current on how to utilize these specialized databases. Library staff has been able to handle other patent and trademark-related requests for assistance utilizing existing resources in the Library's own collection when needed.

The significant decline in the demand for services, the recent opening of both a PTRC and USPTO in downtown San Jose, and an increasing need to optimize space within the Sunnyvale Public Library has caused staff to re-evaluate whether the resources required to support the PTRC warrant the investment.

Staff regularly receives requests for amenities such as group/individual study rooms, training labs and dedicated spaces for teens. The discontinuation of the PTRC services provides for an opportunity to examine the 300-square foot area currently dedicated to providing PTRC collections and computer access and re-purpose it for space that will be better utilized by the community. Given the current usage and demand for services, it is recommended that the City notify the USPTO of its intent to cease PTRC operations at the Sunnyvale Public Library.

While discontinuation as a PTRC site would require that Sunnyvale patrons travel to San Jose to obtain services, the chart above indicates that this may already be the current practice. Moreover, should the USPTO move forward with its online initiatives, the need for assistance may decline even further as patrons learn to access the services from home.

Should the recommendation to cease operations as an official PTRC be approved, staff would continue to provide basic reference assistance such as helping patrons to get started with the patent and trademark application process, explain how to search for patent and trademark information as well as how to locate additional intellectual property resources as part of its normal Library operations.

While the Library has a long and proud tradition as a provider of patent and trademark assistance, the decline in utilization and the desire to re-purpose space and staff resources to support unmet needs warrants consideration of a new policy direction. For this reason, it is recommended that the Board of Library Trustees support the staff recommendation to notify the USPTO of its intent to halt PTRC operations at the Sunnyvale Public Library.

FISCAL IMPACT

PTRC costs are currently allocated within the adopted FY 2017/18 Department of Library and Community Services operating budget. Discontinuation of PTRC services would allow Library staff to

redirect these funds and staff time towards services that will be better utilized by the community.

PUBLIC CONTACT

Public contact was made through posting of the Board of Library Trustees agenda on the City's official-notice bulletin board, on the City's website, and the availability of the agenda and report in the Office of the City Clerk.

ALTERNATIVES

1. Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library.
2. Maintain Patent and Trademark Resource Center services at the Sunnyvale Public Library.

RECOMMENDATION

Alternative 1: Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library.

Prepared by: Steve Sloan, Administrative Librarian

Reviewed by: Cynthia E. Bojorquez, Director, Library and Community Services

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager

3 [17-0981](#) Discontinuation of Patent and Trademark Resource Center
Services at the Sunnyvale Public Library

Chair Lai inquired if Board Members had questions for staff regarding report 17-0981: Discontinuation of Patent and Trademark Resource Center Services at the Sunnyvale Public Library. Vice Chair Bremond stated his support of discontinuing the service due to the decline in demand and to provide staff an opportunity to re-purpose the 300-square foot area currently dedicated to patent service.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

Vice Chair Bremond moved, and Board Member Isaak seconded, to recommend to Council Alternative 1: Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library. The motion carried by the following vote:

Yes: 4 - Chair Lai
 Vice Chair Bremond
 Board Member Fong
 Board Member Isaak

No: 0

Absent: 1 - Board Member Hwang

4 [17-0987](#) Preliminary Discussion of 2018 Master Work Plan Calendar

Chair Lai provided the Board with an opportunity to review and revise the draft 2018 Work Plan Calendar. There were no recommendations for additions or revisions to the work plan calendar.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

Board Member Isaak moved, and Vice Chair Bremond seconded, approval of 2018 Work Plan Calendar as presented. The motion carried by the following vote:

Yes: 4 - Chair Lai
 Vice Chair Bremond
 Board Member Fong
 Board Member Isaak

No: 0



City of Sunnyvale

Agenda Item

17-1103

Agenda Date: 11/28/2017

REPORT TO COUNCIL

SUBJECT

Consider Amendment of Council Action Previously Taken on October 17, 2017 Regarding the 2017/18 Charter Review Committee Recruitment and Appointment Process

REPORT IN BRIEF

On October 17, 2017, Council took action to establish the total number of members of the Charter Review Committee to be 11 members and appoint them via the recruitment and appointment process similar to the City's boards and commissions (Attachment 1).

Recruitment has been conducted to receive applications from residents interested in serving on the 2017/18 Charter Review Committee. The application deadline was set as November 17, 2017. Applications were received from 15 qualified applicants before the deadline; one additional application was received after the deadline. Council interviews of applicants were scheduled to be held December 5, 2017, and appointments to the Committee scheduled for December 12, 2017.

Mayor Hendricks has requested consideration of amending the Charter Review Committee selection process to provide for the City Council to review the applications and make the selection of Charter Review members based on the review of the applications submitted rather than a formal Council interview process.

EXISTING POLICY

The Council has complete flexibility in establishing a Charter Review Committee, including but not limited to number of members and appointment process.

ENVIRONMENTAL REVIEW

Establishing and appointing a Charter Review Committee is not a "project" within the meaning of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines section 15378(b)(5) in that it is a governmental, organizational or administrative activity that will not result in direct or indirect changes in the environment.

FISCAL IMPACT

None.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's website.

ALTERNATIVES

1. Amend Council action previously taken on October 17, 2017 regarding the Charter Review Committee appointment process to allow selection of members by reviewing applications submitted and eliminating the in-person interview used for the appointment of board and commission members.
2. Other direction as provided by Council.
3. Take no action.

STAFF RECOMMENDATION

Staff makes no recommendation.

Prepared by: Kathleen Franco Simmons, City Clerk

Reviewed by: Teri Silva, Interim Assistant City Manager

Approved by: Kent Steffens, Interim City Manager

ATTACHMENT

1. Excerpt of Minutes of October 17, 2017 Agenda Item No. 17-0762



City of Sunnyvale

Meeting Minutes City Council

Tuesday, October 17, 2017

5:00 PM

Council Chambers and West Conference
Room, City Hall, 456 W. Olive Ave.,
Sunnyvale, CA 94086

**Special Meetings: Closed Session- 5 PM | Joint Study Session with Bicycle and
Pedestrian Advisory Commission- 5:30 PM | Regular Meeting- 7 PM**

- 5 [17-0762](#) Establish the Total Number of Members of the 2017/18
Charter Review Committee to Consider Amendments to
Charter Section 604, Provide Direction on the Selection
Process for Committee Membership, and Direct Staff to Set the
Appointment of Committee Members for a Future Council
Meeting

Deputy City Clerk Lisa Natusch presented the staff report. City Attorney John Nagel
provided additional information.

Public Hearing opened at 11:30 p.m.

No speakers.

Public Hearing closed at 11:30 p.m.

MOTION: Councilmember Griffith moved and Councilmember Smith seconded the
motion to establish the total number of members of the Charter Review Committee
to be 11 members and appoint them via the recruitment and appointment process
similar to the City's boards and commissions.

The motion carried by the following vote:

Yes: 7 - Mayor Hendricks
Vice Mayor Larsson
Councilmember Griffith
Councilmember Klein
Councilmember Smith
Councilmember Melton
Councilmember Goldman

No: 0



City of Sunnyvale

Agenda Item

17-0092

Agenda Date: 11/28/2017

Tentative Council Meeting Agenda Calendar



City of Sunnyvale

Tentative Council Meeting Agenda Calendar

Tuesday, December 5, 2017 - City Council

Study Session

17-0089 6 P.M. SPECIAL COUNCIL MEETING (Study Session)
Charter Review Committee Interviews

Friday, December 8, 2017 - City Council

Closed Session

17-1016 10 A.M. SPECIAL COUNCIL MEETING (Closed Session)
Closed Session held pursuant to California Government Code Section
54957: PUBLIC EMPLOYEE APPOINTMENT
Title: City Manager

Tuesday, December 12, 2017 - City Council

Closed Session

17-0780 5 P.M. SPECIAL COUNCIL MEETING (Closed Session)
Closed Session held pursuant to California Government Code Section
54957:
PUBLIC EMPLOYEE PERFORMANCE EVALUATION
Title: City Attorney

Study Session

17-0959 6 P.M. SPECIAL COUNCIL MEETING (Study Session)
Discussion of 2018 Council Intergovernmental Assignments

17-0108 6:45 P.M. SPECIAL COUNCIL MEETING (Study Session)
Discussion of Upcoming Selection of Vice Mayor for 2018

Special Order of the Day

17-0484 SPECIAL ORDER OF THE DAY - Ceremonial Oath of Office for Board of
Building Code Appeals Member

Public Hearings/General Business

17-1042 Appoint Applicants to the Charter Review Committee

17-1069 Review Draft Work Plan for 2017 Housing Strategy (Study Issue)

Tuesday, December 19, 2017 - City Council**Closed Session**

- 17-1043** 5 P.M. SPECIAL COUNCIL MEETING (Closed Session)
Closed Session held pursuant to California Government Code Section 54956.8: CONFERENCE WITH REAL PROPERTY NEGOTIATORS
Property: "Block 15 Affordable Housing Site" located at 365-407 S. Mathilda Avenue and 388-406 Charles Street (APNs 165-13-045, 165-13-046, 165-13-068, 165-13-069, 165-13-073, 165-13-074)
City negotiators: Interim City Manager Kent Steffens, Director of Community Development Trudi Ryan and Housing Officer Suzanne Isé
Negotiating parties: The Related Companies of California, LLC
Under negotiation: Price and terms of payment for a proposed long-term ground lease of City property (Exclusive Negotiating Agreement)
- 17-0238** 6 P.M. SPECIAL COUNCIL MEETING (Closed Session)
Closed Session held pursuant to California Government Code Section 54957: PUBLIC EMPLOYEE PERFORMANCE EVALUATION
Title: City Attorney

Presentation

- 17-1096** PRESENTATION - Update from VTA Policy Advisory Board on El Camino Real Bus Rapid Transit

Public Hearings/General Business

- 17-1049** Award a Contract for Fair Oaks Park Renovation Project (F17-176)
- 17-0159** Receive and File the FY 2016/17 Budgetary Year-End Financial Report and Approve Budget Modification No. XX
- 17-0976** Approve Agreement between the City of Sunnyvale and Bay Area Children's Theatre for Use of City Facilities at a Below-Market Rate of \$24,000 for the Period January 5, 2018 through March 25, 2018
- 17-1060** Receive and File the FY 2016/17 Comprehensive Annual Financial Report (CAFR), Sunnyvale Retiree Healthcare Plan Report, and the Sunnyvale Financing Authority Financial Report
- 17-1101** Confirm Study Area for the Kifer North Precise Plan or Fortinet parcels; Authorize the City Manager to Enter into Agreement with Ascent Environmental, Inc. to Complete the Environmental Document and Precise Plan; and Approve Budget Modification No. XX in the amount of \$XX,XXX.

Tuesday, January 9, 2018 - City Council**Closed Session**

18-0002 6 P.M. SPECIAL COUNCIL MEETING (Closed Session)
Closed Session held pursuant to California Government Code Section
54957: PUBLIC EMPLOYEE PERFORMANCE EVALUATION
Title: City Manager

Public Hearings/General Business

18-0001 Selection of Vice Mayor for a One-Year Term Effective January 9, 2018

18-0005 Appoint Councilmembers to Intergovernmental Assignments; Ratify
Appointments of Councilmembers made by Outside Agencies; Take Action
to Modify, Create, or Terminate Council Subcommittees

18-0006 Approve the Proposed 2018 Priority Advocacy Issues and Long-term
Legislative Advocacy Positions (LAPs)

18-0003 Determine the 2018 Seating Arrangements for City Council

Friday, January 19, 2018 - City Council

Study Session

17-0099 8:30 A.M. SPECIAL COUNCIL MEETING
Strategic Session-Prioritization & Policy Priorities Update

Tuesday, January 23, 2018 - City Council

Public Hearings/General Business

18-0004 Annual Public Hearing - Discussion of Potential Council Study Issues and
Budget Issues for Calendar Year 2018

17-0980 Proposed Project: Introduction of Ordinance to REZONE 79 contiguous single
family home lots from R-1 (Low Density Residential) to R-1/S (Low Density
Residential/Single-Story)
File #: 2017-7688
Location: 1135-1166 Pome Avenue (APNs 202-18-029 thru 031, 202-11 023
thru 027, 202-13-002 thru 007 and 058); 1142-1167 Pomegranate Court
(APNs 202-13-008 thru 013, 202-13-016 thru 021, 202-13-059 and 060);
1142-1167 Pulora Court (APNs 202-13-022 thru 035), 1142-1170 Quince
Avenue (APNs 202-13-036 thru 050); 701-795 Sheraton Avenue (APNs
202-12-004 thru 019); 1151-1167 Hollenbeck Avenue (202-13-053 thru 057).
Zoning: R-1
Applicant / Owner: John Scheffel (plus multiple property owners)
Environmental Review: The Ordinance being considered is categorically
exempt from review pursuant to CEQA Guidelines Section 15305 (minor
alteration in land use) and Section 15061(b)(3) (a general rule that CEQA only
applies to projects that have the potential for causing a significant effect on

the environment. Where it can be seen with certainty that there is no possibility that the action may have a significant effect on the environment, the activity is not subject to CEQA).

- 17-1007** Hold Tax Equity and Fiscal Responsibility Act (TEFRA) Hearing and Adopt Resolution Related to Proposed Issuance of Tax Exempt Revenue Bonds for Construction and Development of a Mixed-Income Multifamily Rental Housing Facility at 1008 E. El Camino Real in Sunnyvale
- 17-1107** Peery Park Specific Plan Housing Study and Approve Budget Modification No. XX in the amount of \$100,000.
- 17-1122** File #: 2016-7573
Location: 623-625 N. Pastoria Avenue (APNs:165-41-029 & 165-41-030)
Proposed Project: Related applications on a 1.35-acre site on N. Pastoria Avenue:
PEERY PARK PLAN REVIEW PERMIT to construct a 52,755-square foot, three-story corporate/research and development (R&D) office building and a 1-level underground parking structure resulting in a total of 89% FAR. The project includes a restaurant on the first floor.
TENTATIVE MAP to merge two parcels into one parcel.
Applicant / Owner: Arc Tec, Inc. / George And Josefa Yagmourian Trustee
Environmental Review: The project is exempt from additional CEQA review per CEQA Guidelines section 15168(c)(2) and (4) and Public Resources Code Section 21094 (c). The project is within the scope of the Peery Park Specific Plan Program EIR as no new environmental impacts are anticipated and no new mitigation measures are required.

Tuesday, February 6, 2018 - City Council

Public Hearings/General Business

- 17-0122** File #: 2017-7743
Locations: Moffett Park Specific Plan Area
Proposed Project: General Plan Amendment Initiation: to consider amendments to the Moffett Park Specific Plan.
Applicant / Owner: Google, Inc. (applicant) / various owners
Environmental Review: The project is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15378 (a).
- 17-1134** Introduce an ordinance to amend Sunnyvale Municipal Code Sections 19.68.040 (Accessory Dwelling Units) of the Sunnyvale Municipal Code Related to Senate Bill 229 And Assembly Bill 494, And Find That the Action Is Exempt from Environmental Review Pursuant to CEQA Guidelines Section 15061(B)(3).

Friday, February 16, 2018 - City Council

Public Hearings/General Business

17-0101 8:30 A.M. SPECIAL COUNCIL MEETING
Study/Budget Issues Workshop

Tuesday, February 27, 2018 - City Council

Study Session

17-0102 6:30 P.M. SPECIAL COUNCIL MEETING (Study Session)
Minimum Wage Update

Public Hearings/General Business

17-0079 Agenda items pending- to be scheduled

Tuesday, March 6, 2018 - City Council

Public Hearings/General Business

18-0008 Agenda items pending- to be scheduled

Tuesday, March 27, 2018 - City Council

Public Hearings/General Business

18-0009 Agenda items pending- to be scheduled

Tuesday, April 10, 2018 - City Council

Public Hearings/General Business

18-0010 Agenda items pending- to be scheduled

Tuesday, April 24, 2018 - City Council

Public Hearings/General Business

18-0011 Agenda items pending- to be scheduled

Tuesday, May 1, 2018 - City Council

Study Session

18-0012 6 P.M. SPECIAL COUNCIL MEETING (Study Session)
Board and Commission Interviews

Tuesday, May 8, 2018 - City Council

Public Hearings/General Business

18-0013 Agenda items pending- to be scheduled

Tuesday, May 15, 2018 - City Council

Study Session

18-0014 6 P.M. SPECIAL COUNCIL MEETING ONLY (Study Session)
Board and Commission Interviews

Tuesday, May 22, 2018 - City Council

Public Hearings/General Business

18-0015 Agenda items pending- to be scheduled

Friday, May 25, 2018 - City Council

Study Session

18-0016 8:30 A.M. SPECIAL COUNCIL MEETING
Budget Workshop

Tuesday, June 12, 2018 - City Council

Public Hearings/General Business

18-0017 Agenda items pending- to be scheduled

Tuesday, June 26, 2018 - City Council

Public Hearings/General Business

18-0018 Agenda items pending- to be scheduled

Tuesday, July 17, 2018 - City Council

Public Hearings/General Business

18-0019 Agenda items pending- to be scheduled

Tuesday, July 31, 2018 - City Council

Public Hearings/General Business

18-0020 Agenda items pending- to be scheduled

Tuesday, August 14, 2018 - City Council

Public Hearings/General Business

18-0021 Agenda items pending- to be scheduled

Tuesday, August 28, 2018 - City Council

Public Hearings/General Business

18-0022 Agenda items pending- to be scheduled

Tuesday, September 11, 2018 - City Council

Public Hearings/General Business

18-0023 Agenda items pending- to be scheduled

Tuesday, September 25, 2018 - City Council

Public Hearings/General Business

18-0024 Agenda items pending- to be scheduled

Tuesday, October 16, 2018 - City Council

Public Hearings/General Business

18-0025 Agenda items pending- to be scheduled

Tuesday, October 30, 2018 - City Council

Public Hearings/General Business

18-0026 Agenda items pending- to be scheduled

Tuesday, November 13, 2018 - City Council

Public Hearings/General Business

18-0027 Agenda items pending- to be scheduled

Tuesday, November 27, 2018 - City Council

Public Hearings/General Business

18-0028 Agenda items pending- to be scheduled

Tuesday, December 4, 2018 - City Council

Public Hearings/General Business

18-0029 Agenda items pending- to be scheduled

Tuesday, December 18, 2018 - City Council

Public Hearings/General Business

18-0030 Agenda items pending- to be scheduled

Tuesday, January 8, 2019 - City Council

Public Hearings/General Business

18-0031 Agenda items pending- to be scheduled

Tuesday, January 15, 2019 - City Council

Public Hearings/General Business

18-0032 Agenda items pending- to be scheduled

Tuesday, January 29, 2019 - City Council

Public Hearings/General Business

18-0033 Agenda items pending- to be scheduled

Tuesday, February 5, 2019 - City Council

Public Hearings/General Business

18-0034 Agenda items pending- to be scheduled

Tuesday, February 26, 2019 - City Council

Public Hearings/General Business

18-0035 Agenda items pending- to be scheduled

Date to be Determined - City Council

Study Session

17-0784 6 P.M. SPECIAL COUNCIL MEETING (Study Session)
Presentation by the California High-Speed Rail Authority on the Status and
Next Steps on the High-Speed Rail Project

Public Hearings/General Business

17-0471

Eco-district Feasibility and Incentives (Study Issue)

17-0992

Accept the Findings of the Lakewood Branch Library and Learning Center Feasibility Study and Authorize the City Manager to Proceed with the Development of a Formal Memorandum of Understanding with the Sunnyvale School District for a Joint-Use Project on the Lakewood Elementary School Site



City of Sunnyvale

Agenda Item

17-0854

Agenda Date: 11/28/2017

Information/Action Items

**2017 INFORMATION/ACTION ITEMS
COUNCIL DIRECTIONS TO STAFF**

No.	Date Assigned	Directive/Action Required	Dept	Due Date	Date Completed
1.	4/11/17	Prepare an Information Only Report to Council informing Council of potential ways the City could work to reduce the jobs/housing ratio in the future	CDD	12/19/17	
2.	6/20/17	Work with the Community Event and Neighborhood Grant Distribution Council Subcommittee to consider amending the guidelines for grant distribution	LCS	11/28/17	11/21/17
3.	6/20/17	How much would the City have to deposit on day one into the forthcoming Irrevocable Pension Trust that would cause a one-decade acceleration in the Bartel model on each of the two plans where assets equal liabilities	FIN	12/19/17	
4.	7/11/17	Agendize Minimum Wage Update for Council discussion (study session)	OCM	2/27/18	
5.	10/3/17	Revise Administrative Policy for Below Market Rate Alternative Compliance Plan recommendations to be presented to the Housing and Human Services Commission for a recommendation to the City Council.	CDD	1/31/18	
6.	10/17/17	Councilmember Klein's friendly amendment included direction to staff to add looking at fewer than 20 lots as part of the upcoming Study Issue Paper: Evaluation of the Residential Single-Story Combining District Process	CDD		11/13/17
7.	10/17/17	Work with consultant to modify agreement for the Caltrain Grade Separation Feasibility Study to include additional option to be studied	DPW	TBD	
8.	11/7/17	Provide City Council with information and an update on the UPS noise issue brought forward by residents	DPS		11/14/17
9.	11/7/17	Include documentation of tree diagrams with the Civic Center Project in the minutes	OCM		11/8/17

**NEW STUDY/BUDGET ISSUES
SPONSORED BY COUNCIL IN 2017**

No.	Date Requested	Study Issue Title	Requested By	Dept	Issue Paper Approved by City Manager
1.	6/20/17	Evaluate the possibility of subsidizing water rates for low-income seniors from the General Fund	Smith/ Goldman	FIN	11/8/17



City of Sunnyvale

Agenda Item

17-1036

Agenda Date: 11/28/2017

Study Session Summary of November 7, 2017 - Board/Commission Interviews

Call to Order:

Mayor Hendricks called the meeting to order at 6:01 p.m.

City Councilmembers Present:

Mayor Glenn Hendricks
Vice Mayor Gustav Larsson
Councilmember Jim Griffith
Councilmember Larry Klein
Councilmember Nancy Smith
Councilmember Russ Melton
Councilmember Michael S. Goldman

City Councilmembers Absent:

None.

Public Comment:

None.

Study Session Summary:

The following individuals were interviewed for a vacancy on the Board of Building Code Appeals:

Andrew LaManque
Marc Ketzel

Adjournment:

Mayor Hendricks adjourned the meeting at 6:25 p.m.



City of Sunnyvale

Agenda Item

17-1021

Agenda Date: 11/28/2017

Board/Commission Meeting Minutes



City of Sunnyvale

Meeting Minutes - Draft

Board of Library Trustees

Monday, November 6, 2017

7:00 PM

Library Program Room, Sunnyvale Public
Library, 665 W. Olive Ave., Sunnyvale, CA
94086

CALL TO ORDER

The meeting was called to order at 6:59 p.m.

ROLL CALL

Present: 4 - Chair Carey Wingyin Lai
Vice Chair Daniel Bremond
Board Member Mason Fong
Board Member Mark Isaak
Absent: 1 - Board Member Tina Hwang

Board Member Hwang (excused absence)
Council Liaison Smith (absent)

PRESENTATION

[17-1009](#) PRESENTATION - Library Usage Trends

Administrative Librarian Steve Sloan provided the Board with a brief presentation on Sunnyvale's library usage trends over the past ten years.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

[17-1046](#) PRESENTATION - FY 2018/19 Library Fee Schedule

Administrative Librarian Steve Sloan provided the Board with a brief presentation on Sunnyvale's library fee schedule.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

ORAL COMMUNICATIONS

None.

CONSENT CALENDAR

- 1 [17-0905](#) Approve the Board of Library Trustees Meeting Minutes of October 2, 2017

Vice Chair Bremond moved, and Board Member Isaak seconded, approval of the consent calendar as presented. The motion carried by the following vote:

Yes: 4 - Chair Lai
 Vice Chair Bremond
 Board Member Fong
 Board Member Isaak

No: 0

Absent: 1 - Board Member Hwang

PUBLIC HEARINGS/GENERAL BUSINESS

- 2 [17-0906](#) Annual Review of Code of Ethics and Conduct for Elected and Appointed Officials

Chair Lai provided the Board with an opportunity to review the 2017 Code of Ethics and Conduct for Elected and Appointed Officials.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

Vice Chair Bremond moved, and Board Member Fong seconded, approval of the 2017 Code of Ethics and Conduct for Elected and Appointed Officials as presented.

The motion carried by the following vote:

Yes: 4 - Chair Lai
 Vice Chair Bremond
 Board Member Fong
 Board Member Isaak

No: 0

Absent: 1 - Board Member Hwang

- 3 [17-0981](#) Discontinuation of Patent and Trademark Resource Center Services at the Sunnyvale Public Library

Chair Lai inquired if Board Members had questions for staff regarding report 17-0981: Discontinuation of Patent and Trademark Resource Center Services at the Sunnyvale Public Library. Vice Chair Bremond stated his support of discontinuing the service due to the decline in demand and to provide staff an opportunity to re-purpose the 300-square foot area currently dedicated to patent service.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

Vice Chair Bremond moved, and Board Member Isaak seconded, to recommend to Council Alternative 1: Discontinue Patent and Trademark Resource Center services at the Sunnyvale Public Library. The motion carried by the following vote:

Yes: 4 - Chair Lai
Vice Chair Bremond
Board Member Fong
Board Member Isaak

No: 0

Absent: 1 - Board Member Hwang

4 [17-0987](#) Preliminary Discussion of 2018 Master Work Plan Calendar

Chair Lai provided the Board with an opportunity to review and revise the draft 2018 Work Plan Calendar. There were no recommendations for additions or revisions to the work plan calendar.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

Board Member Isaak moved, and Vice Chair Bremond seconded, approval of 2018 Work Plan Calendar as presented. The motion carried by the following vote:

Yes: 4 - Chair Lai
Vice Chair Bremond
Board Member Fong
Board Member Isaak

No: 0

Absent: 1 - Board Member Hwang

5 [17-1061](#) Request to Designate a Representative of the Board of Library

Trustees to Provide an Overview on the Role of the Board and
a Summary of Major Library Projects to the Sunnyvale
Democratic Club on November 18, 2017

Chair Lai requested Board Members share their thoughts regarding a Board Member providing a presentation to the Sunnyvale Democratic Club on Saturday, November 18. Board Members expressed their support in having a representative provide an overview on the role of the Board to the group. Vice Chair Bremond volunteered to represent the Board.

Chair Lai opened the public hearing, and there being no public testimonies, closed the public hearing.

Board Member Isaak moved, and Board Member Fong seconded, to appoint Vice Chair Bremond to serve as the representative of the Board of Library Trustees at the Sunnyvale Democratic Club meeting on November 18. The motion carried by the following vote:

Yes: 4 - Chair Lai
Vice Chair Bremond
Board Member Fong
Board Member Isaak

No: 0

Absent: 1 - Board Member Hwang

6 [17-1062](#) Discussion and Action on Scope of Presentation to the
Sunnyvale Democratic Club

Board Members shared key projects and items which should be presented to the Sunnyvale Democratic Club. Items included: Civic Center Modernization Plan in relation to Library; Branch Library; Bylaws; library statistics and Friends of the Library. Vice Chair Bremond will work with Library staff to acquire necessary information.

Chair Lai opened the public hearing

Sunnyvale Democratic Club President Mike Serrone thanked the Board for appointing a representative to attend and present at the November 18 Sunnyvale Democratic Club meeting.

There being no additional public testimonies, Chair Lai closed the public hearing.

Board Member Fong moved, and Board Member Isaak seconded, that the Board presentation include an overview of the Branch Library and Civic Center Modernization Plan (in relation to Library). In addition, a handout providing information on the Board's bylaws, Sunnyvale library statistics and Friends of the Library will be made available for distribution to the group. The motion carried by the following vote:

Yes: 4 - Chair Lai
Vice Chair Bremond
Board Member Fong
Board Member Isaak

No: 0

Absent: 1 - Board Member Hwang

STANDING ITEM: CONSIDERATION OF POTENTIAL STUDY ISSUES

None.

NON-AGENDA ITEMS & COMMENTS

-Board Member Comments

Vice Chair Bremond provided the Board with a brief update on the Library's Art on the Cart Contest.

-Staff Comments

Administrative Librarian Steve Sloan noted the following:

- Learning Express Toys will host an in-store, fundraiser benefiting the Sunnyvale Public Library on Friday, November 17 through Sunday, November 19. Learning Express Toys will donate 10% of all sales during the event to the Friends of the Sunnyvale Public Library.
- The Library will be closed on Friday, November 10 to allow staff to participate in the annual Library and Community Services Staff Development Day. The day is focused on a full day of learning, building strong connections amongst staff and positioning the department for success in 2018. The day will include guest speaker Ed Solis discussing "Placemaking: The Art of Reimagining Public Space".

INFORMATION ONLY ITEMS

None.

ADJOURNMENT

The meeting adjourned at 8:14 p.m.