



Silicon Valley 2.0

Climate Change Preparedness Tool

Sunnyvale Sustainability Commission Meeting

August 15, 2022

County of Santa Clara
**Sustainability
Master Plan**



Livable. Equitable. Resilient.

Climate Change is a Stress Multiplier



Increasing
up to 28 days
by end of century

Extreme Heat



Extreme wet and
dry periods, up
to 20% increase
in storm events

Precipitation



+ 41 to 83
inches
by end of century

Sea Level Rise



Increasing
frequency,
duration, and
extent

Wildfire

In Santa Clara County:

2-3x

The average high-income neighborhood has 2-3x more tree canopy than low-income neighborhoods

15%

Of the socially vulnerable residents are exposed to the 100-year floodplain compared to 9% countywide residents

Sustainability Vision At a Glance

Climate Protection and Defense



Reduce greenhouse gases and build resilience to the threats of climate change and natural disasters.

Natural Resources and the Environment



Enhance and protect natural resources and habitats and reduce the cumulative impacts of environmental hazards.

Community Health and Well-Being



Improve the health of the community and the conditions in places where people live, learn, work, and play.

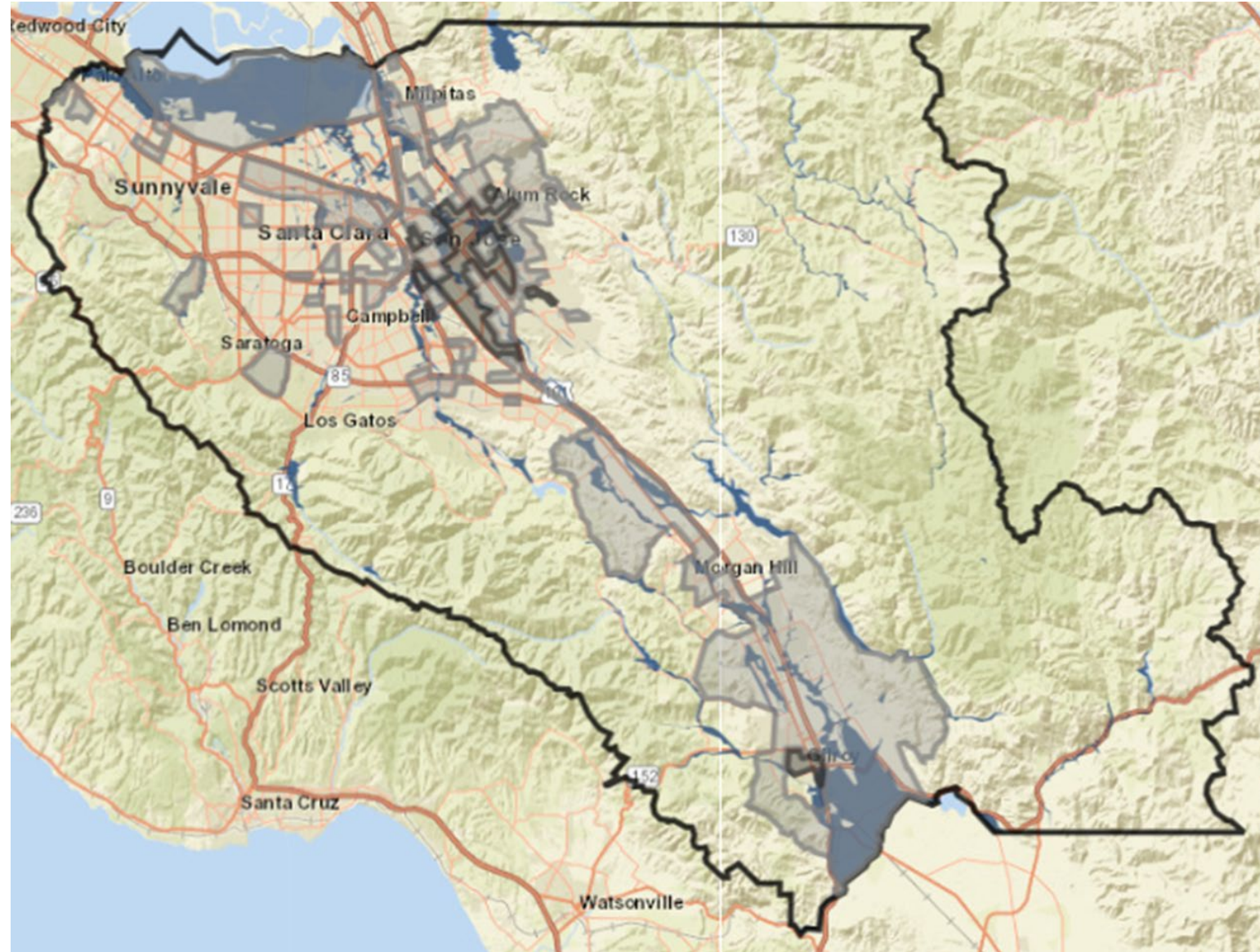
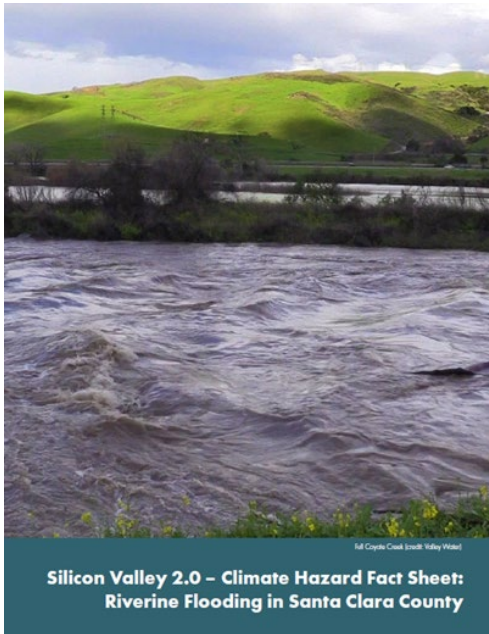
Prosperous and Just Economy

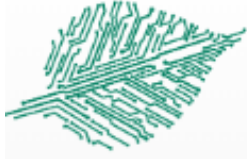


Build financial security and prosperity for all and promote leadership and collaboration.

Silicon Valley 2.0

- Updated climate data
 - Sea Level Rise
 - Extreme Heat
 - Riverine Flooding
 - Wildfire
- Social Vulnerability Index
- Impact Fact Sheets





SILICON VALLEY 2.0

Climate Change Preparedness Tool

[Home](#)[Projections](#)[Set Up](#)[Vulnerability](#)[Risk](#)[Impacts](#)

Learn about how climate hazards like sea level rise, riverine flooding, wildfire and extreme heat impact the people and infrastructure assets in Santa Clara County.

Start your vulnerability and economic risk analysis by exploring and selecting the climate projection of your choice, view the summary of expected climate impacts, and then customize your analysis setup to see the impacts in more detail.

For data or map requests, contact us at sustainability@ceo.sccgov.org



**CLIMATE
PROJECTIONS**

Learn about the different projections and scenarios for each hazard and understand the methodology and assumptions behind them.

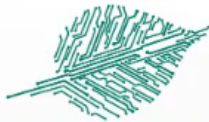
**SETUP ANALYSIS
SCENARIO**

Select your climate hazards scenario(s) and infrastructure asset type(s) of interest to learn more about the associated vulnerabilities and economic risks.

**CLIMATE
IMPACTS**

View and download factsheets about the anticipated impacts on our health, community, environment, and infrastructure.





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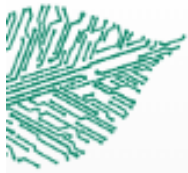
County of Santa Clara
Office of Sustainability

County Center at Charcot
2310 North First Street, Suite 106
San Jose, CA 95131

sustainability@ceo.sccgov.org
(408) 993-4760
www.sccgov.org/sustainability

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Tool Setup

1

Step 1:
Geography

2

Step 2: Climate
Variables

3

Step 3: Assets

Set Up

To perform a climate change vulnerability and risk assessment you will need to select the climate change scenario, geography, climate variables, and assets that you are interested in evaluating. If you do not have a climate change scenario in mind, explore the different available options in the [Climate Projections section](#). You may begin the set up process by clicking on the Start button below or choosing one of the Steps to the right.

Please note that the analysis will not run until the set up process is completed.

Start

Set Up

Step 1
Geography

Step 2
Climate
Variables

Step 3
Assets



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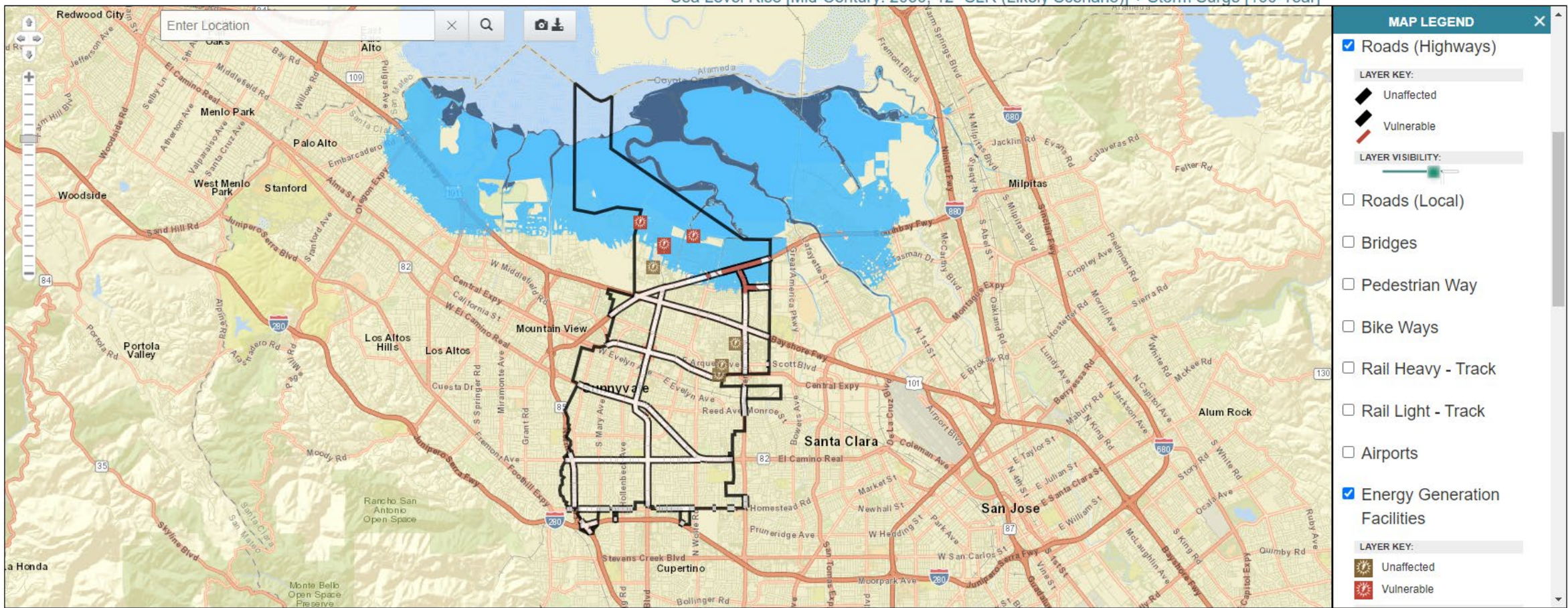
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Exposure Map

Back to SET UP Sea Level Rise

EXPOSURE MAP - SUNNYVALE

Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]

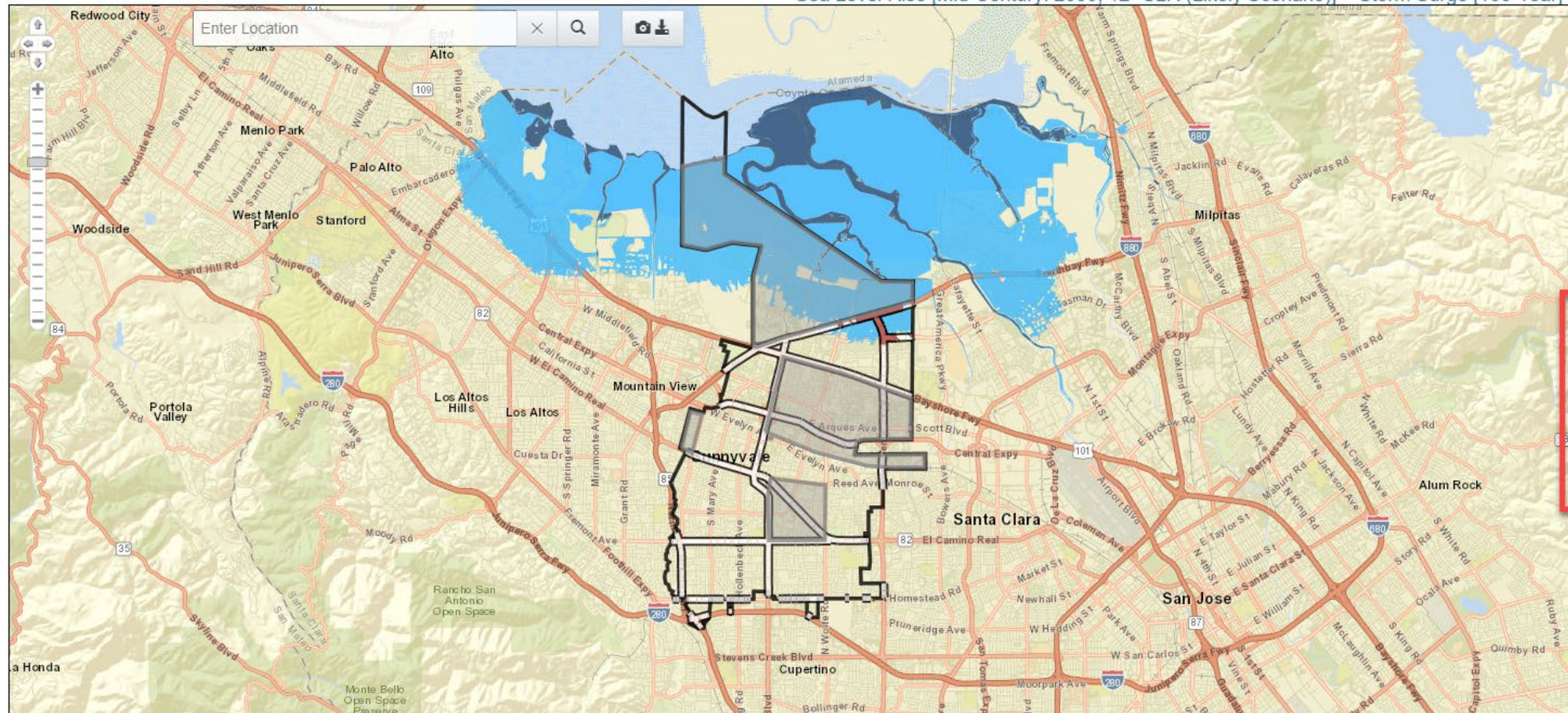


Social Vulnerability Index

[Home](#)[Projections](#)[Set Up](#)[Vulnerability](#)[Risk](#)[Impacts](#)[Back to SET UP](#)[Sea Level Rise](#)

EXPOSURE MAP - SUNNYVALE

Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]



Vulnerability Assessment Overview

Vulnerability Assessment Overview


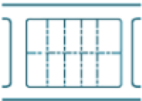

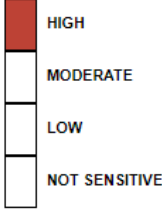
Tables And Charts

?

How Is Vulnerability Calculated




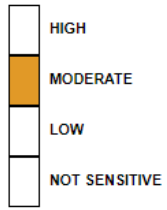
VULNERABILITY FOR PARCELS / SUNNYVALE

Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]

CLIMATE VARIABLE ⓘ	ASSET ⓘ	VULNERABILITY MAP ⓘ	SENSITIVITY ⓘ	SUMMARY ⓘ
 SEA LEVEL RISE + STORM SURGE	 PARCELS		 HIGH MODERATE LOW NOT SENSITIVE	VULNERABILITY: HIGH QUANTITY: 3,095 UNIT: acres of property

VULNERABILITY FOR SHORELINE PROTECTION (DIKES/LEVEES) / SUNNYVALE

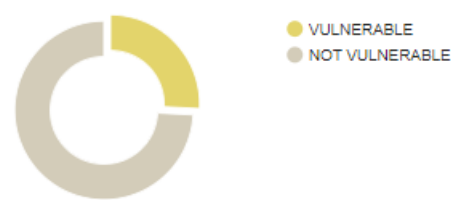
Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]

CLIMATE VARIABLE ⓘ	ASSET ⓘ	VULNERABILITY MAP ⓘ	SENSITIVITY ⓘ	SUMMARY ⓘ
 SEA LEVEL RISE + STORM SURGE	 SHORELINE PROTECTION (DIKES/LEVEES)		 HIGH MODERATE LOW NOT SENSITIVE	VULNERABILITY: MODERATE QUANTITY: 114,096.02 UNIT: feet of levee (or similar)

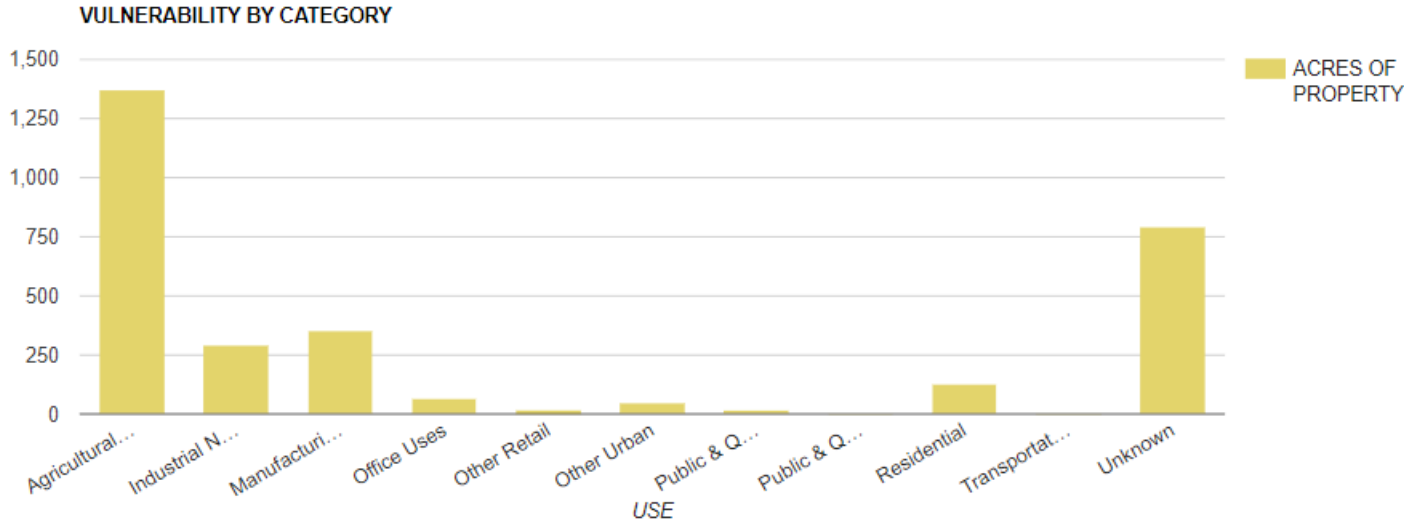
Tables and Charts

VULNERABILITY FOR PARCELS / SUNNYVALE

Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]



VULNERABILITY METRICS
TOTAL AMOUNT OF ASSET: 12,002.74 ACRES OF PROPERTY
VULNERABLE AMOUNT OF ASSET: 3,095 ACRES OF PROPERTY
PROPORTION OF TOTAL ASSET: 26%



PARCELS VULNERABILITY BY USE	
USE	ACRES OF PROPERTY
Agricultural, Extractive & Open Space	1,373.48
Industrial Non-Manufacturing	291.64
Manufacturing	353.72
Office Uses	68.77
Other Retail	20.06
Other Urban	46.5
Public & Quasi-Public Buildings and Uses	16.01
Public & Quasi-Public Open Space	0.14
Residential	130.94
Transportation, Communications and Utilities	0.27
Unknown	793.47



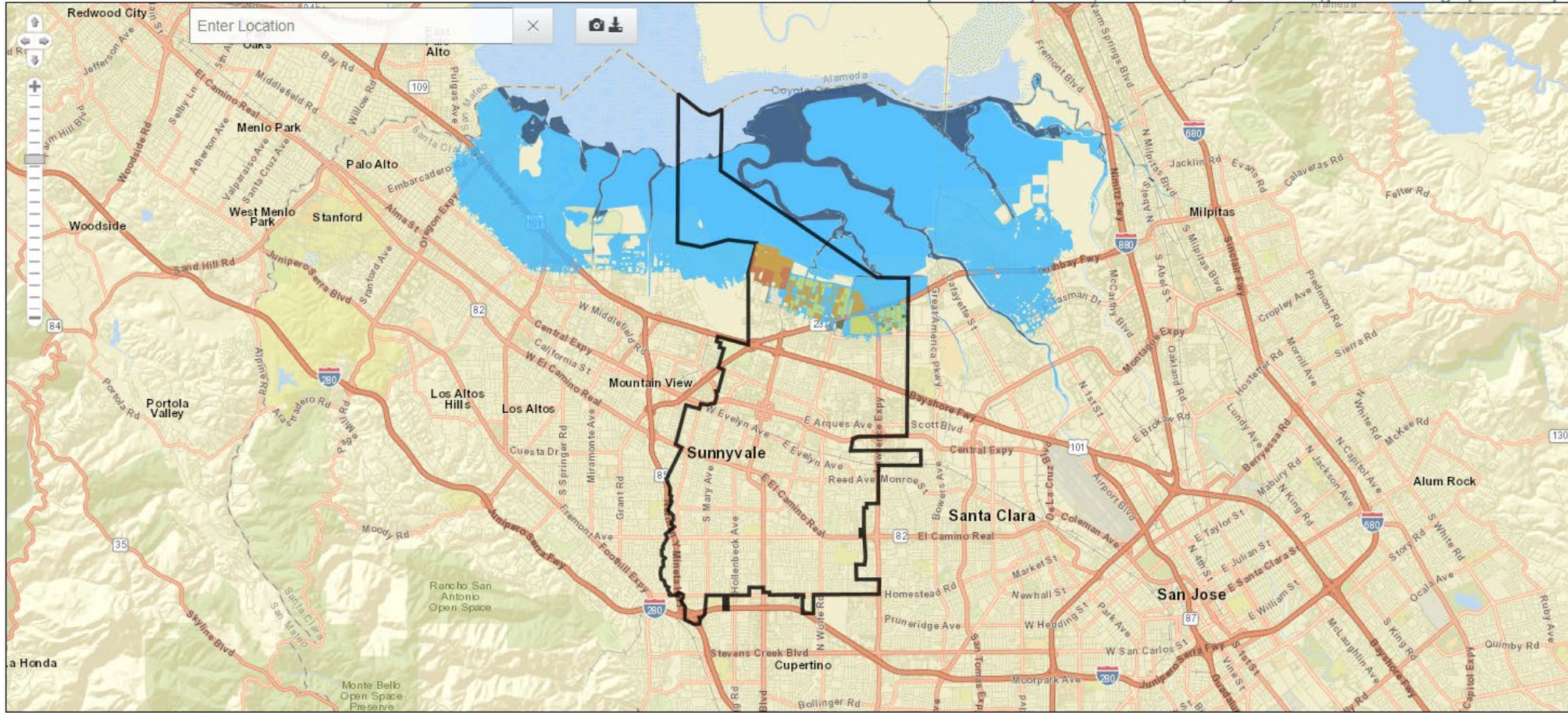
Risk Map

Home Projections Set Up Vulnerability Risk Impacts

Back to SET UP Sea Level Rise

RISK MAP - SUNNYVALE

Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]



MAP LEGEND

Risk Category Colors

[Dark Red]	EXTREME (> 500M)
[Red]	VERY HIGH (\$100-500M)
[Orange]	HIGH (\$10-100M)
[Yellow]	MODERATE (\$1-10M)
[Green]	LOW (< \$1M)

Climate Variables

☒ Sea Level Rise
[Mid-Century:
2050, 12" SLR
(Likely Scenario)] +
Storm Surge [100-
Year]

☐ Permanent Inundation
☐ 100-year Storm Surge (ss)

LAYER VISIBILITY:

Assets

☐ Parcels

☒ Buildings

LAYER VISIBILITY:

Risk Map

Risk Overview

RR

Risk Ranking Summary

\$

Economic Consequence Summary

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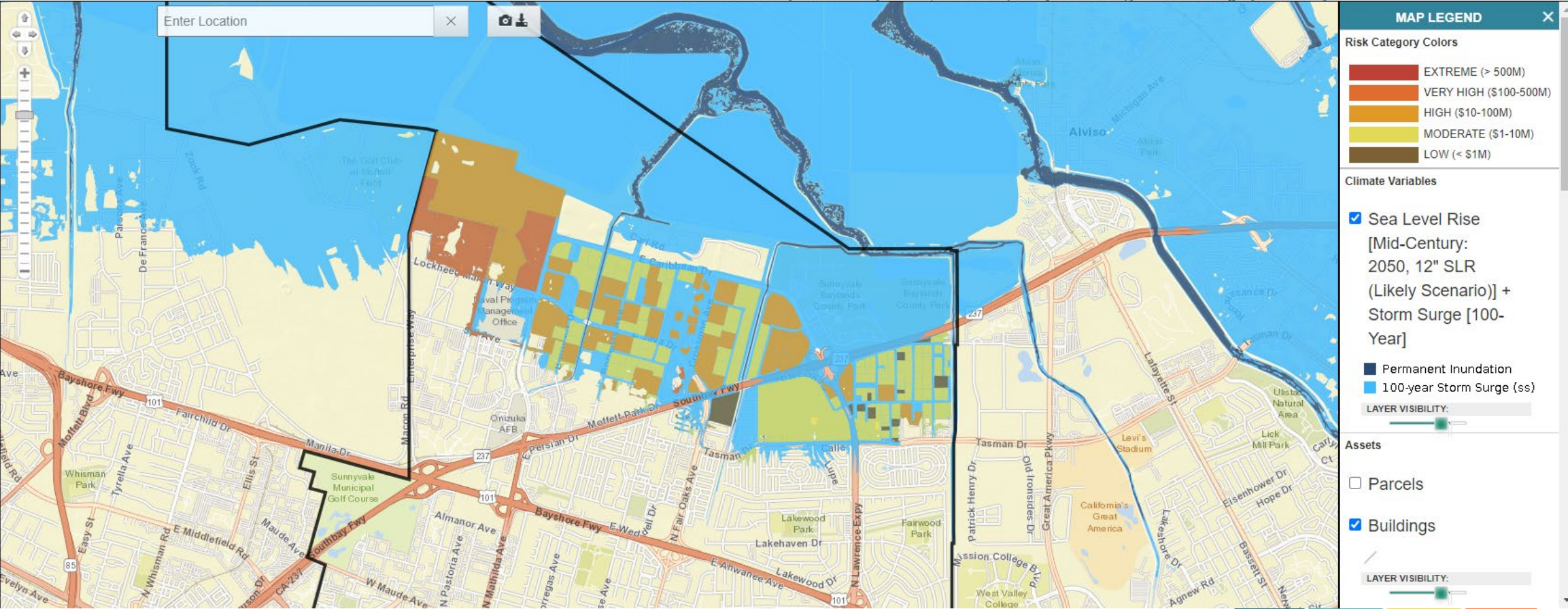
How Is Risk Calculated

Risk Map

[Back to SET UP](#) [Sea Level Rise](#)

RISK MAP - SUNNYVALE

Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]



Risk Overview

Risk Map

Risk Overview



Risk Ranking Summary

Economic Consequence Summary

How Is Risk Calculated

RISK FOR BUILDINGS / SUNNYVALE

Sea Level Rise [Mid-Century: 2050, 12" SLR (Likely Scenario)] + Storm Surge [100-Year]

CLIMATE VARIABLE	ASSET	CONSEQUENCE	LIKELIHOOD	RISK
 SEA LEVEL RISE + STORM SURGE	 BUILDINGS	<div><div><div>REPLACEMENT COSTS</div><div>INTERUPTION OF ECONOMIC ACTIVITY</div><div>LOSS OF FISCAL REVENUE</div><div>CHANGE IN OPERATIONAL COSTS</div></div><div><div>\$2,785</div><div>\$1,490</div><div>\$7</div><div>\$0</div></div><div><div>\$4,281</div></div></div> <div><div>EXTREME</div><div>VERY HIGH</div><div>HIGH</div><div>MODERATE</div><div>LOW</div></div> <div>* All costs are in millions of dollars</div>	<div><div>NEAR CERTAINTY</div><div>HIGHLY LIKELY</div><div>MODERATELY LIKELY</div><div>UNLIKELY</div><div>REMOTE</div></div>	<div><div>EXTREME</div><div>VERY HIGH</div><div>HIGH</div><div>MODERATE</div><div>LOW</div></div>





Climate Change Impacts In Santa Clara County



The effects of climate change caused by greenhouse gas emissions from human activity, including higher temperatures and heat waves, rising sea levels and increased extreme storms and wildfires, already pose multiple threats to the health and well-being of Santa Clara County residents. The County of Santa Clara has declared climate change caused by human activities to be an emergency that demands immediate action and is actively working to build resilience to the threats of climate change and natural disasters through collaboration and coordinated regional resilience efforts



RIVERINE FLOODING

Nine percent of the County's population lives within the current 100- year flood zone, and almost half of that exposed population are at higher risk due to a combination of social vulnerability factors. Even residents outside of the flood zone can experience impacts from flooding such as risks to public health, and damage to natural environment and infrastructure essential to their daily lives.

[Download Riverine Flooding Climate Impacts Fact Sheet >>](#)



WILDFIRE

Wildfire is a direct threat to human life and homes, especially in communities that border open space areas and the wildland-urban interface. Human health impacts from reduced air quality from these fires are even more far-reaching, as are impacts on critical infrastructure such as communications towers and electrical transmission lines.

[Download Wildfire Climate Impacts Fact Sheet >>](#)



SEA LEVEL RISE

86,000 residents or 4% of the County's population live in areas projected to be flooded by end of century due to sea level rise and/or storm surge. Aside from threats to people's homes, health, and well-being, sea level rise also impacts natural and wildlife habitats and critical infrastructure along the Bay shoreline that support essential community and economic services.

[Download Sea Level Rise And Coastal Storm Surge Climate Impacts Fact Sheet >>](#)



EXTREME HEAT

With countywide temperatures projected to increase, extreme heat has the potential to negatively impact public health and safety for all County residents, with socially vulnerable communities being particularly affected. Extreme heat may also lead to increased wear and tear on critical infrastructure such as highways, rail lines, and airport runways.

[Download Extreme Heat Climate Impacts Fact Sheet >>](#)

Contact Us!

Eena Sta Maria

magdalena.stamaria@ceo.sccgov.org

Contact the Office of Sustainability at

408.993.4760

sustainability@ceo.sccgov.org

Visit the Office of Sustainability at

sustainability.sccgov.org

