City of Sunnyvale

Agenda Item

19-0975 **Agenda Date:** 9/25/2019

REPORT TO THE ZONING ADMINISTRATOR

SUBJECT

Proposed Project:
SPECIAL DEVELOPMENT PERMIT: to allow a childcare center providing preschool and after school care for 120 children within an existing 6,920 square foot building.
Location: 755 S. Bernardo Avenue (APN:198-16-006)
File #: 2019-7502
Zoning: C-2/PD
Applicant / Owner: JY International Education LLC (applicant)/ Atul S and Kusum A Sheth Trustee (owner)
Environmental Review: A Class 1 and 3 Categorical Exemption relieves this project from the CEQA provisions.
Project Planner: Cindy Hom, 408-730-7411, chom@sunnyvale.ca.gov

BACKGROUND

The applicant previously submitted a Special Development Permit application for a child care center for 120 kids at this location. On November 28, 2018, the Zoning Administrator denied the application because of the potential noise impact related to the operations of the outdoor play area in proximity to residential uses. The Zoning Administrator found that the project did not meet a California Environmental Quality Act (CEQA) Categorical Exemption and warranted further environmental review.

The applicant redesigned the project and submitted a new SDP application for consideration. The revisions to the plans consist of the relocation of the outdoor play area to the front yard to comply with required noise standards, and reconfiguration of the parking lot and access.

Description of Proposed Project

The project site is located on a 0.87-acre parcel that is bounded by S. Bernardo Avenue to the east, Brookfield Avenue to the south, Citra Apartments to the west and north. The subject site is developed with a 6,920-square foot one-story commercial building, surface parking and landscaping along the perimeter of the site. The applicant is requesting a SDP to allow for a childcare center providing preschool and after school care for 120 children and installation of various site improvements. See Attachment 1 for a map of the vicinity and mailing area for notices.

Previous Actions on the Site

The building was previously used as a medical office for Obstetrics/Gynecology and Pediatric Care from 2003 to 2014. Since then, the building has remained vacant. There have been multiple requests to utilize the facility for child care or school. Most recent approvals included Miscellaneous Plan Permit for a cultural learning and educational center and small child care center. Both permits were never exercised.

ENVIRONMENTAL REVIEW

A Categorical Exemption Class1 Section 15301 and Class 3, Section 15303 (New Construction and Conversion of Small Structures) relieves this project from CEQA provisions. Under CEQA, two exemptions can be combined to exempt a project, and
each exemption is not required to cover the whole project, so long as the whole project is covered by the combined exemptions. The project entails the permitting of a child care facility within an existing 6,920 square foot office building. The project proposes a change in use of the building and installation of minor site improvements including a new trash enclosure, fencing, parking lot restriping and landscaping. Therefore, the project involves only minor site modification and negligible expansion of use

As discussed in the staff report, the expected noise levels associated with this revised project is in compliance with noise standards. Therefore, no further environmental review is required.

DISCUSSION

Proposed Use

The application is to allow for the operation of a child care center providing preschool and after school care for 120 children Monday through Friday between the hours of 8:30 AM to 6:30 PM. The proposed child care will also host periodic special events such as graduations as well as spring and winter celebrations.

Site Layout, Access and Circulation

The existing one-story building is located near the northeast corner of the site and is surrounded by parking and drive aisles on the south, west and north side of the building. Mature trees and landscaping are located along the perimeter of the site. The applicant does not propose any layout changes to the building and will maintain the existing building setbacks.

Site access and circulation is currently provided by two driveways on S. Bernardo Avenue and one driveway on Brookfield Avenue. The internal site circulation is provided by drive aisles. Pedestrian circulation is provided by public sidewalks along the street frontages and concrete walkways located on the east and south side of the building.

To accommodate safe and efficient pick-up and drop off operations, the applicant proposes the following site circulation modifications:

- Removal of the northern driveway on S. Bernardo Avenue and utilize a portion as outdoor play area.
- Convert the full access east driveway on S. Bernardo to a restricted access for only emergency vehicles by installing removable steel bollards.
- Reconfigure parking lot and directionality of the drive aisles, so that it allows for one-way in and out of the drop off zone. Parking spaces will be striped to indicate drop-off/pick-up spaces, which are located closest to the main entrance.

Additionally, Public Works staff is recommending the following public frontage improvement to ensure

pedestrian safety (Recommended Condition No: EP-6, EP-8 thru EP-10):

- Modifying corner radius at the Brookfield Avenue and S. Bernardo Avenue intersection and reducing the crosswalk crossing distance.
- Remove and install new curb ramps at the northwest and southwest corners of the Brookfield and Bernardo intersection to comply with current development standards.
- Conduct a photometric analysis to determine street lighting meets current City's Roadway Lighting Design Criteria.

Parking

The proposed project provides a total of 31 parking spaces. Based parking requirements for child care, 0.25 spaces are required for each child, which requires a total of 30 spaces. As proposed, the project complies with the parking requirements as demonstrated in the table below:

	Uses	**Sq. Ft or # of Students**	**Parking Ratio**	**# of Spaces Required**
Previous Use	Medical Office	6,920	3.3 per 1000	23
Proposed	Preschool/Child Care Center	120	.25 per child	30
Total number of spaces required for the proposed use				30
Total number of parking spaces provided				31

Trash Enclosure

The applicant is proposed to remove the existing trash enclosure that is on the northwest corner of the site and construct a new 203 square foot concrete masonry enclosure with a stucco finish and metal reveals. A roof cover is provided to conceal trash from the neighboring apartment buildings. The trash enclosure is proposed along the west property line. As proposed, it complies with the city's design standards and servicing requirements.

Tree Removal and Landscaping

The applicant is proposing the removal seven protected trees that are located along the building frontage which consist of Australian Willow trees and Flowering Plum tree. A tree is deemed protected if the tree trunk measures 38-inches in circumference. One out of the six Willow trees is dead. The Flowering Plum tree is in fair condition. Staff supports the removal of the trees because the Willow trees have been topped in the past and are show declining structure and demonstrate poor shape. These type of trees are also prone to losing branches. Three of the six trees are located within the play area and can be potential safety hazard. The other Willow trees are located in front landscaping area that will be replace with 15-gallon Crape Myrtle trees and other plantings for design continuity and consistent with the planting theme for the site. Staff recommends the planting plan is revised to install 24-inch box Crape Myrtle trees along the Bernardo frontage to help make up the loss of tree canopy (Recommended Condition No. PS-4.

According to the City's tree replacement standards, a total of (13) 24-inch box trees are required. As conditioned, the applicant will be installing a total of (11) 24-inch box trees and (4) 15-gallon size

trees consisting of Chinese Pistache, Sycamore, and Crape Myrtle trees. As proposed, the enhanced landscaping improves the overall appearance of the site by adding different plant varieties, color, and texture.

The existing landscaping does not meet current minimum development standards and is consider legal, non-conforming. The applicant proposes to add approximately 2,471 square feet of new landscaping which improves the non-conformity.

The project site is unable to meet the parking lot shading requirement because majority of the parking lot is constrained by a 140-foot wide PG&E easement which restrict tall trees and structures. No trees are proposed for removal within the parking lot area and therefore, the proposed changes do not increase the non-conformity of the site.

Outdoor Play Area and Fence Wall

The applicant proposes to convert approximately 3,790 of existing paving into two play areas that will be improved with artificial turf, landscaping and metal wrought iron fencing. The outdoor play on the south of the building will be enclosed with a 4' tall metal fence and a 6-foot tall metal fence for the outdoor play on the north side of the building. Both fences will include a metal mesh playground gate. Staff recommends a condition requiring the following (recommended Condition PS-2):

1. Install a 6-foot tall masonry wall along the west and north property line.
2. Install bollards to provide additional protection between the drive aisle and of the west corner of the playground on the south side of the building.
3. Fencing around the outdoor play areas shall be a 6-feet in height.

Architecture

The applicant proposes minor exterior building façade modifications, consisting of replacing existing storefront glazing with new windows and doors to match existing. The applicant is proposing a new door opening on the front elevation. This opening is required to meet building and fire safety regulations. As proposed, the building substantially maintains the original architecture and design.

NEIGHBORHOOD IMPACTS/COMPATIBILITY:

In terms of land use compatibility, the proposed project would be neighborhood-serving with the surrounding land uses consisting of residential homes and would be a complementary use to the nearby commercial establishments, churches and Cherry Chase Elementary School. The proposed child center would be compatible with other churches in the immediate vicinity in that the peak use of will not conflict with church services that typically occur during the evening and weekends.

Noise

The project would result in a minimal noise impact to the adjacent residential apartments. Based on the Noise Study prepared by Edward J. Pack and Associates, dated May 7, 2019, the project-generated noise levels and noise exposures will be within the limits of the City of Sunnyvale Noise Ordinance and Noise Element standards and within the allowable noise increases of CEQA policy. The playground noise levels will range from 51 to 60 dBA at the most impacted property line of the Citra Apartments to the west, from 52 to 56 dBA at the Citra Apartments first floor patios and upper floor balconies to the west, from 57 to 60 dBA at the Citra Apartments property line to the north and from 56 to 59 dBA at the Citra Apartments upper floor balconies to the north. Thus, the short-term playground noise levels will be within the 60 dBA daytime standard of the City of Sunnyvale Noise Ordinance at the common property lines and at the exterior living areas of the adjacent apartment

complex. Noise from project traffic on the local road network is expected to be negligible due to the small size of the project and low expected traffic volumes, project traffic is expected not to add to the existing noise exposures.

Traffic

A traffic operation analysis (TOA) was prepared by AECOM, dated September 2018. Based on the TOA, the proposed child care center will not generate over 100 peak hour vehicle trips and is expected to add less than one car to the queues during the peak hours. As such, the project will not negatively impact the level of service of adjacent roadways or generate operational issues with queuing of cars anticipated with the pick-up and drop-off operations. Furthermore, with implementation staff's recommended improvements, there should be minimal impacts related traffic.

PUBLIC CONTACT

270 notices were sent to surrounding property owners and residents adjacent to the subject site in addition to standard noticing practices, including advertisement in the Sunnyvale Sun Newspaper and on-site posting. Two letters were received from the public by staff and included in Attachment 8. One comment provided concerns related to the environmental analysis and land use compatibility and the other comment letter expressed general support for the proposed use.

ALTERNATIVES

1. Approve the Special Development Permit with recommended Conditions in Attachment 2.
2. Approve the Special Development Permit with modifications.
3. Deny the Special Development Permit.

RECOMMENDATION

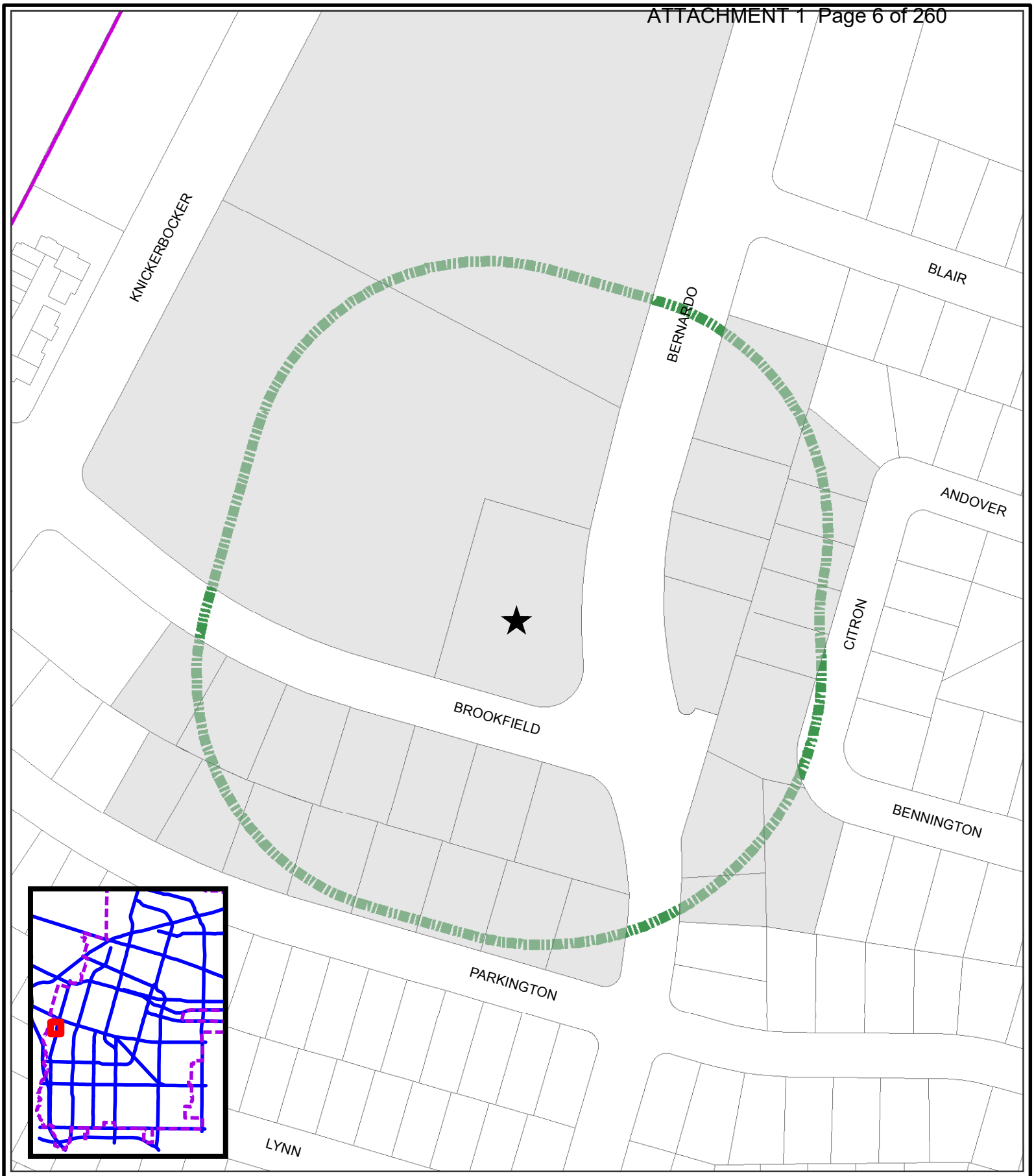
Alternative 1. Approve the Special Development Permit with recommended Conditions in Attachment 2.

Prepared by: Cindy Hom, Assistant Planner

Approved by: Noren Caliva-Lepe, Principal Planner

ATTACHMENTS

1. Vicinity and Noticing Map
2. Project Data
3. Recommended Findings
4. Standard Requirements and Recommended Conditions of Approval
5. Site and Architectural Plans
6. Noise Study
7. Traffic Operational Analysis
8. Comment Letters



2019-7502
755 S. Bernardo Ave (APN:198-16-006)
SPECIAL DEVELOPMENT PERMIT
300-ft Area

0 50 100 200 Feet

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PROJECT DATA TABLE

	EXISTING	PROPOSED	REQUIRED/ PERMITTED
General Plan	*Commercial (COM)*	*Commercial (COM)*	--
Zoning District	*Neighborhood Business (C-1)*	*Neighborhood Business (C-1)*	--
Combining District	*Planned Development (PD)*	*Planned Development (PD)*	
Lot Size (s.f.)	37,887 sq. ft.	Same	None
Gross Floor Area (s.f.)	6,920 sq. ft.	Same	None
Lot Coverage	18%	Same	35%
Floor Area Ratio (FAR%)	6,920	Same	None
No. of Buildings On-Site	1	Same	NA
Building Height	25'-4"	Same	40'
No. of Stories	1	Same	2
Setbacks			
Front [1]	16'-7"	Same	70' min.
Left Side	112'4"	Same	0
Right Side	23'-2"	Same	15'
Rear	54'-9"	Same	10'
Landscaping			
Total Landscaping (s.f.)[1]	4,047 sq. ft. (11%)	6518 sq. ft. (17%)	20%
% Based on Parking Lot[1]	2,382 sq. ft. (6%)	3,401 (9%)	20%
Parking Lot Area Shading[2]	N/A	4401 sq. ft (25%)	50% min. in 15 years
Landscape buffer[1]	4.5'	4.5'-10'	10'
Front Landscaping Strip[1]	16'-7	Same	15'
Parking			
Total Spaces	46	31	30
Electric Vehicle	0	1	3% or 1 stall
Rideshare	0	2	5% or 2 stalls
Bicycle Parking	0	8	5% or 2 stalls

[1] Legal, non-conforming. The front setback and landscaping was approved as part of the original development. Project does not increase existing deviations.

[2] SMC 19.46.120 (Parking lot design) (g) (1) (D) - Surfaces paved prior to January 1, 2002 are exempt from shading requirements.

RECOMMENDED FINDINGS

Special Development Permit

FINDINGS

In order to approve the Special Development Permit the following findings must be made:

1. The proposed use attains the objectives and purposes of the General Plan of the City of Sunnyvale as the project. Finding met.

The proposed project implements the City of Sunnyvale General Plan by encouraging child care in an area that would be neighborhood serving and compatible with the surrounding residential, quasi-public and commercial uses. The project is consistent with the below policy:

- Policy LT-14.12 - Recognize child care and places of assembly as essential services and land uses that support the diverse needs of the community. Avoid locating these sensitive uses near hazardous materials, noise, dust, etc.

2. The proposed use ensures that the general appearance of proposed structures, or the uses to be made of the property to which the application refers, will not impair either the orderly development of, or the existing uses being made of, adjacent properties. Finding met.

The proposed use is a desirable addition to the community, as it provides child care services that is conveniently located to residential and commercial uses. The proposed project provides the required parking as well as safe and adequate pick-up and drop-off circulation. The proposed outdoor play area will include a 6-8 foot tall masonry fence that will help minimize noise impacts. Therefore, the proposed use would not be detrimental to the public welfare or injurious to the property, improvements, or uses within the immediate vicinity.

Variance

1. Because of exceptional or extraordinary circumstances or conditions applicable to the property, or use, including size, shape, topography, location or surroundings, the strict application of the ordinance is found to deprive the property owner or privileges enjoyed by other properties in the vicinity and within the same zoning district. [Finding met]

   A hardship finding can be made due the following unique circumstances:
   a. Limitations of the project site – the project proposes to re-purpose the existing building as a child care center. As such, the location of the building is fixed and limits viable areas for the outdoor play area that will not conflict with site circulation, remove required parking, and provides a safe play environment. Although the applicant studied an alternative location, the noise reduction is still not enough to meet the 60 dBA threshold.
   b. Infeasibility of noise barriers to shield the upper floor balconies – It is infeasible to build a sound wall to mitigate balconies that are on 2nd and 3rd floors. A tall wall would not be desirable or aesthetic and would not meet the City's design guidelines for neighborhood compatibility.
   c. There are no noise mitigation measures available to reduce the noise excesses at the balconies.

   The outdoor play area will be utilized twice a day between the hours of 9:00AM to 11:00AM and again in the afternoon between the hours of 3:00 PM to 5:00PM. The outdoor play times are limited to 30-minute sessions consisting of group of 30 kids at any given time. The outdoor play times are consistent with the City's child care center guidelines in that it limits the outdoor play time to hours when neighbors are least likely to be disturbed (after 9:00 AM and before 5:00 PM).

2. The granting of the Variance will not be materially detrimental to the public welfare or injurious to the property, improvements or uses within the immediate vicinity and within the same zoning district. [Finding met]

   The granting of the variance will not be materially detrimental to the public welfare or injurious to the property, improvements or uses within the immediate vicinity and within the same zoning district. The noise disturbance would be limited to certain hours of the day during the weekdays and only affect the second and third story balconies that are adjacent to the proposed outdoor play area.

3. Upon granting of the Variance, the intent and purpose of the ordinance will still be served and the recipient of the Variance will not be granted special privileges not enjoyed by other surrounding property owners within the same zoning district.

   The granting of the variance would not constitute a special privilege not enjoyed by other surrounding property owners within the same zoning district since there are no other precedence for a variance to exceed operational noise standards in

the C-1 District or for other child care facilities to exceed the operational noise levels.

There are multiple child care sites that abut residential. The Tulip Daycare at 1279 Lawrence Station Rd. is a located within a Mixed Use Residential development. The outdoor play is directly below balconies of residential units. As such, the siting of the outdoor play area would not be dissimilar to other approved child care facilities.

Furthermore, the General Plan encourages community serving uses such as child care center. The project is consistent with the City's Guidelines for Commercial Child Care Center and meets the following:

a. Appropriately zoned.
b. Adequately accommodates requirements for parking, site circulation and outdoor activity space.
c. Located adjacent to residential areas on major collector and arterial streets.

Tentative Map

In order to approve the Tentative Map, the proposed subdivision must be consistent with the general plan. Staff finds that the Tentative Map is in conformance with the General Plan. However, if any of the following findings can be made, the Tentative Map shall be denied. Staff was not able to make any of the following findings and recommends approval of the Tentative Map.

1. That the subdivision is not consistent with the General Plan.

2. That the design or improvement of the proposed subdivision is not consistent with the General Plan.

3. That the site is not physically suitable for the proposed type of development.

4. That the site is not physically suitable for the proposed density of development.

5. That the design of the subdivision or proposed improvements is likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.

6. That the design of the subdivision or type of improvements is likely to cause serious public health problems.

7. That the design of the subdivision or the type of improvements will conflict with easements, acquired by the public at large, for access through or use of property within the proposed subdivision.

8. That the map fails to meet or perform one or more requirements or conditions imposed by the "Subdivision Map Act" or by the Municipal Code

Staff was not able to make any of the findings (B.1-8), and recommends approval of the Tentative Map.

Council Policy Manual: Telecommunications (7.2.16)

The City of Sunnyvale's Council Policy Manual (CPM) is a compendium of policies established by City Council resolution or motion which provide guidelines for current or future City action. Such policies, when implemented, assist in achieving General Plan goals.

- **Policy Statement 1.A.5 -** Support retention of local zoning authority for cellular towers, satellite dish antennas, and other telecommunications equipment, facilities and structures.
- **Policy Statement 2 -** Promote universal access to telecommunications services for all Sunnyvale residents.

RECOMMENDED
CONDITIONS OF APPROVAL AND
STANDARD DEVELOPMENT REQUIREMENTS
SEPTEMBER 25, 2019

Planning Application 2019-7502
755 S. Bernardo Ave.

SPECIAL DEVELOPMENT PERMIT: To allow for the operations of a 6,920-square foot child care center within an existing one-story office building and installation of associated site improvements.

The following Conditions of Approval [COA] and Standard Development Requirements [SDR] apply to the project referenced above. The COAs are specific conditions applicable to the proposed project. The SDRs are items which are codified or adopted by resolution and have been included for ease of reference, they may not be appealed or changed. The COAs and SDRs are grouped under specific headings that relate to the timing of required compliance. Additional language within a condition may further define the timing of required compliance. Applicable mitigation measures are noted with "Mitigation Measure" and placed in the applicable phase of the project.

In addition to complying with all applicable City, County, State and Federal Statutes, Codes, Ordinances, Resolutions and Regulations, Permittee expressly accepts and agrees to comply with the following Conditions of Approval and Standard Development Requirements of this Permit:

GC: THE FOLLOWING GENERAL CONDITIONS AND STANDARD DEVELOPMENT REQUIREMENTS SHALL APPLY TO THE APPROVED PROJECT.

GC-1. CONFORMANCE WITH APPROVED PLANNING APPLICATION:
All building permit drawings and subsequent construction and operation shall substantially conform with the approved planning application, including: drawings/plans, materials samples, building colors, and other items submitted as part of the approved application. Any proposed amendments to the approved plans or Conditions of Approval are subject to review and approval by the City. The Director of Community Development shall determine whether revisions are considered major or minor. Minor changes are subject to review and approval by the Director of Community Development. Major changes are subject to review at a public hearing. [COA] [PLANNING]

GC-2. ENTITLEMENTS—EXERCISE AND EXPIRATION:

The approved entitlements shall be null and void two years from the date of approval by the final review authority if the approval is not exercised, unless a written request for an extension is received prior to the expiration date and is approved by the Director of Community Development. [SDR] (PLANNING)

GC-3. ENTITLEMENTS—DISCONTINUANCE AND EXPIRATION:
The entitlements shall expire if discontinued for a period of one year or more. [SDR] (PLANNING)

GC-4. INDEMNITY:
The applicant/developer shall defend, indemnify, and hold harmless the City, or any of its boards, commissions, agents, officers, and employees (collectively, "City") from any claim, action, or proceeding against the City to attack, set aside, void, or annul, the approval of the project when such claim, action, or proceeding is brought within the time period provided for in applicable state and/or local statutes. The City shall promptly notify the developer of any such claim, action or proceeding. The City shall have the option of coordinating the defense. Nothing contained in this condition shall prohibit the City from participating in a defense of any claim, action, or proceeding if the City bears its own attorney's fees and costs, and the City defends the action in good faith. [COA] [OFFICE OF THE CITY ATTORNEY]

GC-5. NOTICE OF FEES PROTEST:
As required by California Government Code Section 66020, the project applicant is hereby notified that the 90-day period has begun as of the date of the approval of this application, in which the applicant may protest any fees, dedications, reservations, or other exactions imposed by the city as part of the approval or as a condition of approval of this development. The fees, dedications, reservations, or other exactions are described in the approved plans, conditions of approval, and/or adopted city impact fee schedule. [SDR] [PLANNING / OCA]

GC-6. SIGNS:
All existing/new signs shall be brought into conformance with Title 19 of the Sunnyvale Municipal Code. [PLANNING] [COA]

GC-7. PUBLIC IMPROVEMENTS:
Developer shall install public improvements as required by the City, including but not limited to, curb & gutter, sidewalks, driveway approaches, curb ramps, street pavements, meters/vaults, trees and landscaping, striping, street lights, etc.

All public improvements shall be designed and constructed in accordance with current City design standards, standard details and specifications, and Americans with Disabilities Act (ADA) requirements where applicable, unless otherwise approved by the Department of Public Works. The site development plan with sheets A-101 and C-01 through C-13 dated 9/11/19 is subject to change during the plan check process.

The developer is required to complete the installation of all public improvements and other improvements deemed necessary by the Public Works Department, prior to occupancy of the first building, or to the satisfaction of the Public Works Department.
[COA] [PUBLIC WORKS]

GC-8. OFF-SITE IMPROVEMENT PLANS:
Submit off-site improvement plans separate from the Building on-site improvement plans as the off-site improvement plans are approved through a Public Works Encroachment Permit process. The site development plan with sheets A-101 and C-01 through C-13 dated 9/11/19 is subject to change during the plan check process. [SDR] [PUBLIC WORKS]

GC-9. ENCROACHMENT PERMIT:
Prior to any work in the public right-of-way, obtain an encroachment permit with insurance requirements for all public improvements including a traffic control plan per the latest California Manual on Uniform Traffic Control Devices (MUTCD) standards to be reviewed and approved by the Department of Public Works. [COA] [PUBLIC WORKS]

PS: THE FOLLOWING CONDITIONS SHALL BE MET PRIOR TO SUBMITTAL OF BUILDING PERMIT, AND/OR GRADING PERMIT.

PS-1. EXTERIOR MATERIALS REVIEW:
Final exterior building materials and color scheme are subject to review and approval by the Director of Community Development prior to submittal of a building permit. [COA] [PLANNING]

PS-2. FENCING:
Prior to building permit issuance, the Permittee shall revise plans to incorporate the following:

(1) Install a 6-foot tall masonry wall along the west and north property line if adjacent property owner provide consent.

(2) Install bollards to provide additional protection between the drive aisle and of the west corner of the playground on the south side of the building.

(3) Fencing around the outdoor play areas shall be a 6-feet in height.

PS-3. FRONTAGE TREES:
Prior to building permit issuance, the landscaping plan shall be revised to install 24-inch box Crape Myrtle trees along the Bernardo frontage to help make up the loss of tree canopy

PS-4. APPROVAL FROM UTILITY COMPANIES:
Prior to any plan check submittal, developer shall coordinate with utility companies for new private improvements in the existing PG&E easement present on the property.

Approval letters from the utility company is required for private improvements in the easement with recordation of a notice of covenant for private improvements located in the easement prior to building permit issuance.

Alternative arrangement may be considered to the City's satisfaction with consent from the utility companies. [COA] [PLANNING/PUBLIC WORKS]

BP: THE FOLLOWING CONDITIONS SHALL BE ADDRESSED ON THE CONSTRUCTION PLANS SUBMITTED FOR ANY DEMOLITION PERMIT, BUILDING PERMIT, GRADING PERMIT, AND/OR ENCROACHMENT PERMIT AND SHALL BE MET PRIOR TO THE ISSUANCE OF SAID PERMIT(S).

BP-1. CONDITIONS OF APPROVAL:
Final plans shall include all Conditions of Approval included as part of the approved application starting on sheet 2 of the plans. [COA] [PLANNING]

BP-2. RESPONSE TO CONDITIONS OF APPROVAL:
A written response indicating how each condition has or will be addressed shall accompany the building permit set of plans. [COA] [PLANNING]

BP-3. NOTICE OF CONDITIONS OF APPROVAL:
A Notice of Conditions of Approval shall be filed in the official records of the County of Santa Clara and provide proof of such recordation to the City prior to issuance of any City permit, allowed use of the

property, or Final Map, as applicable. The Notice of Conditions of Approval shall be prepared by the Planning Division and shall include a description of the subject property, the Planning Application number, attached conditions of approval and any accompanying subdivision or parcel map, including book and page and recorded document number, if any, and be signed and notarized by each property owner of record.

For purposes of determining the record owner of the property, the applicant shall provide the City with evidence in the form of a report from a title insurance company indicating that the record owner(s) are the person(s) who have signed the Notice of Conditions of Approval. [COA] [PLANNING]

BP-4. FEES AND BONDS:
The following fees and bonds shall be paid in full prior to issuance of building permit.

a) TRANSPORTATION IMPACT FEE - Pay Traffic Impact fee for the net new trips resulting from the proposed project, estimated at $8,172.52, prior to issuance of a Building Permit. (SMC 3.50). [SDR] [PLANNING]

BP-5. BLUEPRINT FOR A CLEAN BAY:
The building permit plans shall include a “Blueprint for a Clean Bay” on one full sized sheet of the plans. [SDR] [PLANNING]

BP-6. RECYCLING AND SOLID WASTE CONTAINER:
All recycling and solid waste containers shall be metal or State Fire Marshall listed non-metallic. The building permit plans shall provide details illustrating compliance with this condition. [COA] [PLANNING]

BP-7. SOLID WASTE AND RECYCLING ENCLOSURE:
The building permit plans shall include details for the installation of recycling and solid waste enclosures that are consistent with SMC 19.38.030. The solid waste disposal and recycling facilities within the enclosure area or within buildings shall be designed with adequate size, space and clearance based upon City’s latest guidelines. The required enclosures shall:

a) Match the design, materials and color of the main building;
b) Be of masonry construction;
c) Be screened from view;
d) All gates, lids and doors shall be closed at all times;
e) Shall not conflict with delivery/receiving areas;

f) Shall be consistent with the approved Solid Waste and Recycling Management Plan;
g) Solid waste and recycling diversion systems shall be incorporated into the facilities and tenant improvements. [COA] [PLANNING/ENVIRONMENTAL SERVICES]

BP-8. SOLID WASTE SERVICES:
Waste and recycling services shall be maintained under one account for each of the public domestic water meters that serve an occupied building held by the applicant, owner or landlord, unless otherwise approved by the city. The account holder is responsible for ensuring adequate services and that all locations, private sidewalks and streets are kept free of litter and stains. Requirements shall be specified in the approved documents and be submitted for approval by the city. [COA] [FINANCE/ENVIRONMENTAL SERVICES]

BP-9. SOLID WASTE DISPOSAL AND RECYCLING DESIGN PLAN:
A detailed solid waste disposal and recycling design plan shall be submitted for review and approval by the Director of Community Development prior to issuance of building permit. The solid waste disposal plan and building permit plans shall demonstrate compliance with current City requirements and guidelines for non-residential projects. [COA] [PLANNING/ENVIRONMENTAL SERVICES]

BP-10. ROOF EQUIPMENT:
Roof vents, pipes and flues shall be combined and/or collected together on slopes of roof or behind parapets out of public view as per Title 19 of the Sunnyvale Municipal Code and shall be painted to match the roof. [COA] [PLANNING]

BP-11. EXHAUST AND OPENINGS:
No exhaust fans, doors, windows, or openings, of any kind shall be placed on the wall to the rear or where residential use is to the rear of the proposed building, except as may be required by the City, nor shall any machines or fans be placed on the roof of the building which exhaust dust or odors. The building permit plans shall clearly indicate the location of all exhaust equipment, doors and window and shall be subject to review and approval by the Planning Director. [COA] [PLANNING]

BP-12. LANDSCAPE PLAN:
Landscape and irrigation plans shall be prepared by a certified professional, and shall comply with Sunnyvale Municipal Code Chapter 19.37 requirements. Landscape and irrigation plans are subject to review and approval by the Director of Community Development

through the submittal of a Miscellaneous Plan Permit (MPP). The landscape plan shall include the following elements:

a) Ground cover shall be planted so as to ensure full coverage eighteen months after installation.

BP-13. TREE PROTECTION PLAN:
Prior to issuance of a Demolition Permit, a Grading Permit or a Building Permit, whichever occurs first, obtain approval of a tree protection plan from the Director of Community Development. Two copies are required to be submitted for review. The tree protection plan shall include measures noted in Title 19 of the Sunnyvale Municipal Code and at a minimum:

a) An inventory shall be taken of all existing trees on the plan including the valuation of all 'protected trees' by a certified arborist, using the latest version of the "Guide for Plant Appraisal" published by the International Society of Arboriculture (ISA).

b) All existing (non-orchard) trees on the plans, showing size and varieties, and clearly specify which are to be retained.

c) Provide fencing around the drip line of the trees that are to be saved and ensure that no construction debris or equipment is stored within the fenced area during the course of demolition and construction.

d) The tree protection plan shall be installed prior to issuance of any Building or Grading Permits, subject to the on-site inspection and approval by the City Arborist and shall be maintained in place during the duration of construction and shall be added to any subsequent building permit plans. [COA] [PLANNING/CITY ARBORIST]

BP-14. BEST MANAGEMENT PRACTICES - STORMWATER:
The project shall comply with the following source control measures as outlined in the BMP Guidance Manual and SMC 12.60.220. Best management practices shall be identified on the building permit set of plans and shall be subject to review and approval by the Director of Public Works:

a) Storm drain stenciling. The stencil is available from the City's Environmental Division Public Outreach Program, which may be reached by calling (408) 730-7738.

b) Landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, minimizes the use of pesticides and fertilizers, and incorporates appropriate sustainable landscaping practices and programs such as Bay-Friendly Landscaping.

c) Appropriate covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas.

d) Covered trash, food waste, and compactor enclosures.

e) Plumbing of the following discharges to the sanitary sewer, subject to the local sanitary sewer agency's authority and standards:

   i) Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants.

   ii) Dumpster drips from covered trash and food compactor enclosures.

   iii) Discharges from outdoor covered wash areas for vehicles, equipment, and accessories.

   iv) Swimming pool water, spa/hot tub, water feature and fountain discharges if discharge to onsite vegetated areas is not a feasible option.

   v) Fire sprinkler test water, if discharge to onsite vegetated areas is not a feasible option. [SDR] [PLANNING]

BP-15. CITY STREET TREES:
The landscape plan shall including street trees and shall be submitted for review and approval by the City Arborist prior to issuance of building permit. [COA] [ENGINEERING/CITY ARBORIST]

BP-16. EXTERIOR LIGHTING PLAN:
Prior to issuance of a Building Permit submit an exterior lighting plan, including fixture and pole designs, for review and approval by the Director of Community Development. Driveway and parking area lights shall include the following:

a) Pole heights to be uniform and compatible with the areas, including the adjacent residential areas. Light standards shall not exceed 18 feet on the interior of the project and 8 feet in height on the periphery of the project near residential uses.

b) Provide photocells for on/off control of all security and area lights.

c) All exterior security lights shall be equipped with vandal resistant covers.

d) Wall packs shall not extend above the roof of the building.

e) Lights shall have shields to prevent glare onto adjacent residential properties. [COA] [PLANNING]

BP-17. PARKING MANAGEMENT PLAN (NONRESIDENTIAL):
A Parking Management Plan shall be submitted for review and approval by the Director of Community Development prior to issuance of a

building permit. The Parking Management Plan shall include the following:

a) Employee parking locations shall be away from the building, in parking spaces that are the least used.

b) Specify the location and term of short-term parking.

c) Allow the use of valet parking when appropriate on sites with limited parking.

d) Employees shall be required to park on the site.

e) Provide adequate signage to direct traffic and pedestrians [COA] [PLANNING]

BP-18. BICYCLE SPACES:
Provide eight Class II bicycle parking spaces per Citywide Design Guidelines and as approved by the Director of Community Development. Clearly indicate the location and the number of bicycle parking spaces on the Building Permit plans. [COA] [PLANNING]

BP-19. CARPOOL PARKING:
A total of two preferential parking spaces shall be reserved and so marked in the closest possible rows adjoining the building (allowing for visitor, disabled and pool van parking) for exclusive use by carpool vehicles carrying at least two employees per vehicle. [COA] [PLANNING]

BP-20. CONSTRUCTION MANAGEMENT PLAN:
The project applicant shall implement a Construction Management Plan (CMP) to minimize impacts of construction on surrounding residential uses to the extent possible. The CMP shall be subject to review and approval by the Director of Community Development prior to issuance of a demolition permit, grading permit, or building permit. The CMP shall identify measures to minimize the impacts of construction including the following:

a) Measures to control noise by limiting construction hours to those allowed by the SMC, avoiding sensitive early morning and evening hours, notifying residents prior to major construction activities, and appropriately scheduling use of noise-generating equipment.

b) Use ‘quiet’ models of air compressors and other stationary noise sources where such technology exists.

c) Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.

d) Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from residences or other noise-sensitive land uses.

e) Locate staging areas and construction material areas as far away as possible from residences or noise-sensitive land uses.

f) Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction-related heavy truck traffic in residential areas where feasible. Obtain approval of proposed construction vehicle truck routes from the Department of Public Works.

g) Manage construction parking so that neighbors are not impacted by construction vehicles. When the site permits, all construction parking shall be on-site and not on the public streets.

h) Prohibit unnecessary idling of internal combustion engine-driven equipment and vehicles.

i) Notify all adjacent business, residents, and noise-sensitive land uses of the construction schedule in writing. Notify nearby residences of significant upcoming construction activities at appropriate stages in the project using mailing or door hangers.

j) Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule. [COA] [PLANNING]

BP-21. CONSTRUCTION MATERIAL AND STAGING:
All construction related materials, equipment, and construction workers parking need to be managed on-site and not located in any public right-of-ways or public easements. [COA] [PUBLIC WORKS]

BP-22. DEMOLITION/CONSTRUCTION/RECYCLING WASTE REPORT FORM:
To mitigate the impacts of large projects on local waste disposal and recycling levels, demolition waste weights/volumes, construction weights/volumes, and recycling weights/volumes are to be reported to the City using Sunnyvale.wastetracking.com hosted by Green Halo. As part of the project's construction specifications, the developer shall track the type, quantity, and disposition of materials generated, and submit these records through the website both periodically and at project completion [COA][ENVIRONMENTAL SERVICES]

BP-23. STORMWATER MANAGEMENT PLAN:

Submit two copies of a Stormwater Management Plan subject to review and approval by Director of Community Development, pursuant to SMC 12.60, prior to issuance of building permit. The Stormwater Management Plan shall include an updated Stormwater Management Data Form. [COA] [PLANNING/ENVIRONMENTAL SERVICES]

BP-24. STORMWATER MANAGEMENT PLAN THIRD-PARTY CERTIFICATION: Third-party certification of the Stormwater Management Plan is required per the following guidance: City of Sunnyvale – Stormwater Quality BMP Applicant Guidance Manual for New and Redevelopment Projects - Addendum: Section 3.1.2 Certification of Design Criteria Third-Party Certification of Stormwater Management Plan Requirements. The third-party certification shall be provided prior to building permit issuance. [SDR] [PLANNING/ENVIRONMENTAL SERVICES]

EP: THE FOLLOWING CONDITIONS SHALL BE ADDRESSED AS PART OF AN ENCROACHMENT PERMIT APPLICATION.

EP-1. COMPLETE OFF-SITE IMPROVEMENT PLAN SET:
A complete plan check set applicable to the project, which may include street improvement plans, streetscape plans, streetlight plans, photometric analysis, striping plans, erosion control plans, and traffic control plans shall be submitted as part of the first off-site improvement plans, including on-site and off-site engineering cost estimate and the initial Engineer and Inspection plan review fee. Joint trench plans may be submitted at a later date. No partial sets are allowed unless otherwise approved by the Department of Public Works. The site development plan with sheets A-101 and C-01 through C-13 dated 9/11/19 is subject to change during the plan check process. See Improvement Plan Checklist and Improvement Plan Submittal Checklist at the following 2 links:
https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?BlobID=24002
https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?BlobID=23625 [COA] [PUBLIC WORKS]

EP-2. UPGRADE OF EXISTING PUBLIC IMPROVEMENTS:
As part of the off-site improvement plan review and approval, any existing public improvements to be re-used by the project, which are not in accordance with current City standards and are not specifically identified in the herein project, shall be upgraded to current City standards and as required by the Department of Public Works. [COA] [PUBLIC WORKS]

EP-3. BENCHMARKS:
The improvement plans shall be prepared by using City's latest benchmarks (NAVD88) available on City's website https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?BlobID=23803 Plans based on NGVD29 will not be accepted. [COA] [PUBLIC WORKS]

EP-4. UTILITY CONNECTION:
This project requires connection to all City utilities or private utilities operating under a City or State franchise which provide adequate levels of service. [COA] [PUBLIC WORKS]

EP-5. EXISTING UTILITY ABANDONMENT/RELOCATION:
Developer is responsible for research on all existing utility lines to ensure that there are no conflicts with the project. All existing utility lines (public or private) and/or their appurtenances not serving the project and/or have conflicts with the project, shall be capped, abandoned, removed, relocated and/or disposed of to the satisfaction of the City. Existing public facilities within the street right-of-way shall be abandoned per City's Abandonment Notes and procedures, including abandonment by other utility owners. [COA] [PUBLIC WORKS]

EP-6. MODIFICATIONS TO EXISTING PUBLIC UTILITIES:
Developer is required to pay for all changes or modifications to existing City utilities, streets and other public utilities within or adjacent to the project site, including but not limited to utility facilities/conduits/vaults relocation due to grade change in the sidewalk area, caused by the development. [COA] [PUBLIC WORKS]

EP-7. DRY UTILITIES:
Submit dry utility plans and/or joint trench plans (PG&E, telephone, cable TV, fiber optic, etc.) to the Public Works Department for review and approval prior to issuance of any permits for utility work within any public right-of-way or public utility easements. Separate encroachment permits shall be required for various dry utility construction. [SDR] [PUBLIC WORKS]

EP-8. WET UTILITIES:
All wet utilities (water, sanitary sewer, storm drain) on private property shall be privately owned and maintained. The fire and domestic water systems shall be privately owned and maintained beyond the meter. [COA] [PUBLIC WORKS]

EP-9. RE-USE OF EXISTING CITY UTILITY SERVICE LINES:

Re-use of existing City sanitary sewer and storm drain service lines and appurtenances is subject to City's review and approval. Developer's contractor shall expose the existing facilities during construction for City's evaluation or provide video footage of the existing pipe condition. Developer's contractor shall replace any deficient facilities as deemed necessary by Public Works Department. The site development plan with sheets A-101 and C-01 through C-13 dated 9/11/19 is subject to change during the plan check process. [COA] [PUBLIC WORKS]

EP-10. SANITARY SEWER CLEANOUT:
Install new sanitary sewer cleanout at the street right-of-way lines for all existing and proposed sanitary sewer laterals to be used for the project. [SDR] [PUBLIC WORKS]

EP-11. SANITARY SEWER AND STORM DRAIN TRIBUTARY PATTERN:
This project is required to follow the existing sanitary sewer and storm drain tributary pattern. Any deviations would require additional analysis and be subject to approval by the Department of Public Works as part of the off-site improvement plan review process. This project shall not cause any negative impact on the drainage pattern for adjacent properties. [COA] [PUBLIC WORKS]

EP-12. CATCH BASIN TRASH CAPTURE DEVICES AND STENCILING:
Pursuant to SMC 12.60.130, install full trash capture devices on the project site, prior to connecting to the City's storm drain collection system. The developer shall be responsible for perpetual maintenance of those trash capture devices. All storm drain inlet facilities located in the public right-of-way shall be stenciled that read "NO DUMPING". Stencils may be borrowed and returned by coordinating with the Environmental Services Department by calling 408-730-7738. [COA] [PLANNING/ENVIRONMENTAL SERVICES]

EP-13. UTILITY METER/VAULT:
No existing or new utility meters or vaults shall be located within the new driveway approach areas. All existing or new utility vaults serving the project site shall be located on-site and not within the public utility easement, if any. [COA] [PUBLIC WORKS]

EP-14. DRIVEWAY APPROACHES:
Remove existing driveway approach on Brookfield Avenue and install new driveway approach to comply with Americans with Disabilities Act (ADA) requirements and per city standard details and specifications.

The two unused existing driveway approaches along the Bernardo Avenue frontage shall be replaced with new curb, gutter and sidewalk. [COA] [PUBLIC WORKS]

EP-15. CURB RAMPS:
Remove and replace existing curb ramp and install new curb ramp at the northwest corner of Bernardo Ave and Brookfield Ave. Additional re-grading of asphalt may be required to ensure there are no localized low points and positive surface runoff occurs along the flow line. [COA] [PUBLIC WORKS]

EP-16. STREETSCAPE IMPROVEMENTS:
Remove existing curb, gutter, and sidewalk along the curb return at the northwest corner of Bernardo Avenue and Brookfield Avenue and install new curb, gutter, and sidewalk per City of Sunnvyale standard details with a curb return radius of 30 feet at the face of curb, or as directed by Public Works.

Remove existing curb, gutter, and sidewalk along Bernardo Avenue between the curb return at the northwest corner of Bernardo Avenue and Brookfield Avenue and the north edge of the existing southernmost driveway approach along the project frontage and install new curb, gutter, and 9.5-foot sidewalk (not including 6-inch curb) per City of Sunnyvale standard detail 9C, or as directed by Public Works.

Remove existing curb, gutter, and sidewalk along Brookfield Avenue from the curb return at the northwest corner of Bernardo Avenue and Brookfield Avenue to a point 20 feet west of said curb return and install new curb, gutter, and 6-foot sidewalk per City of Sunnyvale standard detail 9C, or as directed by Public Works. [COA] [PUBLIC WORKS]

EP-17. STREET PARKING:
Vehicle parking, passenger loading and unloading, and vehicle stopping are not permitted along Bernardo Avenue project frontage as well as Brookfield Avenue project frontage. Installation of signage is subject to review and approval by Public Works. [COA] [PUBLIC WORKS]

EP-18. INTERSECTION CORNER RADIUS AND CROSSWALK DISTANCE:
The corner radius at the northwest corner of the intersection of Bernardo Avenue and Brookfield Avenue shall be reduced to 30 feet measured at the face of curb, or as directed by the Department of Public Works. Additionally, the crosswalk crossing distance shall be reduced. Removal, addition, and or relocation of striping will be required to the satisfaction of the Department of Public Works. Removal of existing striping will require pavement grinding and slurry seal restoration. [COA] [PUBLIC WORKS]

EP-19. CIRCULATION PLAN:

Provide a pedestrian and vehicle circulation plan as part of the off-site improvement plans. Include fire truck turning templates, truck turning templates (WB-40), and garbage truck turning templates for both off-site and on-site turning movemenets. [COA] [PUBLIC WORKS]

EP-20. PHOTOMETRIC ANALYSIS:
The developer is required to provide a photometric analysis based upon LED fixtures for S Bernardo Avenue and Brookfield Avenue so as to determine that the street lighting meets current City's Roadway Lighting Design Criteria. Roadway, sidewalk and crosswalk Illuminance calculations shall be calculated separately from each other.

The roadway and sidewalk illuminance values required to be met for S Bernardo Avenue are:

1. Minimum Maintained Average Illuminance ≥ 0.4 fc
2. Uniformity Ratio (Avg/Min) ≤ 6.0
3. Max/Min ratio ≤ 20
4. Desirable lighting level for marked crosswalks is 2.2 fc. However, if this is not achievable the developer shall install at least one safety light on each side of the crosswalk.

The roadway and sidewalk illuminance values required to be met for Brookfield Avenue are:

1. Minimum Maintained Average Illuminance ≥ 0.6 fc
2. Uniformity Ratio (Avg/Min) ≤ 4.0
3. Max/Min ratio ≤ 20
4. Desirable lighting level for marked crosswalks is 2.2 fc. However, if this is not achievable the developer shall install at least one safety light on each side of the crosswalk.

The photometric analysis shall include all existing streetlights on both sides of S Bernardo Avenue and Brookfield Avenue along the project frontage, with streetlight being LED fixtures. Developer shall relocate existing streetlights or install new ones along the project frontage based upon City approved photometric analysis, unless otherwise directed by the City.

The developer shall upgrade all existing streetlight fixtures along the S Bernardo Avenue and Brookfield Avenue project frontage to LED fixtures. All LED fixtures shall be of the same make and model (current approved manufacturers are GE and Philips).

If the photometric analysis shows the need to relocate or install new street lights, the developer shall also replace all existing streetlight conduits, wires and pull boxes with new ones along the Bordeaux

project frontage per City's current standards, unless otherwise directed by the City.

The light lost factor (LLF) to be used is 0.95. The LED fixture should have an efficiency of at least 90 lumens/watt and should have the International Dark-Sky Association (IDA) fixture seal of approval (FSA) and be on their IDA-ApprovedTM Products list. Along with the photometric analysis the developer shall provide cut sheets for proposed fixture, ies files used to perform analysis, test results from certified independent lab, and electronic copy of the photometric analysis in AGi32 format. All LED fixtures shall have a 10-year warranty.

Submit separate streetlight plans concurrently with the off-site improvement plan review to include installation of new conduits, existing and/or new locations of power source connection and new service pedestal, conductors, pull boxes, voltage drop and load calculations, and any other streetlight equipment as required to be installed by the Developer per latest City standard details and specifications and National Electric Code.

Developer shall comply with City street light design guidelines and plan check submittal requirements as provided by the City upon request.

Obtain PG&E's approval for new service pedestal, if required, prior to Encroachment Permit issuance.

Upon Completion of the streetlight improvements, developer shall provide photometric file in IES format. [COA] [PUBLIC WORKS]

EP-21. SIGNING AND STRIPING PLANS:
Submit a signing and striping plan in accordance with the latest edition of the CA MUTCD to City for review and approval by the Public Works Department for the required restriping of the crosswalk and . [SDR] [PUBLIC WORKS]

EP-22. TRAFFIC CONTROL PLAN:
Submit a traffic control plan with the off-site improvement plans for review and approval. Per the City's Temporary Traffic Control Checklist, the traffic control plan shall include a summary of the traffic control types, dates, times and blocks affected. All construction related materials, equipment, and construction workers parking need to be stored on-site and the public streets need to be kept free and clear of construction debris. [COA] [PUBLIC WORKS]

EP-23. SCHOOL ZONE:

At no point shall this site operate as a public or private educational institution recognized by the state education authority for one or more grades K through 12 or as otherwise defined by the State without the approval from Department of Public Works, Division of Transportation and Traffic. Such modification may require traffic analysis (scoped by the City and funded by the applicant) and signing and striping improvements to be funded by the applicant. These improvements may include, but are not limited to those identified in Part 7 of the 2014 CA MUTCD to establish a school zone per State requirements. The design and implementation are to be funded by the applicant. The conceptual design will be done by a City-selected consultant and the final design shall be submitted to the City as off-site improvement plans. The signing and striping design shall be done by a Professional Traffic Engineer per CA MUTCD. [COA] [PUBLIC WORKS]

EP-24. VISION TRIANGLES:
The site plan design shall comply with the requirements per Sunnyvale Municipal Code Section 19.34.060 for driveway and corner vision triangles. [COA] [PUBLIC WORKS]

EP-25. CITY STREET TREES:
The developer shall install required street trees along the project frontage as follows: S Bernardo Ave: tree species to be provided to the developer at a later date; Brookfield Ave: existing trees to be protected in place. Street trees and frontage landscaping shall be included in the detailed landscape and irrigation plan subject to review and approval by the Department of Public Works prior to issuance of encroachment permit. New street trees shall be 24-inch box size or 15 gallon size. The city tree spacing should be approximately 35 feet apart. A continuous root barrier shall be installed along the parkstrip area. No trees are to be planted within 10' of a sanitary sewer lateral and within any existing or proposed Public Utility Easement. [SDR] [PUBLIC WORKS]

EP-26. PROTECTION OF EXISTING TREES:
No utility trench shall be allowed within 15’ radius of an existing mature tree. Boring, air spade or other excavation method as approved by the City Arborist shall be considered to protect existing mature tree. Consult with the City Arborist prior to adjusting locations of utility lines. [SDR] [PUBLIC WORKS]

EP-27. DAMAGE TO EXISTING PUBLIC IMPROVEMENTS:
Developer shall be responsible to rectify any damage to the existing public improvements fronting and adjacent to the project site as a result of project construction to City’s satisfaction by the Department of Public Works. All existing traffic detector loops and conduits shall be protected in place during construction. Any damaged detector loops

shall be replaced within 7 days at the expense of the developer. [COA] [PUBLIC WORKS]

EP-28. RECORD DRAWINGS:
Stamped and signed hard copy record drawings of the off-site improvements (including off-site street, storm drain, and landscaping plans) shall be submitted to the City prior to encroachment permit sign-off. In addition, streetlight record drawings shall be in AutoCAD format & GIS format. Developer shall pay the record drawing fee. [COA] [PUBLIC WORKS]

EP-29. PUBLIC WORKS DEVELOPMENT FEES:
Developer shall pay all applicable Public Works development fees associated with the project, including but not limited to, utility frontage and/or connection fees, off-site improvement plan check and inspection fees, prior to any permit issuance. The exact fee amount shall be determined based upon the fee rate at the time of fee payment. [COA] [PUBLIC WORKS]

EP-30. IMPROVEMENT AGREEMENT AND IMPROVEMENT SECURITIES:
Developer shall execute an Improvement Agreement and provide improvement securities and/or cash deposit(s) for all proposed public improvements prior to any permit issuance. [COA] [PUBLIC WORKS]

EP-31. OFF-SITE IMPROVEMENT COST ESTIMATE:
Provide an itemized engineer's estimate for all off-site public improvements for the entire project. [COA] [PUBLIC WORKS]

EP-32. BERNARDO AVENUE PAVEMENT MORATORIUM:
Bernardo Avenue is currently under a three-year pavement moratorium. Any work that significantly disrupts condition of pavement may require restoration as determined by Department of Public Works. [COA] [PUBLIC WORKS]

PF: THE FOLLOWING CONDITIONS SHALL BE ADDRESSED ON THE CONSTRUCTION PLANS AND/OR SHALL BE MET PRIOR TO RELEASE OF UTILITIES OR ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

PF-1. LANDSCAPING AND IRRIGATION:
All landscaping and irrigation as contained in the approved building permit plan shall be installed prior to occupancy. [COA] [PLANNING]

PF-2. IRRIGATION METERS:
For commercial and industrial projects, to ensure appropriate sewer billing (water used for irrigation may not be billed for sewer), the

developer may provide separate (irrigation and other) intake meters. Such meters could be installed prior to occupancy of the building. [COA] [PLANNING]

PF-3. PARKING LOT STRIPING:
All parking lot striping, guest spaces, and compact spaces shall be striped as per the approved building permit plans and Public Works standards prior to occupancy. [COA] [PLANNING/PUBLIC WORKS]

PF-4. COMPLETION OF PUBLIC IMPROVEMENTS:
Developer shall complete all required public improvements in accordance with City approved plans, prior to any building occupancy. [COA] [PUBLIC WORKS]

PF-5. NEW PUBLIC EASEMENTS LOCATED ON-SITE:
AT-1. Any new easements required for public use purpose shall be either shown on the recorded parcel map or on a separate recorded Easement Deed deemed necessary by the Department of Public Works prior to any building occupancy. [COA] [PUBLIC WORKS]

PF-6. PARKING LOT STRIPING:
All parking lot striping, guest spaces, and compact spaces shall be striped as per the approved building permit plans and Public Works standards prior to occupancy. [COA] [PLANNING/PUBLIC WORKS]

PF-7. COMPLETION OF PUBLIC IMPROVEMENTS:
Developer shall complete all required public improvements in accordance with City approved plans, prior to any building occupancy. [COA] [PUBLIC WORKS]

DC: THE FOLLOWING CONDITIONS SHALL BE COMPLIED WITH AT ALL TIMES DURING THE CONSTRUCTION PHASE OF THE PROJECT.

DC-1. BLUEPRINT FOR A CLEAN BAY:
The project shall be in compliance with stormwater best management practices for general construction activity until the project is completed and either final occupancy has been granted. [SDR] [PLANNING]

DC-2. TREE PROTECTION:
All tree protection shall be maintained, as indicated in the tree protection plan, until construction has been completed and the installation of landscaping has begun. [COA] [PLANNING]

DC-3. CLIMATE ACTION PLAN – OFF ROAD EQUIPMENT REQUIREMENT:

OR 2.1: Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]), or less. Clear signage will be provided at all access points to remind construction workers of idling restrictions.

OR 2.2: Construction equipment must be maintained per manufacturer's specifications.

OR 2.3: Planning and Building staff will work with project applicants to limit GHG emissions from construction equipment by selecting one of the following measures, at a minimum, as appropriate to the construction project:

a) Substitute electrified or hybrid equipment for diesel- and gasoline-powered equipment where practical.

b) Use alternatively fueled construction equipment on-site, where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.

c) Avoid the use of on-site generators by connecting to grid electricity or utilizing solar-powered equipment.

d) Limit heavy-duty equipment idling time to a period of 3 minutes or less, exceeding CARB regulation minimum requirements of 5 minutes. [COA] [PLANNING]

DC-4. DUST CONTROL:

At all times, the Bay Area Air Quality Management District's CEQA Guidelines and "Basic Construction Mitigation Measures Recommended for All Proposed Projects", shall be implemented. [COA] [PLANNING]

AT: THE FOLLOWING CONDITIONS SHALL BE COMPLIED WITH AT ALL TIMES THAT THE USE PERMITTED BY THIS PLANNING APPLICATION OCCUPIES THE PREMISES.

AT-2. HOURS OF OPERATION:
The hours of operation are limited to 7:30 a.m. to 7:00PM. Changes to hours of operation shall require approval of the Director of Community Development through a Miscellaneous Plan Permit. [COA] [PLANNING]

AT-3. DELIVERY HOURS:
Delivery hours for the approved use shall comply with SMC 19.42.030:

a) Delivery hours are limited to daytime (period from 7:00 a.m. to 10:00 p.m. daily) only.

b) Nighttime delivery (period from 10 p.m. to 7:00 a.m. daily) is prohibited. [SDR] [PLANNING]

AT-4. RECYCLING AND SOLID WASTE:
All exterior recycling and solid waste shall be confined to approved receptacles and enclosures. [COA] [PLANNING]

AT-5. LOUDSPEAKERS PROHIBITED:
Out-of-door loudspeakers shall be prohibited at all times. [COA] [PLANNING]

AT-6. EXTERIOR EQUIPMENT:
All unenclosed materials, equipment and/or supplies of any kind shall be maintained within approved enclosure area. Any stacked or stored items shall not exceed the height of the enclosure. Individual air conditioning units shall be screened with architecture or landscaping features. [COA] [PLANNING]

AT-7. LANDSCAPE MAINTENANCE:
All landscaping shall be installed in accordance with the approved landscape plan and shall thereafter be maintained in a neat, clean, and healthful condition. Trees shall be allowed to grow to the full genetic height and habit (trees shall not be topped). Trees shall be maintained using standard arboriculture practices. [COA] [PLANNING]

AT-8. PARKING LOT MAINTENANCE:
The parking lot shall be maintained in accordance with the approved plans and as follows:

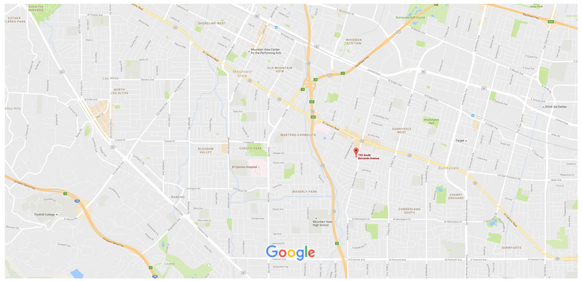
a) Clearly mark all employee, customer, and compact spaces. This shall be specified on the Building Permit plans and completed prior to occupancy.

b) Maintain all parking lot striping and marking.

c) Assure that adequate lighting is available in parking lots to keep them safe and desirable for the use.

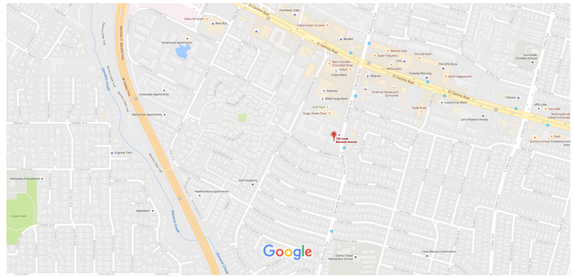
d) Require signs to direct vehicles to additional parking spaces on-site, as needed.

Google Maps 755 S Bernardo Ave



LOCATION PLAN

Google Maps 755 S Bernardo Ave



VICINITY PLAN

OWNER:
JY INTERNATIONAL GROUP, INC
660 SOUTH BERNARDO AVE
SUNNYVALE, CA 94087

ZONING:
C1/PD

SITE AREA:
37,887 SQ.FT.

EXISTING BUILDING AREA:
6920.3 SQ.FT.

LOT COVERAGE:
6920.3 / 37,887 = 0.182= 18%

FAR:
0.18 = 18%

STUDENTS:
120

STAFF:
12

PARKING:
30 STALLS PROVIDED
REQUIRED PARKING IS
0.25 STALL PER CHILD = 120 X 0.25 = **30**

BICYCLE PARKING:
5% OF TOTAL PARKING. 5% OF 31 STALLS = 1.6 = 2 STALLS

ELECTRIC VEHICLE PARKING:
3% OF TOTAL PARKING. 3% OF 31 STALLS = 0.93 = 1 STALL

RIDESHARE PARKING:
5% OF TOTAL PARKING. 5% OF 31 STALLS = 1.6 = 2 STALLS

PRESCHOOL-STUDENTS:
120 STUDENTS **AGES 2 TO 6**

LANDSCAPE AREAS:
LANDSCAPING: PROVIDED **6584.9 SQ.FT.**
(REQUIRED: 20% OF PARKING AREA =20% OF 17,004.2 SQ.FT. = **3,400.84 SQ.FT.**)
LANDSCAPE - WALKWAY AREA:
2472 SQ.FT.

TOTAL OF ALL LANDSCPE =9066.9 SQ.FT.
20% OF SITE AREA = 37,887 X 20% = **7577.4 SQ.FT.**
IN RELATION TO SITE:
LANDSCAPE TOTAL WITH PLAYGROUND TURF = **13,653.4 SQ.FT.**

PARKING AREA:
17,004.2 SQ.FT.

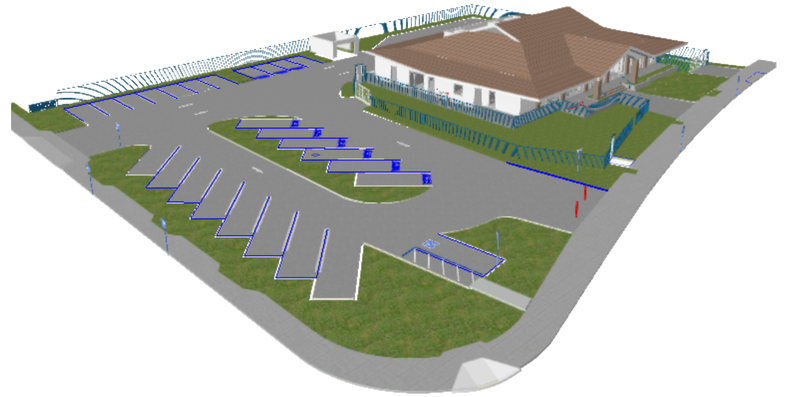
PLAYGROUND AREA:
4,586.5 SQ.FT.

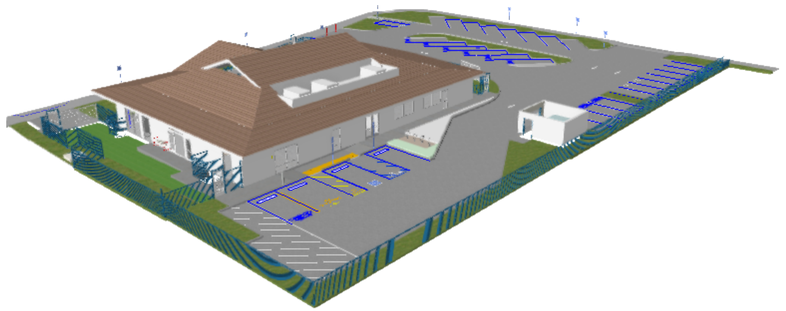
EXISTING LANDSCAPING:
3049.1 SQ.FT

EXISTING IMPERVIOUS AREA:
34,837.9 SQ.FT.
(BUILDING DRIVEWAYS, WALKWAYS)

EXISTING PARKING:
49 (TWO FOR DISABLED PERSONS)

DESIGN DATA





NOTES:
A.
DEVELOPER IS RESPONSIBLE FOR RESTORING AND REPLACING ANY DAMAGE IN THE PUBLIC RIGHT OF WAY OR ANY DAMAGE TO THE TRAFFIC CONTROL DEVICES CAUSED DUE TO CONSTRUCTION ACTIVITIES.
B.
DEVELOPER IS RESPONSIBLE FOR RESEARCH ON ALL EXISTING UTILITY LINES TO ENSURE THAT THERE ARE NO CONFLICTS WITH THE PROJECT. ALL EXISTING UTILITY LINES (PUBLIC OR PRIVATE) AND/OR THEIR APPURTENANCES NOT SERVING THE PROJECT SHALL BE CAPPED, ABANDONED, REMOVED, RELOCATED AND / OR DISPOSED OF TO THE SATISFACTION OF THE CITY. EXISTING PUBLIC FACILITIES WITHIN THE STREET RIGHT OF WAY, SHALL BE ABANDONED PER CITY'S ABANDONMENT NOTES, INCLUDING ABANDONMENT BY OTHER UTILITY OWNERS.
C.
THIS PROJECT IS REQUIRED TO FOLLOW THE EXISTING SANITARY SEWER AND STORM DRAIN TRIBUTARY PATTERN. ANY DEVIATIONS WOULD REQUIRE ADDITIONAL ANALYSIS AND SUBJECT APPROVAL BY DIRECTOR OF PUBLIC WORKS AS PART OF THE OFF SITE IMPROVEMENT PLAN REVIEW PROCESS. THIS PROJECT SHALL NOT CAUSE ANY NEGATIVE IMACT ON THE DRAINAGE PATTERN FOR ADJACENT PROPERTIES.

SCOPE OF WORK:

1. TENANT IMPROVEMENT, FOR PROPOSED PRE-SCHOOL FACILITY WITHIN EXISTING BUILDING.
2. NO ALTERATIONS TO EXISTING BUILDING, EXCEPT INSTALLATION OF NEW EXIT DOORS IN PLACE OF EXISTING AND REPLACEMENT OF DOORS BY WINDOWS OF SAME SIZE. INSTALLATION OF NEW EXIT DOOR IN FRONT WALL LEADING FROM A CLASSROOM
3. REPLACEMENT/RECONFIGURATION OF EXISTING FRONT STAIR, SIDEWALK AT THE BUILDING SIDE AND FRONT OF THE BUILDING FOR COMPLIANCE TO ACCESSIBILITY STANDARDS
4. MODIFICATION TO EXISITNG PARKING FOR ACCESSIBILITY STANDARDS.
5. INSTALLATION OF NEW PLAYGROUND PERIMETER FENCING AT BUILDING REAR AND SIDE, INCLUDING GATES AND EMERGENCY VEHICLE ACCESS GATE.
6. NEW ACCESSIBLE PARKING AND SITE SIGNAGE WITHIN SIGNAGE PROGRAM OF THE PRE-SCHOOL.
7. INSTALLATION OF NEW PLAYGROUND AT REAR WITHIN EXISTING OPEN SPACE. EXISTING DRAINAGE WILL BE MAINTAINED PLAYGROUND WILL HAVE ARTIFICIAL TURF WITH BIKE ROUTE IN ASPHALT-CONCRETE.
8. RECONFIGURE / ENHANCE LANDSCAPING IN AREA AROUND PROPOSED PLAYGROUND, PARKING AND FRONT ENTRANCE.

PLANNING APPROVALS

BUILDING DEPARTMENT APPROVALS

LIST OF DRAWINGS:
ARCHITECTURE:
A-001 COVER SHEET DESIGN DATA
A-101 SITE PLAN
A-102 SITE AREA
A-103 SITE AREAS
A-104 SITE AREAS AND PLAYGROUND
A-105 CIRCULATION PLAN
A-106 EXISTING LANDSCAPE AREA
A-201 EXISTING FLOOR PLAN
A-301 NEW FLOOR PLAN
A-302 PLAY AREA
A-303 ROOF PLAN
A-304 ROOM AREAS
A-401 TRASH ENCLOSURE
A-501 ELEVATIONS
A-502 ELEVATIONS
A-601 GATE AND FENCE DETAILS
A-602 DETAILS

SURVEY PLAN:
SURVEY PLAN

CIVIL:
C-01 DEMOLITION PLAN
C-11 GRADING AND DRAINAGE PLAN
C-12 IMPERVIOUS SURFACE DATA

LANDSCAPE:
L-1 PLANTING PLAN
L-2 PARKING SHADING
L-3 HYDROZONE PLAN
L-4 IRRIGATION PLAN

MEP:
E-1.1 PHOTOMETRIC STUDY

MARK STOKLOSA ARCHITECT INC

351 SOUTH BAYWOOD AVE
SUITE-B
SAN JOSE, CA 95128
408 260 6896 W
925 368 7270 C
markstoklosa@sbcglobal.net

PROPOSED PRE-SCHOOL
AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

MARK	DATE	DESCRIPTION

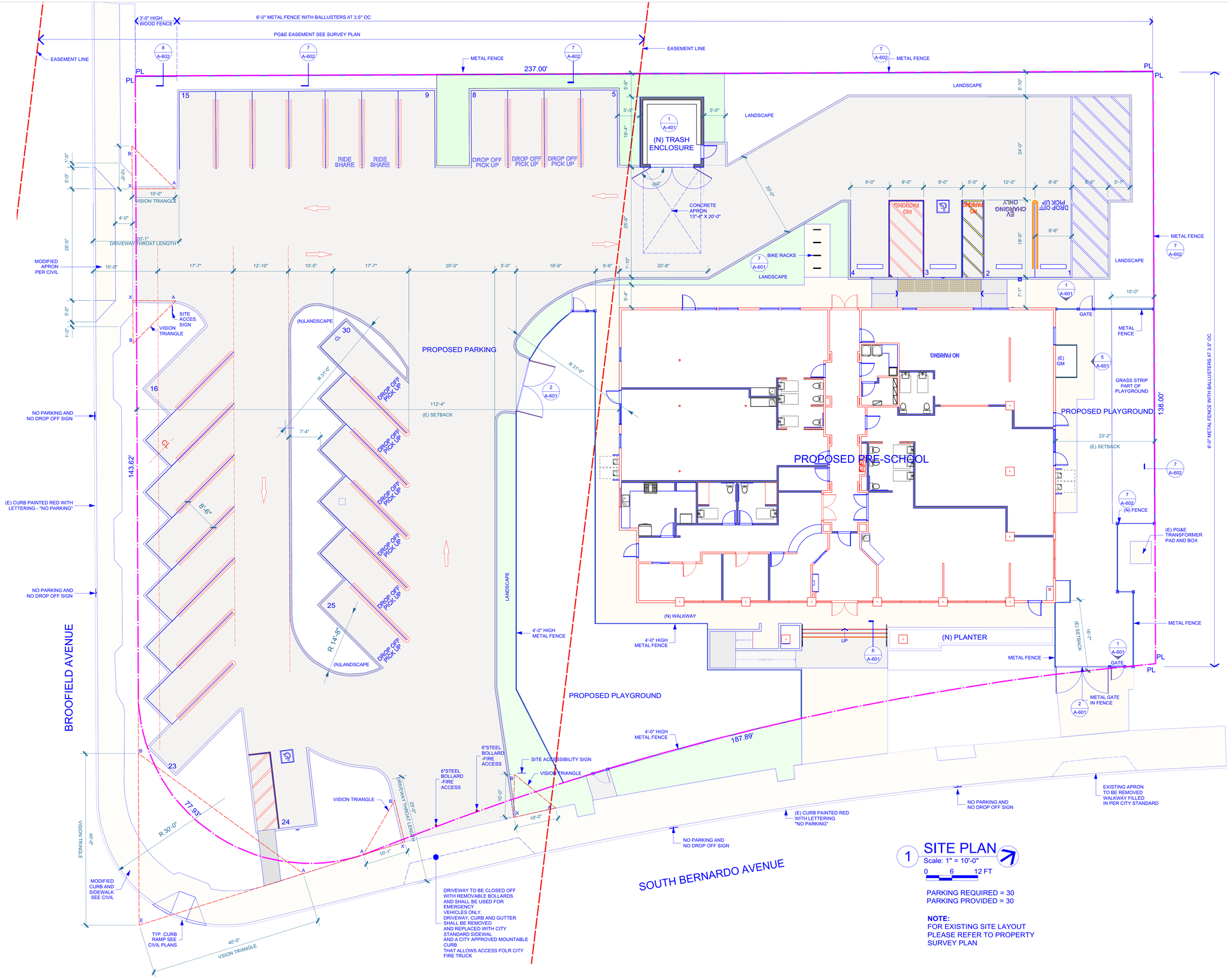
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
DESIGN DATA

NOT FOR CONSTRUCTION

A-001

SHEET OF



1 SITE PLAN

Scale: 1" = 10'-0"

0 6 12 FT

PARKING REQUIRED = 30
PARKING PROVIDED = 30

NOTE:
FOR EXISTING SITE LAYOUT
PLEASE REFER TO PROPERTY
SURVEY PLAN

MARK STOKLOSA ARCHITECT INC

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MARK	DATE	DESCRIPTION

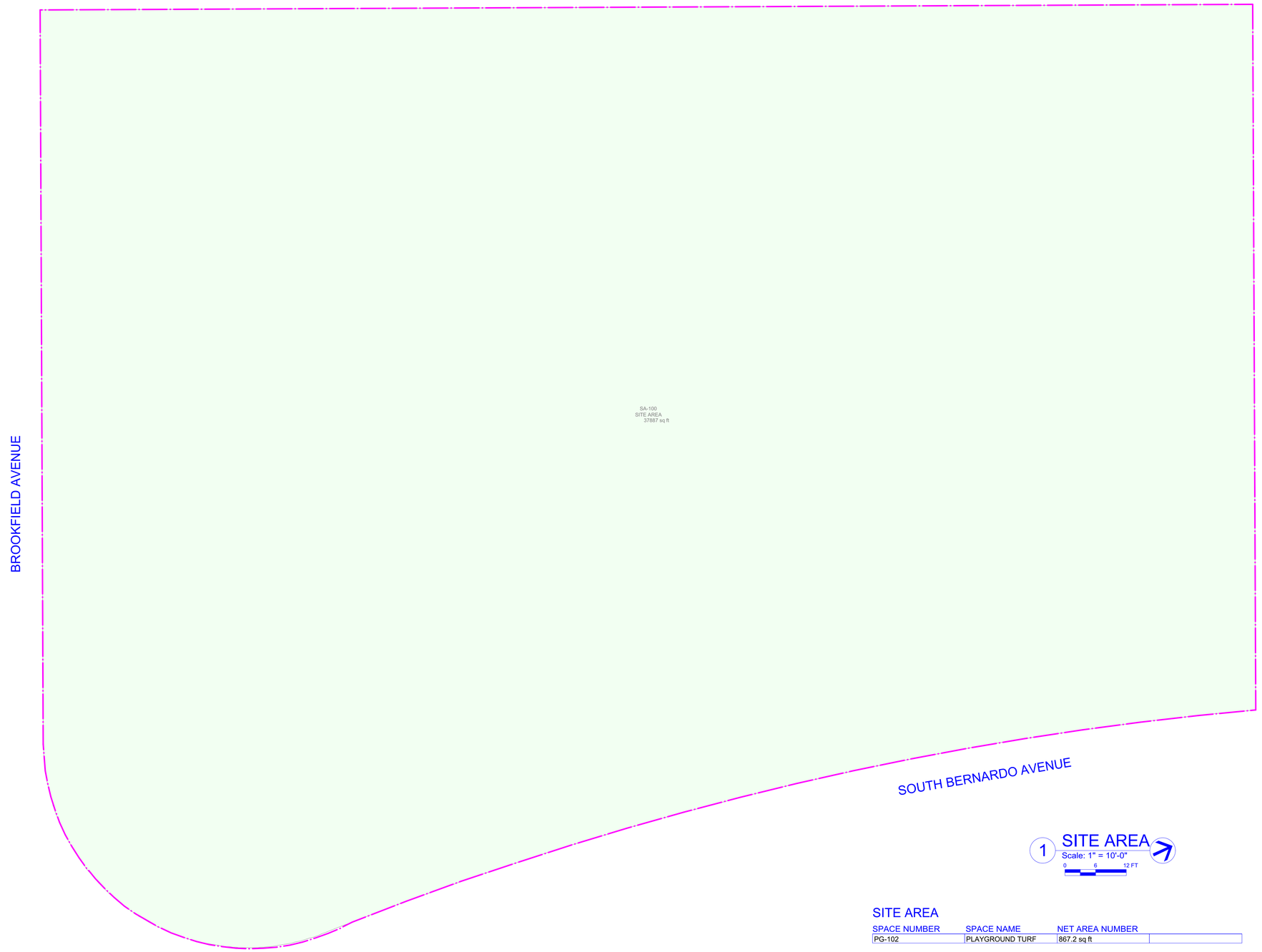
SCALE:	
PROJECT NO:	17-025
MODEL FILE:	JINYING-2.VWX
DRAWN BY:	MS
REVIEWED BY:	MS

DRAWING TITLE:
SITE PLAN

NOT FOR CONSTRUCTION

A-101

SHEET OF



1 SITE AREA
Scale: 1" = 10'-0"
0 6 12 FT

SITE AREA

SPACE NUMBER	SPACE NAME	NET AREA NUMBER	
PG-102	PLAYGROUND TURF	867.2 sq ft	

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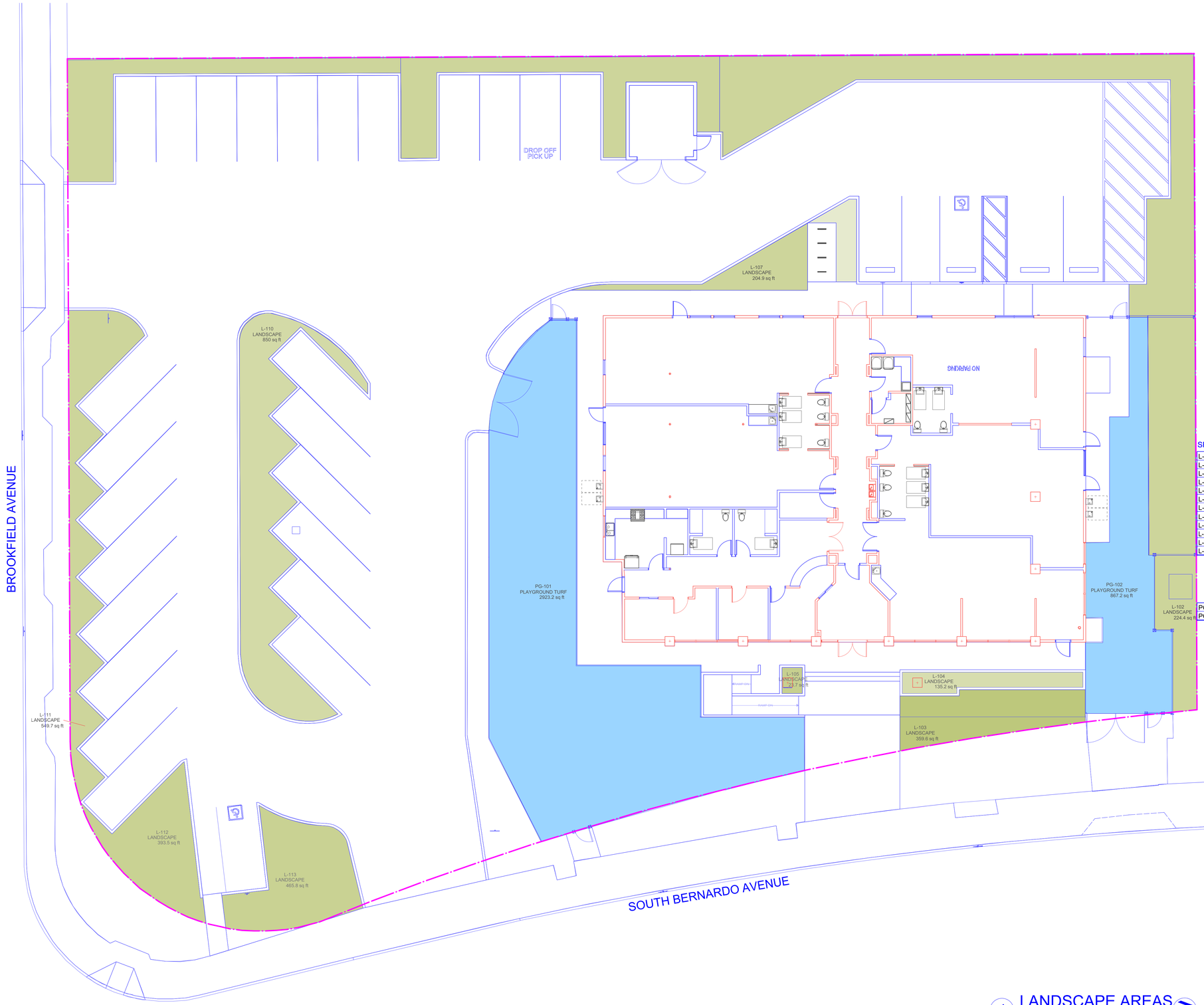
MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
SITE AREA

NOT FOR CONSTRUCTION

A-102
SHEET OF



LANDSCAPE AREAS

SPACE NUMBER	SPACE NAME	NET AREA	NUMBER
L-101	LANDSCAPE	2649.1 sq ft	
L-102	LANDSCAPE	224.4 sq ft	
L-103	LANDSCAPE	359.6 sq ft	
L-104	LANDSCAPE	135.2 sq ft	
L-105	LANDSCAPE	23.7 sq ft	
L-106	LANDSCAPE	82.7 sq ft	
L-107	LANDSCAPE	204.9 sq ft	
L-109	LANDSCAPE	494.5 sq ft	
L-110	LANDSCAPE	850 sq ft	
L-111	LANDSCAPE	549.7 sq ft	
L-112	LANDSCAPE	393.5 sq ft	
L-113	LANDSCAPE	465.8 sq ft	

6,518.3 SQ.FT

PG-101	PLAYGROUND TURF	2923.2 sq ft	
PG-102	PLAYGROUND TURF	867.2 sq ft	

3790.4 SQ.FT.

TOTAL=10,308.7 SQ.FT.

1 LANDSCAPE AREAS
Scale: 1" = 10'-0"
0 6 12 FT

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AT 755 S. BERNARDO AVE
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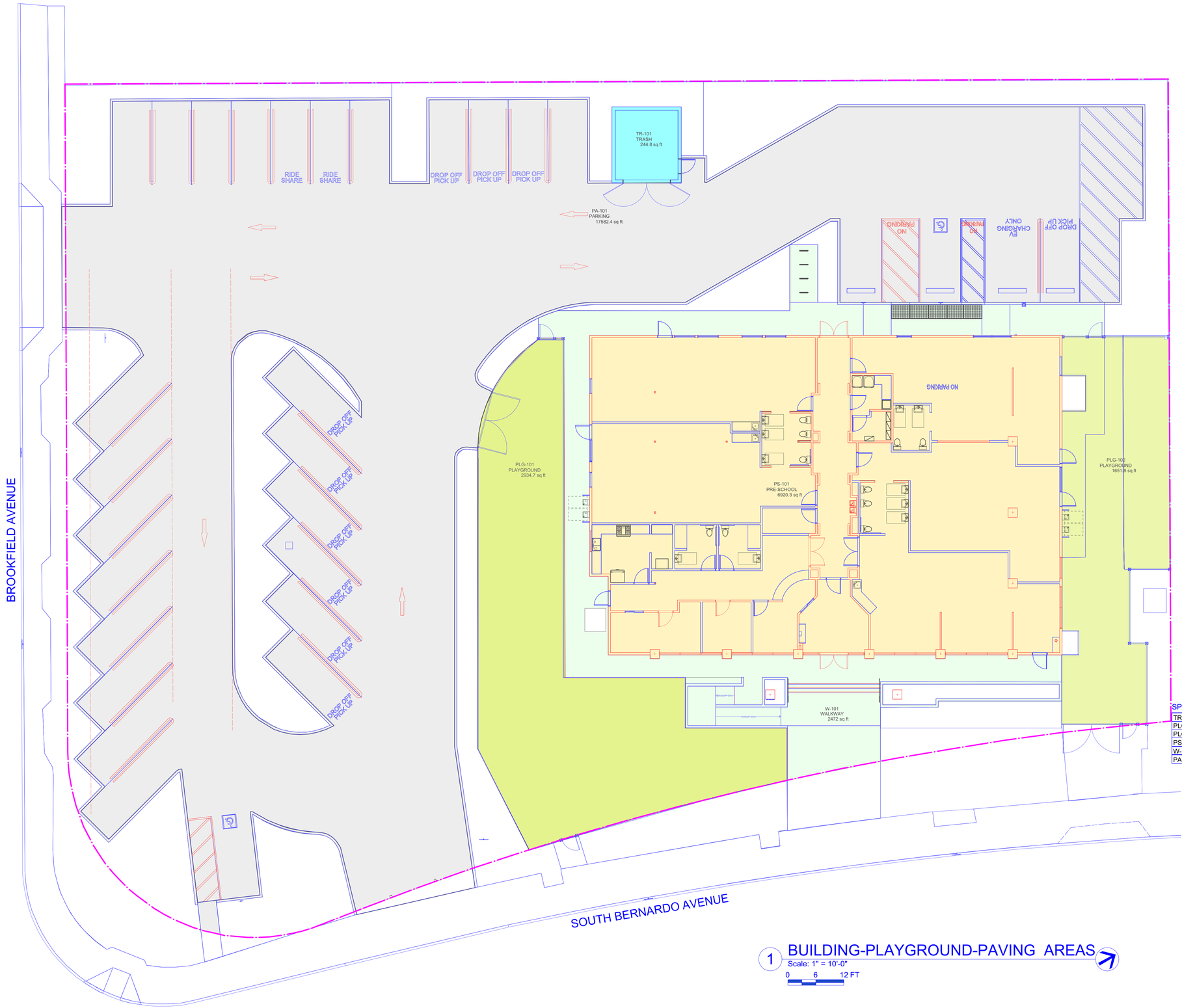
MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
SITE AREAS

NOT FOR CONSTRUCTION

A-103
SHEET OF



1 BUILDING-PLAYGROUND-PAVING AREAS
Scale: 1" = 10'-0"
0 6 12 FT

SITE AREAS-PAVING, BUILDINGS, PLAYGROUND

SPACE NUMBER	SPACE NAME	AREA NUMBER	
TR-101	TRASH	244.8 sq ft	
PLG-101	PLAYGROUND	2934.7 sq ft	
PLG-102	PLAYGROUND	1651.8 sq ft	
PS-101	PRE-SCHOOL	6920.3 sq ft	
W-101	WALKWAY	2472 sq ft	
PA-101	PARKING	17582.4 sq ft	

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MARK	DATE	DESCRIPTION

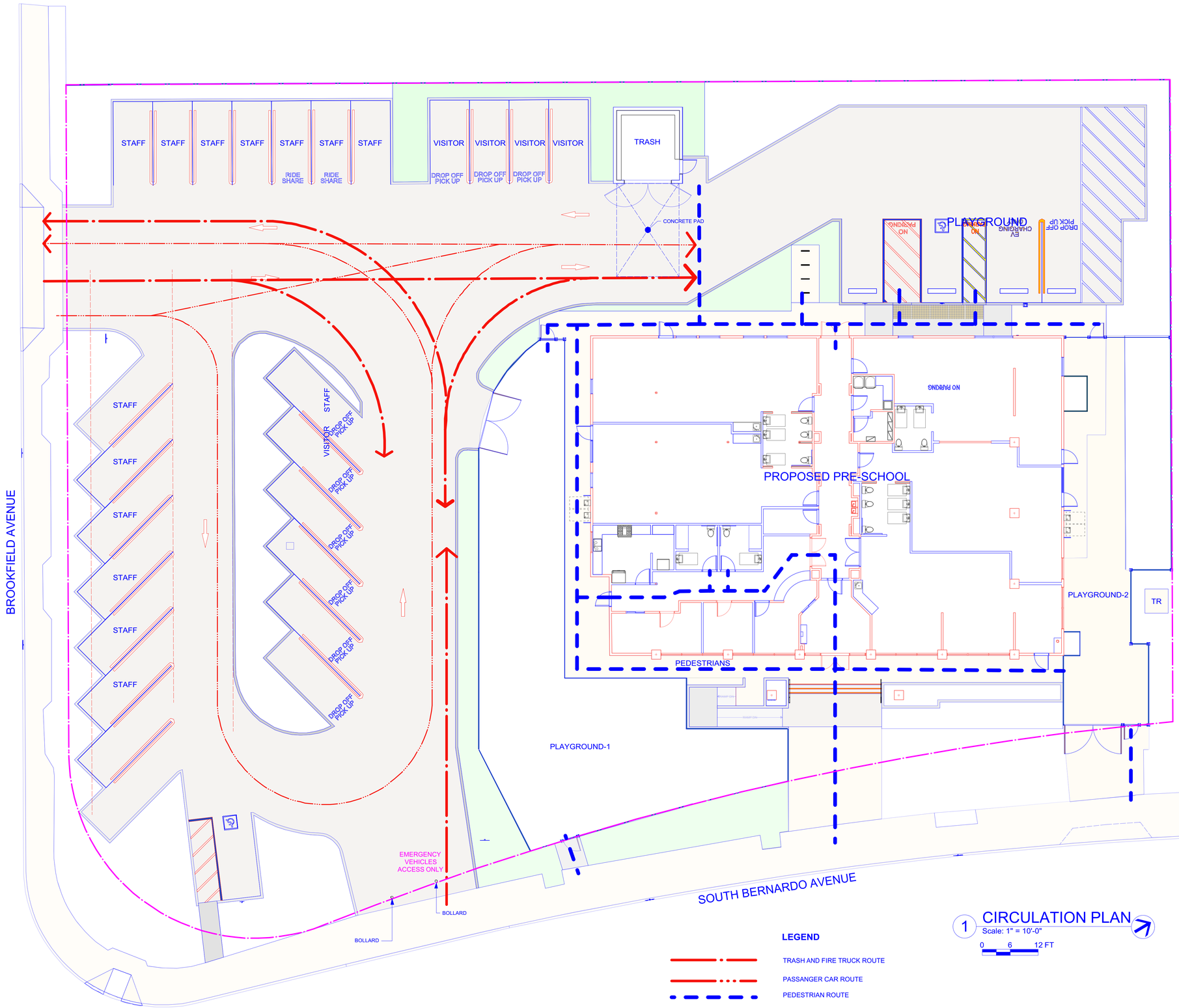
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
BUILDING PLAYGROUND PAVING AREAS

NOT FOR CONSTRUCTION

A-104

SHEET OF



1 CIRCULATION PLAN
Scale: 1" = 10'-0"
0 6 12 FT

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PROPOSED PRE-SCHOOL
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MARK	DATE	DESCRIPTION

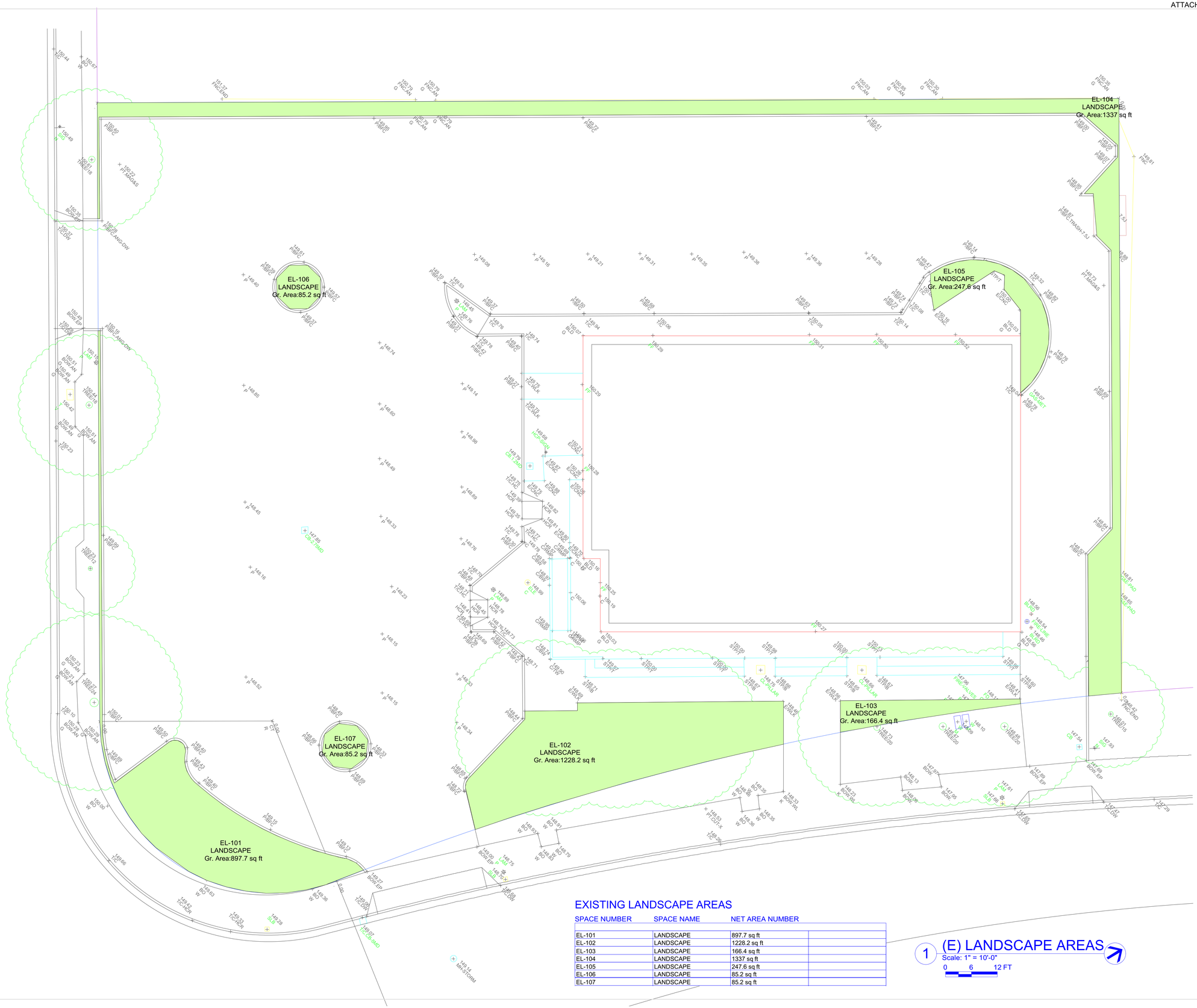
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
CIRCULATION PLAN

NOT FOR CONSTRUCTION

A-105

SHEET OF



EXISTING LANDSCAPE AREAS

SPACE NUMBER	SPACE NAME	NET AREA NUMBER	
EL-101	LANDSCAPE	897.7 sq ft	
EL-102	LANDSCAPE	1228.2 sq ft	
EL-103	LANDSCAPE	166.4 sq ft	
EL-104	LANDSCAPE	1337 sq ft	
EL-105	LANDSCAPE	247.6 sq ft	
EL-106	LANDSCAPE	85.2 sq ft	
EL-107	LANDSCAPE	85.2 sq ft	

1 (E) LANDSCAPE AREAS
Scale: 1" = 10'-0"
0 6 12 FT

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MARK	DATE	DESCRIPTION

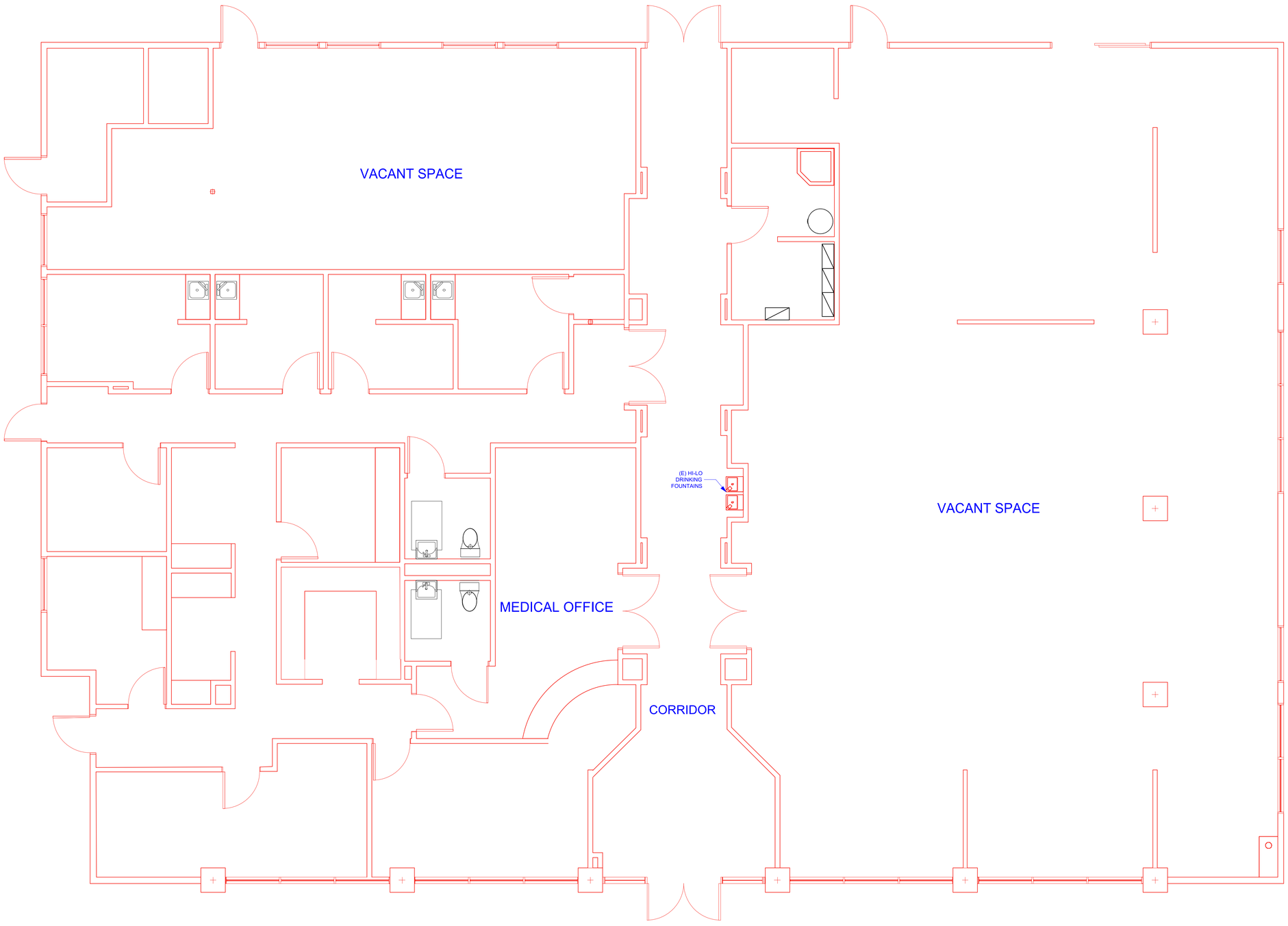
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
(E) LANDSCAPE AREAS

NOT FOR CONSTRUCTION

A-106

SHEET OF



WALL LEGEND:

EXISTING EXTERIOR CLEAR ALUMINUM GLAZED STOREFRONT TO REMAIN

EXISTING EXTERIOR WALL TO REMAIN

EXISTING INTERIOR WALL TO REMAIN

1 EXISTING/DEMO FLOOR PLAN
Scale: 1/4" = 1'-0"

0 6 12 FT

MARK STOKLOSA ARCHITECT INC

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PROPOSED PRE-SCHOOL
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MARK	DATE	DESCRIPTION

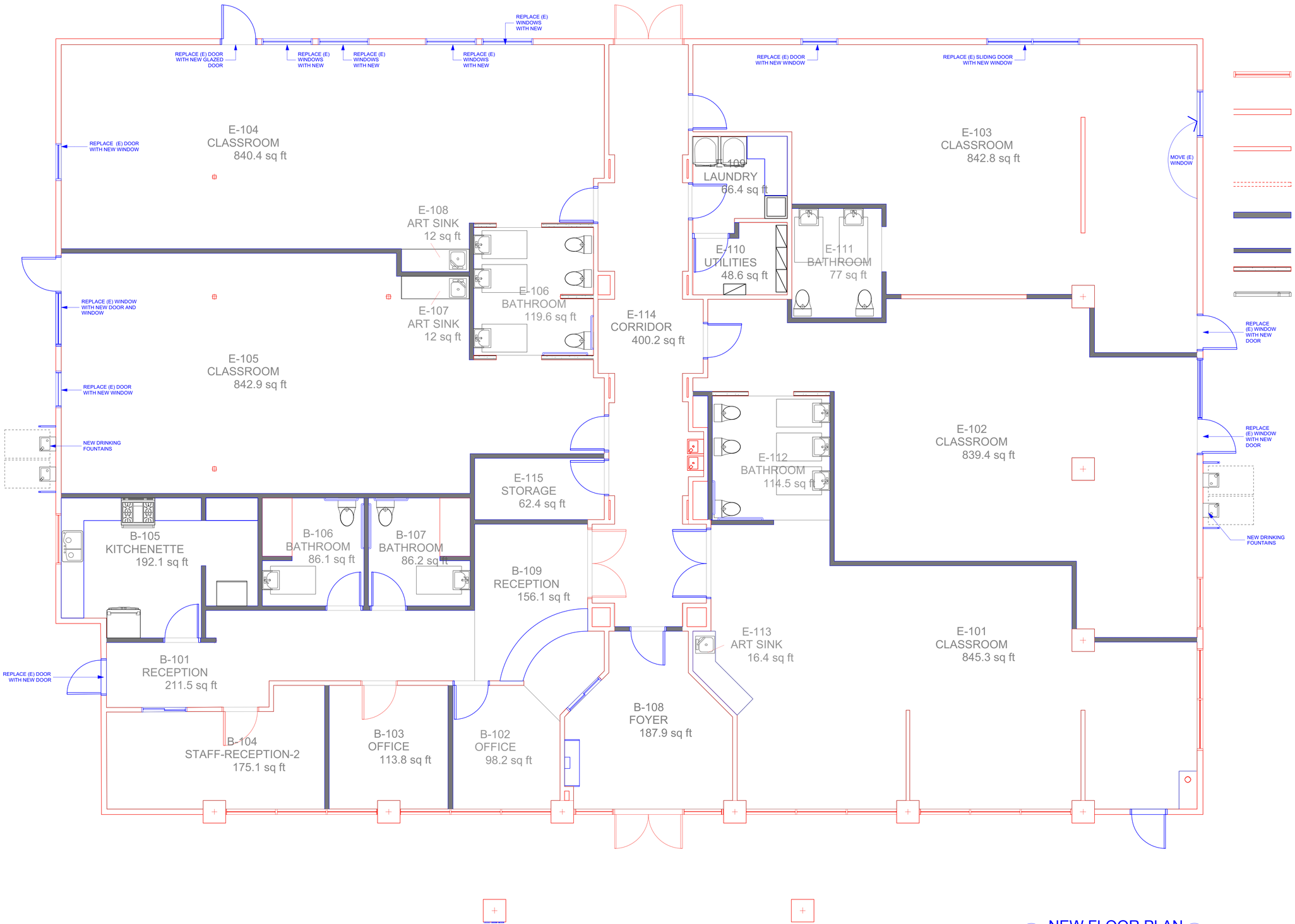
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
EXISTING LAYOUT

NOT FOR CONSTRUCTION

A-201

SHEET OF



1 NEW FLOOR PLAN
Scale: 1/4" = 1'-0"
0 6 12 FT

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PROPOSED PRE-SCHOOL
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MARK	DATE	DESCRIPTION

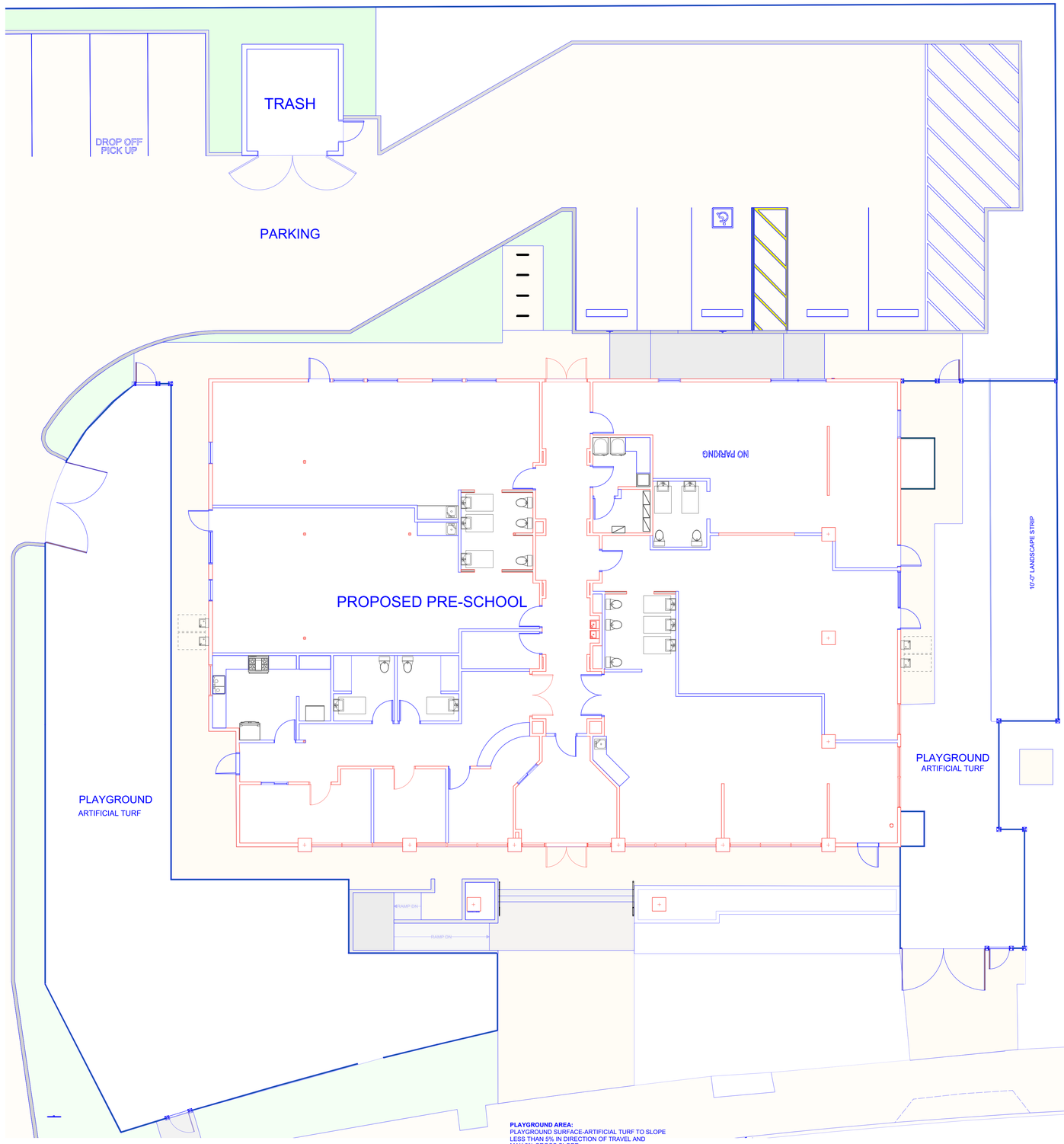
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:

NOT FOR CONSTRUCTION

A-301

SHEET OF



PLAYGROUND AREA:
PLAYGROUND SURFACE-ARTIFICIAL TURF TO SLOPE
LESS THAN 5% IN DIRECTION OF TRAVEL AND
MAX 2% CROSS SLOPE
AT PLAY STRUCTURES MAINTAIN LEVEL AREA
AT CLEAR SPACE AROUND OF/IN FRONT OF STRUCTURE
TO BE MAX. 2% SLOPE E/W.

PLAYGROUND TURF TO BE BURKE TURF OR APPROVED ALTERNATE.
INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
CONFORMING TO:
ASTM F1282
ASTM F1292
ASTM F2075

1 PLAYGROUND PLAN
Scale: 1/8" = 1'-0"

0 6 12 FT

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SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

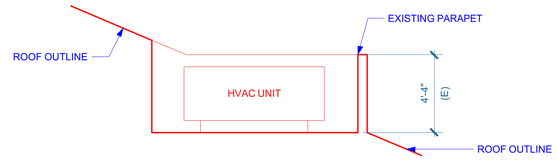
MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

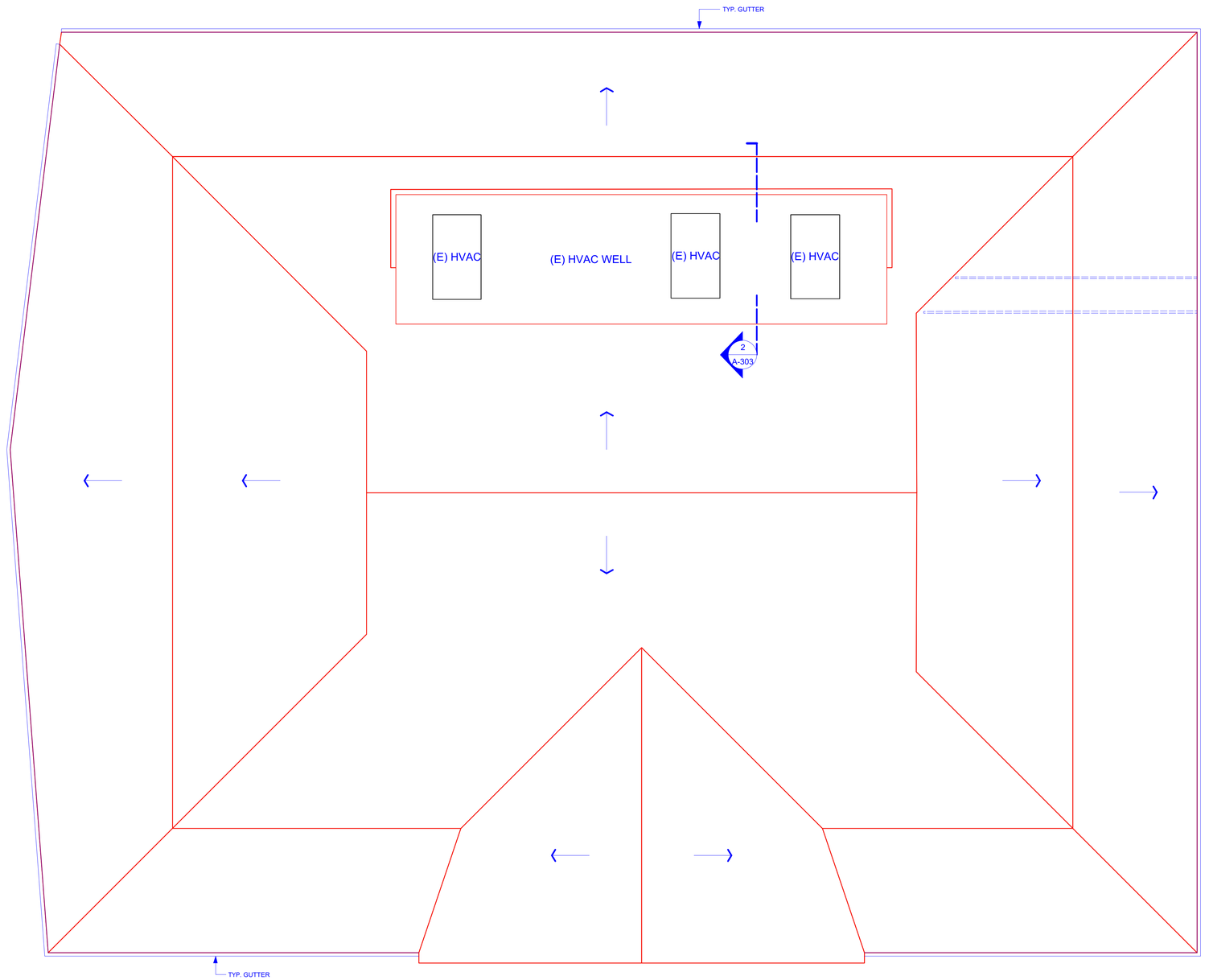
DRAWING TITLE:
PLAYGROUND PLAN
AND
PLAYGROUND EQUIPMENT

NOT FOR CONSTRUCTION

A-302
SHEET OF



2 HVAC WELL
Scale: 1/4" = 1'-0"



1 ROOF PLAN
Scale: 3/16" = 1'-0"

0 6 12 FT

MARK STOKLOSA ARCHITECT INC

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PROPOSED PRE-SCHOOL
AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

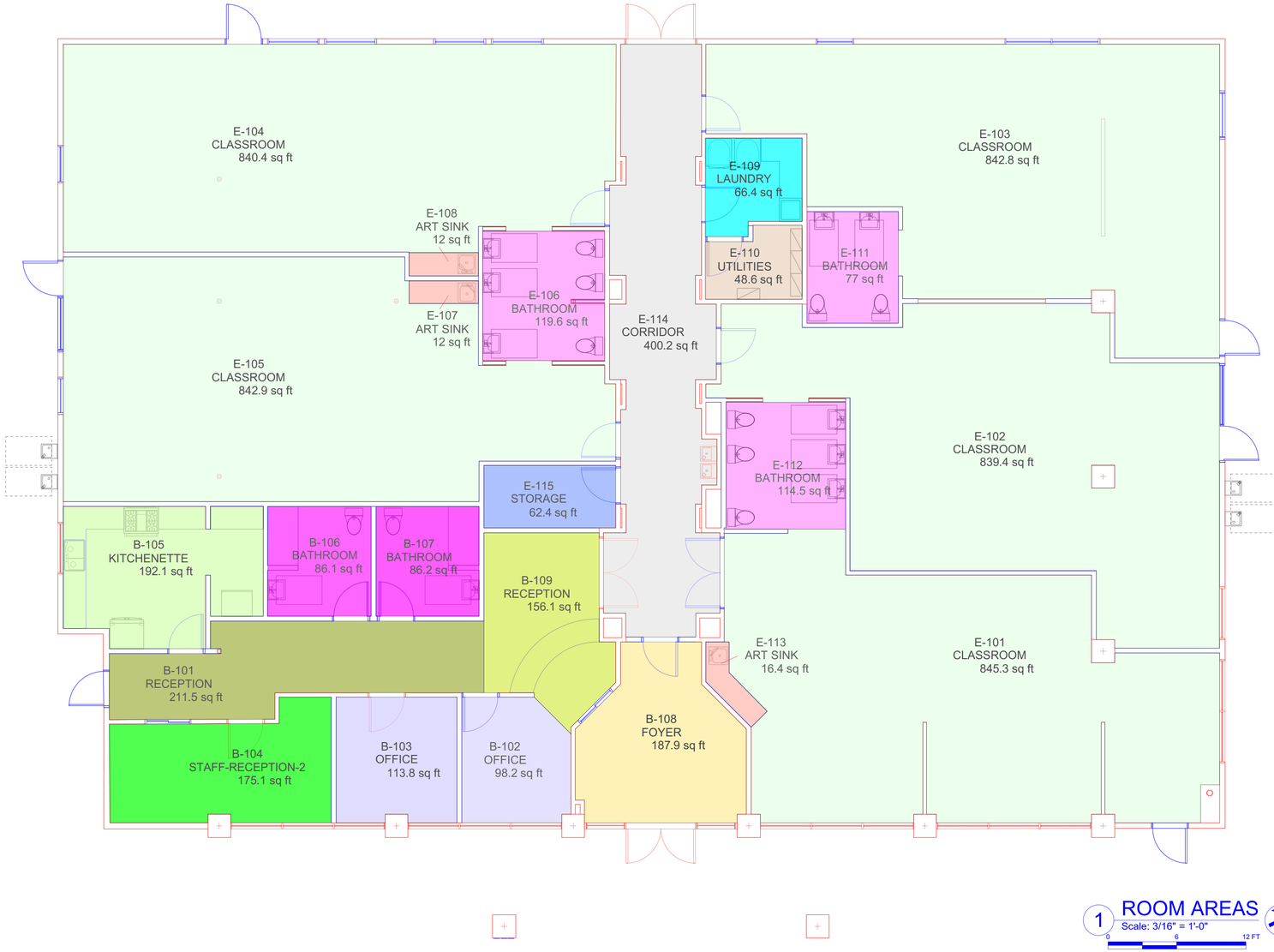
MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
ROOF PLAN

NOT FOR CONSTRUCTION

A-303
SHEET OF



1 ROOM AREAS
Scale: 3/16" = 1'-0"
0 6 12 FT

ROOM AREAS

Space Number	Space Name	Net Area Number	
108	LANDSCAPE	75.2 sq ft	
B-101	RECEPTION	211.5 sq ft	
B-102	OFFICE	98.2 sq ft	
B-103	OFFICE	113.8 sq ft	
B-104	STAFF-RECEPTION-2	175.1 sq ft	
B-105	KITCHENETTE	192.1 sq ft	
B-106	BATHROOM	86.1 sq ft	
B-107	BATHROOM	86.2 sq ft	
B-108	FOYER	187.9 sq ft	
B-109	RECEPTION	156.1 sq ft	
E-101	CLASSROOM	845.3 sq ft	
E-102	CLASSROOM	839.4 sq ft	
E-103	CLASSROOM	842.8 sq ft	
E-104	CLASSROOM	840.4 sq ft	
E-105	CLASSROOM	842.9 sq ft	
E-106	BATHROOM	119.6 sq ft	
E-107	ART SINK	12 sq ft	
E-108	ART SINK	12 sq ft	
E-109	LAUNDRY	66.4 sq ft	
E-110	UTILITIES	48.6 sq ft	
E-111	BATHROOM	77 sq ft	
E-112	BATHROOM	114.5 sq ft	
E-113	ART SINK	16.4 sq ft	
E-114	CORRIDOR	400.2 sq ft	
E-115	STORAGE	62.4 sq ft	
EL-101	LANDSCAPE	897.7 sq ft	

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AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

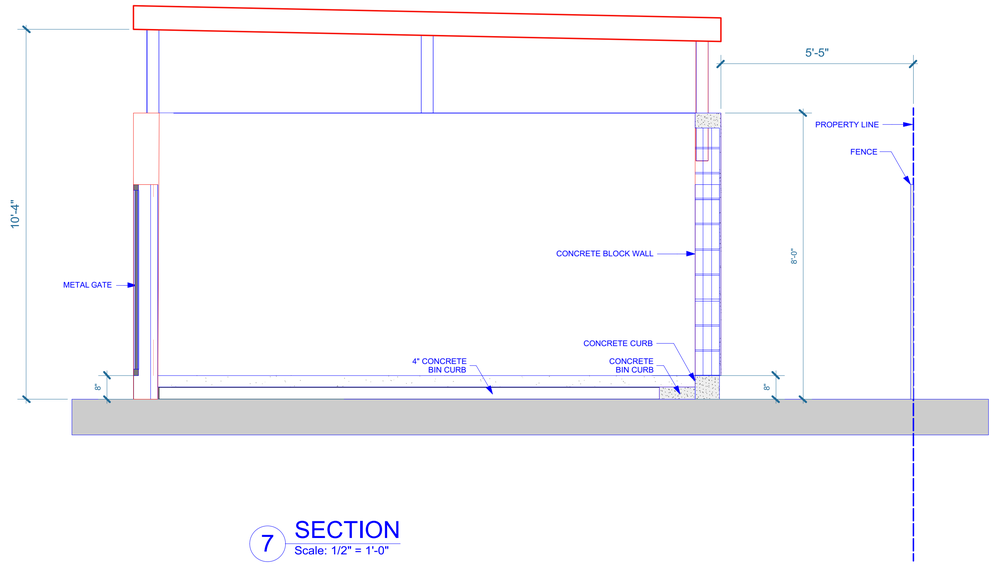
MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
ROOM AREAS

NOT FOR CONSTRUCTION

A-304
SHEET OF

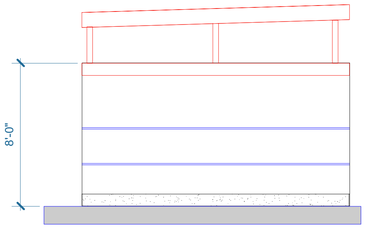


7 SECTION
Scale: 1/2" = 1'-0"

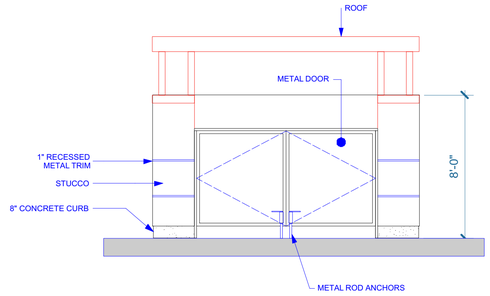
TRASH ENCLOSURE DATA:

ONE 3 CUBIC YARD BIN FOR TRASH
ONE 1 CUBIC YARD FOR COMPOST/FOOD SCRAPS
FOUR 96 GAL CARTS FOR RECYCLING

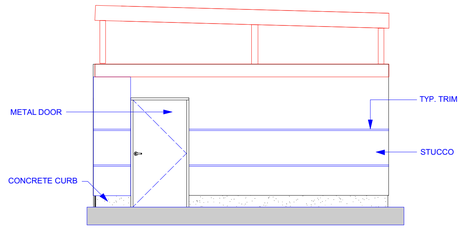
TRASH ENCLOSURE SIZE = 15'-0" X 13'-6"



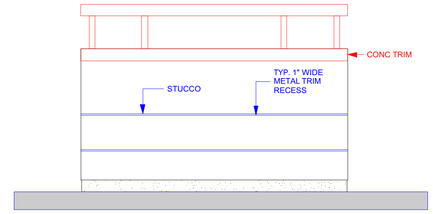
5 LEFT ELEVATION
Scale: 1/4" = 1'-0"



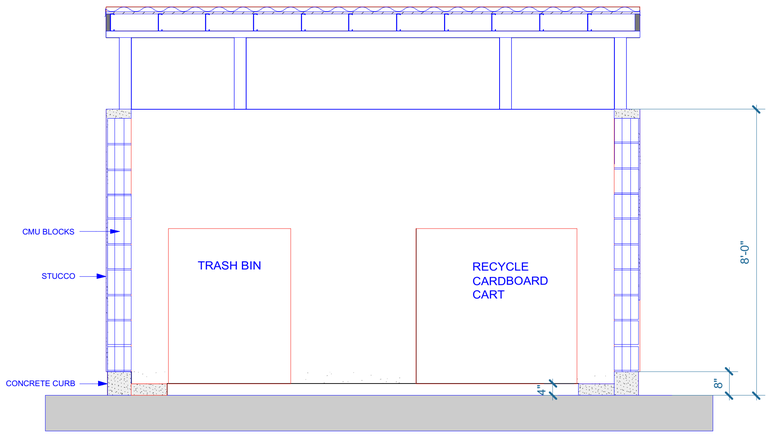
2 FRONT ELEVATION
Scale: 1/4" = 1'-0"



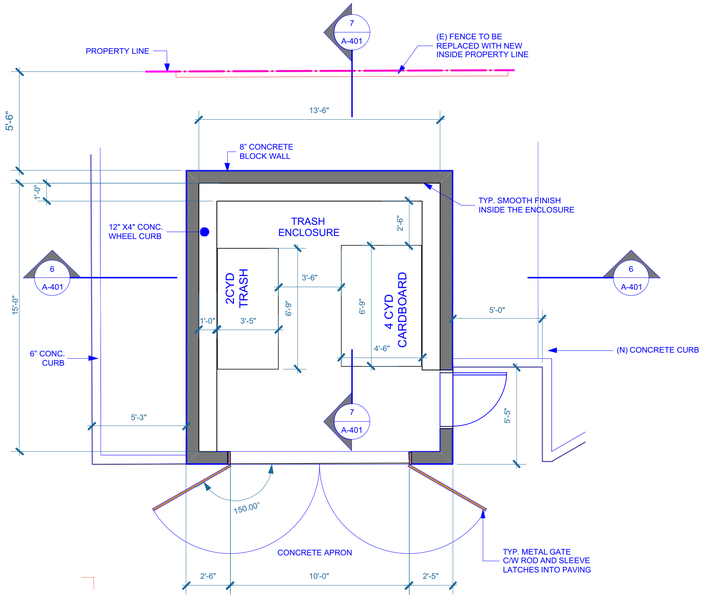
4 RIGHT ELEVATION
Scale: 1/4" = 1'-0"



3 REAR ELEVATION
Scale: 1/4" = 1'-0"



6 SECTION
Scale: 1/2" = 1'-0"



1 ENCLOSURE PLAN
Scale: 1/4" = 1'-0"

MARK STOKLOSA ARCHITECT INC

351 SOUTH BAYWOOD AVE
SUITE-B
SAN JOSE, CA 95128
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marekstoklosa@sbcglobal.net

PROPOSED PRE-SCHOOL
AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JINYING INTERNATIONAL GROUP, INC

MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:

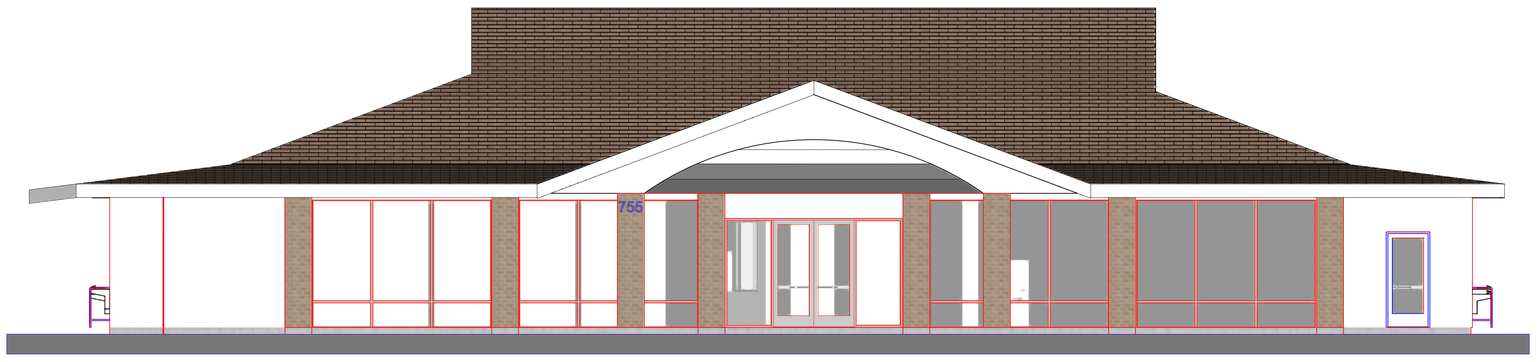
TRASH DETAILS

NOT FOR CONSTRUCTION

A-401

SHEET OF

1 RIGHT SIDE ELEVATION
Scale: 3/16" = 1'-0"



2 FRONT ELEVATION
Scale: 3/16" = 1'-0"

MARK STOKLOSA ARCHITECT INC

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PROPOSED PRE-SCHOOL
AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

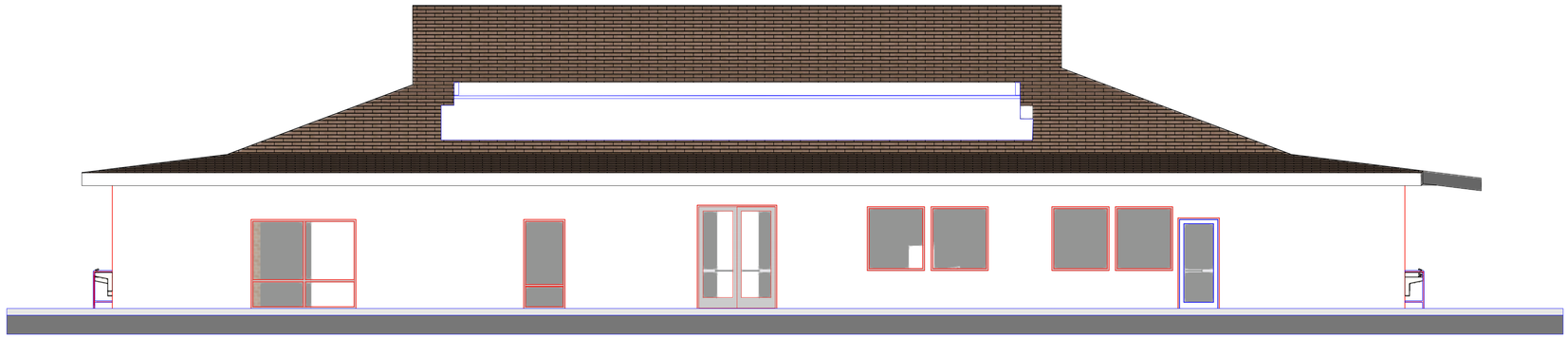
MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

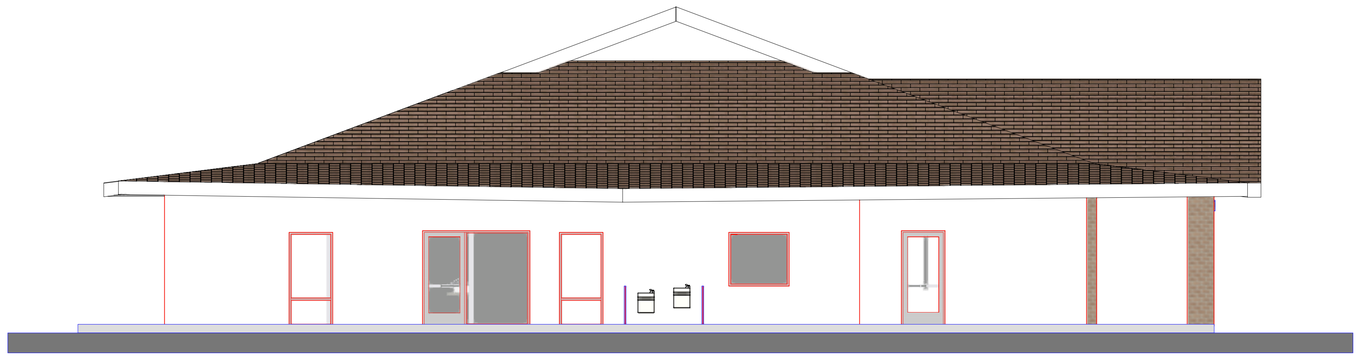
DRAWING TITLE:
ELEVATIONS

NOT FOR CONSTRUCTION

A-501
SHEET OF



1 BACK ELEVATION
Scale: 3/16" = 1'-0"



2 LEFT ELEVATION
Scale: 3/16" = 1'-0"

MARK STOKLOSA ARCHITECT INC

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PROPOSED PRE-SCHOOL
AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

MARK	DATE	DESCRIPTION

SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
ELEVATIONS

NOT FOR CONSTRUCTION

A-502

SHEET OF

US English English Canadian Français Canadien Sign In

Electric Vehicle Solutions

BOSCH Invented for life

Charging Stations | Incentives | Service and Support | Blog

Power Xpress Bollard

Weatherproof, durable design for outdoor installations

The original

The weatherproof Bosch Power Xpress uses a fully-sealed enclosure to provide reliable charging in any condition. An adjustable power output ranges from 12 - 32 amps to help you find the most efficient charge for your

8 CHARGER
Scale: Actual Size

electric vehicle and existing wiring. A convient plug-in option and wall mounting plate allows for the Power Xpress to be easily moved.

The Level 2 240V American made Power Xpress lets you choose between 12 - 32 amps of power, and can charge compatible EVs up 5 times faster than a standard 110V outlet. The compact and durable design of the Power Xpress will withstand nearly any environment while taking up minimal space. Inside and out, the Power Xpress is versatile, reliable, and efficient.

Installation

Power Xpress is built to exceed NEMA 4X standards, making it weatherproof and ideal for indoor or outdoor installation, charging safely in any environment. Bosch recommends working with an experienced electrician to install your new charging station. Looking for an electrician? Visit the Bosch installer map for a

Will it be compatible?

Yes, your charging station will charge any vehicle meeting the SAE J1772 standard, used by most electric vehicles in North America.

BELSON OUTDOORS Your Outdoor Superstore 1-800-323-5664 M-F 8:00am - 4:30pm CT

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QuickShip Popular Products, Right Away Click Here to Enable Options

2 Bike Round Tube Circular Bike Rack

SALE

Model CBBR-2CR-SS

Clean Polished Lines

The Steel Circular Bike Rack takes a traditional design and implements contemporary elements to produce a sleek and elegant fixture. This bike rack is great to use as a stand-alone or for use in multiples to create your own bike parking lot. Each Circular Rack allows two bikes to be parked and secured, one on each side.

Matching Products

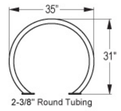
Stainless Steel Square Tube Circular Bike Rack

Stainless Steel Spiral Bike Rack

Features

- 2-3/8"O.D. Steel Tube
- In-Stock - *QuickShip Product*

This imported bike rack is constructed with 2-3/8"O.D. Steel Round Tubing with either a powder-coated or stainless finish. The base flanges feature a sealed design to prevent entrance of unwanted moisture or insects into the tubing.



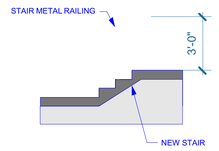
2-3/8" Round Tubing

Color Options

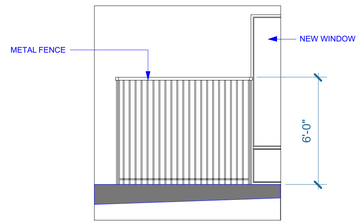
stainless steel finish

powder-coated black river finish

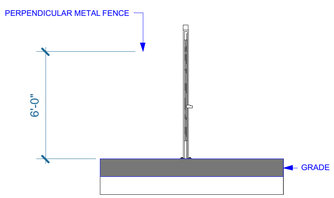
7 BIKE RACK
Scale: Actual Size



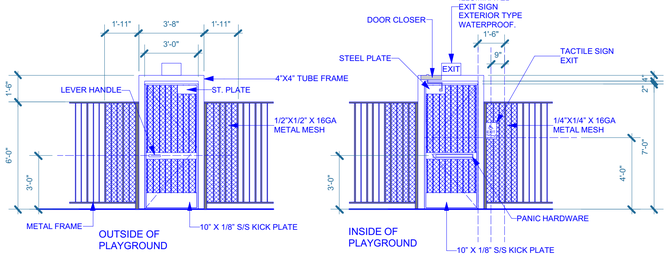
6 FRONT STAIR DETAIL
Scale: 1/4" = 1'-0"



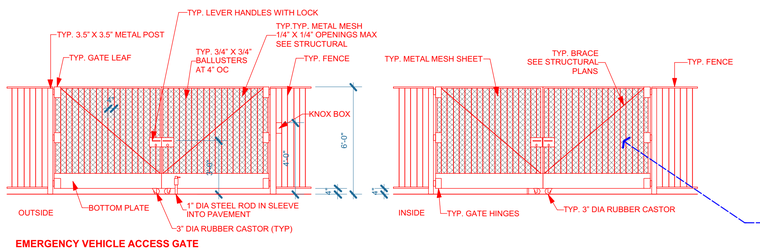
5 GAS METER FENCE
Scale: 1/4" = 1'-0"



4 TYPICAL FENCE ELEVATION
Scale: 1/4" = 1'-0"

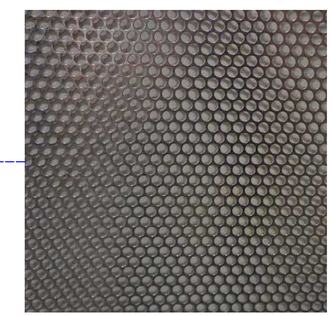


1 PLAYGROUND GATE
Scale: 1/4" = 1'-0"



EMERGENCY VEHICLE ACCESS GATE

2 FENCE AND GATE
Scale: 1/4" = 1'-0"



3 METAL MESH
Scale: Actual Size

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PROPOSED PRE-SCHOOL
AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

MARK	DATE	DESCRIPTION

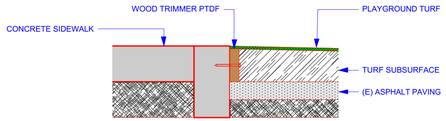
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
DETAILS

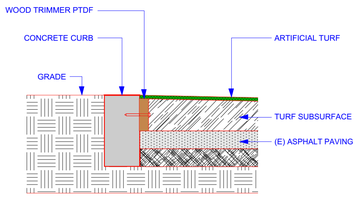
NOT FOR CONSTRUCTION

A-601

SHEET OF



1 DETAIL
Scale: 1" = 1'-0"



2 DETAIL
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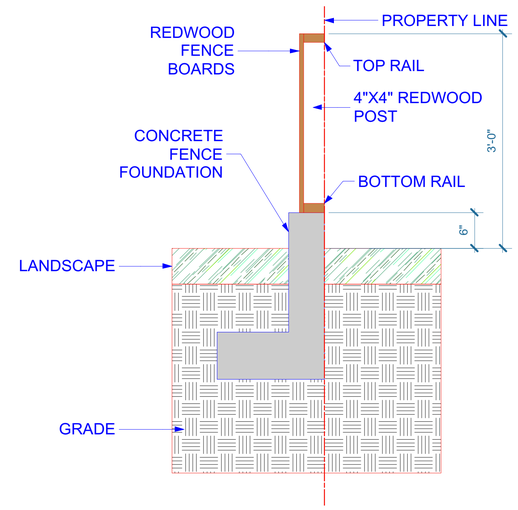
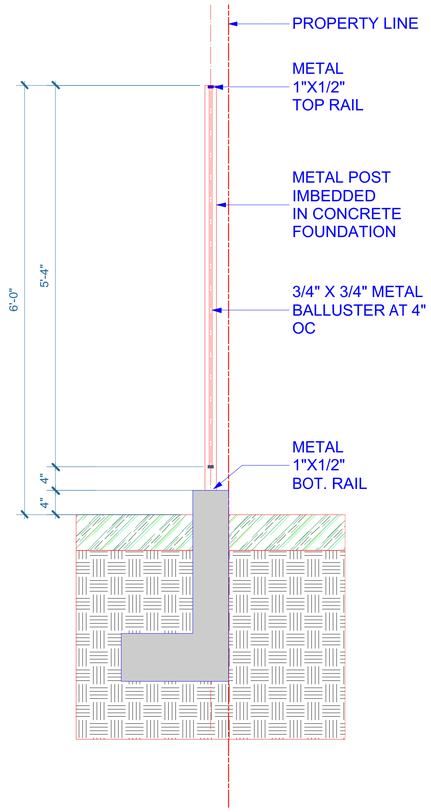
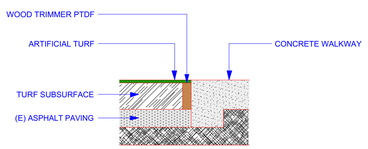


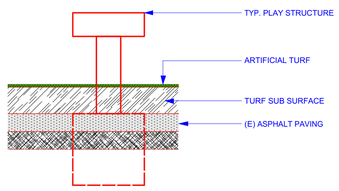
8 SHORT FENCE
Scale: 1" = 1'-0"



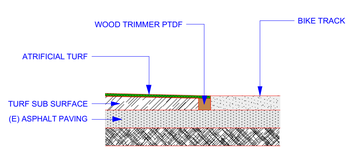
7 METAL FENCE
Scale: 1" = 1'-0"



4 DETAIL
Scale: 1" = 1'-0"



5 DETAIL
Scale: 1" = 1'-0"



3 DETAIL
Scale: 1" = 1'-0"

MARK STOKLOSA ARCHITECT INC

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marekstoklosa@sbcglobal.net

PROPOSED PRE-SCHOOL
AT 755 S. BERNARDO AVE
SUNNYVALE, CA 94087
FOR JY INTERNATIONAL GROUP, INC

MARK	DATE	DESCRIPTION

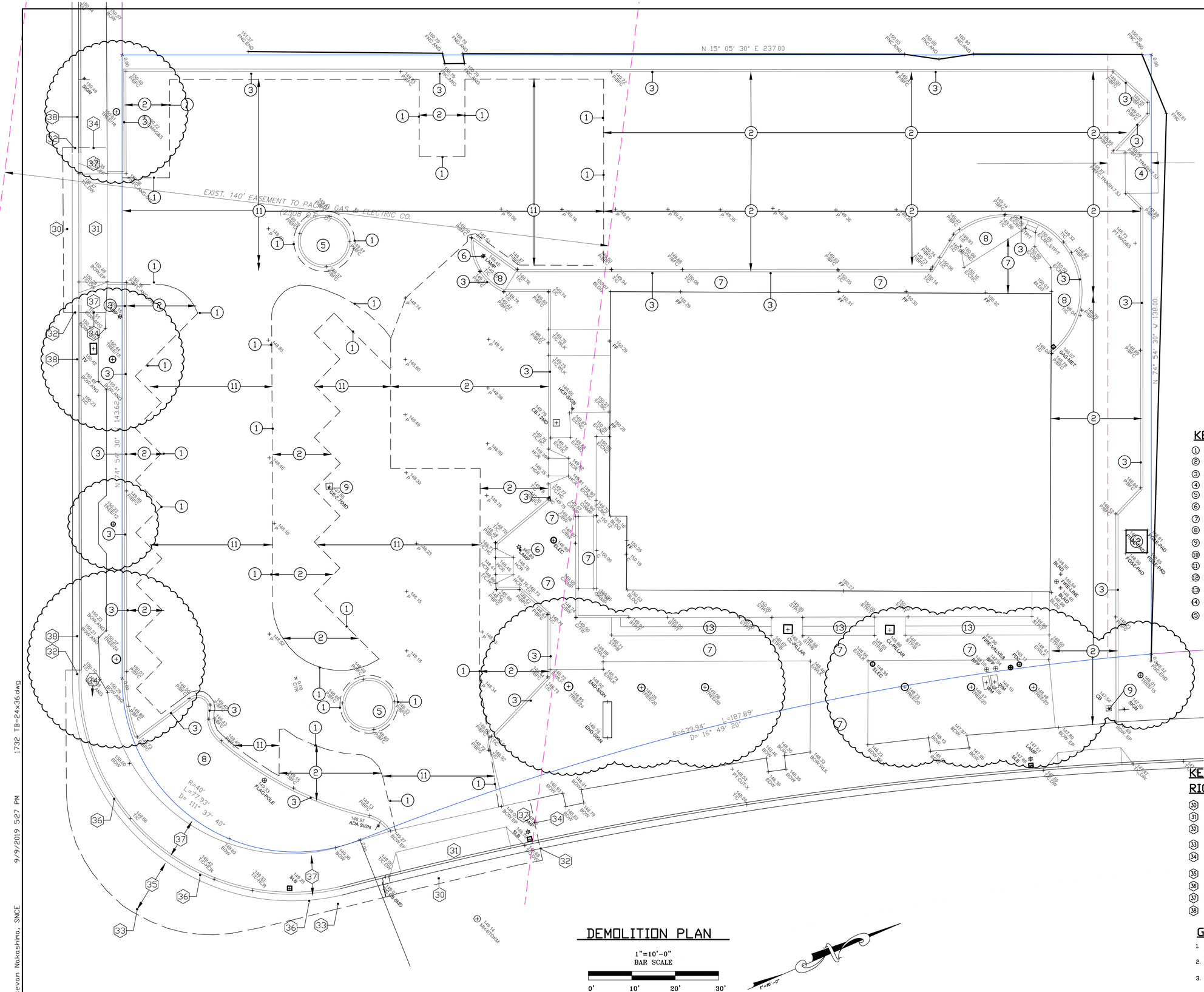
SCALE:
PROJECT NO: 17-025
MODEL FILE: JINYING-2.VWX
DRAWN BY: MS
REVIEWED BY: MS

DRAWING TITLE:
DETAILS

NOT FOR CONSTRUCTION

A-602

SHEET OF



DEMOLITION PLAN

1"=10'-0"
BAR SCALE

0' 10' 20' 30'

1"=10'-0"

PROPOSED	EXISTING	
		PROPERTY LINE
49.46	+144.84	SPOT ELEVATION
140.00	140	SURFACE CONTOUR
TC	TC (E)	TOP OF CURB
EP	EP (E)	EDGE OF PAVEMENT
FL	FL (E)	FLOW LINE
CNC		CONCRETE
AC		ASPHALIC CONCRETE
GRD		GROUND SURFACE
TW		TOP OF WALL
BOT		BOTTOM OF WALL
BW		BACK OF WALK
		SURFACE VALLEY
R R	R R	SURFACE RIDGE
E		MATCH EXISTING GRADE
		A.C. PAVING
		CONCRETE
		CURB
SD	SD	STORM DRAIN
SS	SS	SANITARY SEWER
W	W	WATER
CB	CB	CATCH BASIN
JB	JB	JUNCTION BOX
COTG	COTG	CLEANOUT TO GRADE
SDMH	SDMH	STORM MANHOLE
SSMH	SSMH	SANITARY MANHOLE
		OVERLAND RELEASE
X		REMOVE EXISTING TREE

LEGEND
SCALE: NONE
CIVIL201020
1

KEY NOTES

1. SAWCUT (E) AC PAVING.
2. REMOVE (E) AC PAVING.
3. REMOVE (E) CONCRETE CURB/CURB & GUTTER.
4. REMOVE (E) TRASH ENCLOSURE, INCLUDING SLAB AND FOUNDATION.
5. REMOVE (E) PLANTER, INCLUDING CURB, LANDSCAPING AND IRRIGATION.
6. REMOVE (E) LIGHT STANDARD, LAMP AND FOUNDATION.
7. REMOVE (E) CONCRETE WALK/SLAB.
8. REMOVE (E) LANDSCAPING.
9. EXISTING STORM DRAIN TO REMAIN. SEE GENERAL NOTE 3.
10. (E) CURB TO REMAIN.
11. (E) AC PAVING TO REMAIN. REFER TO C-11 FOR AC OVERLAY.
12. EXISTING TRANSFORMER AND TRANSFORMER PAD TO REMAIN.
13. REMOVE EXISTING STEPS.
14. EXISTING WATER BACKFLOW VALVES TO REMAIN.
15. EXISTING FIRE BACKFLOW VALVE, PIV AND FDC TO REMAIN.

KEY NOTES FOR WORK ON PUBLIC RIGHT-OF-WAY

30. SAWCUT (E) AC PAVING 1' FROM LIP OF GUTTER AND REMOVE.
31. REMOVE (E) DRIVE APRON
32. SAWCUT (E) CURB AND GUTER AT NEAREST CONSTRUCTION JOINT. VIF.
33. SAWCUT (E) AC PAVING.
34. SAWCUT (E) CONCRETE WALK AT NEAREST CONSTRUCTION JOINT. VIF.
35. REMOVE (E) AC PAVING.
36. REMOVE (E) CURB AND GUTTER.
37. REMOVE (E) CONCRETE WALK.
38. (E) CURB AND GUTTER TO REMAIN.

GENERAL NOTE:

1. REFER TO ELECTRICAL DRAWINGS FOR DISPOSITION OF ALL ELECTRICAL COMMUNICATION LINES/STRUCTURES/BOXES.
2. REFER TO TREE PROTECTION AND REMOVAL PLAN FOR THE DISPOSITION OF ALL (E) TREES.
3. PROTECT ALL EXISTING UTILITIES TO REMAIN.

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REGISTERED PROFESSIONAL ENGINEER
STEVAN H. NAKASHIMA
C26597
REN.3/31/20
CIVIL
STATE OF CALIFORNIA

JINGYING INTERNATIONAL EDUCATION LLC
755 BERNARDO AVE
SUNNYVALE, CALIFORNIA 94087
CIVIL PLAN

DEMOLITION PLAN

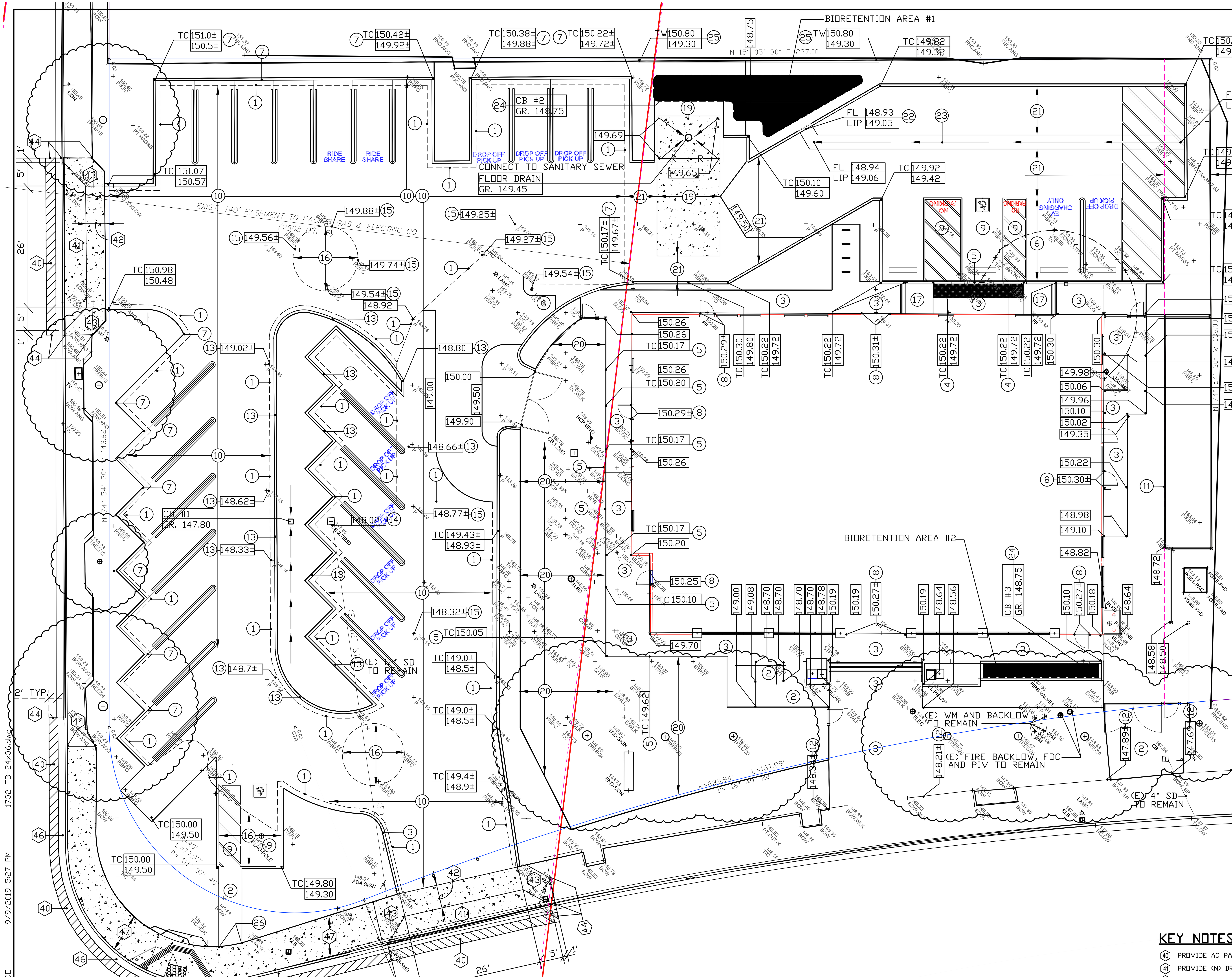
OWNER:
JINGYING INTERNATIONAL CHINESE SCHOOL
ZINGQIANG WANG

Date: 09-11-2019
Scale: AS SHOWN
Drawn By: PN
Job No.: 17.025/1732

Revisions

Sheet Number:
C-01

1732 TB-24x36.dwg 9/9/2019 5:27 PM Stevan Nakashima, SNCE



GRADING AND DRAINAGE PLAN

1"=10'-0"
BAR SCALE
0' 10' 20' 30'

LEGEND

PROPOSED	EXISTING	
		PROPERTY LINE
39.40	+34.84	SPOT ELEVATION
40.00	40	SURFACE CONTOUR
TC	TC (E)	TOP OF CURB
EP	EP (E)	EDGE OF PAVEMENT
FL	FL (E)	FLOW LINE
CNC		CONCRETE
AC		ASPHALTIC CONCRETE
GRD		GROUND SURFACE
TW		TOP OF WALL
BOT		BOTTOM OF WALL
BW		BACK OF WALK
		SURFACE VALLEY
R	R	SURFACE RIDGE
E		MATCH EXISTING GRADE
		A.C. PAVING
		CONCRETE
		CURB
SD	SD	STORM DRAIN
SS	SS	SANITARY SEWER
W	W	WATER
CB	CB	CATCH BASIN
JB	JB	JUNCTION BOX
COTG	COTG	CLEANOUT TO GRADE
SDMH	SDMH	STORM MANHOLE
SSMH	SSMH	SANITARY MANHOLE
		OVERLAND RELEASE
		REMOVE EXISTING TREE

LEGEND
SCALE: NONE
CIVIL201020
1

GENERAL NOTES

1. ALL EXISTING PUBLIC IMPROVEMENTS THAT ARE DAMAGED OR ARE DAMAGED DUE TO CONSTRUCTION ACTIVITIES SHALL BE REMOVED AND REPLACED PER CITY STANDARDS.
2. RESTORE AND REPLACE ANY DAMAGE TO THE TRAFFIC CONTROL DEVICES DUE TO CONSTRUCTION ACTIVITIES.

KEY NOTES

1. AC SAWCUT LINE. SEE DEMOLITION PLAN.
2. PROVIDE NEW WALK WITH MAXIMUM 2% CROSS - SLOPE AND SLOPE AND SLOPE IN THE DIRECTION OF TRAVEL LESS THAN 1:20. SEE ARCHITECTURAL PLAN FOR WALK MATERIAL.
3. PROVIDE WALK/LANDING WITH MAXIMUM 2% SLOPE IN ANY DIRECTION. SEE ARCHITECTURAL PLAN FOR WALK MATERIAL.
4. END VERTICAL CURB. PROVIDE FLUSH CURB.
5. PROVIDE FLUSH CURB.
6. PROVIDE 2 1/2" AC OVER 10" CL. 2 AGGREGATE BASE.
7. PROVIDE NEW CONCRETE CURB 6" ABOVE AC. OVERLAY. V.I.F.
8. MATCH (E) FINISH FLOOR ELEVATION. VIF.
9. PROVIDE AC PAVING WITH MAXIMUM 2% SLOPE IN ANY DIRECTION AT ACCESSIBLE STALLS AND ACCESS AISLES.
10. PROVIDE MIN. 2" AC OVERLAY. SEE AC OVERLAY PROCEDURE. VERIFY (E) GRADE.
11. NEW BENDER BOARD OR PTDF AT TURF. SEE ARCHITECTURAL PLANS FOR DETAIL.
12. MATCH (E) TOP OF WALK ELEVATION. VIF.
13. PROVIDE FLUSH CURB AT TOP OF AC OVERLAY. VIF.
14. RAISE RIM ELEVATION OF (E) CATCH BASIN GRATE 2". VIF.
15. FINISH AC PAVING GRADE BASED ON 2" AC OVERLAY. VIF.
16. PROVIDE 3" AC OVER 12" CL. 2 AGGREGATE BASE.
17. PROVIDE CONCRETE CURB RAMP WITH MAX. 1:12 SLOPE. SEE ARCITECTURAL PLANS FOR DETAIL.
18. (E) AC PAVING TO REMAIN. STORMWATER RUNOFF PATTERN TO REMAIN. SEE ARCITECTURAL PLANS FOR PLAYGROUND TURF DETAILS.
19. PROVIDE 6" CONCRETE SLAB W/#3 @ 18" OCEW. OVER 6" CL.2 AGG. BASE.
20. REFER TO ARCHITECTURAL DRAWINGS FOR PLAYGROUND TURF DETAILS.
21. PROVIDE 3" AC OVER 12" CL. 2 AGGREGATE BASE.
22. PROVIDE 18" WIDE CURB CUT. PROVIDE 2" DROP FROM GUTTER FLOW LINE TO LANDSCAPING. PROVIDE 3' WIDE X 5' LONG ROCK ENERGY DISSIPATER.
23. PROVIDE 3' WIDE CONCRETE GUTTER.
24. PROVIDE CATCH BASIN 6" ABOVE BIORETENTION SOIL MIX. PROVIDE 18" WIDE X 12" DEEP ROCK ENERGY DISSIPATER AROUND CATCH BASIN PROVIDE 4" TO 6" COBBLE. SEE LANDSCAPE PLAN FOR COBBLE SPEC.
25. RETAINING WALL - SEE STRUCTURAL DRAWINGS.
26. MATCH NEW TOP OF WALK ELEVATION.

KEY NOTES FOR WORK ON PUBLIC RIGHT OF WAY:

40. PROVIDE AC PATCH. PROVIDE 2" AC OVER 8" CONCRETE FILL.
41. PROVIDE (N) DRIVE APRON PER CITY STANDARD DETAIIL 6C-1.
42. PROVIDE MAXIMUM 2% CROSS-SLOPE.
43. PROVIDE (N) CONCRETE WALK WITH MAXIMUM 2% CROSS-SLOPE. PROVIDE PER CITY STANDARD DETAIL 6C-1.
44. MATCH (E) GRADE. VIF.
45. PROVIDE NEW CURB RAMP PER CITY STANDARDS.
46. PROVIDE NEW CURB AND GUTTER PER CITY STANDARDS.
47. PROVIDE NEW CONCRETE WALK PER CITY STANDARDS.

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REGISTERED PROFESSIONAL ENGINEER
STEVAN H. NAKASHIMA
C26597
REN.3/31/20
CIVIL
STATE OF CALIFORNIA

JINGYING INTERNATIONAL EDUCATION LLC
755 BERNARDO AVE
SUNNYVALE, CALIFORNIA 94087
CIVIL PLAN

GRADING & DRAINAGE PLAN

OWNER: JINGYING INTERNATIONAL CHINESE SCHOOL
ZINGQIANG WANG

Date: 09-11-2019
Scale: AS SHOWN
Drawn By: FN
Job No.: 17.025/1732

Revisions

Sheet Number:
C-11

BIORETENTION AREA #1

N 15° 05' 30" E 237.00

EXIST. 140' EASEMENT TO PACIFIC GAS & ELECTRIC CO. (2508 O.R. 8)

RIDE SHARE

RIDE SHARE

DROP OFF PICK UP

DROP OFF PICK UP

DROP OFF PICK UP

DROP OFF PICK UP

DROP OFF PICK UP

DROP OFF PICK UP

DROP OFF PICK UP

DROP OFF PICK UP

CONDUCTIVE PARKING ONLY

CONDUCTIVE PARKING ONLY

EV CHARGING ONLY

DROP OFF PICK UP

DMA 1

DMA 2

BIORETENTION AREA #2

R=40' L=77.93' D=111° 37' 40"

R=639.94' L=187.89' D=16° 49' 20"

N 74° 54' 30" W 143.62

N 74° 54' 30" W 138.00

STORMWATER CONTROL PLAN

1"=10'-0"
BAR SCALE

0' 10' 20' 30'

1"=10'-0"

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REGISTERED PROFESSIONAL ENGINEER
STEVAN H. NAKASHIMA
C26597
REN.3/31/20
CIVIL
STATE OF CALIFORNIA

JINGYING INTERNATIONAL EDUCATION LLC
755 BERNARDO AVE
SUNNYVALE, CALIFORNIA 94087

CIVIL PLAN

STORMWATER CONTROL PLAN

OWNER:
JINGYING INTERNATIONAL CHINESE SCHOOL
ZINGQIANG WANG

Date: 09-11-2019
Scale: AS SHOWN
Drawn By: FN
Job No.: 17.025/1732

Revisions

Sheet Number:
C-12

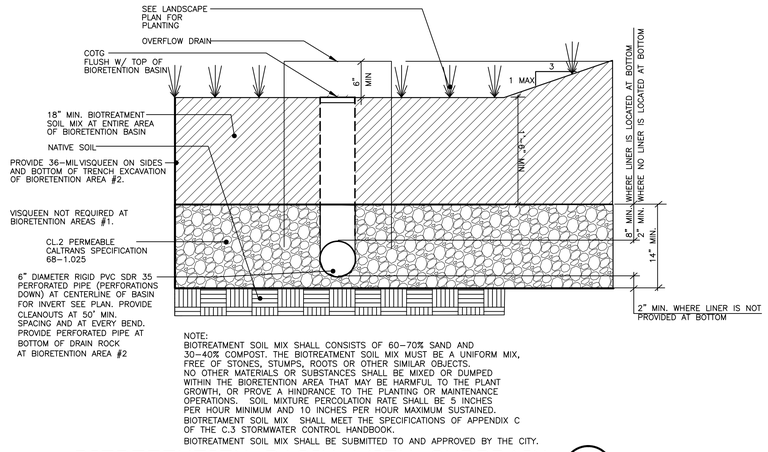
SUMMARY OF MAINTENANCE REQUIREMENTS

ENTITY RESPONSIBLE FOR THE MAINTANENCE OF THE STORMWATER CONTROL MEASURES:

ZINGQIANG WANG
JY INTERNATIONAL GROUP,INC.
660 SOUTH BERNARDO AVE., SUNNYVALE CA. 94087
OFFICE 408-212-0918
CELL 408-348-9618
jingying <info@jyus.org>

BIORETENTION BASINS REMOVE POLLUTANTS PRIMARILY BY FILTERING RUNOFF SLOWLY THROUGH AN ACTIVE LAYER OF SOIL. ROUTINE MAINTENANCE IS NEEDED TO INSURE THAT FLOW IS UNOBSTRUCTED, THAT EROSION IS PREVENTED, AND THAT SOILS ARE HELD TOGETHER BY PLANT ROOTS AND ARE BIOLOGICALLY ACTIVE. TYPICAL ROUTINE MAINTENANCE CONSISTS OF THE FOLLOWING:

- INSPECT INLETS, EXPOSURE OF SOILS, OR OTHER EVIDENCE OF EROSION. CLEAR ANY OBSTRUCTIONS AND REMOVE ANY ACCUMULATION OF SEDIMENT. EXAMINE ROCK OR OTHER MATERIAL USED AS A SPLASH PAD AND REPLENISH IF NECESSARY.
- INSPECT OUTLETS FOR EROSION OR UNPLUGGING.
- INSPECT SIDE SLOPES FOR EVIDENCE OF INSTABILITY OR EROSION AND CORRECT AS NECESSARY.
- OBSERVE SOIL IN THE BASINS FOR UNIFORM PERCOLATION THROUGHOUT. IF PORTIONS OF THE SWALE OR FILTER DO NOT DRAIN WITHIN 48 HOURS AFTER THE END OF A STORM, THE SOIL SHOULD BE TILLED AND REPLANTED. REMOVE ANY DERBIS OR ACCUMULATIONS OF SEDIMENT.
- EXAMINE THE VEGETATION TO INSURE THAT IT IS HEALTHY AND DENSE ENOUGH TO PROVIDE FILTERING AND TO PROTECT SOILS FROM EROSION. REPLENISH MUCH AS NECESSARY, REMOVE FALLEN LEAVES AND DEBRIS, PRUNE LARGE SHRUBS OR TREES, AND MOW TURF AREAS. CONFIRM THAT IRRIGATION IS ADEQUATE AND NOT EXCESSIVE. REPLACE DEAD PLANTS AND REMOVE INVASIVE VEGETATION.
- ABATE ANY POTENTIAL VECTORS BY FILLING HOLES IN THE GROUND IN AND AROUND THE SWALE AND BY INSURING THAT THERE ARE NOT AREAS WHERE WATER STANDS LONGER THAN 48 HOURS FOLLOWING A STORM. IF MOSQUITO LARVAE ARE PRESENT AND PERSISTENT, CONTACT THE SANTA CLARA COUNTY VECTOR CONTROL DISTRICT FOR INFORMATION AND ADVICE. MOSQUITO LARVICIDES SHOULD BE APPLIED ONLY WHEN ABSOLUTELY NECESSARY AND THEN ONLY BY A LICENSED INDIVIDUAL OR CONTRACTOR.



NOTE:
BIOTREATMENT SOIL MIX SHALL CONSISTS OF 60-70% SAND AND 30-40% COMPOST. THE BIOTREATMENT SOIL MIX MUST BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO THE PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. SOIL MIXTURE PERCOLATION RATE SHALL BE 5 INCHES PER HOUR MINIMUM AND 10 INCHES PER HOUR MAXIMUM SUSTAINED. BIOTREATMENT SOIL MIX SHALL MEET THE SPECIFICATIONS OF APPENDIX C OF THE C.3 STORMWATER CONTROL HANDBOOK.
BIOTREATMENT SOIL MIX SHALL BE SUBMITTED TO AND APPROVED BY THE CITY.

BIORETENTION BASIN WITH SUBDRAIN 1
NTS 206102B

COMBINATION FLOW AND VOLUME DESIGN BASIS CALCULATIONS

MAP =14

MAP ADJUSTMENT FACTOR = 14/13.9 = 1.007

FIGURE B-5 UNIT BASIN STORAGE VOLUME FOR SAN JOSE AIRPORT RAIN GAGE =.56

ADJUSTED UNIT BASIN STORAGE VOLUME X MAP ADJUSTMENT FACTOR
1.007 X .56 = .564 INCHES

DURATION RAIN EVENT .564/0.2 = 2.82 HOURS

BIORETENTION AREA #1

PERVIOUS AREA 917 SF

IMPERVIOUS AREA 7,988 SF

TOTAL AREA 8,905 SF

EFFECTIVE IMPERVIOUS AREA = (7,988)(1)+(917)(.1) = 8,080 SF

ASSUME BASIN SIZE =8,080 X .04 = 323 SF

VOLUME OF TREATED RUNOFF = 323 X 5/12 X 2.82 = 380 CF

ASSUME BASIN SIZE = 8,080 X .04 X .67 = 217 SF

VOLUME OF TREATED RUNOFF = 217 X 5/12 X 2.82 = 255 CF

DIFFERENCE IN VOLUME 380- 255 = 125 CF

PONDING DEPTH 125/255 = .49 FT = 6 "

MINIMUM SIZE OF BIORETENTION AREA = 323 X .75 = 242 SF

BIORETENTION AREA #2

PERVIOUS AREA 70 SF

IMPERVIOUS AREA 2,065 SF

TOTAL AREA 2,135 SF

EFFECTIVE IMPERVIOUS AREA = (2,065)(1)+(70)(.1) = 2,072 SF

ASSUME BASIN SIZE =2,072 X .04 = 83 SF

VOLUME OF TREATED RUNOFF = 83 X 5/12 X 2.82 = 98 CF

ASSUME BASIN SIZE = 2,072 X .04 X .667 = 55 SF

VOLUME OF TREATED RUNOFF = 55 X 5/12 X 2.82 = 65 CF

DIFFERENCE IN VOLUME 98 - 65 = 33 CF

PONDING DEPTH 33/65 = .508 FT = 6 "

MINIMUM SIZE OF BIORETENTION AREA = 83 X .75 = 62 SF

2. PROJECT DATA:

PERVIOUS AND IMPERVIOUS SURFACES COMPARISON TABLE			
A. PROJECT PHASE NUMBER (N/A, 1, 2, 3, ETC.):	N/A	B. TOTAL SITE (AREA):	.87
C. TOTAL SITE EXISTING IMPERVIOUS SURFACES (SQUARE FEET):	33,913	D. TOTAL AREA OF SITE DISTURBED (ACRES):	.46

	EXISTING CONDITION OF SITE AREA DISTURBED (SQUARE FEET):	PROPOSED CONDITION OF SITE AREA DISTURBED (SQUARE FEET)	
E. IMPERVIOUS SURFACES		REPLACED	CREATED
ROOF AREA(S)	6,910	-	-
PARKING	23,195	5,939	589
SIDEWALKS, PATIOS, PATHS	3,808	3,198	326
STREETS (PUBLIC)	-	-	-
STREETS (PRIVATE)	-	-	-
TOTAL IMPERVIOUS SURFACES:	E.1: 33,913	E.2: 9,137	E.3: 915
F. PERVIOUS SURFACES			
LANDSCAPED AREAS	3,974	1,955	4,175
PERVIOUS PAVING	-	-	-
OTHER PERVIOUS SURFACES (PLAYGROUND, TURF, ETC.)	-	1,215	2,646
TOTAL PERVIOUS SURFACES:	F.1: 3,974	F.2: 3,170	F.3: 6,821

G. TOTAL PROPOSED REPLACED + NEW IMPERVIOUS SURFACES (E.2+E.3):	10,052
H. TOTAL PROPOSED REPLACED + NEW PERVIOUS SURFACES (F.2+F.3):	9,991

I. PERCENT OF REPLACEMENT OF IMPERVIOUS AREA IN REDEVELOPMENT PROJECTS (E.2÷C X 100):	26.94%

J. PRE-CONSTRUCTION IMPERVIOUS AREA	33,913 SQ FT
POST-CONSTRUCTION IMPERVIOUS AREA	27,888 SQ FT

TOTAL MPERVIOUS SURFACE CREATED AND/OR REPLACED FOR PARKING AREA

539 SF (CREATED) + 5,939 (REPLACED) = 6,528 SF IS MORE THAN 5,000 SF

STORMWATER CONTROL MEASURES USED

SITE DESIGN MEASURES
1. DISCONNECT DOWNSPOUTS
2. MINIMIZE CHANGE IN RUNOFF HYDROGRAPH
3. MINIMIZE LAND DISTURBANCE
4. MINIMIZE IMPERVIOUS SURFACES

SOURCE CONTROL MEASURE
1. BENEFICIAL LANDSCAPING (MINIMIZES IRRIGATION, RUNOFF, PESTICIDES & FERTILIZERS; PROMOTES TREATMENT)
2. MAINTENANCE (STREET SWEEPING, CATCH BASIN CLEANING)
3. COVERED DUMPSTER AREA, DRAIN TO SANITARY SEWER
4. STORM DRAIN LABELING

TABLE 1-TREATMENT CONTROL MEASURE (TCM) SUMMARY TABLE AREA*

AREA ID	SURFACE	PERVIOUS AREA (s.f.)	IMPERVIOUS AREA (s.f.)	TOTAL AREA (s.f.)	SIZING ** FACTOR	BIORETENTION AREA REQUIRED(s.f.)	BIORETENTION AREA PROVIDED(s.f.)	TREATMENT METHOD YES	IMPERMEABLE LINER ON BOTTOM (YES/NO)
DMA 1	ROOF PAVING CONCRETE	917 SF	7,988 SF	8,905 SF	COMBINATION FLOW AND VOLUME	242 SF	322 SF	BIORETENTION AREA #1	NO
DMA 2	ROOF	70 SF	2,065 SF	2,072 SF	COMBINATION FLOW AND VOLUME	62 SF	70 SF	BIORETENTION AREA #2	YES
DMA 3	NEW IMPROVEMENTS ALONG PROJECT FRONTAGE							ROADWAY* PROJECT	NO

TOTAL IMPERVIOUS AREA SERVED BY BMPS 10,053 SF

* PER CHAPTER 2.3 OF THE C.3 STORMWATER HANDBOOK ROADWAY PROJECT THAT ADD NEW SIDEWALK ALONG AN EXISTING ROADWAY ARE EXEMPT FROM PROVISION C.3.c OF THE MUNICIPAL STORMWATER PERMIT.

** REFER TO COMBINATION FLOW AND VOLUME BASED CALCULATIONS ON THIS SHEET.

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CIVIL PLAN

IMPERVIOUS SURFACE DATA

OWNER:
JINGYING INTERNATIONAL CHINESE SCHOOL
ZINGQIANG WANG

Date: 09-11-2019
Scale: AS SHOWN
Drawn By: FN
Job No.: 17.025/1732

Revisions

-	-

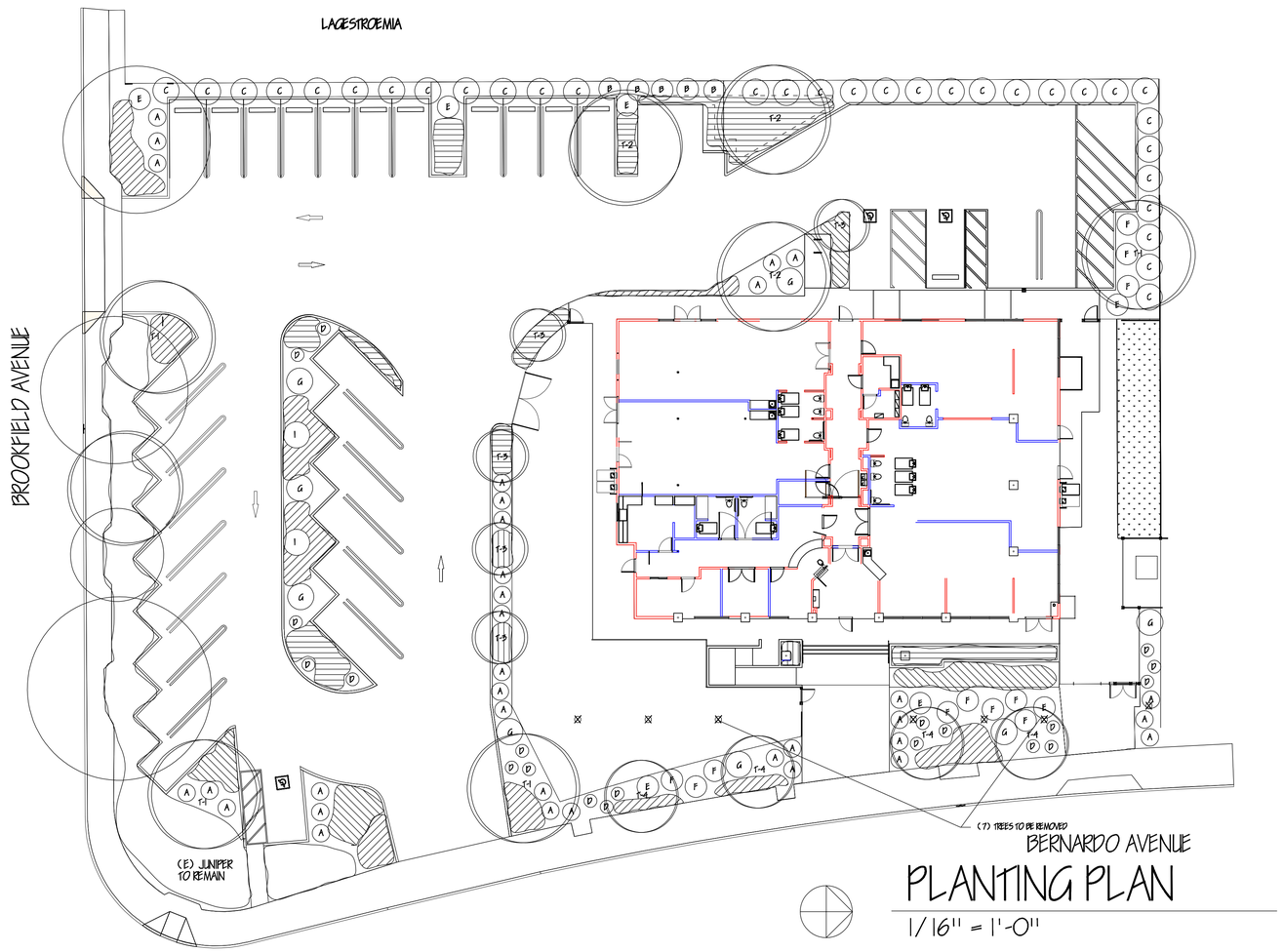
Sheet Number:
C-13

TEUCRIUM ACHILLEA SALVIA FESTUCA ROSA

NANDINA PITTOSPORUM DIETES SALVIA ASPARAGUS

PITTOSPORUM PHORMIUM LAGESTROEMIA COTINUS

PISTACHIA PLATANUS



PLANTING PLAN

1/16" = 1'-0"

PLANT LEGEND AND NOTES

Sym	Botanical Name/ Common Name	Size	Water	WUCOLS
	Teucrium chamraedys/ Germander @ 5' oc	1 gallon	low	.3
	Achillea Moonshine/ Yellow Yarrow @ 5' oc	1 gallon	low	.2
	Salvia Bee's Bliss @ 4' oc	1 gallon	low	.3
	Carex divulsa/ Berkeley Sedge @ 3' oc	1 gallon	low	.3
A	Rosa/ White Carpet Rose	5 gallon	low	.3
B	Nandina domestica	5 gallon	low	.3
C	Pittosporum tenufolium	5 gallon	low	.3
D	Dietes vegeta/ Fortnight Lily	5 gallon	low	.3
E	Salvia leucantha/ Sage	5 gallon	low	.3
F	Pittosporum tobira Wheelers Dwarf	5 gallon	low	.3
G	Phormium tenax Apricot Queen/ Flax	5 gallon	low	.3
H	Asparagus/ Asparagus Fern	5 gallon	med	.5
I	Cotinus Golden Spirit/ Smoke Tree	15 gallon	low	.3
T-1	Pistachia chinense Keith Davey/ Chinese Pistache	24" box	low	.3
T-2	Platanus acerifolia Yarwood/ Sycamore	24" box	low	.3
T-3	Lagestroemia Muskogee std/ Crape Myrtle	15 gallon	low	.3
T-4	Lagestroemia Tuscorora/ Crape Myrtle	15 gallon	low	.3

1) Verify placement of all proposed plant material and protect existing trees and plants to remain.
2) All existing tree stumps to be ground and removed.
3) For existing site soil, break up and amend thoroughly prior to planting. Recommend soil fertility analysis for soil preparation recommendations.
4) For new parking lot planters, all asphalt and existing gravel base to be removed. Thoroughly break up subsoil and place import clay loam topsoil. Thoroughly mix import soil into native and amend.
5) Incorporate 3" of approved compost at all planting areas as an alternative to the soil preparation recommendations.
6) Spread 3" of approved earth tone wood chip mulch at all planting areas after planting installation is complete.
7) I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan.

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C-2235

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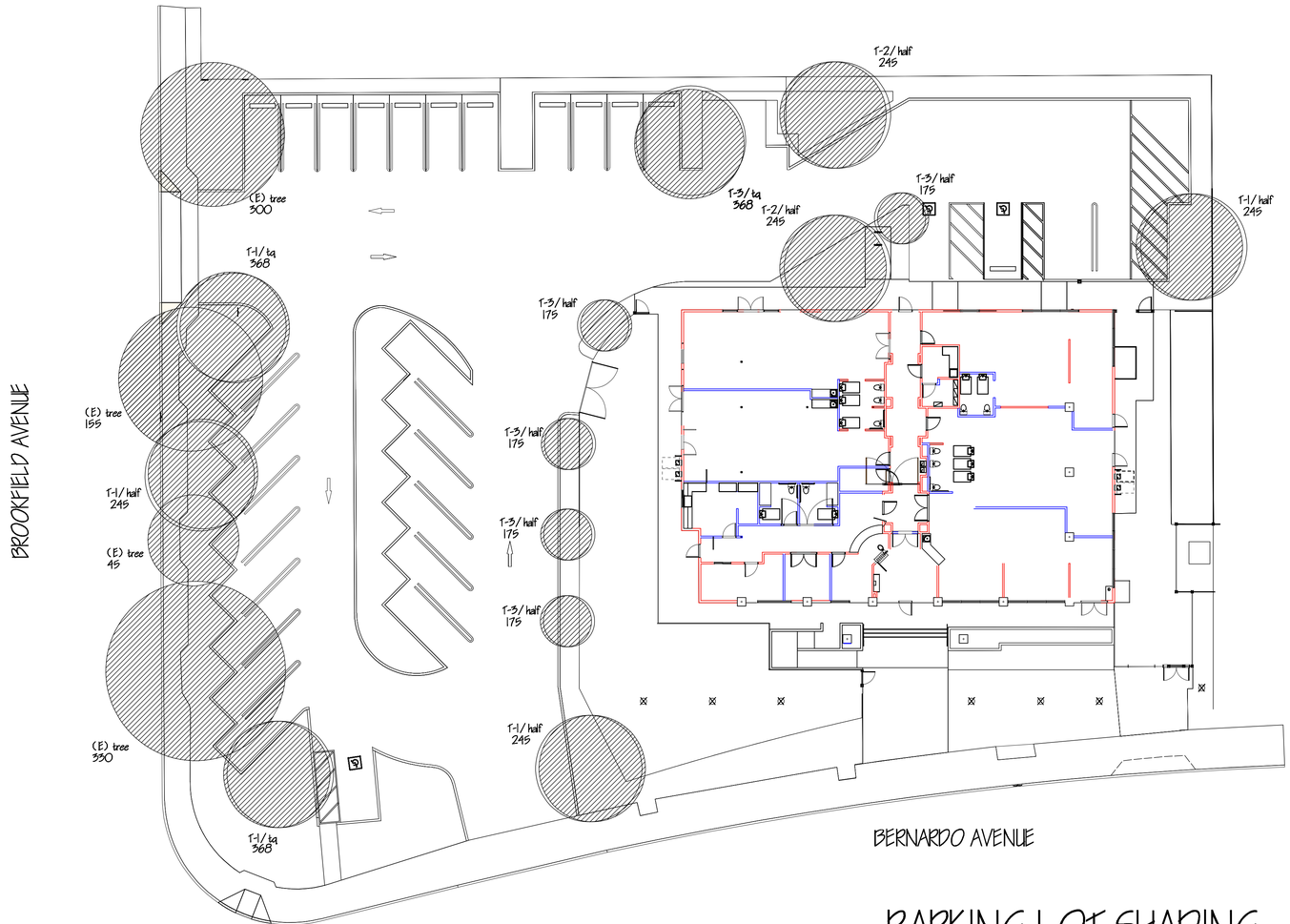
REVISED 10/30/18
REVISED 11/15/18
REVISED 2/12/19
REVISED 7/6/19
REVISED 7/12/19
REVISED 7/23/19
REVISED 9/10/19

REGISTERED LANDSCAPE ARCHITECT
No. 2235
Signature
EXPIRATION DATE: 08/30/2021
STATE OF CALIFORNIA

JINGYING INTERNATIONAL EDUCATION, LLC
for:
JINGYING INTERNATIONAL EDUCATIONAL LLC
755 BERNARDO AVE.
SUNNYVALE, CA. 94087

PLANTING PLAN

date: 1/11/18
scale: NOTED
drawn by: WJH
job no. 21802
sheet L1
of 4 shts



PARKING LOT SHADING

1/16" = 1'-0"


PISTACHIA


PLATANUS


LAGERSTROEMIA

SHADED CALCULATION TABLE

Sym	Botanical Name/ Common Name	Full sf	3/ 4	1/ 2	1/ 4	Total sf
T-1	Pistachia chinensis Keith Davey/ Chinese Pistache		1 @ 368 sf	6 @ 245 sf		1838 sf
T-2	Platanus acerifolia Yarwood/ Yarwood Sycamore		1 @ 368	2 @ 245 sf		858 sf
T-3	Lagerstroemia Muskogee/ Crape Myrtle			5 @ 175 sf		875 sf
(E)	Existing Tree Varieties					830 sf

Total Tree Shade: 4401 sf

Total Paved Area: 17,419 sf (50% = 8710 sf required)

Percent Shaded: 25% due to limited planting area based on PG&E easement

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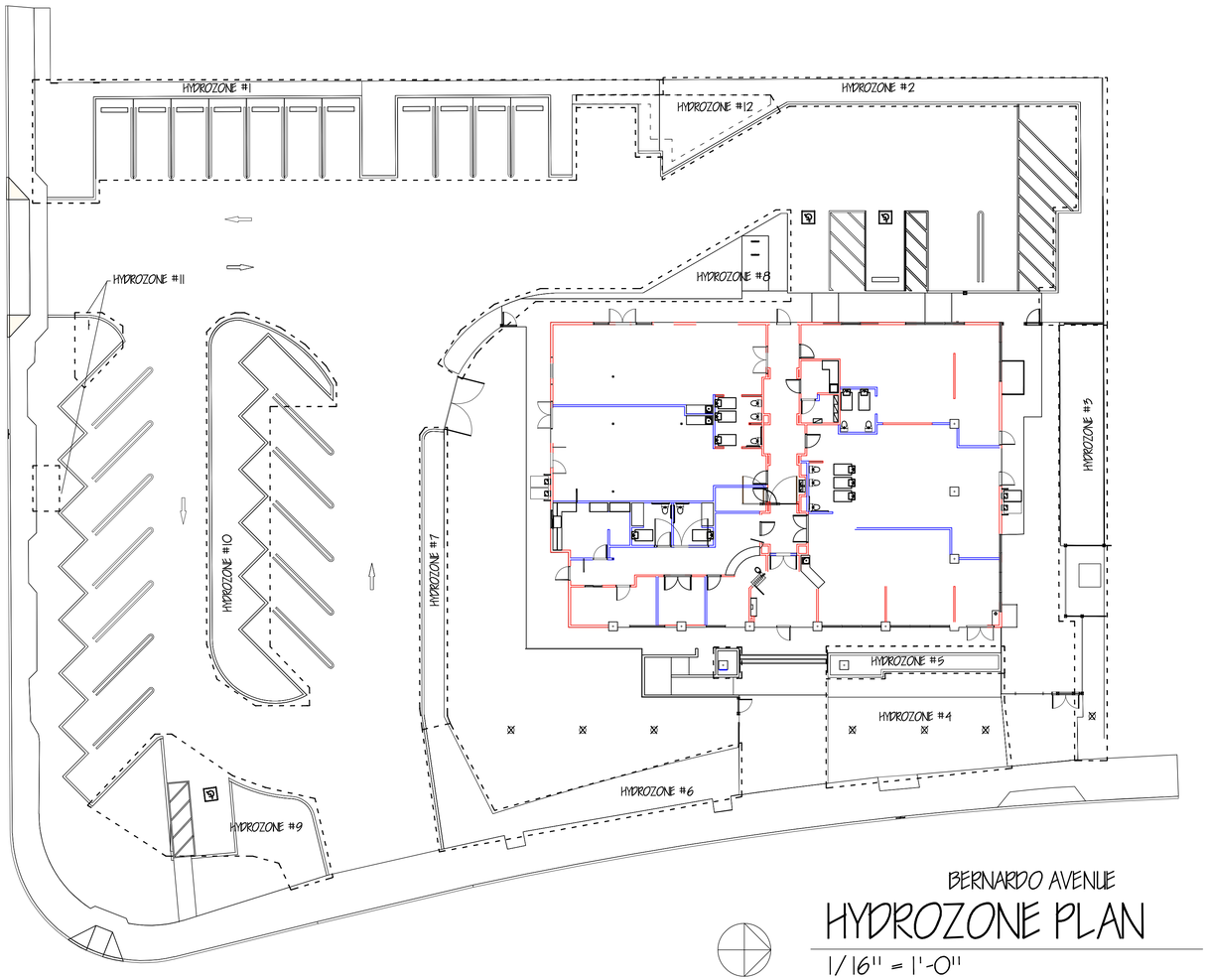
REVISED 10/ 30/ 18
REVISED 11/ 15/ 18
REVISED 2/ 12/ 19
REVISED 7/ 6/ 19
REVISED 7/ 12/ 19
REVISED 7/ 23/ 19
REVISED 9/ 10/ 19

REGISTERED LANDSCAPE ARCHITECT
No. 2235
Signature
EXPIRATION DATE: 08/30/2021
STATE OF CALIFORNIA

JINGYING INTERNATIONAL EDUCATION, LLC
for:
JINGYING INTERNATIONAL EDUCATIONAL LLC
755 BERNARDO AVE.
SUNNYVALE, CA. 94087

PARKING LOT SHADING

date: 1/ 11/ 18
scale: NOTED
drawn by: WJH
job no. 21802
sheet L 2
of 4 shts



HYDROZONE PLAN

1/16" = 1'-0"

California Water Efficient Landscape Worksheet

Reference Evapotranspiration (ET_o)		45.3	Project Type		Non-Residential		0.45
Hydrozone # / Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (Sq. Ft.)	ETAF x Area	Estimated Total Water Use (ETWU)[d]
Regular Landscape Areas							
#1 low	0.3	Drip	0.81	0.37	865	320	8998
#2 low	0.3	Drip	0.81	0.37	770	285	8010
#3 high lawn	0.7	Overhead	0.75	0.93	580	541	15204
#4 low	0.3	Drip	0.81	0.37	905	335	9414
#5 low bio retention	0.3	Drip	0.81	0.37	140	52	1456
#6 low	0.3	Drip	0.81	0.37	675	250	7022
#7 low	0.3	Drip	0.81	0.37	300	111	3121
#8 low	0.3	Drip	0.81	0.37	375	139	3901
#9 low	0.3	Drip	0.81	0.37	500	185	5201
#10 low	0.3	Drip	0.81	0.37	785	291	8166
#11 low	0.3	Drip	0.81	0.37	145	54	1508
#12 low bio retention	0.3	Drip	0.81	0.37	360	133	3745
			0.75	0.00		0	0
			0.75	0.00		0	0
			0.75	0.00		0	0
			0.75	0.00		0	0
			0.75	0.00		0	0
			0.75	0.00		0	0
			0.75	0.00		0	0
			0.75	0.00		0	0
				Totals	6400	2697	75745
Special Landscape Areas							
	[redacted]			1		0	0
				1		0	0
				1		0	0
				1		0	0
				Totals	0	0	0
						ETWU Total	75745
						Maximum Allowed Water Allowance (MAWA)[e]	80888

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	2697
Total Area	6400
Average ETAF	0.42

All Landscape Areas

Total ETAF x Area	2697
Total Area	6400
Average ETAF	0.42

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

[a] Hydrozone # / Planting Description e.g.
1.) Front lawn
2.) Low water use planting
3.) Medium water use planting

[b] Irrigation Method
1.) Overhead Spray
2.) Drip

[c] Irrigation Efficiency
1.) 0.75 for Overhead Spray
2.) 0.81 for Drip

[d] ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year

[e] MAWA (Annual Gallons Allowed) =
(Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year, LA is the total regular landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is 0.55 for residential areas and 0.45 for non-residential areas

0.45	Non-Residential
0.55	Residential
0.81	Drip
0.75	Overhead

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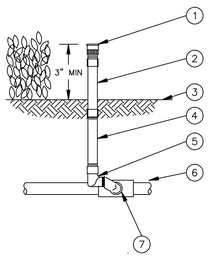
REGISTERED LANDSCAPE ARCHITECT
No. 2235
Signature
EXPIRATION DATE: 06/30/2021
STATE OF CALIFORNIA

JINGYING INTERNATIONAL EDUCATION, LLC
for:
JINGYING INTERNATIONAL EDUCATIONAL LLC
755 BERNARDO AVE.
SUNNYVALE, CA. 94087

HYDROZONE PLAN

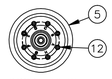
date: 1/11/18
scale: NOTED
drawn by: WJH
job no. 21802
sheet L 3
of 4 shts



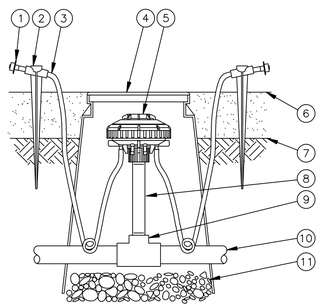
1. PRESSURE COMPENSATING FULL CIRCLE BUBBLER: RAIN BIRD 1400
2. KBI FLEX RISER
3. FINISH GRADE/TOP OF MULCH
4. SCHEDULE 80 RISER (LENGTH AS REQUIRED)
5. 2 1/2" MARLEX FITTINGS TO CREATE SWING JOINT
6. SCHEDULE 40 PVC LATERAL PIPE
7. PVC SCH 40 TEE OR ELL

PRESSURE COMPENSATING FULL-CIRCLE BUBBLER
N.T.S. **1400 SERIES ON RISER**

A



INSIDE VIEW

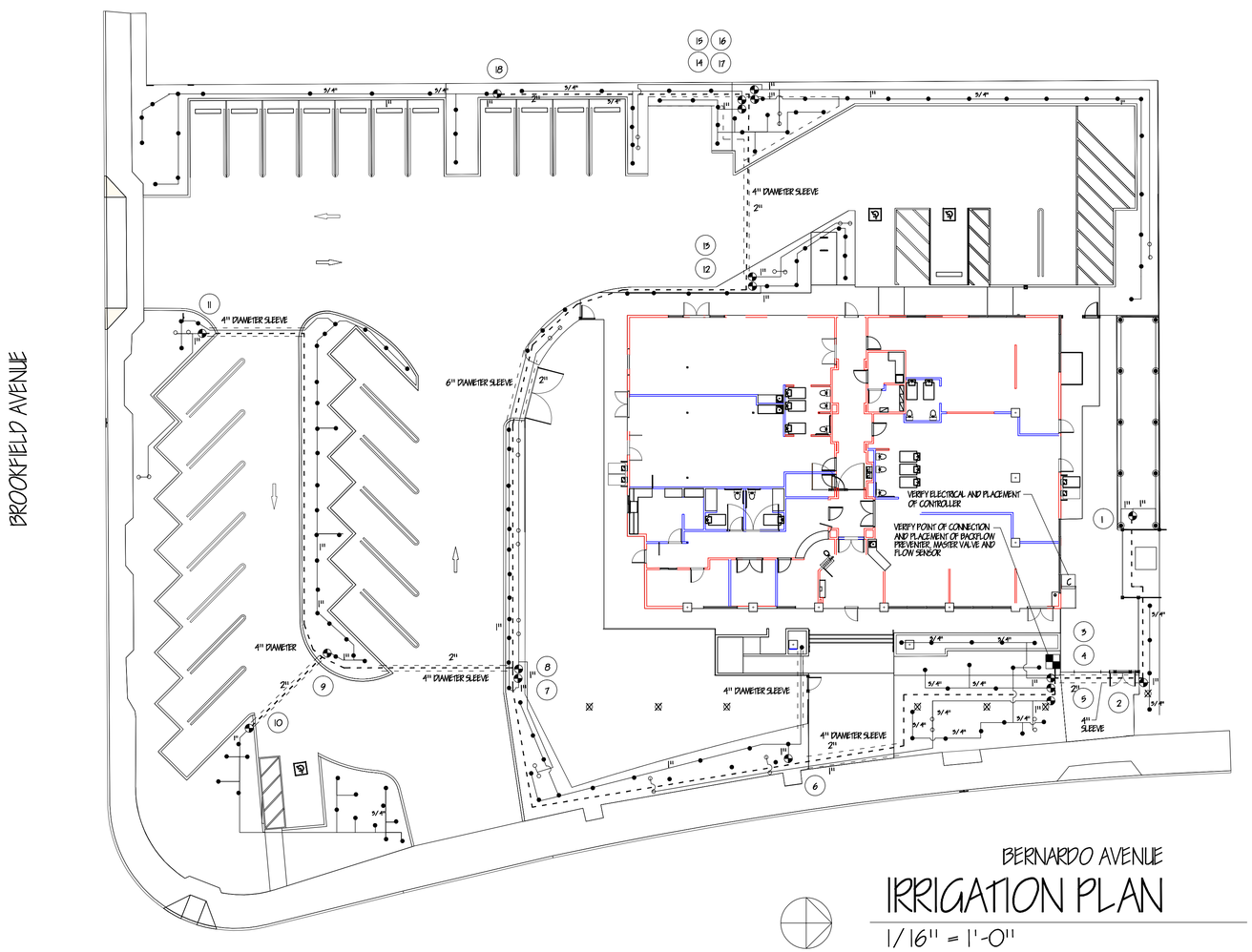


1. DIFFUSER BUG CAP: RAIN BIRD DBC-025 (1 OF 2 SHOWN, 8 POSSIBLE)
2. UNIVERSAL ¼" TUBING STAKE: RAIN BIRD TS-025 (1 OF 2 SHOWN, 8 POSSIBLE)
3. ¼" DISTRIBUTION TUBING: RAIN BIRD XQ TUBING (LENGTH AS REQUIRED) (1 OF 2 SHOWN, 8 POSSIBLE)
4. SUBTERRANEAN EMITTER BOX: RAIN BIRD SEB 7XB
5. MULTI-OUTLET EMISSION DEVICE: RAIN BIRD XERI-BIRD XBD-81
6. TOP OF MULCH
7. FINISH GRADE
8. PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
9. PVC SCH 40 TEE OR ELL
10. PVC LATERAL PIPE
11. 3" MINIMUM DEPTH OF ¾" WASHED GRAVEL
12. XERI-BUG EMITTER, 1 GPH FLOW: RAIN BIRD XB-10PC (ONE OF 8 SHOWN, INCLUDED WITH XERI-BIRD XBD-81)

NOTE:
1. COIL ADDITIONAL 9-INCHES OF TUBING IN EMITTER BOX TO FACILITATE MAINTENANCE.

EIGHT-OUTLET MANIFOLD WITH XERI-BUG EMITTERS, 1/4" TUBING, STAKE AND BUG CAP 1-13-10
N.T.S. **OPTION 2A**

B



IRRIGATION PLAN
1/16" = 1'-0"

IRRIGATION LEGEND

- C — Hunter Pro with Solar Sync and rain sensor - verify electrical source and placement
- WM — 1" Water Meter for irrigation only - verify size and location
- Febco #825Y-1" reduced pressure backflow preventer - provide lockable cover with Wattis Master Valve with Flow Sensor sized per point of connection/ verify manufacturer with city
- Schedule 40 pvc mainline - 1 ½"- min. depth 18"
- Schedule 40 pvc sleeving
- Rainbird PEB series control valves with in line pressure reducer set to 35 psi and Y filter for drip circuits and without for bubbler and rotor circuits
- Schedule 40 pvc lateral lines - ¾" unless noted- min. depth 12"
- Rainbird Xeri-Bug Octa Bubbler
- Rainbird #1400 series bubbler for trees - two per tree on separate circuits
- Hunter MP Rotator on 6" pop up for lawn area only - verify nozzle size in field
- 1 — Control valve number

1) Verify water and electrical services for point of connection.
2) Verify site water pressure of 65 psi at point of connection - notify architect prior to construction if found to be different.
3) Verify electrical source and placement of controller. Follow all grounding instructions per controller installation guide and flow meter specifications guide.
4) Contractor shall provide all necessary safety precautions throughout construction. This shall include signage and barriers.
5) Verify operation of system before backfilling trenches. Drip line to be secured to grade with stakes at base of each plant.
6) System layout is diagrammatic, actual field conditions will dictate final layout, addition of drip line, etc.
7) Verify control wire placement and access under pavement and extension of additional wires for future expansion.
8) Verify rain sensor in field.
9) Contractor shall be responsible for setting and monitoring irrigation system to apply adequate water for establishment, but to eliminate runoff and soil saturation.
10) Contractor to submit maintenance and irrigation schedule to Owner at completion of installation and maintenance/ warrantee period.
11) Contractor shall verify location of all underground utilities prior to any trenching or excavation.
12) Verify and coordinate installation of sleeving and/ or mainline and control wire conduit access under all pavement. Verify with paving contractor. Piping under road shall be installed a minimum of 24" deep with piping surrounded by a 6" sand envelope.
13) Trees shall be irrigated on separate circuits and with two ½ gpm bubblers, one at the surface, the other in a perforated vertical tube set adjacent to the root ball.

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REVISED 3/24/18
REVISED 3/28/18
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REVISED 2/12/19
REVISED 7/6/19
REVISED 7/12/19
REVISED 7/23/19
REVISED 9/10/19

REGISTERED LANDSCAPE ARCHITECT
No. 2235
Signature
EXPIRATION DATE: 06/30/2021
STATE OF CALIFORNIA

JINGYING INTERNATIONAL EDUCATION, LLC
for:
JINGYING INTERNATIONAL EDUCATIONAL LLC
755 BERNARDO AVE.
SUNNYVALE, CA. 94087

IRRIGATION PLAN

date: 1/15/18
scale: NOTED
drawn by: WJH
job no. 21802
sheet L 4
of 4 shts

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SECOND REVISED NOISE ASSESSMENT STUDY FOR THE PLANNED

JINGYING INTERNATIONAL SCHOOL

755 SOUTH BERNARDO AVENUE, SUNNYVALE

Prepared for
Jingying International Preschool

Prepared by
Jeffrey K. Pack

May 7, 2019
Project No. 50-027-2

TABLE OF CONTENTS

I. Executive Summary

This report presents the results of a second revised noise assessment study, in compliance with the California Environmental Quality Act, for the proposed Jingying International Preschool at 755 South Bernardo Avenue in Sunnyvale. The purpose of this revision is to re-analyze the project-generated noise impacts to the noise sensitive uses around the site subsequent to the relocation of the main playground. This study includes an analysis of traffic noise impacts to the school site and project-generated noise impacts from playground activity to the residences adjacent to the west and north of the site. Project-generated noise impacts to the residences across Brookfield Avenue to the south of the site are not an issue due to the large separation distance from the playground to these residences. Parking lot activity, which includes school drop offs and pick-ups are not included in this analysis as these activities are a current use on the site.

The plans for the school include remodeling of the existing building on the site, the construction of the playground and preparation of the parking lot. The playground area will be relocated from the westerly side of the site behind the building to the south side of the building facing Brookfield Avenue and wrapping the front corner of the building along South Bernardo Avenue. The following report includes background information on acoustics, noise standards applicable to the project, project-generated noise impacts, project construction noise impacts and noise reduction measures for noise impacted residential receptor locations. Noise impacts to the project site are evaluated against the City of Sunnyvale noise limits established in the City of Sunnyvale General Plan Noise Element. The project-generated noise impacts were evaluated against the standards contained in the Noise Element and in the City of Sunnyvale Noise Ordinance. The Noise Element also contains the quantitative criteria to define significant noise impacts for environmental review under the California Environmental Quality Act (CEQA).

The results of this study reveal that the noise exposures at the site exceed the Normally Acceptable standard for school land use. However, there are no noise sensitive exterior areas of the project that are exposed to excessive noise and the site is within the Conditionally Acceptable range of the Noise Element.

Project-generated noise will occur from playground activity. The project-generated noise levels and noise exposures will be in compliance with the Noise Element and Noise Ordinance. standards at the property lines to the west and north of the site and at the patios and balconies of the adjacent Citra Apartments. Exterior noise excesses in terms of the Noise Ordinance will occur at the upper floor balconies of the apartment complex directly adjacent to the site to the west. The project will not cause increases in the ambient noise environment at adjacent residences. The noise impacts will be less than significant. Noise mitigation measures for this project will not be required.

In terms of the CEQA compliance checklist, the project results in the following:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less Than Significant
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	No impact
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	Less Than Significant
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	Less Than Significant
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No impact

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? No impact

II. Background Information on Acoustics

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing.

Most of the sounds which we hear in our normal environment do not consist of a single frequency, but rather a broad range of frequencies. As humans do not have perfect hearing, environmental sound measuring instruments have an electrical filter built in so that the instrument's detector replicates human hearing. This filter is called the "A-weighting" network and filters out low and very high frequencies. All environmental noise is reported in terms of A-weighted decibels, notated as “dBA”. All sound levels used in this report are A-weighted unless otherwise noted. Table I, below, shows the typical human response and noise sources for A-weighted noise levels.

Although the A-weighted noise level may adequately indicate the level of noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a mixture of noise from distant sources that create a relatively steady background noise from which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_1, L_{10}, L_{50} and L_{90} are often used. They are the A-weighted noise levels exceeded for 1%, 10%, 50% and 90% of a stated time period. The continuous equivalent-energy level (L_{eq}) is that level of a steady state noise which has the same sound energy as a time-varying noise. It is often considered the average noise level and is used to calculate the Day-Night Levels (DNL) and the Community Noise Equivalent Level (CNEL) described below.

TABLE I

The A-Weighted Decibel Scale, Human Response, and Common Noise Sources

Noise Level, dBA	Human Response	Noise Source
120-150+	Painfully Loud	Sonic Boom (140 dBA)
100-120	Physical Discomfort	Motorcycle at 20 ft. (110 dBA) Nightclub Music (105 dBA)
70-100	Annoying	Diesel Pump at 100 ft. (95 dBA) Freight Train at 50 ft. (90 dBA) Food Blender (90 dBA) Jet Plane at 1000 ft. (85 dBA) Freeway at 50 ft. (80 dBA) Alarm Clock (80 dBA)
50-70	Intrusive	Average Traffic at 100 ft. (70 dBA) Pass. Car, 30 mph @ 25 ft. (65 dBA) Vacuum Cleaner (60 dBA) Suburban Background (55 dBA)
0-50	Quiet	Normal Conversation (50 dBA) Light Traffic at 100 ft. (45 dBA) Refrigerator (45 dBA) Desktop Computer (40 dBA) Whispering (35 dBA) Leaves Rustling (20 dBA) Threshold of Hearing (0 dBA)

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, the Day-Night Level (DNL) noise descriptor was developed. The DNL is also called the L_{dn}. Either is acceptable, however, DNL is more popular worldwide. The DNL divides the 24-hour day into the daytime period of 7:00 a.m. to 10:00 p.m. and the nighttime period of 10:00 p.m. to 7:00 a.m. The nighttime noise levels are penalized by 10 dB to account for the greater sensitivity to noise at night. The Community Noise Equivalent Level (CNEL) is another 24-hour average which includes a 5 dB evening (7:00 p.m. - 10:00 p.m.) penalty and a 10 dB nighttime penalty. Both the DNL and the CNEL average the daytime, evening and nighttime noise levels over a 24-hour period to attain a single digit *noise exposure*. The proper notations for the Day-Night Level and the Community Noise Equivalent Level are dB DNL and dB CNEL, respectively, as they can only be calculated using A-weighted decibels. It is, therefore, considered redundant to notate dB(A) DNL or dB(A) CNEL.

The effects of noise on people can be listed in three general categories:

- subjective effects of annoyance, nuisance, dissatisfaction;
- interference with activities such as speech, sleep, learning, relaxing;
- physiological effects such as startling, hearing loss.

The levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants, airports, etc., can experience noise in the last category. Unfortunately, there is, as yet, no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily due to the wide variation in individual thresholds of annoyance and differing individual past experiences with noise.

An important way to determine a person's subjective reaction to a new noise is to compare it to the existing environment to which one has adapted, i.e., the "ambient". In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by the receivers.

With regard to increases in A-weighted noise levels, the Environmental Protection Agency has determined the following relationships that will be helpful in understanding this report.

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived.
- Outside of the laboratory, a 3 dB change is considered a just-perceptible difference.
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
- A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response.

The adding or subtracting of sound levels is not simply arithmetic. The sound levels, in decibels, must be converted to Bels, the anti-log's of which are then calculated. The manipulation is then performed (arithmetic addition or subtraction), the logarithm of the sum or difference is calculated. The final number is then multiplied by 10 to convert Bels to decibels. The formula for adding decibels is as follows:

$$Sum = 10\log(10^{SL/10} + 10^{SL/10})$$ where, SL is the Sound Level in decibels.

For example, 60 dB + 60 dB = 63 dB, and 60 dB + 50 dB = 60 dB. Two sound sources of the same level are barely noisier than just one of the sources by itself. When one source is 10 dB higher than the other, the less noisy source does not add to the noisier source.

III. Noise Standards, Goals & Policies

A. City of Sunnyvale General Plan

The noise assessment results presented in the findings were evaluated against the City of Sunnyvale General Plan Noise Element, Ref. (a), which utilize the Day-Night Level (DNL) 24-hour noise descriptor. The Noise Element contains land use compatibility standards for various land uses throughout the City. For school land use, the Normally Acceptable limit is 60 dB DNL. Exterior noise exposures up to 75 dB DNL are considered "Conditionally Acceptable", i.e., the land use is compatible provided that noise control measures are included in the design.

The Noise Element also specifies a Normally Acceptable land use compatibility standard of 60 dB DNL for residential land use. The, the project-generated noise exposures at the adjacent residences are limited to 60 dB DNL.

B. City of Sunnyvale Noise Ordinance

The project-generated noise levels were also evaluated against the standards of Section 19.42.030 of the City of Sunnyvale Municipal Code (Noise Ordinance), Ref. (b), which limits project-generated short-term noise levels to 60 dBA at residential property lines during daytime hours and to 50 dBA during nighttime hours.

C. California Environmental Quality Act (CEQA)

The project-generated noise exposures were evaluated against the guidelines of the California Environmental Quality Act (CEQA). CEQA does not limit noise levels or noise exposures nor does it quantify noise exposure or noise level increases over the ambient to define noise impacts. CEQA evaluates a project as a significant noise impact if it "...causes a substantial increases in the ambient noise levels...".

The quantification of the threshold of significance is left up to the local jurisdiction. The City of Sunnyvale Noise Element provides thresholds of significance. The thresholds of significance shall be applied at the existing residential area to the south, north and west of the site.

The City of Sunnyvale policy for noise increases is shown below.

In addition to reviewing proposed development for compliance with noise standards, all proposed development must be reviewed to see if it results in a "significant noise impact" on existing development. To determine if a proposed noise increase is considered "significant" under CEQA, the following standards should be used.

Figure 6-6: Significant Noise Impacts from New Development on Existing Land Use

Ldn Category of Existing Development Per figure 6-4	Noise Increase Considered "Significant over Existing Noise Levels
Normally Acceptable	An increase of more than 3 dBA and the total Ldn exceeds the "normally acceptable" category
Normally Acceptable	An increase of more than 5 dBA
Conditionally Acceptable	An increase of more than 3 dBA
Unacceptable	An increase of more than 3 dBA

If the project causes either of the above criteria to occur, the project will be considered a significant noise impact to the areas where it occurs and noise reduction measures will be required. Table II summarizes the quantitative noise limits applied on the residential side of the property lines at the first floor elevations. Note that the values shown in Table II are the noise limits (the limit of acceptability) applicable to the project. Noise exposures or increases greater than what are shown in the Table result in noise impacts.

TABLE II	
Project-Generated Noise Limits	
Allowable Noise Increase (CEQA) (based on ambient +5)	55 dB DNL at West Property Line (Playground Noise)
Allowable Noise Increase (CEQA) (based on ambient +3)	59 dB DNL at North Property Line (Playground Noise)
Noise Ordinance	60 dBA (daytime)

IV. Acoustical Setting

A. Site and Noise Source Descriptions

The planned project site is located at 755 South Bernardo Avenue in Sunnyvale. The site is relatively flat and at-grade with the surrounding roadways and land uses. The site currently contains a vacant commercial building that will be remodeled for the use of the preschool. Surrounding land-uses include the 3-story Citra Apartments adjacent to the west and north, single-family and multi-family residential across Brookfield Avenue to the south and commercial uses across South Bernardo Avenue to the east. The Citra Apartments have first floor patios and second and third floor balconies that have open rail fences and railings that are immediately adjacent to the project site.

The primary source of noise at the site is traffic on South Bernardo Avenue with a minor influence from Brookfield Avenue traffic. Other sources of noise in the project vicinity, such as the Valero Service Station across South Bernardo Avenue and the Safeway shopping center do not add significantly to the noise environment at the project site.

B. Project Description

The planned project, as shown on the Site Plan, Ref. (c), includes minor site preparation, the remodeling of the existing building, the construction of the playground and parking lot surface work. The main play area will be located along the south side of the building and wrapping the southeasterly corner and extending into a portion of the front of the building, but outside of the existing 60 dB DNL noise contour. A secondary play area will be located along the north side of the building. Parking will be located on the south and west sides of the site. There will be 11 parking spaces along the west property line and 5 spaces abutting the west side of the building in the former playground area. Fourteen parking spaces will be located to the south of the building and new playground area. A 6 ft. high CMU barrier, which will be acoustically-effective, will be located on the north property line. The noise reduction provided by this barrier is included in this analysis for the north property line and building setback receptor locations to the north.

As the parking lot is an existing use of the site, Ref. (d), parking lot operations associated with the proposed project are not included in this analysis

The current Site Plan is shown as Figure 1 on page 11.

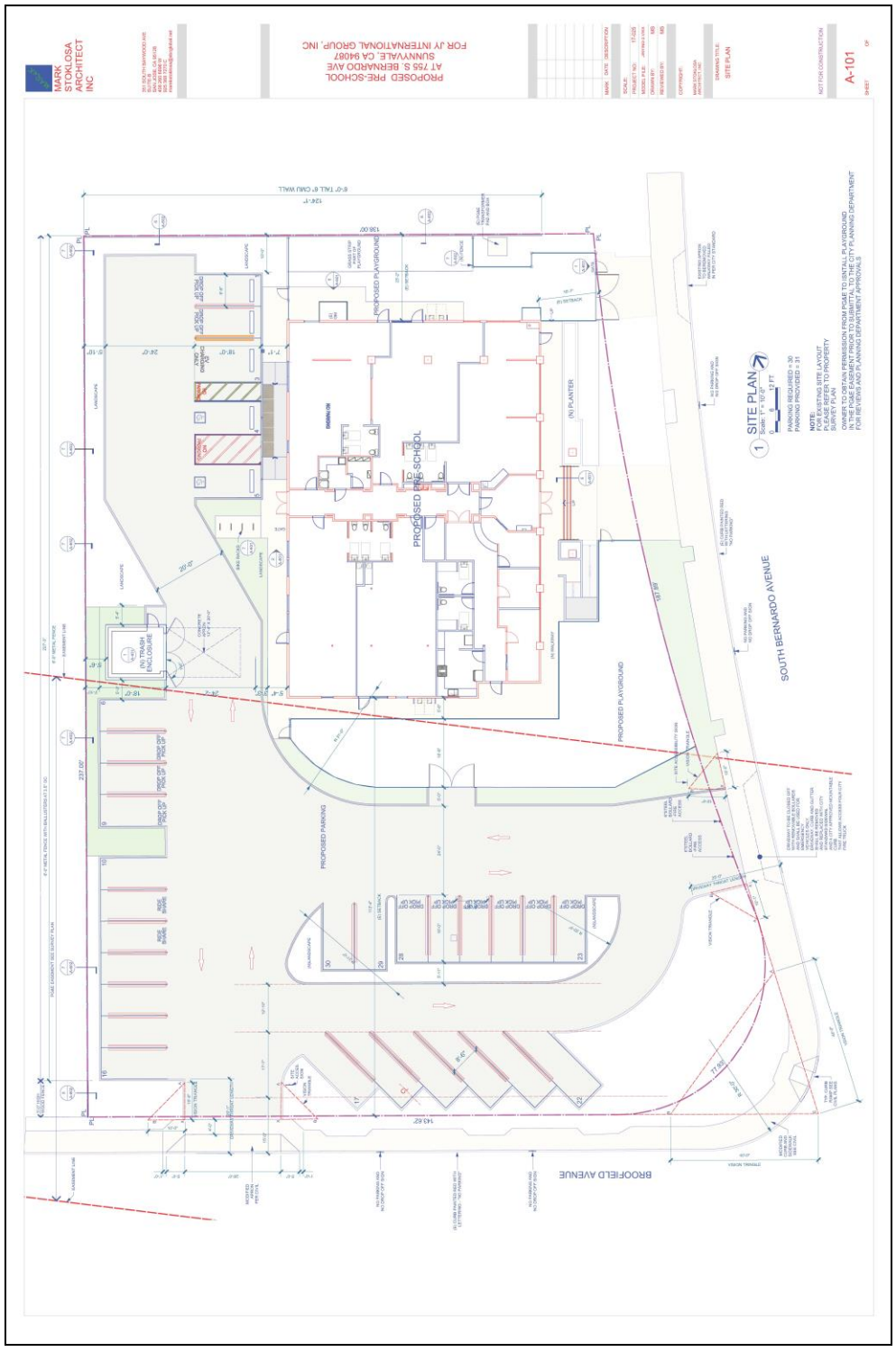

FIGURE 1 – Site Plan

The pre-school is reported to have 120 children ranging in age from 2 to 5 years old. Operational hours of the school will be 6:00 AM to 6:00 PM. Precise operational information is not currently available. However, the project operational information that was available was provided by the project architect, Ref. (e).

From information and experience with other preschool projects, we are making the following estimates:

A group of 30 2-3 year old children will play outdoors in the main play area for 30 minutes. This group will divide into two groups of 15 children, with one group near the center of the south façade of the building and the other group playing at the front of the building along South Bernardo Avenue. Then, a second group of 30 2-3 year old children will play in the main play area in the same fashion. In the 10:00 AM hour, two groups of 30 4-5 year old children will play outside for 30 minutes each using the same scenario as for the 2-3 year olds. In the afternoon, the number of children remaining is expected to be 70 and will typically play outdoors between 3:00 and 5:00 PM.

For the secondary play area on the north side of the building, we are assuming that up to 10 children will play for 30 minutes every half hour between 9:00 AM and 11:00 AM and up to 15 children between 3:00 and 5:00 PM.

V. Existing Noise Environment (Without the Project)

A. Existing Noise Levels

To determine the existing noise environment at the site, continuous recordings of the sound levels were made on-site at three locations. Location 1 was along the north property line near the existing transformer, 87 ft. from the centerline of South Bernardo Avenue. The transformer was quiet. Location 2 was along the west property line, 24 ft. from the north property line at the planned playground location. Location 3 was at the sidewalk in front of the residences across Brookfield Avenue, 220 ft. from the centerline of South Bernardo Avenue and 27 ft. from the centerline of Brookfield Avenue. The measurement locations are shown on Figure 2 on page 14.

The measurements were made on July 30-31, 2018 for a continuous period of 24 hours at each location and included measurements during the daytime and nighttime periods of the DNL index.

The sound levels were recorded and processed using Larson-Davis Model 812 Precision Integrating Sound Level Meters. The meters yield, by direct readout, a series of descriptors of the sound levels versus time, which include the L_1, L_{10}, L_{50}, and L_{90}, i.e., those levels that are exceeded 1%, 10%, 50%, and 90% of the time. The meters also yield the maximum and minimum levels, and the continuous equivalent-energy levels (L_{eq}), which are used to calculate the DNL's. The measured L_{eq}'s are shown in the data tables in Appendix C.

The L_{eq}'s at measurement Location 1 along the north property line ranged from 51.0 to 63.8 dBA during the daytime and from 41.8 to 56.9 dBA at night. During the operational hours of 6:00 AM to 6:00 PM, the L_{eq}'s ranged from 53.7 to 58.4 dBA.

The L_{eq}'s at measurement Location 2 along the west property line ranged from 44.7 to 56.7 dBA during the daytime and from 39.3 to 46.9 dBA at night. During the operational hours of 6:00 AM to 6:00 PM, the L_{eq}'s ranged from 45.1 to 56.7 dBA.

The L_{eq}'s at measurement Location 3 along the residential property line to the south ranged from 50.7 to 61.5 dBA during the daytime and from 39.2 to 50.3 dBA at night. During the operational hours of 6:00 AM to 6:00 PM, the L_{eq}'s ranged from 50.3 to 61.5 dBA.

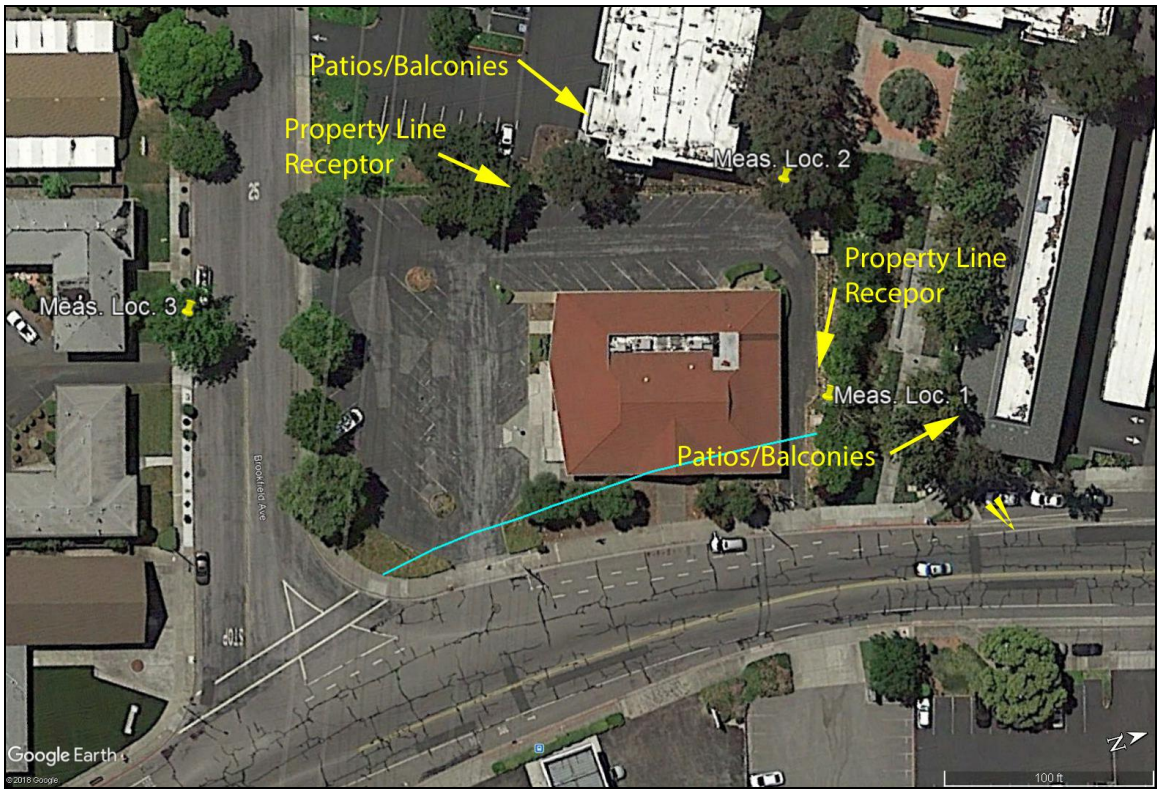

FIGURE 2 – Noise Measurement Locations

B. Existing Noise Exposures

To determine the acceptability of the site for the intended use and the existing ambient noise environments at the adjacent residential receptors, the DNL's for the survey locations were calculated by decibel averaging of the L_{eq}'s as they apply to the daily time periods of the DNL index. A 10 decibel nighttime weighting factor was applied and the DNL was calculated using the formula shown in Appendix B. The measured L_{eq}'s and DNL calculations are shown in the data tables in Appendix C.

Table III on the following page provides the results of the DNL calculations.

TABLE III	
Existing Ambient Noise Exposures	
West Property Line (2)	52 dB DNL
North Property Line (1)	59 dB DNL
Residences to the South (3)	56 dB DNL

The existing 60 dB DNL noise contour from South Bernardo Avenue traffic is shown as the light blue line on Figure 2.

Note that due to the relocation of the play area, the new west property line and patio/balcony receptor locations are also shifted to the south where it is closer to Brookfield Avenue and less shielded by the project building. The existing ambient noise exposure at the new west property line remains at 52 dB DNL.

VI. Noise Impacts

A. Impacts to the Project

The City of Sunnyvale Noise Element specifies land use compatibility guidelines for institutional uses. The "Normally Acceptable" noise exposure limit is 60 dB DNL and the "Conditionally Acceptable noise exposure limit is 75 dB DNL.

The exterior noise exposure at the project site is up to 61 dB DNL. Thus, the noise exposures are up to 1 dB in excess of the 60 dB DNL "Normally Acceptable" limit of the City of Sunnyvale Noise Element standards, but are within the Conditionally Acceptable limit. This noise exposure occurs at the small corner of the building and planter area at the front of the building closest to South Bernardo Avenue. However, there are no exterior noise sensitive spaces on the site exposed to noise greater than 60 dB DNL. The site should be considered acceptable as noise reduction measures to resolve the 1 decibel excess are not practical. CEQA has no requirement for addressing noise impacts to a project from off-site sources.

B. Project-Generated Noise Impacts

Potential noise impacts from the project to the area surrounding the proposed school will include playground activity. Mechanical equipment noise associated with the building and noise increases from project traffic on local streets are expected to be negligible.

Project Mechanical Equipment

There is no information on mechanical equipment for the buildings. Thus, an analysis of the project mechanical equipment could not be performed. However, the mechanical equipment will be located in the existing roof-top well.

Project Traffic Noise

Noise from project traffic on the local road network is expected to be negligible as the project would need to add at least 15% of the existing daily traffic volume on any given roadway. Due to the small size of the project and low expected traffic volumes, project traffic is expected not to add to the existing noise exposures.

Impact: Less Than Significant

Playground Noise Impacts

Noise from playground activity was determined from past noise studies of similar facilities in the area, Ref's (f, g, h). The reference facilities contained similar play environments for the age groups corresponding to the proposed project. A noise control barrier along the north property line is part of the project and is included in this analysis.

Table IV provides the reference sound levels for each age group, the number of children at play, the distance to the center of the play area and the name of the facility. Note that the noise levels used for this analysis are the energy-averages for each playground scenario over the course of the play time. Since decibels are a logarithmic function (high levels carry more weight), the sound levels shown below and utilized in this study represent the total amount of noise created during the play time integrated over the play time duration.

TABLE IV Children Playing Reference Sound Levels					
Sport	# of Children	Age	Dist.	Sound Level	Location
Playground	23	2-3	42	64	A Creative Playschool
Playground	23	4-5	42	66	St. Martin of Tours
Playground	14	3-5	45	53	Most Holy Trinity

None of the past studies had children playing outside that were younger than 2 years old. For the purposes of this study, we have grouped the 2 and 3 year olds together and the 4 and 5 year olds together. We are also assuming that there are an equal number of children in each age group as there are no data indicating otherwise.

The change in overall sound level from a change in the number of children playing is calculated by the formula:

$\Delta dB = 10 \log_{10}(V_1/V_2)$ where, V = the number of children.

The attenuation of sound from children playing is calculated by the formula:

$\Delta dB = 20 \log_{10}(r_1/r_2)$ where, r = the distance from the (acoustic) center of the play area to the measurement or receptor location.

The data acquired at the reference noise study locations reveal that older children make more noise than younger children. Over the course of a play period, a group of 4-5 year old children will produce of a noise level 2 dB higher than a group of 2-3 year olds given all other parameters the same. The primary sources of noise from children playing are voices.

Table V on page 19 provides the analysis for the outdoor playground activity derived from the information provided in Table IV. The playground noise source consists of children at general play, including running around, playing tag, kicking and throwing balls and climbing on short apparatus. The distances shown are for the receptors that have both shielded (by a barrier) and unshielded views (over the barrier) to the playground. Also included in the Table are the noise reduction factors provided by the north property line noise control barrier.

As shown in Table V, the playground noise levels will range from 51 to 60 dBA at the most impacted property line of the Citra Apartments to the west, from 52 to 56 dBA at the Citra Apartments first floor patios and upper floor balconies to the west, from 57 to 60 dBA at the Citra Apartments property line to the north and from 56 to 59 dBA at the Citra Apartments upper floor balconies to the north. Thus, the short-term playground noise levels will be within the 60 dBA daytime standard of the City of Sunnyvale Noise Ordinance at the common property lines and at the exterior living areas of the adjacent apartment complex.

Since the south side play area is being divided up into two centralized areas, one being near the center of the south façade of the building just west of the gate and the other being near the front of the building along South Bernardo Avenue, the residential receptor locations for the property line and the patios/balconies are different. The property line location has a view to both south side play areas while the patios and balconies do not have a view to the portion of the play area toward South Bernardo Avenue. Therefore, the children playing closer to South Bernardo Avenue are not included in the analysis for the patios and balconies to the west of the site. They are included in the property line to west analysis. See the yellow arrows on Figure 2.

TABLE V

PLAYGROUND SOUND LEVELS, dBA

120 student		WEST RECEPTOR 1			WEST RECEPTOR 2		NORTH RECEPTOR 1			NORTH RECEPTOR 2	
		# of	Dist., ft.	Sound Level	Dist., ft.	Sound Level	# of	Dist., ft.	Sound Level	Dist., ft.	Sound Level
Time Period	Ages	Children	Source to PL	@ Prop. Line	Source to Balcony	@ Patio/Balcony	Children	Source to PL	@ Prop. Line*	Source to Bldg.	@ Balconies**
9:00	2-3	15	98	55	128	52	5	17	57	71	56
9:00	2-3	15	145	51							
9:30	2-3	15	98	55	128	52	5	17	57	71	56
9:30	2-3	15	145	51							
10:00	4-5	15	98	57	128	52	5	17	57	71	56
10:00	4-5	15	145	53							
10:30	4-5	15	98	57	128	52	5	17	57	71	56
10:30	4-5	15	145	53							
3:00	2-3	35	98	58	128	56	10	17	60	71	59
3:00	2-3	35	145	55							
3:30	2-3	35	98	58	128	56	10	17	60	71	59
3:30	2-3	35	145	55							
4:00	4-5	35	98	60	128	56	10	17	60	71	59
4:00	4-5	35	145	57							
4:30	4-5	35	98	60	128	56	10	17	60	71	59
4:30	4-5	35	145	57			*Includes -11 B factor for PL barrier			The Sound Level in the Patios is 8 dB Lower	

To calculate the play area noise exposures in terms of the DNL, the L_{eq}'s shown in Table V were combined to obtain the hourly L_{eq}'s.

For instance, 30 minutes of 60 dBA plus 30 minutes of 60 dBA equals 60 minutes of 60 dBA also written as 60 dBA $L_{eq(h)}$. The noise exposure calculation tables are provided in Appendix C.

Table VI, below, provides the results of the project-generated DNL calculations, the existing ambient noise exposures, the combined noise exposures (ambient + project), the increase over the existing ambient and the CEQA evaluation.

Sound levels (exposures) are combined using the formula:

$$\text{Sum} = 10\log_{10}(10^{(SL1/10)} + 10^{(SL2/10)})$$

TABLE VI

Project-Generated Noise Exposure Evaluation

Location	Project-generated DNL	Existing Ambient DNL	Combined DNL	Excess Over Ambient, dB	Impact?
West PL	51	52	54	2	No
West Patios/Balconies	46	52	53	1	No
North PL	50	59	60	1	No
North Bldg. Setback	49	59	59	0	No

As shown in Table VI, the increases in the ambient noise environment at the adjacent and most impacted property lines, first floor elevations and upper floor elevations of the adjacent Citra Apartments will be within the ambient + 5 dB limit of the City of Sunnyvale Noise Element/CEQA standard for the apartments to the west and within the ambient + 3 dB limit for the apartments to the north. The combined noise exposures will also be with the 60 dB DNL Normally Acceptable limit of the Noise Element. This is considered a **Less Than Significant Impact.**

As the project-generated noise levels and noise exposures will be within the limits of the City of Sunnyvale Noise Ordinance and Noise Element standards and within the allowable noise increases of CEQA policy, noise mitigation measures will not be required.

VII. Conclusions

In conclusion, noise impacts to the project will be within the "Conditionally Acceptable" standard of the City of Sunnyvale. Reducing the noise exposures to the Normally Acceptable level will not be practical.

Play area noise will be in compliance with the standards.

This report presents the results of the second revised noise assessment study for the planned "Jingying International Preschool at 755 South Bernardo Avenue in Sunnyvale. The study findings for existing conditions are based on field measurements and other data and are correct to the best of our knowledge. Future noise projections are based on information provided by the project sponsor. Significant deviations in the predicted school enrollment, site planning, future changes in school activity levels, noise regulations or other future changes beyond our control may produce long-range noise results different from our estimates.

Report Prepared By:

EDWARD L. PACK ASSOC., INC.

Jeffrey K. Pack
President

APPENDIX A

References

(a) City of Sunnyvale General Plan, Consolidated in 2011, Chapter 6, Safety and Noise - Noise

(b) City of Sunnyvale Municipal Code, Section 19.42.030 – Noise or Sound Level

(c) Site Plan, Proposed Preschool at 755 S. Bernardo Ave, by Mark Stoklosa Architect, Inc., May 6, 2019

(d) Parking Lot Activity Noise Exemption Information Provided by Ms. Cindy Hom, City of Sunnyvale Planning Department to Edward L. Pack Associates, Inc., by email, October 24, 2018

(e) Information on the Proposed Jingying International Preschool Provided by Marek Stoklosa, Mark Stoklosa Architects, Inc. by email to Edward L. Pack Associates, Inc., June 23, 2018

(f) "Noise Assessment Study of the A Creative Playschool Playground Activity, Amador Valley Boulevard, Dublin", by Edward L. Pack Associates, Inc., Project No. 30-011, February 18, 1998

(g) "Noise Assessment Study for the Planned 'Most Holy Trinity Preschool', 2033 Nassau Drive, Sunnyvale", by Edward L. Pack Associates, Inc., Project No. 45-021, June 12, 2013

(h) "Noise Assessment Study for the Planned 'St. Martin of Tours Day-Care Center', 2570 Bailey Avenue, Sunnyvale", by Edward L. Pack Associates, Inc., Project No. 45-041, August 30, 2013

APPENDIX B

Noise Standards, Terminology, Instrumentation,

1. Noise Standards

A. City of Sunnyvale Noise Element Standards

The noise criteria for residential uses in the City of Sunnyvale are specified in the Noise Element of the General Plan, Chapter 6, "Safety and Noise", as approved by the City Council, July, 2011. These standards include the following:

- Attempt to achieve an outdoor limit of 60 dB DNL for common recreation areas, backyards, patios, and useable balconies. This standard does not apply where the noise source is a railroad or airport.

- Enforce the California Code of Regulations, Title 24 noise standard of 45 dB DNL multi-family for interiors. This standard shall also be applied to single-family interiors.

- When the noise source is a railroad, 70 dB DNL is acceptable for exteriors. Attempt to achieve maximum instantaneous noise levels (L_{max}) of 50 dBA for bedrooms and 55 dBA for other living spaces when the noise source is a railroad or aircraft and the exterior DNL exceeds 55 dB.

The City of Sunnyvale Land Use Compatibility Chart is shown below

Figure 6-5: State of California Noise Guidelines for Land Use Planning Summary of Land Use Compatibility for Community Noise Environment

	EXTERIOR NOISE EXPOSURE (dB DNL)					
Land Use Category	55	60	65	70	75	80
Residential, Hotels and Motels						
Outdoor Sports and Recreation, Neighborhood Parks, Playgrounds						
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches						
Office Buildings, Commercial and Professional Business						
Auditoriums, Concert Halls, Amphitheaters						
Public and Quasi-Public Auditoriums, Concert Halls, Amphitheaters						

	Normally Acceptable
	Conditionally Acceptable
	Unacceptable

2. Terminology

A. Statistical Noise Levels

Due to the fluctuating character of urban traffic noise, statistical procedures are needed to provide an adequate description of the environment. A series of statistical descriptors have been developed which represent the noise levels exceeded a given percentage of the time. These descriptors are obtained by direct readout of the Sound Level Meters and Noise Analyzers. Some of the statistical levels used to describe community noise are defined as follows:

L_1 - A noise level exceeded for 1% of the time.

L_{10} - A noise level exceeded for 10% of the time, considered to be an "intrusive" level.

L_{50} - The noise level exceeded 50% of the time representing an "average" sound level.

L_{90} - The noise level exceeded 90 % of the time, designated as a "background" noise level.

L_{eq} - The continuous equivalent-energy level is that level of a steady-state noise having the same sound energy as a given time-varying noise. The L_{eq} represents the decibel level of the time-averaged value of sound energy or sound pressure squared and is used to calculate the DNL and CNEL.

B. Day-Night Level (DNL)

Noise levels utilized in the standards are described in terms of the Day-Night Level (DNL). The DNL rating is determined by the cumulative noise exposures occurring over a 24-hour day in terms of A-Weighted sound energy. The 24-hour day is divided into two subperiods for the DNL index, i.e., the daytime period from 7:00 a.m. to 10:00 p.m., and the nighttime period from 10:00 p.m. to 7:00 a.m. A 10 dB weighting factor is applied (added) to the noise levels occurring during the nighttime period to account for the greater sensitivity of people to noise during these hours. The DNL is calculated from the measured L_{eq} in accordance with the following mathematical formula:

$$DNL = \left[[(10\log_{10}(10^{\Sigma Leq(7\text{-}10)})) \times 15] + [((10\log_{10}(10^{\Sigma Leq(10\text{-}7))})+10) \times 9]\right]/24$$

C. A-Weighted Sound Level

The decibel measure of the sound level utilizing the "A" weighted network of a sound level meter is referred to as "dBA". The "A" weighting is the accepted standard weighting system used when noise is measured and recorded for the purpose of determining total noise levels and conducting statistical analyses of the environment so that the output correlates well with the response of the human ear.

3. Instrumentation

The on-site field measurement data were acquired by the use of one or more of the precision acoustical instruments shown below. The acoustical instrumentation provides a direct readout of the L exceedance statistical levels including the equivalent-energy level (L_{eq}). Input to the meters was provided by a microphone extended to a height of 5 ft. above the ground. The meter conforms to ANSI S1.4 for Type 1 instruments. The "A" weighting network and the "Fast" response setting of the meter were used in conformance with the applicable ISO and IEC standards. All instrumentation was acoustically calibrated before and after field tests to assure accuracy.

Bruel & Kjaer 2231 Precision Integrating Sound Level Meter
Larson Davis LDL 812 Precision Integrating Sound Level Meter
Larson Davis 2900 Real Time Analyzer
Larson Davis 831 Precision Integrating Sound Level Meter

APPENDIX C

Noise Measurement Data and Calculation Tables

DNL CALCULATIONS

CLIENT: JINGYING INTERNATIONAL PRESCHOOL
FILE: 50-027
PROJECT: JINGYING INTERNATIONAL PRESCHOOL
DATE: 7/30-31/2018
SOURCE: EXISTING AMBIENT

LOCATION 1	North Prop. Line			
Dist to Source	87 ft.			
TIME		10^Leq/10		
7:00 AM	57.1	512861.4		
8:00 AM	58.4	691831.0		
9:00 AM	57.6	575439.9		
10:00 AM	55.6	363078.1		
11:00 AM	54.7	295120.9		
12:00 PM	54.7	295120.9		
1:00 PM	53.7	234422.9		
2:00 PM	53.8	239883.3		
3:00 PM	54.4	275422.9		
4:00 PM	55.4	346736.9		
5:00 PM	56.6	457088.2		
6:00 PM	56.2	416869.4		
7:00 PM	54.3	269153.5		
8:00 PM	63.8	2398832.9		
9:00 PM	51.0	125892.5	SUM=	7497755
10:00 PM	49.4	87096.4	Ld=	68.7
11:00 PM	45.7	37153.5		
12:00 AM	46.0	39810.7		
1:00 AM	43.0	19952.6		
2:00 AM	41.8	15135.6		
3:00 AM	46.0	39810.7		
4:00 AM	49.2	83176.4		
5:00 AM	51.7	147910.8		
6:00 AM	56.9	489778.8	SUM=	959826
			Ln=	59.8
	Daytime Level=	68.7		
	Nighttime Level=	69.8		
	DNL=	**59**		
	24-Hour Leq=	55.5		

LOCATION 2	West Prop. Line			
Dist to Source	187 ft.			
TIME	Leq	10^Leq/10		
7:00 AM	45.1	32359.4		
8:00 AM	47.6	57942.9		
9:00 AM	47.9	61659.5		
10:00 AM	48.5	70794.6		
11:00 AM	46.9	48977.9		
12:00 PM	48.1	64565.4		
1:00 PM	49.3	85113.8		
2:00 PM	48.8	75857.8		
3:00 PM	50.5	112201.8		
4:00 PM	49.7	93325.4		
5:00 PM	56.7	467735.1		
6:00 PM	51.6	144544.0		
7:00 PM	47.0	50118.7		
8:00 PM	53.4	218776.2		
9:00 PM	44.7	29512.1	SUM=	1613485
10:00 PM	43.0	19952.6	Ld=	62.1
11:00 PM	41.0	12589.3		
12:00 AM	39.3	8511.4		
1:00 AM	40.7	11749.0		
2:00 AM	43.5	22387.2		
3:00 AM	45.1	32359.4		
4:00 AM	45.3	33884.4		
5:00 AM	40.4	10964.8		
6:00 AM	46.9	48977.9	SUM=	201376
		1.0	Ln=	53.0
	Daytime Level=	62.1		
	Nighttime Level=	63.0		
	DNL=	**52**		
	24-Hour Leq=	48.8		

DNL CALCULATIONS

CLIENT: JINGYING INTERNATIONAL PRESCHOOL
FILE: 50-027
PROJECT: JINGYING INTERNATIONAL PRESCHOOL
DATE: 7/30-31/2018
SOURCE: EXISTING AMBIENT

LOCATION 3	Brookfield Ave			
Dist to Source	27 ft.			
TIME		10^Leq/10		
7:00 AM	50.7	117489.8		
8:00 AM	55.8	380189.4		
9:00 AM	54.4	275422.9		
10:00 AM	54.7	295120.9		
11:00 AM	53.7	234422.9		
12:00 PM	56.0	398107.2		
1:00 PM	61.5	1412537.5		
2:00 PM	59.2	831763.8		
3:00 PM	56.4	436515.8		
4:00 PM	55.1	323593.7		
5:00 PM	54.5	281838.3		
6:00 PM	54.0	251188.6		
7:00 PM	54.2	263026.8		
8:00 PM	59.4	870963.6		
9:00 PM	50.8	120226.4	SUM=	6492408
10:00 PM	48.1	64565.4	Ld=	68.1
11:00 PM	46.0	39810.7		
12:00 AM	43.9	24547.1		
1:00 AM	40.9	12302.7		
2:00 AM	39.2	8317.6		
3:00 AM	39.9	9772.4		
4:00 AM	49.3	85113.8		
5:00 AM	45.2	33113.1		
6:00 AM	50.3	107151.9	SUM=	384695
		1.0	Ld=	55.9
	Daytime Level=	68.1		
	Nighttime Level=	65.9		
	DNL=	**56**		
	24-Hour Leq=	54.6		

DNL CALCULATIONS

CLIENT: JINGYING INTERNATIONAL PRESCHOOL
FILE: 50-027-1
PROJECT: JINGYING INTERNATIONAL PRESCHOOL
DATE: 5/6/2019
SOURCE: **PROJECT GENERATED**

Location	Citra Apts to West - Property Line			
Distance	98 ft.			
Source	Playground			
TIME		10^Leq/10		
7:00 AM		1.0		
8:00 AM		1.0		
9:00 AM	56.4	438335.5		
10:00 AM	58.4	694715.0		
11:00 AM		1.0		
12:00 PM		1.0		
1:00 PM		1.0		
2:00 PM		1.0		
3:00 PM	60.1	1022782.9		
4:00 PM	59.1	810500.8		
5:00 PM		1.0		
6:00 PM		1.0		
7:00 PM		1.0		
8:00 PM		1.0		
9:00 PM		1.0	SUM=	2966345
10:00 PM		1.0	Ld=	64.7
11:00 PM		1.0		
12:00 AM		1.0		
1:00 AM		1.0		
2:00 AM		1.0		
3:00 AM		1.0		
4:00 AM		1.0		
5:00 AM		1.0		
6:00 AM		1.0	SUM=	9
			Ld=	9.5

Daytime Level=	64.7
Nighttime Level=	19.5
DNL=	**51**
24-Hour Leq=	50.9

DNL CALCULATIONS

CLIENT: JINGYING INTERNATIONAL PRESCHOOL
FILE: 50-027-1
PROJECT: JINGYING INTERNATIONAL PRESCHOOL
DATE: 5/6/2019
SOURCE: **PROJECT GENERATED**

Location	Citra Apts to West - Patios/Balconies			
Distance	145 ft.			
Source	Playground			
TIME		10^Leq/10		
7:00 AM		1.0		
8:00 AM		1.0		
9:00 AM	52.5	176377.0		
10:00 AM	52.5	176377.0		
11:00 AM		1.0		
12:00 PM		1.0		
1:00 PM		1.0		
2:00 PM		1.0		
3:00 PM	56.1	411546.4		
4:00 PM	53.1	205773.2		
5:00 PM		1.0		
6:00 PM		1.0		
7:00 PM		1.0		
8:00 PM		1.0		
9:00 PM		1.0	SUM=	970085
10:00 PM		1.0	Ld=	59.9
11:00 PM		1.0		
12:00 AM		1.0		
1:00 AM		1.0		
2:00 AM		1.0		
3:00 AM		1.0		
4:00 AM		1.0		
5:00 AM		1.0		
6:00 AM		1.0	SUM=	9
			Ld=	9.5

Daytime Level=	59.9
Nighttime Level=	19.5
DNL=	**46**
24-Hour Leq=	46.1

DNL CALCULATIONS

CLIENT: JINGYING INTERNATIONAL PRESCHOOL
FILE: 50-027-1
PROJECT: JINGYING INTERNATIONAL PRESCHOOL
DATE: 5/6/2019
SOURCE: **PROJECT GENERATED**

Location	Citra Apts to North - Property Line			
Distance	17 ft.			
Source	Playground			
TIME		10^Leq/10		
7:00 AM		1.0		
8:00 AM		1.0		
9:00 AM	57.2	528254.1		
10:00 AM	57.2	528254.1		
11:00 AM		1.0		
12:00 PM		1.0		
1:00 PM		1.0		
2:00 PM		1.0		
3:00 PM	60.2	1056508.3		
4:00 PM	57.2	528254.1		
5:00 PM		1.0		
6:00 PM		1.0		
7:00 PM		1.0		
8:00 PM		1.0		
9:00 PM		1.0	SUM=	2641282
10:00 PM		1.0	Ld=	64.2
11:00 PM		1.0		
12:00 AM		1.0		
1:00 AM		1.0		
2:00 AM		1.0		
3:00 AM		1.0		
4:00 AM		1.0		
5:00 AM		1.0		
6:00 AM		1.0	SUM=	9
			Ld=	9.5
	Daytime Level=	64.2		
	Nighttime Level=	19.5		
	DNL=	**50**		
	24-Hour Leq=	50.4		

DNL CALCULATIONS

CLIENT: JINGYING INTERNATIONAL PRESCHOOL
FILE: 50-027-1
PROJECT: JINGYING INTERNATIONAL PRESCHOOL
DATE: 5/6/2019
SOURCE: **PROJECT GENERATED**

Location	Citra Apts to North - Patios/Balconies			
Distance	71 ft.			
Source	Playground			
TIME		10^Leq/10		
7:00 AM		1.0		
8:00 AM		1.0		
9:00 AM	55.8	381262.5		
10:00 AM	55.8	381262.5		
11:00 AM		1.0		
12:00 PM		1.0		
1:00 PM		1.0		
2:00 PM		1.0		
3:00 PM	58.8	762524.9		
4:00 PM	55.8	381262.5		
5:00 PM		1.0		
6:00 PM		1.0		
7:00 PM		1.0		
8:00 PM		1.0		
9:00 PM		1.0	SUM=	1906323
10:00 PM		1.0	Ld=	62.8
11:00 PM		1.0		
12:00 AM		1.0		
1:00 AM		1.0		
2:00 AM		1.0		
3:00 AM		1.0		
4:00 AM		1.0		
5:00 AM		1.0		
6:00 AM		1.0	SUM=	9
			Ld=	9.5
	Daytime Level=	62.8		
	Nighttime Level=	19.5		
	DNL=	**49**		
	24-Hour Leq=	49.0		

FINAL

755 S Bernardo Avenue Child Care Facility Transportation Operations Analysis

Prepared for:

City of Sunnyvale

Prepared by:

AECOM

September 2018

Table of Contents

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List of Figures

1.0 EXECUTIVE SUMMARY

This report presents the results of a Traffic Operation Analysis (TOA) conducted for the proposed conversion of a currently vacant medical building to a childcare/preschool located at 755 S Bernardo Avenue in the City of Sunnyvale, California.

The project involves conversion of an empty building to a childcare/preschool for up to 120 children with 24 teachers and staff. The site will provide 32 parking spots that include two ADA compliant stalls, one Electrical Vehicle (EV) charging stall and two rideshare stalls. Twelve of the stalls are designated for pick-up/drop-off parking.

The impacts of the proposed project were evaluated following the guidelines of the City of Sunnyvale and the Santa Clara Valley Transportation Authority (VTA) which is the Congestion Management Agency for Santa Clara County. Roadway system operations were evaluated under the following study scenarios:

- Existing Conditions
- Existing plus Project Conditions
- Background Conditions
- Background plus Project Conditions

Pedestrian, bicycle and transit facilities were also evaluated.

1.1 Project Trip Generation

Project generated trips were estimated using vehicle trip rates published by the Institute of Transportation Engineers (ITE, 10th Edition). The proposed project is estimated to generate 94 AM peak hour vehicle trips (50 inbound trips and 44 outbound trips) and 95 PM peak hour vehicle trips (45 inbound trips and 50 outbound trips).

1.2 Project Impacts

This analysis identifies potentially significant adverse impacts of the proposed project if any, on the surrounding transportation system and recommends measures to mitigate significant impacts. The project is not expected to create a significant impact.

1.2.1 Existing Plus Project Conditions

Intersection Analysis

Under this scenario, all the study intersections are expected to operate within acceptable Levels of Service (LOS) during both peak hours. Therefore, the proposed development is not expected to create a significant impact and no mitigation measures are recommended at the study intersections.

Queuing Analysis

The anticipated queues for through-movement traffic do not spill back to the upstream intersections. All left-turn pockets have sufficient capacity to store the anticipated queue during both peak hours except for the eastbound left-turn at S Bernardo Avenue and W El Camino Real (W ECR) which is near capacity during the PM peak hour. However, the project was found to add less than one car to the queues for all

study intersections during the AM and PM peak hours. As such, the project is not expected to adversely impact the existing queuing conditions.

1.2.2 Background Plus Project Conditions

Intersection Analysis

Under this scenario, all the study intersections are expected to operate at acceptable LOS during both peak hours. Therefore, the proposed development is not expected to create a significant impact and no mitigation measures are recommended at the study intersections.

Queuing Analysis

The anticipated queues for through-movement traffic do not spill back to the upstream intersections and all left-turn pockets have sufficient capacity to store the anticipated queue during both peak hours except the eastbound left-turn at S Bernardo Avenue and W ECR. It is near capacity during the PM peak hour but the project was found to add less than one car to the queues for all study intersections during the AM and PM peak hours. As such, the project is not expected to adversely impact the queuing conditions under the Background conditions.

1.2.3 Pedestrian, Bicycle and Transit Analysis

The proposed project does not conflict with existing and planned pedestrian facilities. In addition, the existing pedestrian facilities in the project vicinity are expected to have the capacity to accommodate future demand based on the observations of current usage. The project would provide minor improvements to the sidewalks adjacent to the project accesses to comply with city standards.

The proposed project does not conflict with existing and planned bicycle facilities and would not adversely impact the safety of the cyclists as there are no hazardous design features impeding the use of bicycles. Therefore, the project is expected to have a less-than-significant impact on cyclists.

The proposed project is not expected to conflict with planned transit facilities. The existing or planned pedestrians and bicycle access to transit routes and stops are expected to accommodate the project usage. The added project trips could increase the transit vehicle delay at some study intersections by 1.5 seconds but the overall impact is still less than significant.

Therefore, the project is not expected to adversely impact the pedestrian, bicycle and transit facilities in the vicinity of the project site.

1.2.4 Site Access and On-site Circulation

The project will provide an emergency vehicle access along S Bernardo Avenue that is closed off to regular traffic through the use of removable bollards. The main access will be along Brookfield Avenue. The design for both accesses is adequate, meeting city standards and emergency vehicle requirements. The internal roadway width is also adequate for parking maneuvers as well as emergency vehicle access. The project is also conveniently located, accessible via ECR from the regional freeways and Central Expressway.

It is recommended that the project applicant implement the following improvements:

- The proposed 2-way segment of the internal roadway in front of the school building entrance be converted to 1-way, to make it safer for drop-off and pick-up.
- Shorten the crosswalk at the Brookfield Avenue intersection by removing the pork chop island and extending the northwest corner of the intersection to further enhance safety adjacent the project site.

1.2.5 Parking

The project proposes to provide 32 parking spaces to the meet city's requirement of 30 parking spaces. The proposed number of spaces will include two ADA compliant stalls, one EV charging stall and two rideshare stalls. These provisions satisfy city standards. Twelve of the stalls are marked for pick-up/drop-off parking. Currently, no parking issues have been observed. The project is therefore not expected to significantly impact the parking situation in the vicinity. It is recommended that the project applicant implement the following improvements:

- Parking/loading be prohibited on both sides of the proposed project driveway along Brookfield Avenue (north side), from the intersection with S Bernardo Avenue to the adjacent apartment complex driveway, to ensure sufficient sight distance for vehicles.
- Landscaping features must not obstruct the view of the driveway.
- Parking/loading be prohibited on the west side of Bernardo Avenue along the project frontage.

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2.0 INTRODUCTION

This report presents the results of a Transportation Operations Analysis (TOA) conducted for the proposed conversion of a one-story medical office building to a preschool/daycare facility located at 755 S Bernardo Avenue in the City of Sunnyvale, California.

The purpose of this TOA is to evaluate the potential transportation impacts, identify short-term roadway circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed. The scope of work was prepared in consultation with the City of Sunnyvale staff.

2.1 Project Description

Existing Site

The site is located at 755 S Bernardo Avenue near W El Camino Real (W ECR) and the existing building is currently vacant. The site currently has three driveways; two on S Bernardo Avenue and one along Brookfield Avenue.

Proposed Site

The project proposes to convert the one-story building to a child care/preschool that can accommodate up to 120 children and 24 teachers. The site will provide 32 parking spaces with ADA and electric vehicle provisions. **Figure 2-1** shows the Project site plan. The main access to the site will be provided along Brookfield Avenue and an emergency vehicle access will be provided along S Bernardo Avenue.

2.2 Study Area

The study area is bounded by W ECR to the north, S Bernardo Avenue to the east, W Knickerbocker Drive to the south and S Knickerbocker to the west.

The roadway impacts of the proposed Project were evaluated by measuring the effect project traffic would have on intersection operations. A total of six intersections, as shown on **Figure 2-2** and listed below, were selected as study locations in consultation with the City of Sunnyvale staff. The study intersections have a standard Level of Service (LOS) at level D as they are all operated by the City of Sunnyvale.

1. S Knickerbocker Dr / Brookfield Ave*
2. S Bernardo Ave / W ECR
3. S Bernardo Ave / Blair Ave*
4. S Bernardo Ave / Brookfield Ave*
5. S Bernardo Ave / Heatherstone Way
6. S Bernardo Ave / W Knickerbocker Dr*

*unsignalized intersection

2.3 Study Scope and Approach

The following four scenarios were evaluated to identify the potential transportation impacts of the project on the study intersections:

1. Existing Conditions - Existing intersection volumes based on traffic counts collected by AECOM in May 2018.
2. Existing plus Project Conditions – Existing volumes plus the trips from this proposed project.

3. Background Conditions – Existing volumes plus trips from approved but not completed projects. This is defined as the Background without project conditions.
4. Background plus Project Conditions – Background volumes from *Scenario 3* plus the trips from this proposed project.

Intersection LOS was analyzed for the weekday AM peak hour and PM peak hour.

2.4 Analysis Methodology

The level of service method approved by Santa Clara County Valley Transportation Authority (VTA) and adopted by the City of Sunnyvale for signalized intersections is the method described in Chapter 16 of the 2000 Highway Capacity Manual (HCM) (Special Report 209, Transportation Research Board) with adjusted saturation flow rates to reflect conditions in Santa Clara County. This method bases signalized intersection operations on the average control vehicular delay.

Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay. The average control delay for signalized intersections is calculated using TRAFFIX analysis software and is correlated to a LOS designation as shown in **Table 2-1**.

In order to ensure that the existing conditions use for analysis reflects the reality, a SYNCHRO model was set up and calibrated to match the field observed queueing conditions for signalized study intersections. The TRAFFIX model, with which the project effects are being analyzed, was calibrated to match the existing intersection delays generated by SYNCHRO. With this, the existing conditions from the TRAFFIX model was set to be used for analyzing the 'background' and 'with project' scenarios. A comparison of the intersection delays between the SYNCHRO and TRAFFIX models is provided in **Appendix A**.

Levels of service at an intersection range from A, free flow or excellent conditions with insignificant delays, to F, congested or over-saturated conditions with unacceptable delays. **Table 2-1** shows the level of service thresholds for signalized intersections.

Table 2-1 Level of Service Thresholds for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	delay ≤ 10.0
B+	10.0 < delay ≤ 12.0
B	12.0 < delay ≤ 18.0
B-	18.0 < delay ≤ 20.0
C+	20.0 < delay ≤ 23.0
C	23.0 < delay ≤ 32.0
C-	32.0 < delay ≤ 35.0
D+	35.0 < delay ≤ 39.0
D	39.0 < delay ≤ 51.0
D-	51.0 < delay ≤ 55.0
E+	55.0 < delay ≤ 60.0
E	60.0 < delay ≤ 75.0
E-	75.0 < delay ≤ 80.0
F	delay > 80.0

Source: Traffic Level of Service Analysis Guidelines, VTA, June 2003 and HCM 2000.

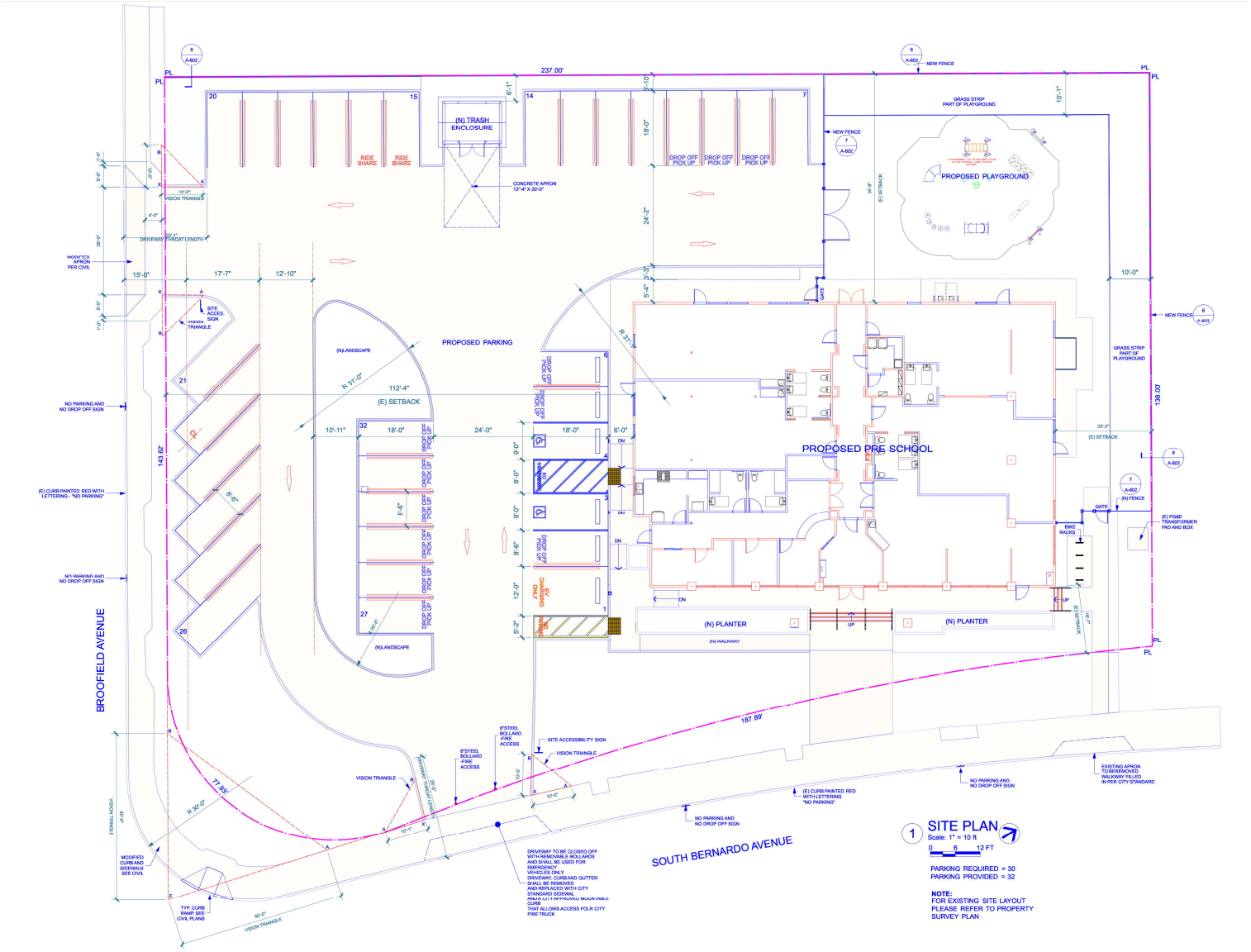

Figure 2-1 Project Site Plan

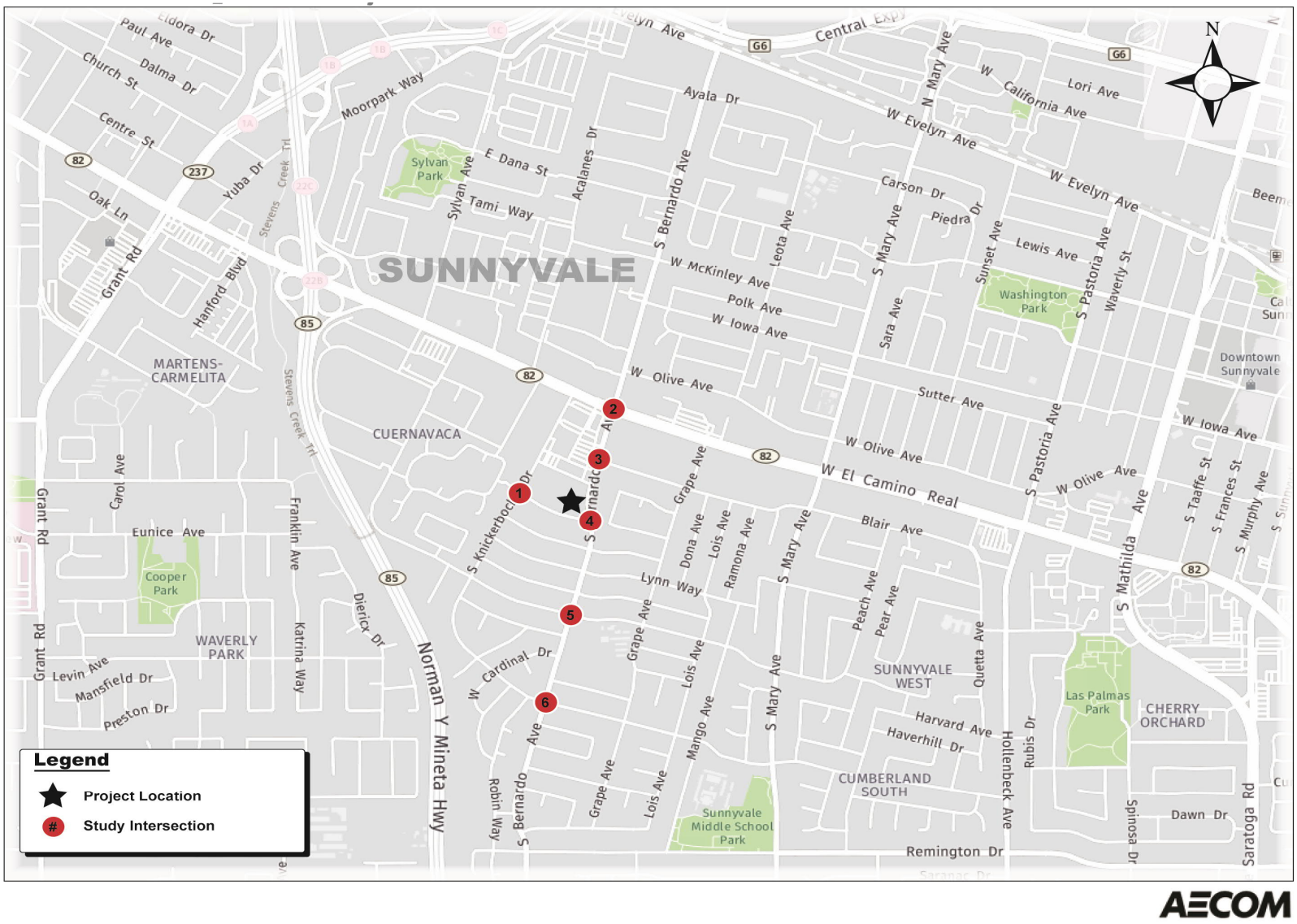

Figure 2-2 Project Vicinity and Intersections

LOS rating for unsignalized intersection is based on the weighted average control delay expressed in seconds per vehicle for all approaches. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration. For single lane approaches, the control delay is computed as the average of all movements in that lane. At two-way or side-street controlled intersections, the average control delay is calculated for each stopped movement and not for the intersection as a whole.

For this report purpose, the 2000 Highway Capacity Manual (HCM) methodology for unsignalized intersection (supported by TRAFFIX software) was used for the unsignalized intersection LOS calculations. **Table 2-2** shows the thresholds for the different LOS conditions at unsignalized intersections. In addition, the City of Sunnyvale uses the 2014 California Manual on Uniform Traffic Control Devices (CA MUTCD) peak hour volume signal warrant to evaluate operations at unsignalized intersections.

Table 2-2 Unsignalized Intersection Level of Service Definitions

Level of Service	Description	Average Control Delay (seconds/vehicle)
A	Little or no delay	delay ≤ 10.0
B	Short traffic delays	10.0 < delay ≤ 15.0
C	Average traffic delays	15.0 < delay ≤ 25.0
D	Long traffic delays	25.0 < delay ≤ 35.0
E	Very long traffic delays	35.0 < delay ≤ 50.0
F	Extreme traffic delays with intersection capacity exceeded	delay > 50.0

Source: HCM 2000.

2.5 Significance Criteria

The LOS standard for the City of Sunnyvale signalized intersections is LOS D or better. As such, for this report, a traffic impact would be considered significant if the project results will:

- cause a local (City of Sunnyvale) signalized intersection to deteriorate below Level of Service (LOS) D; or
- cause the average control delay for the critical movements of a local signalized intersection already operating at LOS E or F to deteriorate by four seconds or more, and the critical V/C ratio value to increase by 0.01 or more.

For unsignalized intersections, the City's LOS standard is also level D. Significant impacts are defined to occur when the addition of project traffic causes the LOS of an unsignalized intersection to degrade to LOS E or worse. Project impacts are also considered significant if the intersection satisfies the peak hour traffic signal warrant from the CA MUTCD. For an all-way stop intersection already operating at LOS E or F without the project, significant impacts are deemed to have occurred if the average intersection delay increases by four seconds or more and the V/C ratio value increases by 0.01 or more. For a side-street stop controlled intersection already operating at LOS E or F without the project, project impacts will be considered significant if the worst movement delay increases by four seconds or more and the critical V/C value increases by 0.01 or more.

For the purpose of this study, a peak hour signal warrant analysis will be conducted for any unsignalized intersections if the existing LOS is at D or worse.

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3.0 EXISTING AND BACKGROUND CONDITIONS

This section describes the existing conditions in the vicinity of the project in terms of the existing roadways, traffic operations, transit, pedestrian and bicycle facilities.

3.1 Major Roadways in Study Area

Local access to the Project site is provided by W ECR, S Bernardo Avenue, W Knickerbocker Drive and Brookfield Avenue. Direct access to the project site is from S Bernardo Avenue (for emergency vehicle use) and Brookfield Avenue. These roadways are described below.

W El Camino Real (W ECR) is a six-lane divided east-west arterial with a posted speed of 40 mph in the project vicinity. It is classified as a Class I Arterial in the City. Sidewalks are provided on both sides of the street with driveways that provide direct access to businesses and residential developments on both sides of the road. There is a pair of bus stops along W ECR next to the intersection with S Bernardo Avenue. The bus-stops serve VTA Line 22 and Line 522.

S Bernardo Avenue is classified as a residential collector in the City, providing direct access to development adjacent to the road. It is a two-lane undivided roadway immediately abutting the project site, but widens to four lanes between Blair Avenue and W ECR. Sidewalks and Class II bike lanes are provided along both directions of the street. There are three pairs of bus-stops along S Bernardo Avenue between W ECR and W Knickerbocker Drive serving VTA Line 53. In general, on-street parking is allowed along S Bernardo Avenue in the project vicinity. The project will have an emergency access along this road.

W Knickerbocker - S Knickerbocker Drive is a 25 mph undivided two-lane residential collector. It provides direct access to residential and commercial developments on both sides of the street. Sidewalks and Class II bike lanes are provided along both sides of W and S Knickerbocker Drive and W Knickerbocker Drive intersects with W ECR with a 'right-in/right-out' configuration.

Brookfield Avenue is a 25 mph undivided two-lane street where the main ingress/egress of the project will be provided. This street provides connection between S Bernardo Avenue to the east and S Knickerbocker Drive to the west. Parking is allowed on both sides of the street and sidewalks are available.

3.2 Field Observations

Traffic conditions in the field were observed in May 2018, two weeks before the Memorial Day holiday weekend, to validate the existing intersection level of service. Traffic conditions along the roads surrounding the project site were generally between light to moderate, except for W ECR.

The prevailing traffic direction along W ECR in the AM peak is westbound and in the PM peak is eastbound. Though traffic volumes along W ECR were high during the peak hours, the conditions were well managed. Most vehicles encountering the red phase at the S Bernardo Avenue intersection could clear within the first cycle. In addition, the rightmost lane for both approaches (along W ECR) was wide enough for right-turning vehicles to turn exclusively. Vehicles did not block the intersection as there was sufficient capacity downstream in all approaches to receive them. Left-turn pockets along W ECR have sufficient capacity to accommodate left-turning vehicles and no spill-backs obstructing through traffic were observed during both peak hours. Occasional conflicts were observed at the bus-stop along eastbound W ECR in the evening peak when a bus stopped at the bus stop and right-turn vehicles were

trying to inch out from the stop-controlled intersection of S Knickerbocker Drive. However, this problem is not frequent due to the low right-turn volume.

Light traffic and parking conditions were observed along S Bernardo Avenue, Brookfield Avenue and S Knickerbocker Drive during both peak hours. Vehicles encountering the red phase at the intersection of S Bernardo and Heatherstone Way during both the AM and PM peak hours could clear within one cycle. Some queuing was observed at the all-way stop controlled intersection of S Bernardo Avenue and W Knickerbocker Avenue. The longest queue was observed in the AM peak, for the northbound direction (along S Bernardo Avenue); up to ten cars were seen in line of the moving queue. In the PM peak, slightly shorter queues in the southbound direction were observed; up to seven cars were seen to be in line of the moving queue.

No parking issues were observed in the project vicinity during both the AM and PM peak hours. Very few cars were observed to be parking along Brookfield Avenue, in particular, that will provide direct access to the project site. The apartments surrounding the project site apparently have sufficient parking to accommodate their residents and visitors such that there was limited spill over to the surrounding streets. Marked parking spaces were provided along S Knickerbocker Drive, between Brookfield Avenue and W ECR. It was observed that less than 30% were occupied during the AM peak hour and the PM peak hour occupancy was observed to be about 65%.

3.3 Existing Intersection Operations

Existing traffic counts for the six study intersections were conducted during the weekday morning (7:00-10:00 AM) and evening (4:00-7:00 PM) peak periods in May 2018. Detailed traffic counts are provided in **Appendix B**. **Figure 3-1** and **Figure 3-2** show the intersection geometry and existing traffic volumes respectively. The performance of each intersection is presented in **Table 3-1**. The results of the LOS calculations indicate that all of the study intersections operate at acceptable levels of service.

Since all unsignalized intersections perform better than the standard LOS of D, no separate signal warrant analysis was conducted. The signal warrant analysis results from TRAFFIX indicate that the unsignalized study intersections do not warrant a traffic signal during both the peak hours. Details of the intersection analysis are presented in **Appendix C**.

Table 3-1 Intersection Performance – Existing Conditions

Intersection		Peak Hour	LOS Standard	LOS	Average Delay (sec)	Critical V/C
1	S Knickerbocker Dr / Brookfield Ave*	AM	D	A	9.00	0.023
		PM		B	10.00	0.022
2	S Bernardo Ave / W ECR	AM	D	D	45.80	0.720
		PM		D	45.80	0.664
3	S Bernardo Ave / Blair Ave*	AM	D	B	12.00	0.055
		PM		B	11.70	0.039
4	S Bernardo Ave / Brookfield Ave*	AM	D	B	12.10	0.047
		PM		B	13.90	0.054
5	S Bernardo Ave / Heatherstone Way	AM	D	A	8.40	0.357
		PM		A	5.30	0.400

Intersection		Peak Hour	LOS Standard	LOS	Average Delay (sec)	Critical V/C
6	S Bernardo Ave / W Knickerbocker Dr**	AM	D	B	12.80	0.625
		PM		C	16.40	0.752

*LOS and delay reported for worst movement for 2-way stop controlled intersections
**Overall delay reported for AWS controlled intersection
Source: AECOM 2018

3.4 Existing Transit Facilities

The proposed project is about one-third of a mile walking distance from the nearest transit stops along W ECR which serve VTA Lines 22 and 522. Line 22 is a regular VTA service and Line 522 is the 'limited-stop' version of Line 22. Another pair of transit stops are about 300 feet from the project site along S Bernardo Avenue that serves VTA Line 53. **Table 3-2** describes the span of services and frequency of service during the average weekday.

Table 3-2 Existing Transit Details

Route	From	To	Weekdays		Weekends	
			Operating Hours	Peak Hour Headway (Minutes)	Operating Hours	Peak Hour Headway (Minutes)
22	Palo Alto Transit Center	Eastridge Transit Center	24 hours	15	24 hours	15
522	Palo Alto Transit Center	Eastridge Transit Center	4:42 AM – 11:45 PM	12	6:02 AM – 11:37 PM	15
53	West valley College	Sunnyvale Transit Center	6.55 AM – 7:06 PM	varies	N/A	N/A

Source: AECOM 2018

Caltrain is a commuter rail service between San Francisco and Gilroy. The nearest station to the project is approximately two and a half miles away at the Sunnyvale Caltrain Station, located along Evelyn Avenue, northeast of the project site. VTA Line 53 connects the project site to the Sunnyvale Caltrain Station directly. **Figure 3-3** presents the transit facilities in the vicinity of the project site.

3.5 Existing Pedestrian and Bicycle Facilities

Sidewalks are provided along all the streets surrounding the project site. W ECR, S Bernardo Avenue, Brookfield Avenue and S Knickerbocker Drive all have sidewalks on both sides of the street which provide for safe and convenient access to the nearby bus stops. In addition, the intersection of W ECR and S Bernardo Avenue is signalized with crosswalks on all four approaches, providing safe access for pedestrians in the area.

The existing bicycle network consists of three classifications of facilities:

- Class I (bike path) provides an exclusive right-of-way for bicyclists and pedestrians, with cross flows of motorists minimized.

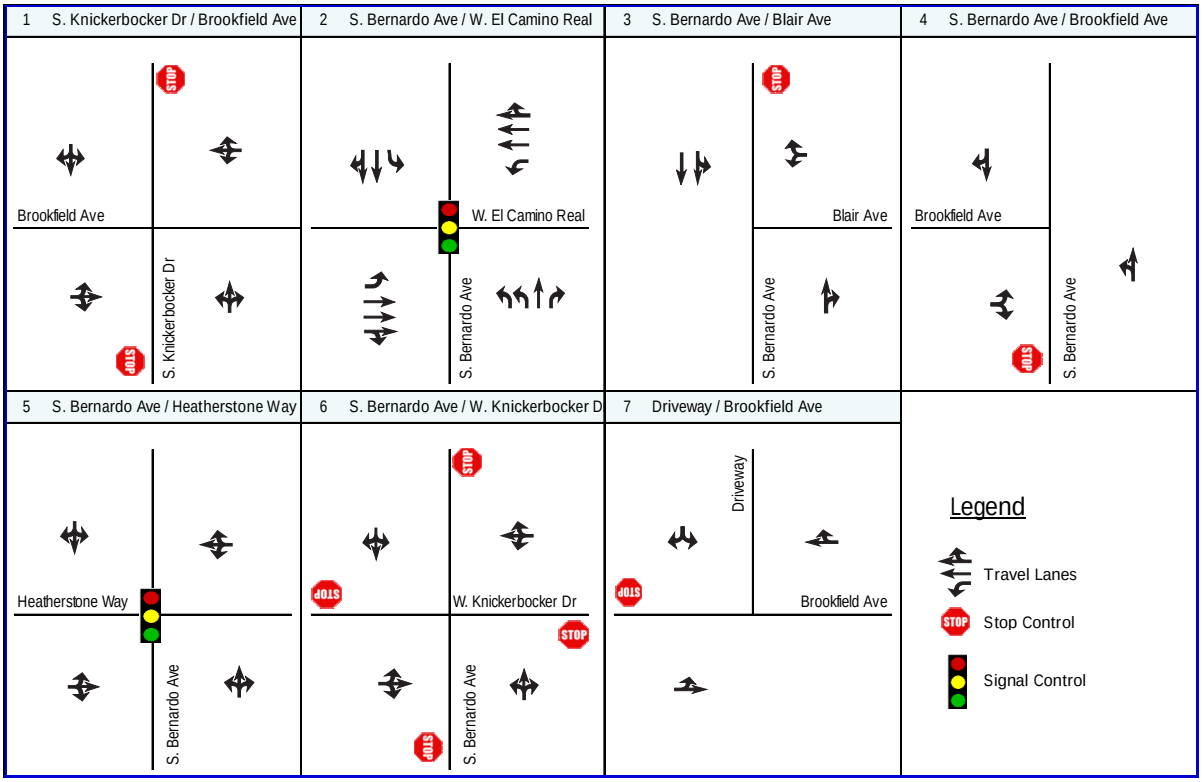

Figure 3-1 Intersection Geometry

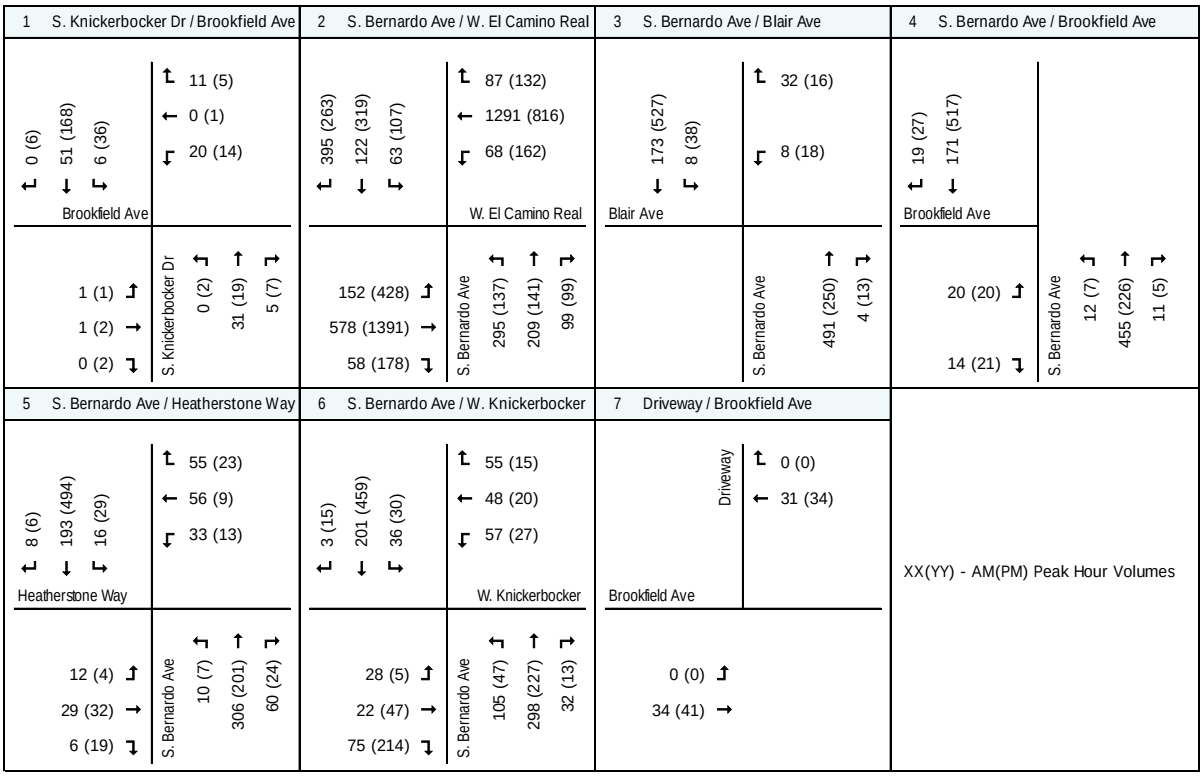

Figure 3-2 Existing Traffic Volumes

- Class II (bike lane) provides a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross flows by pedestrians and motorists permitted.
- Class III (bike route) provides a right-of-way designated by signs or permanent markings indicating the roadway is shared by pedestrians and motorists.

Bicycles are allowed on all streets in the City of Sunnyvale except freeways. The nearest Class I bike path is provided along Stevens Creek Trail, west of the project site. Class II bike lanes are provided along S Bernardo Avenue and S Knickerbocker Drive. A Bike Boulevard is also provided in the vicinity of the project, on part of Heatherstone Way, continuing to The Americana and Sylvan Avenue, to encourage cycling. Bike Boulevards are streets prioritized for bicycle use through advisory warning to motorists, traffic calming measures and guidance to encourage bicycle use over less attractive routes.

Existing bicycle facilities in the vicinity of the project site are illustrated in **Figure 3-4.**

3.6 Approved Projects

Approved projects (as obtained from the City of Sunnyvale) within a one-mile radius of the proposed project having more than 20 residential units or greater than 10,000 square feet office / commercial will be included in the Background traffic conditions. Only one project, satisfying the above criteria, was identified. It is a mixed use development at 803 W ECR, consisting of 49 residential units, almost 6000 square feet of commercial space and 51-room expansion of the Grand Hotel. Construction for this project is currently underway.

Background condition traffic volumes were developed by adding the trips generated by the above project to the existing traffic volumes. **Appendix D** presents the approved project trips. Only one study intersection, S Bernardo Avenue / W ECR (#2), carries trips from this approved project. All other study intersections remain unchanged from the existing conditions. Background condition traffic volumes for the AM and PM peak hours for study intersection #2 are presented in **Figure 3-5**.

3.7 Background Conditions

Based on the existing traffic volumes and approved project trips presented earlier, intersection analysis was performed at all the study intersections for the Background conditions. Lane geometries for this scenario are same as that of the existing condition. **Table 3-3** presents the analysis results and the analysis details are presented in **Appendix E**. Note that the results for all intersections are similar to the existing conditions except for the intersection of S Bernardo Avenue / W ECR (#2) which sees a slight increase in the V/C ratio due to the additional trips from the approved project on W ECR described above.

Since all unsignalized intersections perform better than the standard LOS D, no separate signal warrant analysis was conducted. The signal warrant analysis results from TRAFFIX indicate that the unsignalized study intersections do not warrant a traffic signal during both of the peak hours.

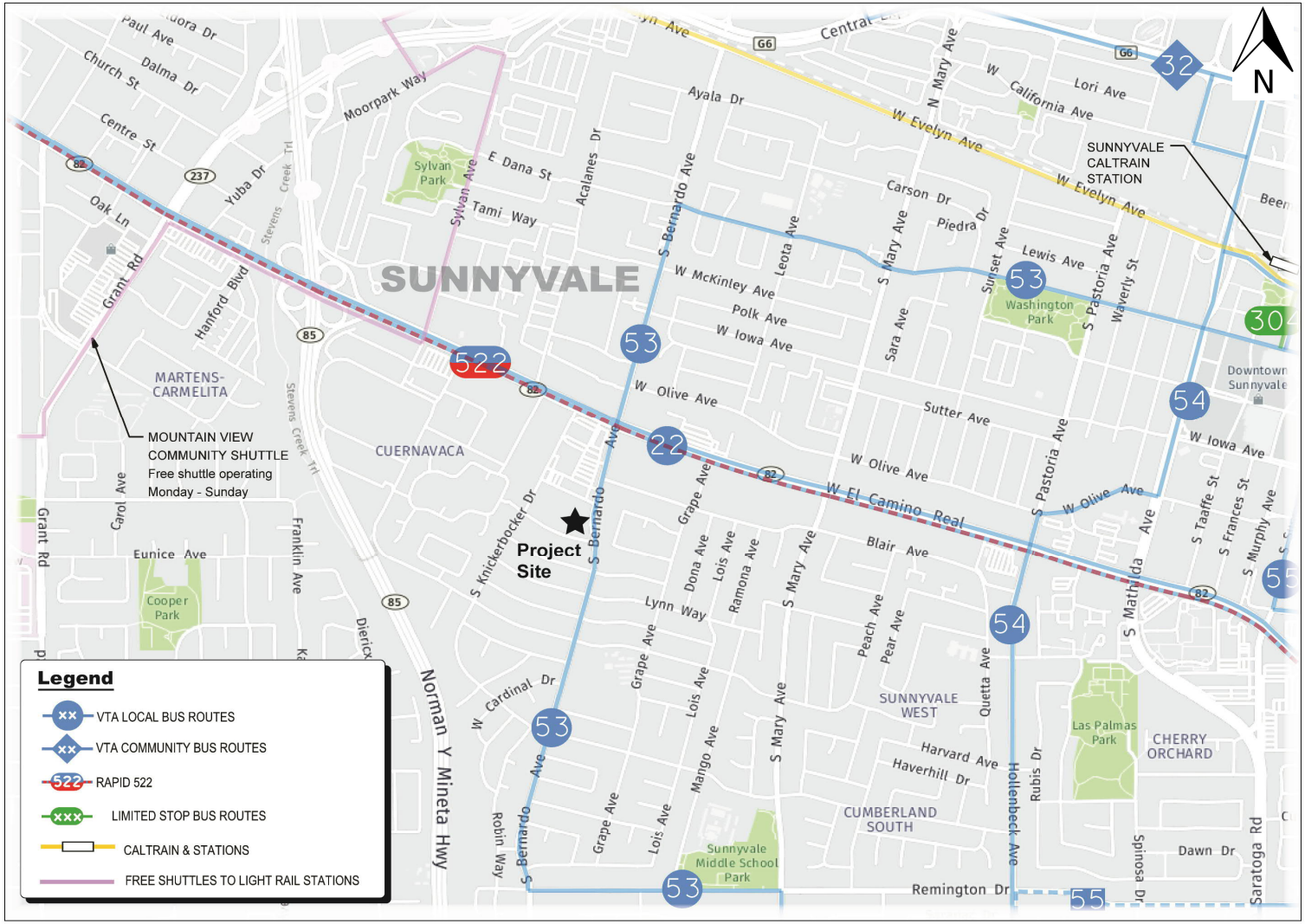

Figure 3-3 Existing Transit Facilities

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Figure 3-4 Existing Bicycle Facilities

Table 3-3 Intersection Performance – Background Conditions

Intersection		Peak Hour	LOS Standard	LOS	Average Delay (sec)	Critical V/C
1	S Knickerbocker Dr / Brookfield Ave*	AM	D	A	9.00	0.023
		PM		B	10.00	0.022
2	S Bernardo Ave / W ECR	AM	D	D	45.8	0.723
		PM		D	45.8	0.667
3	S Bernardo Ave / Blair Ave*	AM	D	B	12.00	0.055
		PM		B	11.70	0.039
4	S Bernardo Ave / Brookfield Ave*	AM	D	B	12.10	0.047
		PM		B	13.90	0.054
5	S Bernardo Ave / Heatherstone Way	AM	D	A	8.40	0.357
		PM		A	5.30	0.400
6	S Bernardo Ave / W Knickerbocker Dr**	AM	D	B	12.8	0.625
		PM		C	16.4	0.752

*LOS and delay reported for worst movement for 2-way stop controlled intersections
**Overall delay reported for AWS controlled intersection
Source: AECOM 2018

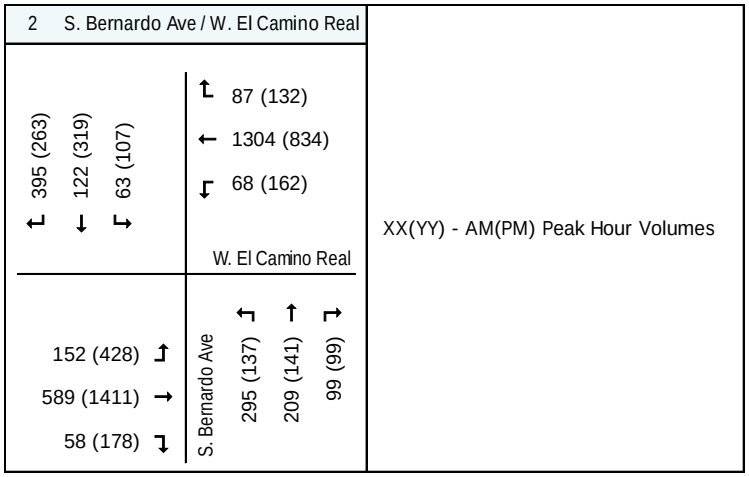

Figure 3-5 Background Intersection Traffic Volumes

4.0 PLUS PROJECT CONDITIONS

This chapter looks at the future transportation conditions in the study area as a result of the proposed project. Trips generated by the proposed development are added to the 'no project' scenarios discussed in the earlier chapter to determine the effects of this project. Any mitigation measures necessary to alleviate potential impacts will also be discussed.

4.1 Trip Generation, Trip Distribution and Project-Only Trip Assignment

This section presents the number of trips generated by the proposed development. Trip generation rates from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* (10th Edition, 2017) were used for determining the number of trips of the future land use. Trip generation rates and estimates are summarized in **Table 4-1**. Since the medical building is currently vacant, there are no 'existing' trips. The proposed project is estimated to generate 94 AM peak hour vehicle trips (50 inbound trips and 44 outbound trips) and 95 PM peak hour vehicle trips (45 inbound trips and 50 outbound trips). These will be the net new trips to be generated at this site and will be considered 'project trips'.

Table 4-1 Trip Generation for Proposed Project

Land Use	Size	Unit	AM Peak Hour						PM Peak Hour					
			Rate	In%	In	Out %	Out	Total	Rate	In%	In	Out %	Out	Total
Existing														
Medical Office[1]			Currently vacant						Currently vacant					
Proposed														
Day Care center[1]	120	Students	0.78	53%	50	47%	44	94	0.79	47%	45	53%	50	95
Net New Trips					**50**		**44**	**94**			**45**		**50**	**95**

Notes:
All rates are from Institute of Transportation Engineers, Trip Generation, 10th Edition
1. Land Use Code 565: Day Care Center (average rates, expressed in trips per student)
This project is not eligible for trip reductions based on VTA TIA Guidelines.

Trip distribution is defined as the direction of approach and departure that vehicles would use to arrive at and depart from the site. The trip distribution pattern of the traffic generated by the project onto the roadway system was based on knowledge of the area, prevailing traffic patterns and the site access locations. The project trips were distributed and assigned to the study intersections for traffic impact determination based on the trip distribution percentages shown in **Figure 4-1.** The resulting project only volumes at each of the study intersections are presented in **Figure 4-2.**

4.2 Existing plus Project Traffic Conditions – Intersection Operations

A Project impact is determined by comparing the operating conditions of 'plus project' and the 'no project' scenarios. The comparison table is shown in **Table 4-2**. The total 'plus project' traffic volumes for all the study intersections under the Existing Conditions are presented in **Figure 4-3**. The main project driveway at Brookfield Avenue is also being analyzed as an unsignalized intersection (#7).

The results show that all study intersections are expected to operate within acceptable LOS with the proposed project during both peak hours.

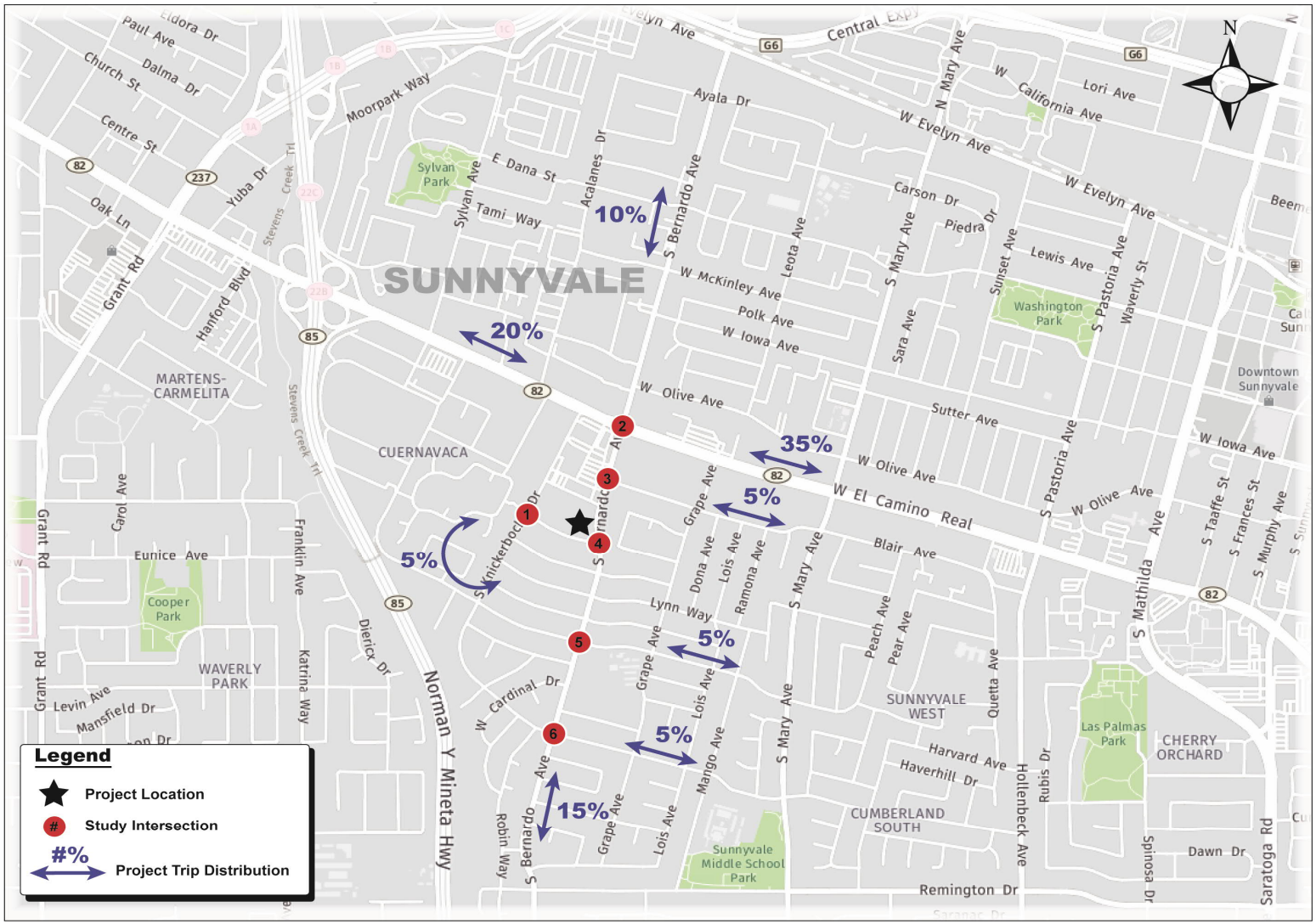

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Figure 4-1 Project Trip Distribution

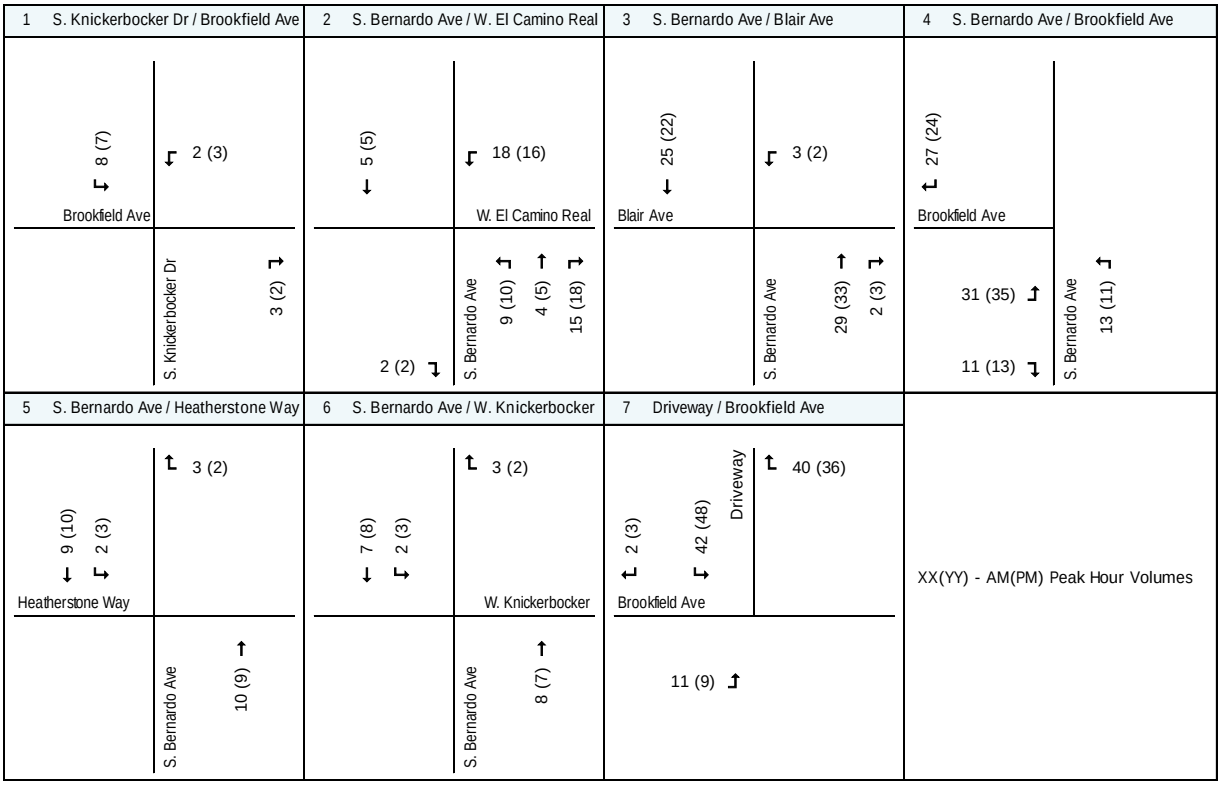

Figure 4-2 Project Only Traffic Volumes

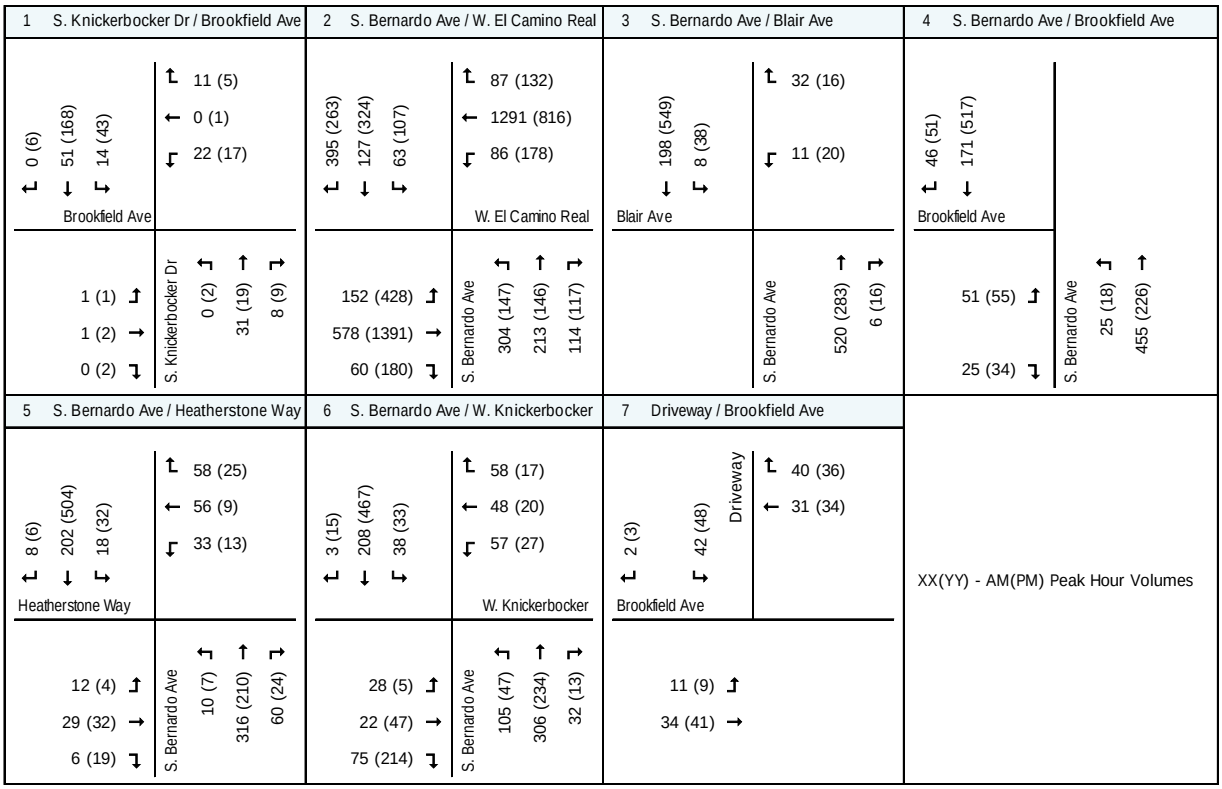

Figure 4-3 Existing + Project Traffic Volumes

Table 4-2 Comparison of Study Intersections LOS – Existing plus Project Conditions

	Intersection	Peak Hour	Existing Conditions				Existing + Project Conditions				Δ Delay	Δ Crit V/C	Δ Avg Crit delay	Impact ? Y / N
			LOS	Delay (sec)	Critical V/C	Avg Crit Delay (sec)	LOS	Delay (sec)	Critical V/C	Avg Crit Delay (sec)				
1	S Knickerbocker Dr / Brookfield Ave*	AM	A	9.00	0.023	2.7	A	9.10	0.026	3.0	0.1	0.003	0.3	N
		PM	B	10.00	0.022	2.0	B	10.2	0.027	2.2	0.2	0.005	0.2	N
2	S Bernardo Ave / W ECR	AM	D	45.8	0.720	49.0	D	45.9	0.723	49.2	0.1	0.003	0.2	N
		PM	D	45.8	0.664	54.2	D	46.4	0.669	54.3	0.6	0.005	0.1	N
3	S Bernardo Ave / Blair Ave*	AM	B	12.00	0.055	0.8	B	12.5	0.057	0.8	0.5	0.002	0.0	N
		PM	B	11.70	0.039	0.8	B	12.2	0.046	0.8	0.5	0.007	0.0	N
4	S Bernardo Ave / Brookfield Ave*	AM	B	12.10	0.047	0.7	B	13.7	0.126	1.6	1.6	0.079	0.9	N
		PM	B	13.90	0.054	0.8	C	16.4	0.157	1.8	2.5	0.103	1.0	N
5	S Bernardo Ave / Heatherstone Way	AM	A	8.4	0.357	9.0	A	8.4	0.365	9.1	0.0	0.008	0.1	N
		PM	A	5.3	0.400	5.1	A	5.3	0.409	5.1	0.0	0.009	0.0	N
6	S Bernardo Ave / W Knickerbocker Dr*	AM	B	12.8	0.625	12.8	B	13.2	0.640	13.2	0.4	0.015	0.4	N
		PM	C	16.4	0.752	16.4	C	17.2	0.772	17.2	0.8	0.020	0.8	N
7	Project Driveway / Brookfield Ave**	AM	N/A				A	9.2	0.050	3.0	9.20	0.050	3.0	N
		PM					A	9.3	0.050	3.2	9.30	0.050	3.2	N

*LOS and delay reported for worst movement for 2-way stop controlled intersections
**Overall delay reported for AWS controlled intersection
Source: AECOM, 2018

In addition, the 'plus project' scenario would not bring about significant changes in both delay and critical V/C ratio to be considered an impact. As such, the proposed project would not adversely affect the existing conditions. No separate peak hour signal warrant analysis was performed for the unsignalized intersections as they are expected to operate within acceptable LOS. Moreover, the signal warrant analysis results from TRAFFIX show that the warrants are not met and signalization is not needed for all unsignalized intersections. Details of this analysis are presented in **Appendix F**.

4.3 Existing plus Project Traffic Conditions - Transit Facilities Impacts

The existing transit facilities in the project vicinity are expected to support the project usage under the 'plus project' conditions. Based on current observation, the bus service would continue to serve the project vicinity and the proposed project is not expected to adversely affect public transit services. Since this is a childcare/preschool development, many of the students and their parents are not expected to use public transit. Teachers and other staff members may be public transit users, but their number is expected to be small. The delay due to the proposed project, during both peak hours, along W ECR (in both directions) on which VTA Line 22 and Line 522 run, is no more than 1.4 seconds at intersection #2. VTA Line 53, which runs along S Bernardo Avenue, is expected to experience no more than 1.4 seconds of delay due to the project trips at any of the study intersection. **Table 4-3** summarizes the movement delays through the intersections along the routes of lines 22, 522 and 53 within the study area. In addition, the project is not expected to conflict with the planned transit facilities and the existing pedestrian and bicycle facilities are adequate for users to access transit stops.

Table 4-3 Transit Impact Analysis - Existing plus Project Conditions

VTA Line	Intersection		Direction/ Movement	Existing Delay (sec)		Existing plus Project Delay (sec)		Δ Delay (sec)	
				AM	PM	AM	PM	AM	PM
22 & 522	2	S Bernardo Ave / W ECR	EBT	45.0	35.1	45.1	36.5	0.1	1.4
			WBT	44.0	56.6	44.2	56.7	0.2	0.1
53	2	S Bernardo Ave / W ECR**	NBT	47.2	58.1	46.9	58.2	-0.3	0.1
			SBT	35.3	55.3	35.6	55.2	0.3	-0.1
	3	S Bernardo Ave / Blair Ave*	NBT	0.0	0.0	0.0	0.0	0	0
			SBT	0.0	0.0	0.0	0.0	0	0
	4	S Bernardo Ave / Brookfield Ave*	NBT	0.0	0.0	0.0	0.0	0	0
			SBT	0.0	0.0	0.0	0.0	0	0
	5	S Bernardo Ave / Heatherstone Way	NBT	5.6	2.5	5.7	2.5	0.1	0
			SBT	5.0	3.2	5.0	3.3	0	0.1
	6	S Bernardo Ave / W Knickerbocker Dr*	NBT	15.5	12.9	16.0	13.2	0.5	0.3
			SBT	11.1	21.4	11.4	22.8	0.3	1.4

*unsignalized intersection
**Average delay decreases with project as more green time was apportioned to the NBT and SBT movements in the AM and PM respectively. This is because of the actuated & coordinated settings, where demand and gap out time changes between existing and plus project conditions.
Source: AECOM, 2018

4.4 Existing plus Project Traffic Conditions - Pedestrian and Bicycle Facilities Impacts

The project will provide minor improvements to the existing sidewalks surrounding the project site. The current curb ramp for the egress along S Bernardo Avenue, at the northeast corner of the parcel, will be removed and the sidewalk will be filled in as part of the project, according to City standards. Similarly, the curb ramp for the proposed emergency access along S Bernardo Avenue and for the main access along Brookfield Avenue will also be improved to meet city standards as part of the project. As mentioned earlier, due to the nature of the proposed use, this project is not expected to generate a high pedestrian number since the age of the students at this facility will be under 5 years old. While some children may walk from the nearby residential neighborhoods with their caregivers to the project site, the number is expected to be very small. Similarly, only a small number of teachers or other staff members are expected to walk to the project site. Therefore, based on observation of the current situation, the existing sidewalks and crosswalks in the project vicinity, including the crosswalk nearest to the project (at intersection #1), are expected to accommodate the usage under the 'plus project' conditions.

Similarly, this project would not generate a high number of cyclists due to the nature of the facility proposed. Therefore, based on the observations of current conditions, the existing bicycle facilities in the project vicinity presented earlier would be sufficient to meet the expected demand of the proposed project. The proposed project would not adversely impact the safety of the cyclists as there are no hazardous design features impeding the use of bicycles. Therefore, the project is expected to have a less-than-significant impact on pedestrians and cyclists.

4.5 Existing plus Project Traffic Conditions - Queuing Impacts

The queuing conditions at the study intersections under the Existing plus Project Traffic conditions were compared with the existing conditions to identify if there is any queue that spills back to the upstream intersections or out of the turn pockets. A typical vehicle length of 25 feet was used for the queuing analysis. An operational deficiency is assumed to occur if the queue increases by one or more vehicles and if the queue exceeds the turn pocket length or extends close to the upstream intersection. Summary of the queueing results is provided in **Appendix G.**

Table 4-4 summarizes the queues under the existing plus project conditions for the two signalized study intersections (#2 & #5) as well as the all-way-stop control intersection (#6). The average queue length is being reported. The 95 percentile queues calculated by TRAFFIX for the 3 two-way stop controlled intersections are less than 1 vehicle under both with and without the project scenarios. They are therefore not presented in the Table 4-4. Based on visual observation of the existing traffic condition, the westbound (prevailing AM) left-turn pocket for the S Bernardo Avenue / W ECR intersection (#2) has sufficient capacity to accommodate the turning vehicles. The project is only expected to add less than one vehicle to this movement and can therefore still be accommodated. In the PM peak, the eastbound (prevailing) left-turn pocket can accommodate existing left-turn vehicles most of the time although it was observed that occasionally, the number of left-turn vehicles exceeded the storage capacity. The average eastbound left-turn queue is almost at the capacity of the storage length as a result. The project is expected to add less than one vehicle eastbound left-turn vehicles to this movement and can therefore be accommodated.

Table 4-4 Queuing Analysis – Existing plus Project Conditions

Intersection		Storage Length (ft)	Movement	Existing*		Existing plus Project*	
				AM Peak Hour (ft)	PM Peak Hour (ft)	AM Peak Hour (ft)	PM Peak Hour (ft)
2	S Bernardo Ave / W ECR	510	NBL	180	90	195	100
		510	NBT	180	145	190	150
		140	SBL	60	125	60	125
		345	SBT	95	335	100	340
		480	EBL	210	465	210	465
		2190	EBT	180	415	180	425
		490	WBL	70	205	90	225
		960	WBT	430	315	430	315
5	S Bernardo Ave / Heatherstone Way	980	NBLTR	40	10	60	10
		2365	SBLTR	25	95	30	100
		1115	EBLTR	20	30	20	30
		725	WB	55	25	55	25
6	S Bernardo Ave / W Knickerbocker Dr	1745	NBLTR	40	20	20	20
		975	SBLTR	15	65	15	70
		4320	EBLTR	10	20	10	20
		810	WBLTR	10	5	10	5

*Average queue length rounded up to nearest 5 feet
Source: AECOM, 2018

4.6 Parking, Site Access and Circulation Analysis

Table 4-5 presents the parking evaluation for the proposed project. Based on the Sunnyvale Municipal Code Chapter 19.46, Table 19.46.100(c), a Child Care Center would need to provide at least 0.25 parking spots per child. As such, in order to meet the city requirement, the minimum number of parking spaces to be provided by the project would 30. The project will satisfy this by providing 32 parking stalls which include two ADA accessible stalls and, one electrical vehicle parking stall. There are no bicycle parking requirements for this facility.

Table 4-5 Parking Provision

Land Use	Size	Project Supply	City requirement	
			Min	
Child Care	120 students		0.25 /student	30
Total		32		30

Out of the 29 regular parking stalls, 12 stalls are reserved for pick-up/drop-off parking and two stalls are reserved for ride-sharing vehicles. There are currently no observed parking issues surrounding the project site. However, project parking should not be allowed on S Bernardo Avenue along the frontage. In addition, as there are no crosswalk and center median along S Bernardo Avenue adjacent to the project, visitors (to the project site) risk having to cross several lanes of traffic; it would be even more dangerous

when they are with young children. Therefore, parking on the west side of Bernardo Avenue is discouraged. As for parking along Brookfield Avenue, though the current observed number of vehicles parking along this road is low, it is recommended that parking be prohibited adjacent to the project driveway on the north side of Brookfield Avenue. As the access is fairly close (approximately 105 feet; 4-car length) to the S Bernardo Avenue / Brookfield Avenue intersection (#4), vehicles parked between the intersection and project driveway would conflict with turning vehicles as well as would obstruct the driveway sight distance. Parking along this section should therefore be prohibited. Similarly the project driveway is also very close to the driveway of the adjacent apartment complex (approximately 75 feet; 3-car length). Vehicles parked between the two driveways will obstruct the sight distance for both developments. As such, parking should also be prohibited. Along the south side of Brookfield Avenue fronting the project, no additional or new parking restrictions are being recommended. However, the project applicant should discourage project parking along the section as sufficient parking is being provided on site. It should also remind its visitors to be cautious when crossing the road and make use of the available crosswalk, especially when with young children. The above proposed parking restrictions would not lead to parking deficiency in the area as the current on-street parking usage is low and the project is expected to accommodate its parking needs on-site.

There are currently 3 driveways for the project site. One is an egress at the northeast corner of the parcel along S Bernardo Avenue, the second one is a full movement driveway located along S Bernardo Avenue and the third one is a full movement driveway located along Brookfield Avenue. The project proposes to close the egress and convert the full movement driveway along S Bernardo Avenue for emergency vehicle use only. The emergency access along S Bernardo Avenue will be closed off to regular traffic using two removable 6-inch steel bollards. The emergency access design is adequate for fire truck access.

The main access for the site will therefore be the full movement driveway along Brookfield Avenue. It will be 26 feet wide which is sufficient to accommodate two vehicles; one entering and one exiting at the same time. Landscaping features adjacent to the access, not available at the time of this report preparation, should not include tall plants or large trees that would obstruct the view of the access.

The daycare/preschool hours are from 8:30AM to 6:30PM, on Mondays to Fridays. Traffic and parking in the immediate vicinity around the project site (along S Bernardo Avenue, Brookfield Avenue and S Knickerbocker Drive) was observed to be relatively light at about 8:30AM and between 6:00-6:30PM under existing conditions. The expected pick-up/drop-off movements due to the project therefore would not adversely impact the traffic conditions on a typical weekday. The project is proposing to stagger the evening pick-up, with the younger children (up to 3 years old) being picked up by 6PM and the older group (4-5 years old) being picked up at around 6:30PM. This is a good way to spread out the pick-up activities and avoiding a large congregation of parents and children over a short period of time.

The proposed internal circulation of the parking area allows for 2–way traffic fronting the main entrance to the school building. All the parking spots in the area are for pick-up and drop-off except for the 2 ADA compliant spots and 1 EV charging station. High pedestrian movements, involving young children, are therefore expected in this area. AECOM recommends that the 1-way circulation from the access be continued to the pick-up/drop-off area in front of the school building (instead of 2-way) to reduce vehicular and pedestrian conflict in this area. This is to make it safer, especially for parents with young children, to navigate around the pick-up/drop-off area. The internal road way widths (13’ for the one-way segment and 24’ for the 2-way segment) are adequate for parking maneuver as well as emergency vehicle access.

The intersection of S Bernardo and Brookfield Avenue (#4) is expected to carry most of the foot traffic to the proposed child care/preschool. This unsignalized intersection, which has adequate sight-distance, provides a marked cross-walk across Brookfield Avenue which is stop-controlled. Even though the foot traffic generated by the project is not expected to increase significantly, it is recommended that the project applicant implement some improvements to further enhance the safety, especially for the expected young children. The distance of the crosswalk can be reduced by removing the pork chop island and extending the northwest corner of the intersection. The southbound right-turn into westbound Brookfield Avenue from S Bernardo Avenue will be at a right-angle. AECOM performed an AUTOTURN analysis demonstrating that a 48-foot trailer truck will still be able to negotiate the intersection under the proposed improvement. In that case, the crosswalk distance will be reduced by approximately 22 feet and the crossing time will be shortened by about 7 seconds. **Appendix H** presents the proposed layout of the modifications and the truck dimension details used in the analysis.

4.7 Background plus Project Traffic Conditions – Intersection Operations

The Background plus Project conditions do not differ from the Existing plus Project conditions except for the intersection of S Bernardo Avenue and W ECR (#2). **Table 4-6** compares the intersection performance with and without project under the Background Conditions. There are no changes in the results for all other study intersections except for intersection #2. **Figure 4-4** presents only the volumes for intersection #2. Intersection #2 is expected to operate without significant change in delay and V/C ratio even with the proposed project. As such, the project therefore has no significant impact on all the study intersections under this scenario and signalization is not warranted for any of the unsignalized intersections under the 'plus project' scenario. The details are presented in **Appendix I**.

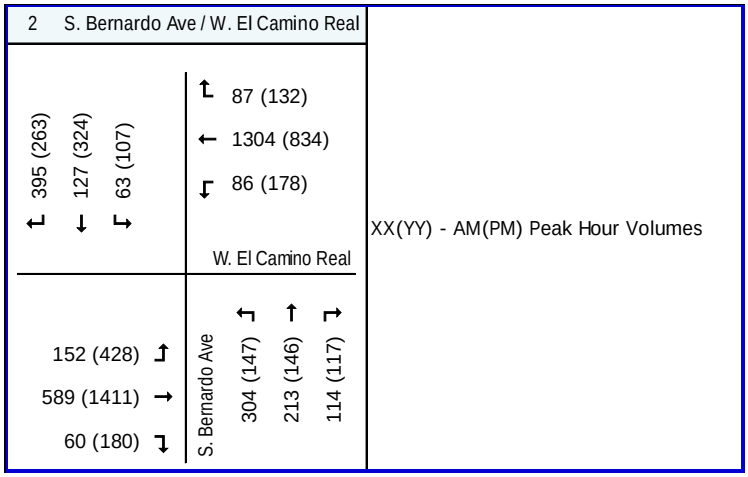

Figure 4-4 Background plus Project Traffic Volumes

Table 4-6 Comparison of Study Intersections LOS – Background plus Project Conditions

	Intersection	Peak Hour	Background Conditions				Background + Project Conditions				Δ Delay	Δ Crit V/C	Δ Avg Crit delay	Impact ? Y/ N
			LOS	Delay (sec)	Critical V/C	Avg Crit Delay (sec)	LOS	Delay (sec)	Critical V/C	Avg Crit Delay (sec)				
1	S Knickerbocker Dr / Brookfield Ave*	AM	A	9.00	0.023	2.7	A	9.10	0.026	3.0	0.1	0.003	0.3	N
		PM	B	10.00	0.022	2.0	B	10.2	0.027	2.2	0.2	0.005	0.2	N
2	S Bernardo Ave / W ECR	AM	D	45.8	0.723	49.0	D	45.9	0.726	49.2	0.1	0.003	0.2	N
		PM	D	45.8	0.667	54.2	D	46.4	0.673	54.4	0.6	0.006	0.2	N
3	S Bernardo Ave / Blair Ave*	AM	B	12.00	0.055	0.8	B	12.5	0.057	0.8	0.5	0.002	0.0	N
		PM	B	11.70	0.039	0.8	B	12.2	0.046	0.8	0.5	0.007	0.0	N
4	S Bernardo Ave / Brookfield Ave*	AM	B	12.10	0.047	0.7	B	13.7	0.126	1.6	1.6	0.079	0.9	N
		PM	B	13.90	0.054	0.8	C	16.4	0.157	1.8	2.5	0.103	1.0	N
5	S Bernardo Ave / Heatherstone Way	AM	A	8.40	0.357	9.0	A	8.4	0.365	9.1	0.0	0.008	0.1	N
		PM	A	5.30	0.400	5.1	A	5.3	0.409	5.1	0.0	0.009	0.0	N
6	S Bernardo Ave / W Knickerbocker Dr*	AM	B	12.8	0.625	12.8	B	13.20	0.640	13.2	0.4	0.015	0.4	N
		PM	C	16.4	0.752	16.4	C	17.20	0.772	17.2	0.8	0.020	0.8	N
7	Project Driveway / Brookfield Ave*	AM	N/A				A	9.20	0.050	3.0	9.20	0.050	3.0	N
		PM					A	9.30	0.050	3.2	9.30	0.050	3.2	N

*LOS and delay reported for worst movement for 2-way stop controlled intersections
**Overall delay reported for AWS controlled intersection
Source: AECOM, 2018

4.8 Background plus Project Traffic Conditions – Queuing Analysis

Queuing analysis was conducted for the study intersections under the Background plus Project Traffic conditions using the Traffix software, which is based on the HCM 2000 Methodology. The length was compared with the 'no project' storage lengths to identify if there is any queue that spills back out of the turn pockets. A typical vehicle length of 25 feet was used for the queuing analysis. An operational deficiency is assumed to occur if the queue increases by one or more vehicles and if the queue exceeds the turn pocket length. Summary of the queueing results is provided in the **Appendix G.**

Table 4-7 summarizes the queues under the Background plus Project conditions for the two signalized study intersections (#2 & #5) as well as the all-way-stop control intersection (#6). The average queue length is being reported. The 95 percentile queues calculated by TRAFFIX for the three two-way stop-controlled intersections are less than one vehicle with and without the project. They are therefore not presented in the Table 4-4. Under the Background without project scenario, all queues can be accommodated within the storage capacity. The project is only expected to add less than one vehicle to this movement and can therefore still be accommodated. As such, the project would not have adverse impact on the queuing situations of the study intersections.

Table 4-7 Queuing Analysis – Background plus Project Conditions

Intersection		Storage Length (ft)	Movement	Background*		Background plus Project*	
				AM Peak Hour (ft)	PM Peak Hour (ft)	AM Peak Hour (ft)	PM Peak Hour (ft)
2	S Bernardo Ave / W ECR	510	NBL	190	90	195	100
		510	NBT	190	145	190	150
		140	SBL	60	125	60	125
		345	SBT	95	335	100	340
		480	EBL	210	470	210	470
		2190	EBT	180	420	180	430
		490	WBL	70	205	85	225
		960	WBT	435	320	435	320
5	S Bernardo Ave / Heatherstone Way	980	NB	60	10	60	10
		2365	SB	25	95	30	100
		1115	EB	20	30	20	30
		725	WB	55	25	55	25
6	S Bernardo Ave / W Knickerbocker Dr	1745	NB	40	20	40	20
		975	SB	15	65	15	70
		4320	EB	10	20	10	20
		810	WB	10	5	10	5

*Average queue length rounded up to nearest 5 feet
Source: AECOM, 2018

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5.0 CONCLUSIONS

This project is located at 755 S Bernardo Avenue in the City of Sunnyvale, California. The proposed project is to transform a currently vacant medical building into a childcare/preschool facility for up to 120 children. Having evaluated the current and with project traffic conditions in the vicinity of the project, the study concludes that this proposed project would not lead to any significant traffic impacts overall and provides recommendations for the City's consideration..

For the six study intersections, they are expected to perform at LOS D or better with the project. LOS D is the standard for City of Sunnyvale. The expected project trips would also not aggravate the queuing conditions at the study intersections; they are expected to add less than one car to the queues during the peak hours.

In addition, the project is not expected to negatively impact any bicycle and pedestrian facilities in the vicinity as the expected number of pedestrians and cyclists would be low. The project is proposing to upgrade portions of the sidewalk adjacent to the site driveways along S Bernardo Avenue and Brookfield Avenue to meet city standards. It is also not expected to cause any significant impacts on the transit services in the project area; the project trips could increase the delay of VTA Services along W ECR and S Bernardo Avenue by up to 1.4 seconds at some study intersections during the peak hours. The number of parking spots and access designs proposed by the project are deemed adequate to meet City standards, including emergency vehicle requirements.

The study recommends the applicant to implement the following improvements:

- To convert part of the proposed internal circulation to one-way to enhance safety during the pick-up and drop-off of young children;
- To shorten the crosswalk distance at the intersection of S Bernardo Avenue and Brookfield Avenue by removing the pork chop island and extending the northwest corner of the intersection to enhance safety in the area;
- Landscaping adjacent to the Brookfield Avenue driveway should not include tall plants or large trees that would obstruct the view of the access; and
- To prohibit parking/loading on both sides of the project driveway along the north side of Brookfield Avenue; extending from the S Bernardo Avenue / Brookfield Avenue intersection (#4) to the access of the adjacent apartment complex, so as to avoid conflicting with turning vehicles at the intersection and to ensure sufficient sight distance for vehicles using the project driveway.
- To prohibit parking/loading on the west side of Bernardo Avenue along the project frontage.

APPENDICES

Appendix A
SYNCHRO vs TRAFFIX Comparison

Comparison of Delay - SYNCHRO vs TRAFFIX

Synchro

		AM		PM	
ID	Intersection	Delay (s/veh)	LOS	Delay (s/veh)	LOS
2	El Camino/Bernardo	39.7	D	46.6	D
5	Heatherstone/Bernardo	7.5	A	5.3	A

Traffix

		AM		PM	
ID	Intersection	Delay (s/veh)	LOS	Delay (s/veh)	LOS
2	El Camino/Bernardo	45.8	D	45.8	D
5	Heatherstone/Bernardo	8.4	A	5.3	A

Comparison of Queues - SYNCHRO vs TRAFFIX

Synchro

Intersection		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
#2	AM	135	143	0	46	277	6	135	184	0	54	106
	PM	401	356	60	153	234	43	66	123	0	103	226

		EBT	WBT	NBT	SBT
#5	AM	8	18	33	18
	PM	10	6	16	49

Traffix

		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
#2	AM	206	176	42	66	429	48	187	187	66	60	93
	PM	464	413	118	204	311	108	89	143	85	123	334

		EBT	WBT	NBT	SBT
#5	AM	18	51	56	24
	PM	30	24	6	93

Queues
2:

06/13/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	152	578	58	68	1291	87	295	209	99	63	517
v/c Ratio	0.71	0.28	0.09	0.16	0.50	0.11	0.77	0.64	0.27	0.36	0.77
Control Delay	76.2	31.8	4.8	39.9	25.1	6.9	74.5	63.3	7.7	65.0	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	31.8	4.8	39.9	25.1	6.9	74.5	63.3	7.7	65.0	32.2
Queue Length 50th (ft)	135	143	0	46	277	6	135	184	0	54	106
Queue Length 95th (ft)	204	189	23	88	386	42	#189	259	39	104	162
Internal Link Dist (ft)		1743			941			1199			405
Turn Bay Length (ft)	460		100	490		100	125		105	145	
Base Capacity (vph)	255	2276	731	424	2570	804	397	585	562	177	1109
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.25	0.08	0.16	0.50	0.11	0.74	0.36	0.18	0.36	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: 06/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	578	58	68	1291	87	295	209	99	63	122	395
Future Volume (vph)	152	578	58	68	1291	87	295	209	99	63	122	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.96	1.00	1.00	0.97	1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	1544	1770	5085	1520	3433	1863	1539	1770	3008	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5085	1544	1770	5085	1520	3433	1863	1539	1770	3008	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	152	578	58	68	1291	87	295	209	99	63	122	395
RTOR Reduction (vph)	0	0	35	0	0	37	0	0	81	0	251	0
Lane Group Flow (vph)	152	578	23	68	1291	50	295	209	18	63	266	0
Confl. Peds. (#/hr)	9		10	10		9	37		10	10		37
Confl. Bikes (#/hr)			1			2			5			3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	17.0	55.8	55.8	31.2	70.0	70.0	15.6	24.8	24.8	11.2	20.4	
Effective Green, g (s)	17.0	55.8	55.8	31.2	70.0	70.0	15.6	24.8	24.8	11.2	20.4	
Actuated g/C Ratio	0.12	0.40	0.40	0.22	0.50	0.50	0.11	0.18	0.18	0.08	0.15	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	214	2026	615	394	2542	760	382	330	272	141	438	
v/s Ratio Prot	c0.09	0.11		0.04	c0.25		c0.09	c0.11		0.04	0.09	
v/s Ratio Perm			0.01			0.03			0.01			
v/c Ratio	0.71	0.29	0.04	0.17	0.51	0.07	0.77	0.63	0.06	0.45	0.61	
Uniform Delay, d1	59.1	28.6	25.7	44.0	23.5	18.1	60.5	53.4	47.9	61.4	56.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.9	0.4	0.1	0.2	0.7	0.2	9.0	3.9	0.1	1.6	2.0	
Delay (s)	69.0	28.9	25.8	44.1	24.2	18.3	69.5	57.3	48.0	63.1	58.1	
Level of Service	E	C	C	D	C	B	E	E	D	E	E	
Approach Delay (s)		36.4			24.8			61.7			58.6	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	39.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
5:

06/13/2018

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	47	144	376	217
v/c Ratio	0.15	0.45	0.31	0.18
Control Delay	13.8	15.0	5.2	4.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.8	15.0	5.2	4.7
Queue Length 50th (ft)	8	18	33	18
Queue Length 95th (ft)	27	53	85	50
Internal Link Dist (ft)	1105	729	432	1138
Turn Bay Length (ft)				
Base Capacity (vph)	735	694	1222	1217
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.06	0.21	0.31	0.18

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5:

06/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	29	6	33	56	55	10	306	60	16	193	8
Future Volume (vph)	12	29	6	33	56	55	10	306	60	16	193	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			0.97			0.99			1.00	
Flpb, ped/bikes		0.99			0.96			1.00			1.00	
Frt		0.98			0.95			0.98			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1746			1626			1797			1836	
Flt Permitted		0.93			0.91			0.99			0.97	
Satd. Flow (perm)		1650			1499			1787			1785	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	29	6	33	56	55	10	306	60	16	193	8
RTOR Reduction (vph)	0	5	0	0	46	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	42	0	0	98	0	0	368	0	0	215	0
Confl. Peds. (#/hr)	47		178	178		47	89		51	51		89
Confl. Bikes (#/hr)			1			8			1			1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		7.1			7.1			29.6			29.6	
Effective Green, g (s)		7.1			7.1			29.6			29.6	
Actuated g/C Ratio		0.16			0.16			0.65			0.65	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		256			232			1157			1156	
v/s Ratio Prot												
v/s Ratio Perm		0.03			c0.07			c0.21			0.12	
v/c Ratio		0.16			0.42			0.32			0.19	
Uniform Delay, d1		16.7			17.4			3.6			3.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			1.2			0.7			0.4	
Delay (s)		17.0			18.7			4.3			3.6	
Level of Service		B			B			A			A	
Approach Delay (s)		17.0			18.7			4.3			3.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
2:

06/13/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	428	1391	178	162	816	132	137	141	99	107	582
v/c Ratio	0.88	0.60	0.24	0.59	0.48	0.26	0.43	0.41	0.27	0.63	0.83
Control Delay	71.6	33.0	17.0	69.0	43.1	22.2	68.7	56.8	9.0	82.3	55.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	33.0	17.0	69.0	43.1	22.2	68.7	56.8	9.0	82.3	55.1
Queue Length 50th (ft)	401	356	60	153	234	43	66	123	0	103	226
Queue Length 95th (ft)	505	465	128	232	324	117	103	182	44	170	279
Internal Link Dist (ft)		1743			941			1199			650
Turn Bay Length (ft)	460		100	490		100	125		105	145	
Base Capacity (vph)	532	2304	736	281	1695	516	320	509	497	177	984
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.60	0.24	0.58	0.48	0.26	0.43	0.28	0.20	0.60	0.59

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2:

06/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	428	1391	178	162	816	132	137	141	99	107	319	263
Future Volume (vph)	428	1391	178	162	816	132	137	141	99	107	319	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.89	1.00	1.00	0.97	1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	1543	1770	5085	1415	3433	1863	1540	1770	3158	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5085	1543	1770	5085	1415	3433	1863	1540	1770	3158	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	428	1391	178	162	816	132	137	141	99	107	319	263
RTOR Reduction (vph)	0	0	38	0	0	46	0	0	81	0	113	0
Lane Group Flow (vph)	428	1391	140	162	816	86	137	141	18	107	469	0
Confl. Peds. (#/hr)	37		10	10		37	79		11	11		79
Confl. Bikes (#/hr)						4			3			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	41.2	68.0	68.0	23.2	50.0	50.0	14.0	27.4	27.4	14.4	27.8	
Effective Green, g (s)	41.2	68.0	68.0	23.2	50.0	50.0	14.0	27.4	27.4	14.4	27.8	
Actuated g/C Ratio	0.27	0.45	0.45	0.15	0.33	0.33	0.09	0.18	0.18	0.10	0.19	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	4.0	4.0	2.5	4.0	4.0	2.5	3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	486	2305	699	273	1695	471	320	340	281	169	585	
v/s Ratio Prot	c0.24	c0.27		c0.09	0.16		0.04	0.08		c0.06	c0.15	
v/s Ratio Perm			0.09			0.06			0.01			
v/c Ratio	0.88	0.60	0.20	0.59	0.48	0.18	0.43	0.41	0.06	0.63	0.80	
Uniform Delay, d1	52.0	30.9	24.7	59.0	39.7	35.5	64.2	54.2	50.7	65.3	58.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.7	1.2	0.6	2.9	1.0	0.9	0.7	0.8	0.1	6.6	7.6	
Delay (s)	68.8	32.0	25.3	61.9	40.7	36.3	64.9	55.0	50.8	71.9	66.0	
Level of Service	E	C	C	E	D	D	E	E	D	E	E	
Approach Delay (s)		39.3			43.3			57.5			66.9	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
5:

06/13/2018

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	55	45	232	529
v/c Ratio	0.21	0.18	0.16	0.37
Control Delay	13.7	12.3	3.2	4.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.7	12.3	3.2	4.4
Queue Length 50th (ft)	10	6	16	49
Queue Length 95th (ft)	28	23	40	108
Internal Link Dist (ft)	1105	729	432	1138
Turn Bay Length (ft)				
Base Capacity (vph)	757	679	1419	1425
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.07	0.16	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5: 06/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	32	19	13	9	23	7	201	24	29	494	6
Future Volume (vph)	4	32	19	13	9	23	7	201	24	29	494	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.96			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.93			0.99			1.00	
Flt Protected		1.00			0.99			1.00			1.00	
Satd. Flow (prot)		1707			1678			1828			1853	
Flt Permitted		0.97			0.88			0.99			0.98	
Satd. Flow (perm)		1660			1503			1808			1820	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	32	19	13	9	23	7	201	24	29	494	6
RTOR Reduction (vph)	0	17	0	0	21	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	38	0	0	24	0	0	228	0	0	529	0
Confl. Peds. (#/hr)	3		24	24		3	22		6	6		22
Confl. Bikes (#/hr)			15						2			4
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		4.4			4.4			33.5			33.5	
Effective Green, g (s)		4.4			4.4			33.5			33.5	
Actuated g/C Ratio		0.09			0.09			0.71			0.71	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		155			141			1291			1300	
v/s Ratio Prot												
v/s Ratio Perm		c0.02			0.02			0.13			c0.29	
v/c Ratio		0.24			0.17			0.18			0.41	
Uniform Delay, d1		19.7			19.6			2.2			2.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			0.6			0.3			0.9	
Delay (s)		20.5			20.2			2.5			3.6	
Level of Service		C			C			A			A	
Approach Delay (s)		20.5			20.2			2.5			3.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	46.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

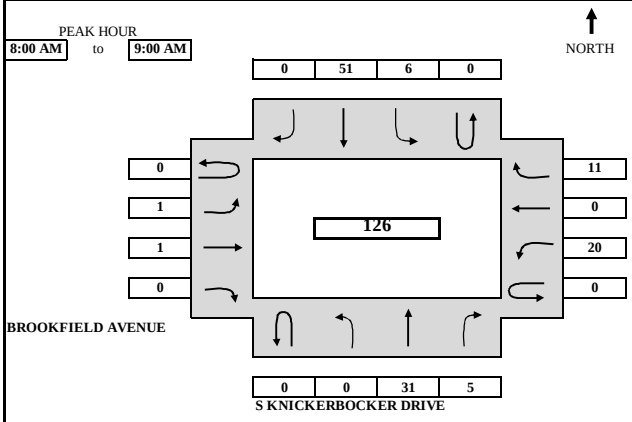
Appendix B
Existing Traffic Counts

B.A.Y.M.E.T.R.I.C.S.

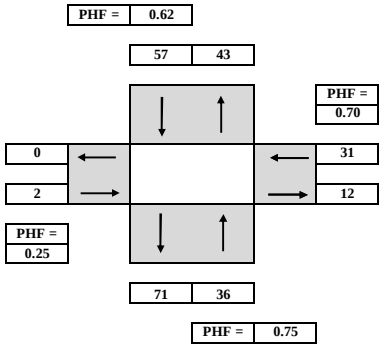
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S KNICKERBOCKER DRIVE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-1AM**

PEAK HOUR **8:00 AM** to **9:00 AM**



ARRIVAL / DEPARTURE VOLUMES



TIME	PERIOD		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		0	3	1		0	0	0		0	1	0		1	0	0	**6**
7:15 AM	to	7:30 AM		0	7	1		0	8	0		0	1	1		2	0	1	**21**
7:30 AM	to	7:45 AM		1	7	3		1	14	0		1	2	1		3	0	1	**34**
7:45 AM	to	8:00 AM		1	12	3		2	22	0		1	2	1		5	0	2	**51**
8:00 AM	to	8:15 AM		1	20	7		4	43	0		2	3	1		14	0	4	**99**
8:15 AM	to	8:30 AM		1	27	7		5	53	0		2	3	1		19	0	9	**127**
8:30 AM	to	8:45 AM		1	35	8		6	63	0		2	3	1		22	0	10	**151**
8:45 AM	to	9:00 AM		1	43	8		8	73	0		2	3	1		25	0	13	**177**
9:00 AM	to	9:15 AM		1	55	8		10	76	0		2	3	1		27	0	17	**200**
9:15 AM	to	9:30 AM		1	60	9		15	81	0		2	3	1		28	0	17	**217**
9:30 AM	to	9:45 AM		1	66	12		17	92	0		2	4	1		30	0	20	**245**
9:45 AM	to	########		1	72	13		19	103	0		2	4	1		30	0	22	**267**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	3	1	0	0	0	0	0	0	1	0	0	1	0	0	**6**
7:15 AM	to	7:30 AM	0	0	4	0	0	0	8	0	0	0	0	1	0	1	0	1	**15**
7:30 AM	to	7:45 AM	0	1	0	2	0	1	6	0	0	1	1	0	0	1	0	0	**13**
7:45 AM	to	8:00 AM	0	0	5	0	0	1	8	0	0	0	0	0	0	2	0	1	**17**
8:00 AM	to	8:15 AM	0	0	8	4	0	2	21	0	0	1	1	0	0	9	0	2	**48**
8:15 AM	to	8:30 AM	0	0	7	0	0	1	10	0	0	0	0	0	0	5	0	5	**28**
8:30 AM	to	8:45 AM	0	0	8	1	0	1	10	0	0	0	0	0	0	3	0	1	**24**
8:45 AM	to	9:00 AM	0	0	8	0	0	2	10	0	0	0	0	0	0	3	0	3	**26**
9:00 AM	to	9:15 AM	0	0	12	0	0	2	3	0	0	0	0	0	0	2	0	4	**23**
9:15 AM	to	9:30 AM	0	0	5	1	0	5	5	0	0	0	0	0	0	1	0	0	**17**
9:30 AM	to	9:45 AM	0	0	6	3	0	2	11	0	0	0	1	0	0	2	0	3	**28**
9:45 AM	to	########	0	0	6	1	0	2	11	0	0	0	0	0	0	0	0	2	**22**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	1	12	3	0	2	22	0	0	1	2	1	0	5	0	2	**51**
7:15 AM	to	8:15 AM	0	1	17	6	0	4	43	0	0	2	2	1	0	13	0	4	**93**
7:30 AM	to	8:30 AM	0	1	20	6	0	5	45	0	0	2	2	0	0	17	0	8	**106**
7:45 AM	to	8:45 AM	0	0	28	5	0	5	49	0	0	1	1	0	0	19	0	9	**117**
8:00 AM	to	9:00 AM	0	0	31	5	0	6	51	0	0	1	1	0	0	20	0	11	**126**
8:15 AM	to	9:15 AM	0	0	35	1	0	6	33	0	0	0	0	0	0	13	0	13	**101**
8:30 AM	to	9:30 AM	0	0	33	2	0	10	28	0	0	0	0	0	0	9	0	8	**90**
8:45 AM	to	9:45 AM	0	0	31	4	0	11	29	0	0	0	1	0	0	8	0	10	**94**
9:00 AM	to	########	0	0	29	5	0	11	30	0	0	0	1	0	0	5	0	9	**90**

PEAK HOUR SUMMARY

8:00 AM	to	9:00 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
			NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME			0	0	31	5	0	6	51	0	0	1	1	0	0	20	0	11	**126**
PHF BY MOVEMENT			0.00	0.00	0.97	0.31	0.00	0.75	0.61	0.00	0.00	0.25	0.25	0.00	0.00	0.56	0.00	0.55	OVERALL
PHF BY APPROACH			0.75				0.62				0.25				0.70				**0.66**
BICYCLE			0				2				0				0				**2**
PEDESTRIAN			3				0				0				0				**3**
			N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:			0				0				2				1				**3**

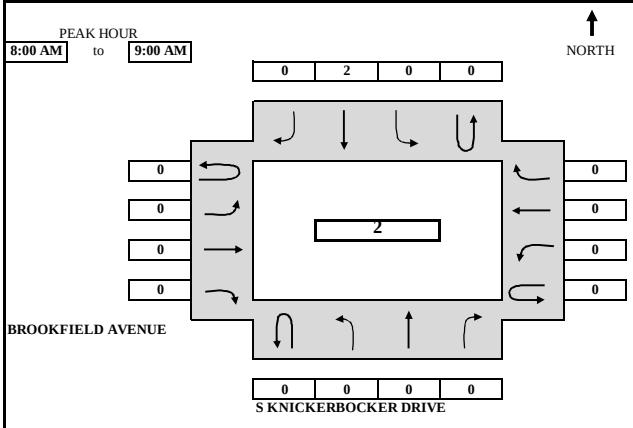
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

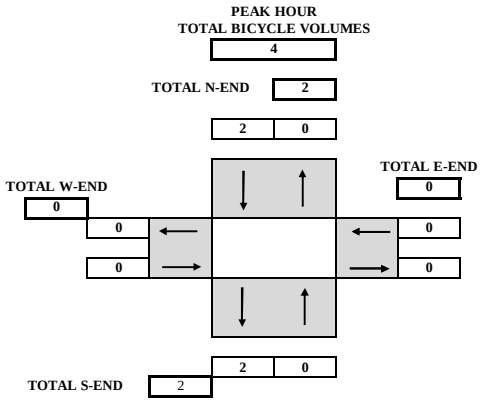
BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S KNICKERBOCKER DRIVE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-1AM**

PEAK HOUR **8:00 AM** to **9:00 AM**



PEAK HOUR TOTAL BICYCLE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**
7:15 AM	to	7:30 AM	0	0	1	0	0	1	1	0	0	0	0	0	0	2	0	0	**5**
7:30 AM	to	7:45 AM	0	0	1	0	0	1	1	0	0	0	0	0	0	3	0	0	**6**
7:45 AM	to	8:00 AM	0	0	1	0	0	1	1	0	0	1	0	0	0	3	0	0	**7**
8:00 AM	to	8:15 AM	0	0	1	0	0	1	2	0	0	1	0	0	0	3	0	0	**8**
8:15 AM	to	8:30 AM	0	0	1	0	0	1	2	0	0	1	0	0	0	3	0	0	**8**
8:30 AM	to	8:45 AM	0	0	1	0	0	1	2	0	0	1	0	0	0	3	0	0	**8**
8:45 AM	to	9:00 AM	0	0	1	0	0	1	3	0	0	1	0	0	0	3	0	0	**9**
9:00 AM	to	9:15 AM	0	0	1	0	0	1	3	0	0	1	0	0	0	3	0	0	**9**
9:15 AM	to	9:30 AM	0	0	2	0	0	1	4	0	0	1	0	0	0	4	0	0	**12**
9:30 AM	to	9:45 AM	0	0	4	0	0	1	6	0	0	1	0	0	0	4	0	0	**16**
9:45 AM	to	########	0	0	4	0	0	1	7	0	0	1	0	0	0	4	0	0	**17**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**
7:15 AM	to	7:30 AM	0	0	1	0	0	1	1	0	0	0	0	0	0	1	0	0	**4**
7:30 AM	to	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**
7:45 AM	to	8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	**1**
8:00 AM	to	8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
8:15 AM	to	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:45 AM	to	9:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
9:00 AM	to	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:15 AM	to	9:30 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	**3**
9:30 AM	to	9:45 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	**4**
9:45 AM	to	########	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	1	0	0	1	1	0	0	1	0	0	0	3	0	0	**7**
7:15 AM	to	8:15 AM	0	0	1	0	0	1	2	0	0	1	0	0	0	2	0	0	**7**
7:30 AM	to	8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	**3**
7:45 AM	to	8:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	**2**
8:00 AM	to	9:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	**2**
8:15 AM	to	9:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
8:30 AM	to	9:30 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	**4**
8:45 AM	to	9:45 AM	0	0	3	0	0	0	4	0	0	0	0	0	0	1	0	0	**8**
9:00 AM	to	########	0	0	3	0	0	0	4	0	0	0	0	0	0	1	0	0	**8**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

8:00 AM to 9:00 AM

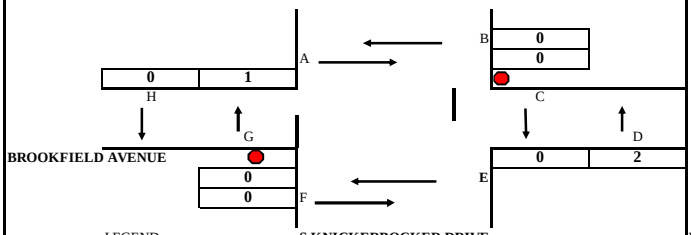
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	0	2	0	0	**2**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S KNICKERBOCKER DRIVE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**7:00 AM TO 10:00 AM**	**FILE:**	**3805027-1AM**

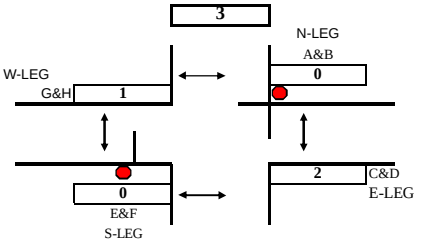
PEAK HOUR
8:00 AM TO **9:00 AM**



S KNICKERBOCKER DRIVE

LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES



BY LEG:	
N-LEG	0
S-LEG	0
E-LEG	2
W-LEG	1

BY DIRECTION:	
NB(D+G)	3
SB(C+H)	0
EB(A+F)	0
WB(B+E)	0

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
07:00 AM	---	07:15 AM	1	0	0	0	0	0	0	0	***1***
07:15 AM	---	07:30 AM	1	0	1	2	0	0	0	0	***4***
07:30 AM	---	07:45 AM	1	0	1	5	0	0	3	0	***10***
07:45 AM	---	08:00 AM	1	0	3	6	0	0	3	0	***13***
08:00 AM	---	08:15 AM	1	0	3	7	0	0	3	0	***14***
08:15 AM	---	08:30 AM	1	0	3	8	0	0	3	0	***15***
08:30 AM	---	08:45 AM	1	0	3	8	0	0	4	0	***16***
08:45 AM	---	09:00 AM	1	0	3	8	0	0	4	0	***16***
09:00 AM	---	09:15 AM	1	0	4	9	0	0	6	1	***21***
09:15 AM	---	09:30 AM	1	0	4	9	0	0	6	1	***21***
09:30 AM	---	09:45 AM	1	0	7	11	0	0	6	3	***28***
09:45 AM	---	10:00 AM	1	0	8	11	0	0	6	3	***29***
TOTAL BY PERIOD											
07:00 AM	---	07:15 AM	1	0	0	0	0	0	0	0	***1***
07:15 AM	---	07:30 AM	0	0	1	2	0	0	0	0	***3***
07:30 AM	---	07:45 AM	0	0	0	3	0	0	3	0	***6***
07:45 AM	---	08:00 AM	0	0	2	1	0	0	0	0	***3***
08:00 AM	---	08:15 AM	0	0	0	1	0	0	0	0	***1***
08:15 AM	---	08:30 AM	0	0	0	1	0	0	0	0	***1***
08:30 AM	---	08:45 AM	0	0	0	0	0	0	1	0	***1***
08:45 AM	---	09:00 AM	0	0	0	0	0	0	0	0	***0***
09:00 AM	---	09:15 AM	0	0	1	1	0	0	2	1	***5***
09:15 AM	---	09:30 AM	0	0	0	0	0	0	0	0	***0***
09:30 AM	---	09:45 AM	0	0	3	2	0	0	0	2	***7***
09:45 AM	---	10:00 AM	0	0	1	0	0	0	0	0	***1***
HOURLY TOTALS											
07:00 AM	---	08:00 AM	1	0	3	6	0	0	3	0	***13***
07:15 AM	---	08:15 AM	0	0	3	7	0	0	3	0	***13***
07:30 AM	---	08:30 AM	0	0	2	6	0	0	3	0	***11***
07:45 AM	---	08:45 AM	0	0	2	3	0	0	1	0	***6***
08:00 AM	---	09:00 AM	0	0	0	2	0	0	1	0	***3***
08:15 AM	---	09:15 AM	0	0	1	2	0	0	3	1	***7***
08:30 AM	---	09:30 AM	0	0	1	1	0	0	3	1	***6***
08:45 AM	---	09:45 AM	0	0	4	3	0	0	2	3	***12***
09:00 AM	---	10:00 AM	0	0	5	3	0	0	2	3	***13***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

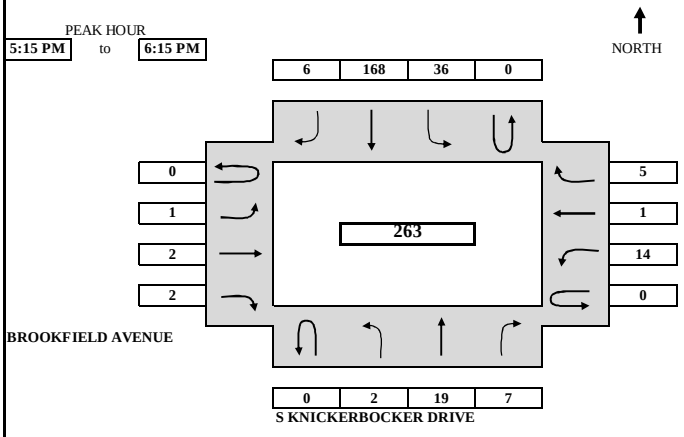
8:00 AM	to	9:00 AM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		3	0	0	0	**3**
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		0	0	2	1	**3**

B.A.Y.M.E.T.R.I.C.S.

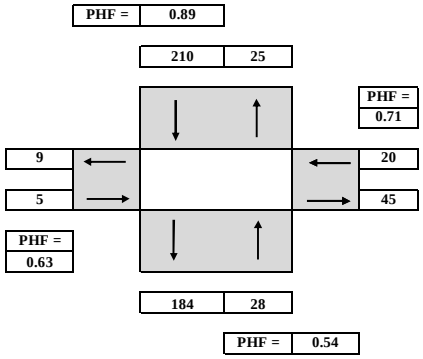
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S KNICKERBOCKER DRIVE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-2PM**

PEAK HOUR **5:15 PM** to **6:15 PM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	0	0	6	2	0	10	25	0		0	0	0		6	0	1	**50**
4:15 PM	to	4:30 PM	0	0	9	4	0	20	45	0		0	0	0		8	1	3	**90**
4:30 PM	to	4:45 PM	0	0	14	4	0	23	74	0		1	1	0		13	1	4	**135**
4:45 PM	to	5:00 PM	0	0	22	5	0	30	99	1		1	1	0		17	1	4	**181**
5:00 PM	to	5:15 PM	0	0	27	6	0	36	133	1		1	1	0		22	1	6	**234**
5:15 PM	to	5:30 PM	0	1	35	10	0	44	176	4		1	2	0		24	1	6	**304**
5:30 PM	to	5:45 PM	0	1	38	10	0	57	221	5		2	3	0		27	2	7	**373**
5:45 PM	to	6:00 PM	0	1	41	10	0	64	265	6		2	3	0		32	2	9	**435**
6:00 PM	to	6:15 PM	0	2	46	13	0	72	301	7		2	3	2		36	2	11	**497**
6:15 PM	to	6:30 PM	0	2	51	13	0	79	336	7		2	3	2		38	2	12	**547**
6:30 PM	to	6:45 PM	1	2	59	14	0	93	372	9		2	3	2		43	3	13	**616**
6:45 PM	to	7:00 PM	1	2	67	17	1	99	408	9		2	3	2		45	3	14	**673**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	6	2	0	10	25	0	0	0	0	0	0	6	0	1	**50**
4:15 PM	to	4:30 PM	0	0	3	2	0	10	20	0	0	0	0	0	0	2	1	2	**40**
4:30 PM	to	4:45 PM	0	0	5	0	0	3	29	0	0	1	1	0	0	5	0	1	**45**
4:45 PM	to	5:00 PM	0	0	8	1	0	7	25	1	0	0	0	0	0	4	0	0	**46**
5:00 PM	to	5:15 PM	0	0	5	1	0	6	34	0	0	0	0	0	0	5	0	2	**53**
5:15 PM	to	5:30 PM	0	1	8	4	0	8	43	3	0	0	1	0	0	2	0	0	**70**
5:30 PM	to	5:45 PM	0	0	3	0	0	13	45	1	0	1	1	0	0	3	1	1	**69**
5:45 PM	to	6:00 PM	0	0	3	0	0	7	44	1	0	0	0	0	0	5	0	2	**62**
6:00 PM	to	6:15 PM	0	1	5	3	0	8	36	1	0	0	0	2	0	4	0	2	**62**
6:15 PM	to	6:30 PM	0	0	5	0	0	7	35	0	0	0	0	0	0	2	0	1	**50**
6:30 PM	to	6:45 PM	1	0	8	1	0	14	36	2	0	0	0	0	0	5	1	1	**69**
6:45 PM	to	7:00 PM	0	0	8	3	1	6	36	0	0	0	0	0	0	2	0	1	**57**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	22	5	0	30	99	1	0	1	1	0	0	17	1	4	**181**
4:15 PM	to	5:15 PM	0	0	21	4	0	26	108	1	0	1	1	0	0	16	1	5	**184**
4:30 PM	to	5:30 PM	0	1	26	6	0	24	131	4	0	1	2	0	0	16	0	3	**214**
4:45 PM	to	5:45 PM	0	1	24	6	0	34	147	5	0	1	2	0	0	14	1	3	**238**
5:00 PM	to	6:00 PM	0	1	19	5	0	34	166	5	0	1	2	0	0	15	1	5	**254**
5:15 PM	to	6:15 PM	0	2	19	7	0	36	168	6	0	1	2	2	0	14	1	5	**263**
5:30 PM	to	6:30 PM	0	1	16	3	0	35	160	3	0	1	1	2	0	14	1	6	**243**
5:45 PM	to	6:45 PM	1	1	21	4	0	36	151	4	0	0	0	2	0	16	1	6	**243**
6:00 PM	to	7:00 PM	1	1	26	7	1	35	143	3	0	0	0	2	0	13	1	5	**238**

PEAK HOUR SUMMARY

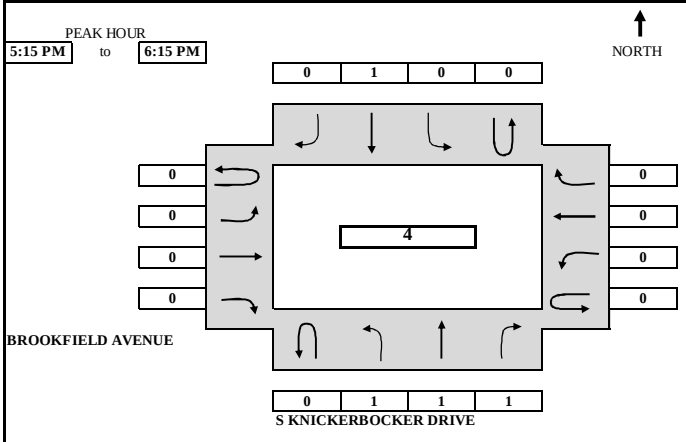
5:15 PM to 6:15 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	2	19	7	0	36	168	6	0	1	2	2	0	14	1	5	**263**
PHF BY MOVEMENT	0.00	0.50	0.59	0.44	0.00	0.69	0.93	0.50	0.00	0.25	0.50	0.25	0.00	0.70	0.25	0.63	OVERALL
PHF BY APPROACH	0.54				0.89				0.63				0.71				**0.94**
BICYCLE	3				1				0				0				**4**
PEDESTRIAN	9				9				7				1				**26**
	N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:	5				3				8				10				**26**

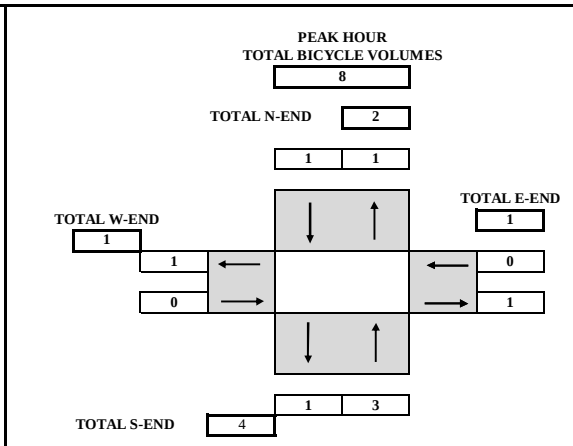
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S KNICKERBOCKER DRIVE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-2PM**





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	0	0	2	0	0	0	2	0	0	1	0	0	0	0	0	0	**5**
4:15 PM	to	4:30 PM	0	0	2	0	0	0	2	1	0	1	0	0	0	0	0	0	**6**
4:30 PM	to	4:45 PM	0	0	2	0	0	0	3	1	0	1	0	0	0	0	0	0	**7**
4:45 PM	to	5:00 PM	0	0	2	0	0	0	3	1	0	1	0	0	0	0	0	0	**7**
5:00 PM	to	5:15 PM	0	0	2	0	0	0	3	1	0	1	0	0	0	0	0	0	**7**
5:15 PM	to	5:30 PM	0	0	2	0	0	0	3	1	0	1	0	0	0	0	0	0	**7**
5:30 PM	to	5:45 PM	0	0	3	1	0	0	4	1	0	1	0	0	0	0	0	0	**10**
5:45 PM	to	6:00 PM	0	0	3	1	0	0	4	1	0	1	0	0	0	0	0	0	**10**
6:00 PM	to	6:15 PM	0	1	3	1	0	0	4	1	0	1	0	0	0	0	0	0	**11**
6:15 PM	to	6:30 PM	0	1	3	1	0	0	4	1	0	1	0	0	0	0	0	0	**11**
6:30 PM	to	6:45 PM	0	1	3	2	0	0	4	1	0	1	0	0	0	0	0	0	**12**
6:45 PM	to	7:00 PM	0	1	3	3	0	0	4	1	0	1	0	0	0	0	0	0	**13**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	2	0	0	0	2	0	0	1	0	0	0	0	0	0	**5**
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**1**
4:30 PM	to	4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 PM	to	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:15 PM	to	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:30 PM	to	5:45 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	**3**
5:45 PM	to	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 PM	to	6:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
6:15 PM	to	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:30 PM	to	6:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
6:45 PM	to	7:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	2	0	0	0	3	1	0	1	0	0	0	0	0	0	**7**
4:15 PM	to	5:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	**2**
4:30 PM	to	5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
4:45 PM	to	5:45 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	**3**
5:00 PM	to	6:00 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	**3**
5:15 PM	to	6:15 PM	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	**4**
5:30 PM	to	6:30 PM	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	**4**
5:45 PM	to	6:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**2**
6:00 PM	to	7:00 PM	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**3**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

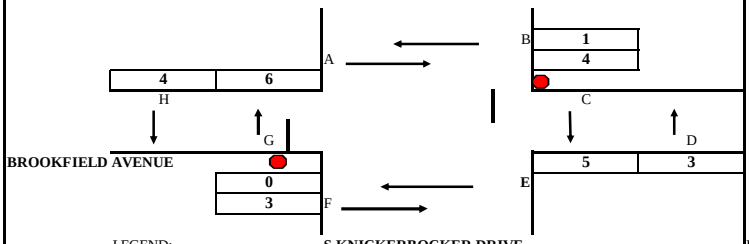
5:15 PM to 6:15 PM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	3	1	0	0	**4**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

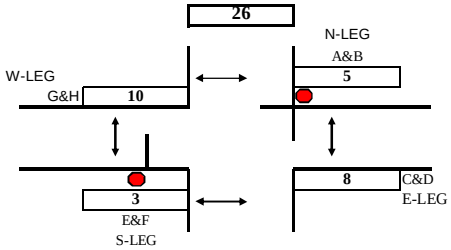
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S KNICKERBOCKER DRIVE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**4:00 PM TO 7:00 PM**	**FILE:**	**3805027-2PM**

PEAK HOUR: **5:15 PM** TO **6:15 PM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR TOTAL PEDESTRIAN VOLUMES



BY LEG:	
N-LEG	5
S-LEG	3
E-LEG	8
W-LEG	10

BY DIRECTION:	
NB(D+G)	9
SB(C+H)	9
EB(A+F)	7
WB(B+E)	1

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
04:00 PM	---	04:15 PM	0	0	2	2	0	0	0	1	***5***
04:15 PM	---	04:30 PM	0	0	2	2	1	1	0	2	***8***
04:30 PM	---	04:45 PM	0	0	3	3	2	1	1	2	***12***
04:45 PM	---	05:00 PM	1	1	3	3	3	1	4	2	***18***
05:00 PM	---	05:15 PM	1	3	4	4	5	1	6	4	***28***
05:15 PM	---	05:30 PM	1	4	4	4	5	1	6	6	***31***
05:30 PM	---	05:45 PM	5	4	6	6	5	1	11	8	***46***
05:45 PM	---	06:00 PM	5	4	8	7	5	1	12	8	***50***
06:00 PM	---	06:15 PM	5	4	9	7	5	4	12	8	***54***
06:15 PM	---	06:30 PM	7	5	10	7	7	4	15	9	***64***
06:30 PM	---	06:45 PM	7	5	10	8	8	4	15	9	***66***
06:45 PM	---	07:00 PM	7	5	11	10	8	4	17	10	***72***
TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	0	0	2	2	0	0	0	1	***5***
04:15 PM	---	04:30 PM	0	0	0	0	1	1	0	1	***3***
04:30 PM	---	04:45 PM	0	0	1	1	1	0	1	0	***4***
04:45 PM	---	05:00 PM	1	1	0	0	1	0	3	0	***6***
05:00 PM	---	05:15 PM	0	2	1	1	2	0	2	2	***10***
05:15 PM	---	05:30 PM	0	1	0	0	0	0	0	2	***3***
05:30 PM	---	05:45 PM	4	0	2	2	0	0	5	2	***15***
05:45 PM	---	06:00 PM	0	0	2	1	0	0	1	0	***4***
06:00 PM	---	06:15 PM	0	0	1	0	0	3	0	0	***4***
06:15 PM	---	06:30 PM	2	1	1	0	2	0	3	1	***10***
06:30 PM	---	06:45 PM	0	0	0	1	1	0	0	0	***2***
06:45 PM	---	07:00 PM	0	0	1	2	0	0	2	1	***6***
HOURLY TOTALS											
04:00 PM	---	05:00 PM	1	1	3	3	3	1	4	2	***18***
04:15 PM	---	05:15 PM	1	3	2	2	5	1	6	3	***23***
04:30 PM	---	05:30 PM	1	4	2	2	4	0	6	4	***23***
04:45 PM	---	05:45 PM	5	4	3	3	3	0	10	6	***34***
05:00 PM	---	06:00 PM	4	3	5	4	2	0	8	6	***32***
05:15 PM	---	06:15 PM	4	1	5	3	0	3	6	4	***26***
05:30 PM	---	06:30 PM	6	1	6	3	2	3	9	3	***33***
05:45 PM	---	06:45 PM	2	1	4	2	3	3	4	1	***20***
06:00 PM	---	07:00 PM	2	1	3	3	3	3	5	2	***22***

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5:15 PM	to	6:15 PM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		9	9	7	1	**26**
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		5	3	8	10	**26**

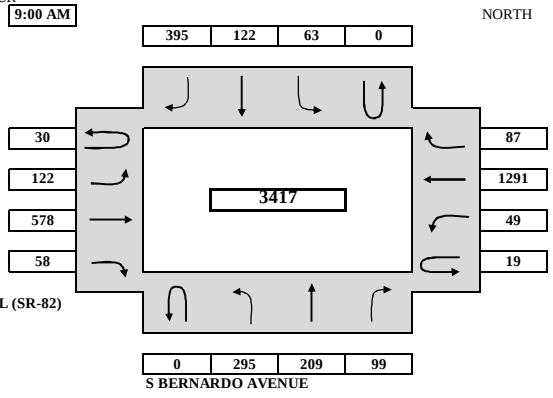
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

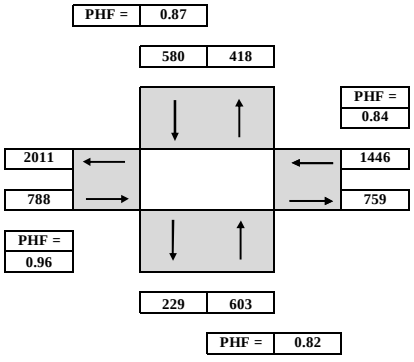
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**EL CAMINO REAL (SR-82)**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-2AM**

PEAK HOUR **8:00 AM** to **9:00 AM**

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		28	9	9		3	21	63	6	17	72	5	1	9	153	5	**401**
7:15 AM	to	7:30 AM		53	21	18		11	53	153	13	38	163	20	3	15	328	12	**901**
7:30 AM	to	7:45 AM		88	35	38		16	95	262	18	58	248	35	9	26	609	24	**1561**
7:45 AM	to	8:00 AM		126	68	45		35	140	367	25	90	358	46	10	41	874	44	**2269**
8:00 AM	to	8:15 AM		191	122	70		51	193	465	34	119	489	62	12	49	1170	67	**3094**
8:15 AM	to	8:30 AM		279	191	97		70	217	562	40	141	646	75	17	71	1533	89	**4028**
8:30 AM	to	8:45 AM		344	235	126		86	247	663	50	182	787	89	24	82	1924	112	**4951**
8:45 AM	to	9:00 AM		421	277	144		98	262	762	55	212	936	104	29	90	2165	131	**5686**
9:00 AM	to	9:15 AM		490	322	158		115	285	843	65	245	1119	120	37	103	2460	145	**6507**
9:15 AM	to	9:30 AM		578	360	178		122	310	934	73	272	1245	135	42	117	2705	166	**7237**
9:30 AM	to	9:45 AM		644	402	196		136	337	1043	85	294	1410	148	44	140	2987	190	**8056**
9:45 AM	to	10:00 AM		692	435	212		147	362	1125	97	318	1567	159	49	146	3240	212	**8761**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	28	9	9	0	3	21	63	6	17	72	5	1	9	153	5	**401**
7:15 AM	to	7:30 AM	0	25	12	9	0	8	32	90	7	21	91	15	2	6	175	7	**500**
7:30 AM	to	7:45 AM	0	35	14	20	0	5	42	109	5	20	85	15	6	11	281	12	**660**
7:45 AM	to	8:00 AM	0	38	33	7	0	19	45	105	7	32	110	11	1	15	265	20	**708**
8:00 AM	to	8:15 AM	0	65	54	25	0	16	53	98	9	29	131	16	2	8	296	23	**825**
8:15 AM	to	8:30 AM	0	88	69	27	0	19	24	97	6	22	157	13	5	22	363	22	**934**
8:30 AM	to	8:45 AM	0	65	44	29	0	16	30	101	10	41	141	14	7	11	391	23	**923**
8:45 AM	to	9:00 AM	0	77	42	18	0	12	15	99	5	30	149	15	5	8	241	19	**735**
9:00 AM	to	9:15 AM	0	69	45	14	0	17	23	81	10	33	183	16	8	13	295	14	**821**
9:15 AM	to	9:30 AM	0	88	38	20	0	7	25	91	8	27	126	15	5	14	245	21	**730**
9:30 AM	to	9:45 AM	0	66	42	18	0	14	27	109	12	22	165	13	2	23	282	24	**819**
9:45 AM	to	10:00 AM	0	48	33	16	0	11	25	82	12	24	157	11	5	6	253	22	**705**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	126	68	45	0	35	140	367	25	90	358	46	10	41	874	44	**2269**
7:15 AM	to	8:15 AM	0	163	113	61	0	48	172	402	28	102	417	57	11	40	1017	62	**2693**
7:30 AM	to	8:30 AM	0	226	170	79	0	59	164	409	27	103	483	55	14	56	1205	77	**3127**
7:45 AM	to	8:45 AM	0	256	200	88	0	70	152	401	32	124	539	54	15	56	1315	88	**3390**
8:00 AM	to	9:00 AM	0	295	209	99	0	63	122	395	30	122	578	58	19	49	1291	87	**3417**
8:15 AM	to	9:15 AM	0	299	200	88	0	64	92	378	31	126	630	58	25	54	1290	78	**3413**
8:30 AM	to	9:30 AM	0	299	169	81	0	52	93	372	33	131	599	60	25	46	1172	77	**3209**
8:45 AM	to	9:45 AM	0	300	167	70	0	50	90	380	35	112	623	59	20	58	1063	78	**3105**
9:00 AM	to	10:00 AM	0	271	158	68	0	49	100	363	42	106	631	55	20	56	1075	81	**3075**

PEAK HOUR SUMMARY

8:00 AM	to	9:00 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
			NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME			0	295	209	99	0	63	122	395	30	122	578	58	19	49	1291	87	**3417**
PHF BY MOVEMENT			0.00	0.84	0.76	0.85	0.00	0.83	0.58	0.98	0.75	0.74	0.92	0.91	0.68	0.56	0.83	0.95	OVERALL
PHF BY APPROACH				0.82				0.87				0.96				0.84			**0.91**
BICYCLE				6				3				1				2			**12**
PEDESTRIAN				25				22				14				5			**66**
				N-LEG				**S-LEG**				**E-LEG**				**W-LEG**			
PEDESTRIAN BY LEG:				9				10				10				37			**66**

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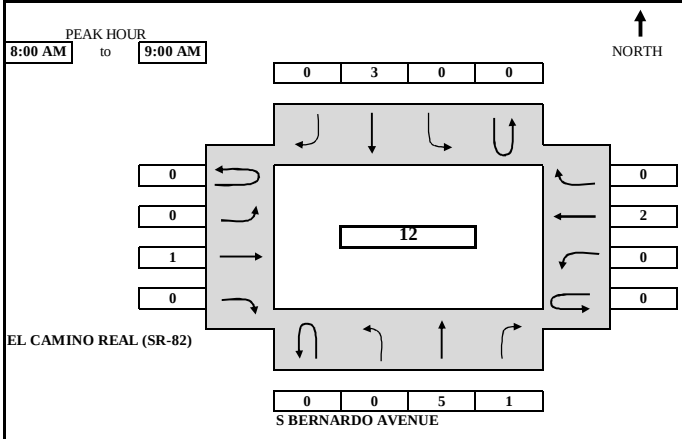
B.A.Y.M.E.T.R.I.C.S.

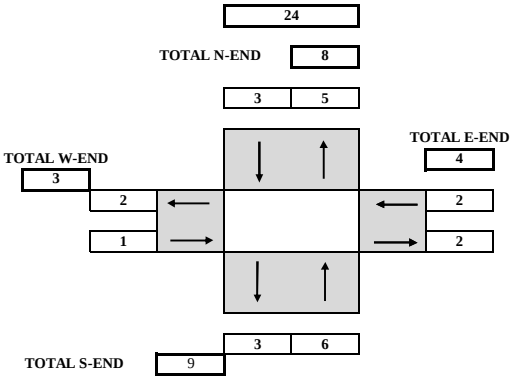
BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**EL CAMINO REAL (SR-82)**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-2AM**

PEAK HOUR **8:00 AM** to **9:00 AM**



PEAK HOUR TOTAL BICYCLE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	**3**
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	**3**
7:30 AM	to	7:45 AM	0	1	1	0	0	0	0	0	0	0	3	0	0	0	1	0	**6**
7:45 AM	to	8:00 AM	0	1	1	0	0	0	1	0	0	0	3	0	0	0	1	0	**7**
8:00 AM	to	8:15 AM	0	1	4	1	0	0	3	0	0	0	3	0	0	0	2	0	**14**
8:15 AM	to	8:30 AM	0	1	5	1	0	0	3	0	0	0	3	0	0	0	2	0	**15**
8:30 AM	to	8:45 AM	0	1	5	1	0	0	3	0	0	0	4	0	0	0	2	0	**16**
8:45 AM	to	9:00 AM	0	1	6	1	0	0	4	0	0	0	4	0	0	0	3	0	**19**
9:00 AM	to	9:15 AM	0	1	7	1	0	0	7	0	0	1	4	0	0	0	3	0	**24**
9:15 AM	to	9:30 AM	0	1	10	1	0	0	7	0	0	2	5	0	0	0	3	0	**29**
9:30 AM	to	9:45 AM	0	1	11	1	0	0	9	1	0	2	5	0	0	0	3	0	**33**
9:45 AM	to	10:00 AM	0	1	11	1	0	0	9	1	0	2	5	0	0	0	3	0	**33**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	**3**
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:30 AM	to	7:45 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	**3**
7:45 AM	to	8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
8:00 AM	to	8:15 AM	0	0	3	1	0	0	2	0	0	0	0	0	0	0	1	0	**7**
8:15 AM	to	8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	**1**
8:45 AM	to	9:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	**3**
9:00 AM	to	9:15 AM	0	0	1	0	0	0	3	0	0	1	0	0	0	0	0	0	**5**
9:15 AM	to	9:30 AM	0	0	3	0	0	0	0	0	0	1	1	0	0	0	0	0	**5**
9:30 AM	to	9:45 AM	0	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	**4**
9:45 AM	to	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	1	1	0	0	0	1	0	0	0	3	0	0	0	1	0	**7**
7:15 AM	to	8:15 AM	0	1	4	1	0	0	3	0	0	0	0	0	0	0	2	0	**11**
7:30 AM	to	8:30 AM	0	1	5	1	0	0	3	0	0	0	0	0	0	0	2	0	**12**
7:45 AM	to	8:45 AM	0	0	4	1	0	0	3	0	0	0	1	0	0	0	1	0	**10**
8:00 AM	to	9:00 AM	0	0	5	1	0	0	3	0	0	0	1	0	0	0	2	0	**12**
8:15 AM	to	9:15 AM	0	0	3	0	0	0	4	0	0	1	1	0	0	0	1	0	**10**
8:30 AM	to	9:30 AM	0	0	5	0	0	0	4	0	0	2	2	0	0	0	1	0	**14**
8:45 AM	to	9:45 AM	0	0	6	0	0	0	6	1	0	2	1	0	0	0	1	0	**17**
9:00 AM	to	10:00 AM	0	0	5	0	0	0	5	1	0	2	1	0	0	0	0	0	**14**

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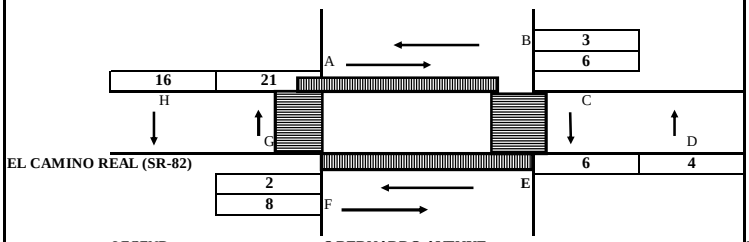
8:00 AM to 9:00 AM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	6	3	1	2	**12**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

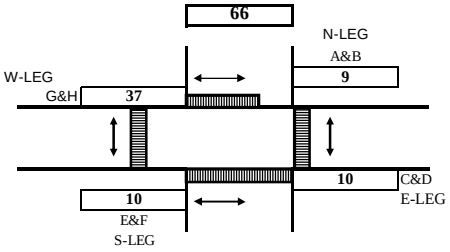
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**EL CAMINO REAL (SR-82)**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**7:00 AM TO 10:00 AM**	**FILE:**	**3805027-2AM**

PEAK HOUR: **8:00 AM** TO **9:00 AM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR TOTAL PEDESTRIAN VOLUMES



BY LEG:		BY DIRECTION:	
N-LEG	**9**	**NB**(D+G)	**25**
S-LEG	**10**	**SB**(C+H)	**22**
E-LEG	**10**	**EB**(A+F)	**14**
W-LEG	**37**	**WB**(B+E)	**5**

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
07:00 AM	---	07:15 AM	1	0	0	1	1	0	4	4	***11***
07:15 AM	---	07:30 AM	1	1	1	2	1	1	8	11	***26***
07:30 AM	---	07:45 AM	1	1	3	3	1	3	9	16	***37***
07:45 AM	---	08:00 AM	3	3	4	3	1	4	10	20	***48***
08:00 AM	---	08:15 AM	4	4	8	5	2	8	16	25	***72***
08:15 AM	---	08:30 AM	7	4	8	5	2	10	18	30	***84***
08:30 AM	---	08:45 AM	8	5	8	7	2	12	26	32	***100***
08:45 AM	---	09:00 AM	9	6	10	7	3	12	31	36	***114***
09:00 AM	---	09:15 AM	10	6	13	7	4	12	34	46	***132***
09:15 AM	---	09:30 AM	11	6	16	8	6	15	35	49	***146***
09:30 AM	---	09:45 AM	15	7	16	9	8	15	36	53	***159***
09:45 AM	---	10:00 AM	18	8	16	10	8	16	40	60	***176***
TOTAL BY PERIOD											
07:00 AM	---	07:15 AM	1	0	0	1	1	0	4	4	***11***
07:15 AM	---	07:30 AM	0	1	1	1	0	1	4	7	***15***
07:30 AM	---	07:45 AM	0	0	2	1	0	2	1	5	***11***
07:45 AM	---	08:00 AM	2	2	1	0	0	1	1	4	***11***
08:00 AM	---	08:15 AM	1	1	4	2	1	4	6	5	***24***
08:15 AM	---	08:30 AM	3	0	0	0	0	2	2	5	***12***
08:30 AM	---	08:45 AM	1	1	0	2	0	2	8	2	***16***
08:45 AM	---	09:00 AM	1	1	2	0	1	0	5	4	***14***
09:00 AM	---	09:15 AM	1	0	3	0	1	0	3	10	***18***
09:15 AM	---	09:30 AM	1	0	3	1	2	3	1	3	***14***
09:30 AM	---	09:45 AM	4	1	0	1	2	0	1	4	***13***
09:45 AM	---	10:00 AM	3	1	0	1	0	1	4	7	***17***
HOURLY TOTALS											
07:00 AM	---	08:00 AM	3	3	4	3	1	4	10	20	***48***
07:15 AM	---	08:15 AM	3	4	8	4	1	8	12	21	***61***
07:30 AM	---	08:30 AM	6	3	7	3	1	9	10	19	***58***
07:45 AM	---	08:45 AM	7	4	5	4	1	9	17	16	***63***
08:00 AM	---	09:00 AM	6	3	6	4	2	8	21	16	***66***
08:15 AM	---	09:15 AM	6	2	5	2	2	4	18	21	***60***
08:30 AM	---	09:30 AM	4	2	8	3	4	5	17	19	***62***
08:45 AM	---	09:45 AM	7	2	8	2	6	3	10	21	***59***
09:00 AM	---	10:00 AM	9	2	6	3	5	4	9	24	***62***

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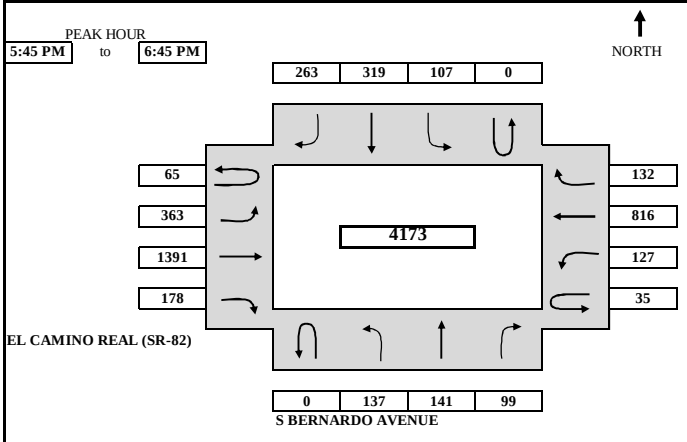
8:00 AM	to	9:00 AM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		25	22	14	5	**66**
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		9	10	10	37	**66**

B.A.Y.M.E.T.R.I.C.S.

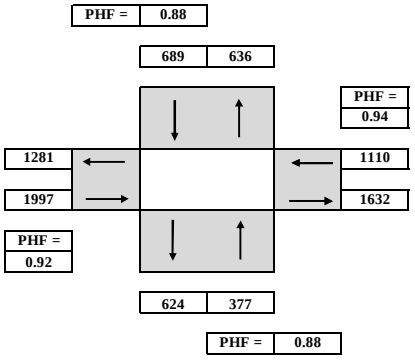
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**EL CAMINO REAL (SR-82)**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-2PM**

PEAK HOUR **5:45 PM** to **6:45 PM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		36	27	18		15	42	36	10	67	319	37	6	30	178	28	**849**
4:15 PM	to	4:30 PM		70	66	37		28	75	82	18	128	652	76	12	65	364	54	**1727**
4:30 PM	to	4:45 PM		103	103	58		51	117	134	25	174	932	110	18	90	551	79	**2545**
4:45 PM	to	5:00 PM		134	135	79		69	168	187	33	238	1232	154	26	113	767	97	**3432**
5:00 PM	to	5:15 PM		169	156	98		89	233	241	44	306	1580	202	31	144	947	110	**4350**
5:15 PM	to	5:30 PM		215	196	123		116	304	298	50	385	1913	255	38	173	1156	146	**5368**
5:30 PM	to	5:45 PM		250	239	145		146	376	356	57	466	2258	319	45	200	1329	170	**6356**
5:45 PM	to	6:00 PM		277	273	174		170	476	427	71	582	2611	376	57	243	1528	211	**7476**
6:00 PM	to	6:15 PM		304	309	204		192	560	487	82	663	2977	415	65	272	1717	242	**8489**
6:15 PM	to	6:30 PM		344	343	217		216	636	556	101	750	3305	458	65	304	1942	277	**9514**
6:30 PM	to	6:45 PM		387	380	244		253	695	619	122	829	3649	497	80	327	2145	302	**10529**
6:45 PM	to	7:00 PM		409	420	267		277	737	676	135	922	3981	534	87	368	2345	341	**11499**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	36	27	18	0	15	42	36	10	67	319	37	6	30	178	28	**849**
4:15 PM	to	4:30 PM	0	34	39	19	0	13	33	46	8	61	333	39	6	35	186	26	**878**
4:30 PM	to	4:45 PM	0	33	37	21	0	23	42	52	7	46	280	34	6	25	187	25	**818**
4:45 PM	to	5:00 PM	0	31	32	21	0	18	51	53	8	64	300	44	8	23	216	18	**887**
5:00 PM	to	5:15 PM	0	35	21	19	0	20	65	54	11	68	348	48	5	31	180	13	**918**
5:15 PM	to	5:30 PM	0	46	40	25	0	27	71	57	6	79	333	53	7	29	209	36	**1018**
5:30 PM	to	5:45 PM	0	35	43	22	0	30	72	58	7	81	345	64	7	27	173	24	**988**
5:45 PM	to	6:00 PM	0	27	34	29	0	24	100	71	14	116	353	57	12	43	199	41	**1120**
6:00 PM	to	6:15 PM	0	27	36	30	0	22	84	60	11	81	366	39	8	29	189	31	**1013**
6:15 PM	to	6:30 PM	0	40	34	13	0	24	76	69	19	87	328	43	0	32	225	35	**1025**
6:30 PM	to	6:45 PM	0	43	37	27	0	37	59	63	21	79	344	39	15	23	203	25	**1015**
6:45 PM	to	7:00 PM	0	22	40	23	0	24	42	57	13	93	332	37	7	41	200	39	**970**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	134	135	79	0	69	168	187	33	238	1232	154	26	113	767	97	**3432**
4:15 PM	to	5:15 PM	0	133	129	80	0	74	191	205	34	239	1261	165	25	114	769	82	**3501**
4:30 PM	to	5:30 PM	0	145	130	86	0	88	229	216	32	257	1261	179	26	108	792	92	**3641**
4:45 PM	to	5:45 PM	0	147	136	87	0	95	259	222	32	292	1326	209	27	110	778	91	**3811**
5:00 PM	to	6:00 PM	0	143	138	95	0	101	308	240	38	344	1379	222	31	130	761	114	**4044**
5:15 PM	to	6:15 PM	0	135	153	106	0	103	327	246	38	357	1397	213	34	128	770	132	**4139**
5:30 PM	to	6:30 PM	0	129	147	94	0	100	332	258	51	365	1392	203	27	131	786	131	**4146**
5:45 PM	to	6:45 PM	0	137	141	99	0	107	319	263	65	363	1391	178	35	127	816	132	**4173**
6:00 PM	to	7:00 PM	0	132	147	93	0	107	261	249	64	340	1370	158	30	125	817	130	**4023**

PEAK HOUR SUMMARY

5:45 PM	to	6:45 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
			NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME			0	137	141	99	0	107	319	263	65	363	1391	178	35	127	816	132	**4173**
PHF BY MOVEMENT			0.00	0.80	0.95	0.83	0.00	0.72	0.80	0.93	0.77	0.78	0.95	0.78	0.58	0.74	0.91	0.80	OVERALL
PHF BY APPROACH				0.88				0.88				0.92				0.94			**0.93**
BICYCLE				3				0				0				4			**7**
PEDESTRIAN				45				45				30				17			**137**
				N-LEG				**S-LEG**				**E-LEG**				**W-LEG**			
PEDESTRIAN BY LEG:				37				10				11				79			**137**

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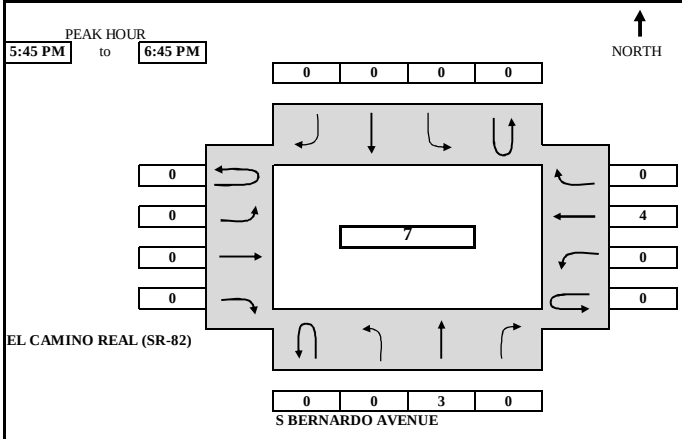
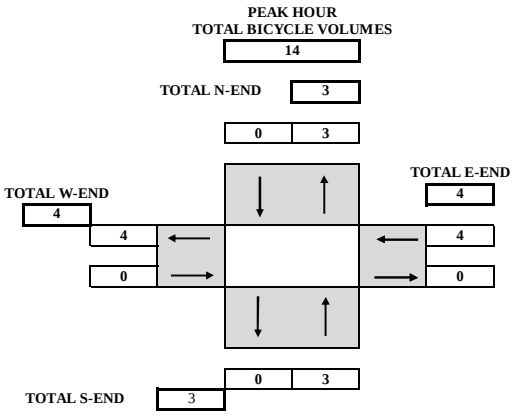
B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**EL CAMINO REAL (SR-82)**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-2PM**





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	**3**
4:15 PM	to	4:30 PM	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	1	**5**
4:30 PM	to	4:45 PM	0	0	1	0	0	0	0	0	0	2	0	1	0	0	1	1	**6**
4:45 PM	to	5:00 PM	0	0	1	0	0	0	0	0	0	2	0	1	0	0	1	2	**7**
5:00 PM	to	5:15 PM	0	0	2	0	0	0	0	0	0	2	0	1	0	0	4	2	**11**
5:15 PM	to	5:30 PM	0	0	2	0	0	0	0	0	0	2	0	2	0	0	5	2	**13**
5:30 PM	to	5:45 PM	0	0	3	0	0	0	0	0	0	2	0	2	0	0	6	2	**15**
5:45 PM	to	6:00 PM	0	0	3	0	0	0	0	0	0	2	0	2	0	0	9	2	**18**
6:00 PM	to	6:15 PM	0	0	5	0	0	0	0	0	0	2	0	2	0	0	9	2	**20**
6:15 PM	to	6:30 PM	0	0	5	0	0	0	0	0	0	2	0	2	0	0	9	2	**20**
6:30 PM	to	6:45 PM	0	0	6	0	0	0	0	0	0	2	0	2	0	0	10	2	**22**
6:45 PM	to	7:00 PM	0	0	6	0	0	0	0	0	0	2	0	2	0	0	11	2	**23**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	**3**
4:15 PM	to	4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	**2**
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**1**
5:00 PM	to	5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	**4**
5:15 PM	to	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	**2**
5:30 PM	to	5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	**2**
5:45 PM	to	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	**3**
6:00 PM	to	6:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
6:15 PM	to	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:30 PM	to	6:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	**2**
6:45 PM	to	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	1	0	0	0	0	0	0	2	0	1	0	0	1	2	**7**
4:15 PM	to	5:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	2	**8**
4:30 PM	to	5:30 PM	0	0	1	0	0	0	0	0	0	0	0	1	0	0	5	1	**8**
4:45 PM	to	5:45 PM	0	0	2	0	0	0	0	0	0	0	0	1	0	0	5	1	**9**
5:00 PM	to	6:00 PM	0	0	2	0	0	0	0	0	0	0	0	1	0	0	8	0	**11**
5:15 PM	to	6:15 PM	0	0	3	0	0	0	0	0	0	0	0	1	0	0	5	0	**9**
5:30 PM	to	6:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0	**7**
5:45 PM	to	6:45 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0	**7**
6:00 PM	to	7:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	**5**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

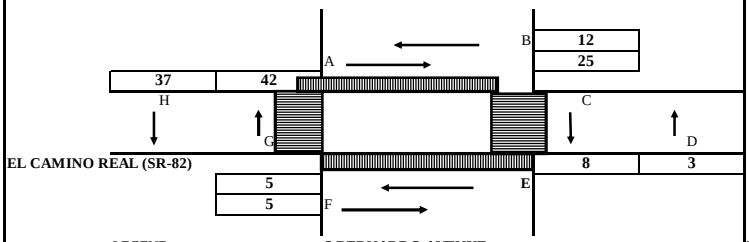
5:45 PM to 6:45 PM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	3	0	0	4	**7**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

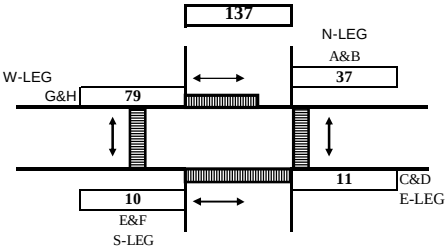
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**EL CAMINO REAL (SR-82)**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**4:00 PM TO 7:00 PM**	**FILE:**	**3805027-2PM**

PEAK HOUR **5:45 PM** TO **6:45 PM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR TOTAL PEDESTRIAN VOLUMES



BY LEG:		**BY DIRECTION:**	
N-LEG	**37**	**NB**(D+G)	**45**
S-LEG	**10**	**SB**(C+H)	**45**
E-LEG	**11**	**EB**(A+F)	**30**
W-LEG	**79**	**WB**(B+E)	**17**

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
04:00 PM	---	04:15 PM	1	4	6	1	4	0	7	8	***31***
04:15 PM	---	04:30 PM	6	6	8	1	4	2	12	10	***49***
04:30 PM	---	04:45 PM	10	6	8	1	4	2	18	18	***67***
04:45 PM	---	05:00 PM	19	9	9	2	4	3	26	20	***92***
05:00 PM	---	05:15 PM	21	9	10	2	6	4	33	26	***111***
05:15 PM	---	05:30 PM	21	10	10	4	7	8	37	32	***129***
05:30 PM	---	05:45 PM	23	10	10	4	7	8	42	33	***137***
05:45 PM	---	06:00 PM	30	12	10	6	7	11	53	41	***170***
06:00 PM	---	06:15 PM	37	15	14	6	7	12	61	45	***197***
06:15 PM	---	06:30 PM	37	17	14	7	7	13	68	57	***220***
06:30 PM	---	06:45 PM	48	22	18	7	12	13	84	70	***274***
06:45 PM	---	07:00 PM	50	28	18	8	12	13	91	78	***298***
TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	1	4	6	1	4	0	7	8	***31***
04:15 PM	---	04:30 PM	5	2	2	0	0	2	5	2	***18***
04:30 PM	---	04:45 PM	4	0	0	0	0	0	6	8	***18***
04:45 PM	---	05:00 PM	9	3	1	1	0	1	8	2	***25***
05:00 PM	---	05:15 PM	2	0	1	0	2	1	7	6	***19***
05:15 PM	---	05:30 PM	0	1	0	2	1	4	4	6	***18***
05:30 PM	---	05:45 PM	2	0	0	0	0	0	5	1	***8***
05:45 PM	---	06:00 PM	7	2	0	2	0	3	11	8	***33***
06:00 PM	---	06:15 PM	7	3	4	0	0	1	8	4	***27***
06:15 PM	---	06:30 PM	0	2	0	1	0	1	7	12	***23***
06:30 PM	---	06:45 PM	11	5	4	0	5	0	16	13	***54***
06:45 PM	---	07:00 PM	2	6	0	1	0	0	7	8	***24***
HOURLY TOTALS											
04:00 PM	---	05:00 PM	19	9	9	2	4	3	26	20	***92***
04:15 PM	---	05:15 PM	20	5	4	1	2	4	26	18	***80***
04:30 PM	---	05:30 PM	15	4	2	3	3	6	25	22	***80***
04:45 PM	---	05:45 PM	13	4	2	3	3	6	24	15	***70***
05:00 PM	---	06:00 PM	11	3	1	4	3	8	27	21	***78***
05:15 PM	---	06:15 PM	16	6	4	4	1	8	28	19	***86***
05:30 PM	---	06:30 PM	16	7	4	3	0	5	31	25	***91***
05:45 PM	---	06:45 PM	25	12	8	3	5	5	42	37	***137***
06:00 PM	---	07:00 PM	20	16	8	2	5	2	38	37	***128***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

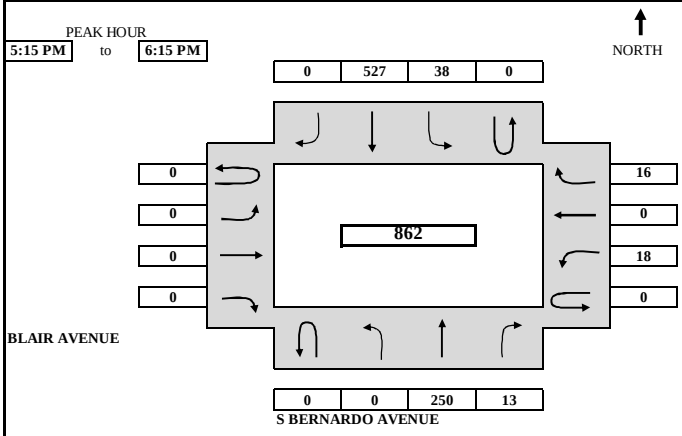
5:45 PM	to	6:45 PM					
VOLUME BY DIRECTION			NB	SB	EB	WB	TOTAL
PEDESTRIAN			45	45	30	17	**137**
VOLUME BY LEG			N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN			37	10	11	79	**137**

B.A.Y.M.E.T.R.I.C.S.

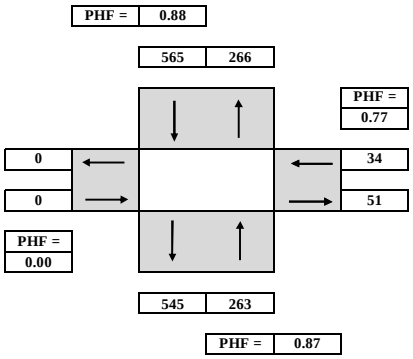
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**BLAIR AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-3PM**

PEAK HOUR **5:15 PM** to **6:15 PM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM			47	6		5	80							1		7	**146**
4:15 PM	to	4:30 PM			111	8		11	155							3		12	**300**
4:30 PM	to	4:45 PM			167	11		14	229							4		18	**443**
4:45 PM	to	5:00 PM			218	14		20	330							5		20	**607**
5:00 PM	to	5:15 PM			271	18		26	436							6		24	**781**
5:15 PM	to	5:30 PM			344	19		37	557							10		27	**994**
5:30 PM	to	5:45 PM			395	25		45	710							16		32	**1223**
5:45 PM	to	6:00 PM			449	27		55	849							19		37	**1436**
6:00 PM	to	6:15 PM			521	31		64	963							24		40	**1643**
6:15 PM	to	6:30 PM			575	38		71	1078							34		45	**1841**
6:30 PM	to	6:45 PM			640	44		77	1171							36		48	**2016**
6:45 PM	to	7:00 PM			680	48		80	1255							39		53	**2155**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	47	6	0	5	80	0	0	0	0	0	0	1	0	7	**146**
4:15 PM	to	4:30 PM	0	0	64	2	0	6	75	0	0	0	0	0	0	2	0	5	**154**
4:30 PM	to	4:45 PM	0	0	56	3	0	3	74	0	0	0	0	0	0	1	0	6	**143**
4:45 PM	to	5:00 PM	0	0	51	3	0	6	101	0	0	0	0	0	0	1	0	2	**164**
5:00 PM	to	5:15 PM	0	0	53	4	0	6	106	0	0	0	0	0	0	1	0	4	**174**
5:15 PM	to	5:30 PM	0	0	73	1	0	11	121	0	0	0	0	0	0	4	0	3	**213**
5:30 PM	to	5:45 PM	0	0	51	6	0	8	153	0	0	0	0	0	0	6	0	5	**229**
5:45 PM	to	6:00 PM	0	0	54	2	0	10	139	0	0	0	0	0	0	3	0	5	**213**
6:00 PM	to	6:15 PM	0	0	72	4	0	9	114	0	0	0	0	0	0	5	0	3	**207**
6:15 PM	to	6:30 PM	0	0	54	7	0	7	115	0	0	0	0	0	0	10	0	5	**198**
6:30 PM	to	6:45 PM	0	0	65	6	0	6	93	0	0	0	0	0	0	2	0	3	**175**
6:45 PM	to	7:00 PM	0	0	40	4	0	3	84	0	0	0	0	0	0	3	0	5	**139**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	218	14	0	20	330	0	0	0	0	0	0	5	0	20	**607**
4:15 PM	to	5:15 PM	0	0	224	12	0	21	356	0	0	0	0	0	0	5	0	17	**635**
4:30 PM	to	5:30 PM	0	0	233	11	0	26	402	0	0	0	0	0	0	7	0	15	**694**
4:45 PM	to	5:45 PM	0	0	228	14	0	31	481	0	0	0	0	0	0	12	0	14	**780**
5:00 PM	to	6:00 PM	0	0	231	13	0	35	519	0	0	0	0	0	0	14	0	17	**829**
5:15 PM	to	6:15 PM	0	0	250	13	0	38	527	0	0	0	0	0	0	18	0	16	**862**
5:30 PM	to	6:30 PM	0	0	231	19	0	34	521	0	0	0	0	0	0	24	0	18	**847**
5:45 PM	to	6:45 PM	0	0	245	19	0	32	461	0	0	0	0	0	0	20	0	16	**793**
6:00 PM	to	7:00 PM	0	0	231	21	0	25	406	0	0	0	0	0	0	20	0	16	**719**

PEAK HOUR SUMMARY

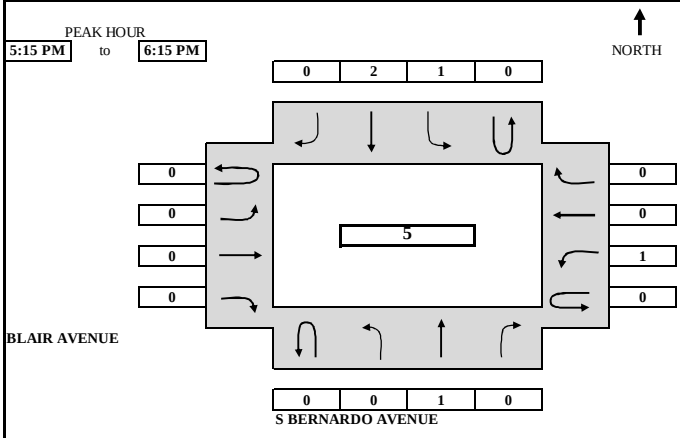
5:15 PM to 6:15 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	0	250	13	0	38	527	0	0	0	0	0	0	18	0	16	**862**
PHF BY MOVEMENT	0.00	0.00	0.86	0.54	0.00	0.86	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.80	OVERALL
PHF BY APPROACH	0.87				0.88				0.00				0.77				**0.94**
BICYCLE	1				3				0				1				**5**
PEDESTRIAN	2				8				11				5				**26**
	N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:	16				0				10				0				**26**

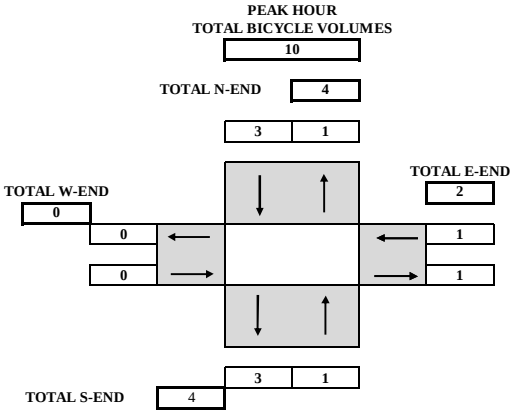
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN SUNNYVALE	**SURVEY DATE:**	5/15/2018	**DAY:**	TUESDAY
N-S APPROACH:	S BERNARDO AVENUE	**SURVEY TIME:**	4:00 PM	**TO**	7:00 PM
E-W APPROACH:	BLAIR AVENUE	**JURISDICTION:**	SUNNYVALE	**FILE:**	3805027-3PM





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	**3**
4:15 PM	to	4:30 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	**3**
4:30 PM	to	4:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	**3**
4:45 PM	to	5:00 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	**3**
5:00 PM	to	5:15 PM	0	0	2	0	0	0	4	0	0	0	0	0	0	1	0	0	**7**
5:15 PM	to	5:30 PM	0	0	2	0	0	1	6	0	0	0	0	0	0	1	0	0	**10**
5:30 PM	to	5:45 PM	0	0	2	0	0	1	6	0	0	0	0	0	0	1	0	0	**10**
5:45 PM	to	6:00 PM	0	0	3	0	0	1	6	0	0	0	0	0	0	2	0	0	**12**
6:00 PM	to	6:15 PM	0	0	3	0	0	1	6	0	0	0	0	0	0	2	0	0	**12**
6:15 PM	to	6:30 PM	0	0	4	0	0	1	7	0	0	0	0	0	0	2	0	0	**14**
6:30 PM	to	6:45 PM	0	0	4	0	0	1	7	0	0	0	0	0	0	2	0	0	**14**
6:45 PM	to	7:00 PM	0	0	4	1	0	1	7	0	0	0	0	0	0	2	0	0	**15**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	**3**
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 PM	to	5:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	**4**
5:15 PM	to	5:30 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	**3**
5:30 PM	to	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:45 PM	to	6:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	**2**
6:00 PM	to	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:15 PM	to	6:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
6:30 PM	to	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:45 PM	to	7:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	**3**
4:15 PM	to	5:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	**4**
4:30 PM	to	5:30 PM	0	0	1	0	0	1	4	0	0	0	0	0	0	1	0	0	**7**
4:45 PM	to	5:45 PM	0	0	1	0	0	1	4	0	0	0	0	0	0	1	0	0	**7**
5:00 PM	to	6:00 PM	0	0	2	0	0	1	4	0	0	0	0	0	0	2	0	0	**9**
5:15 PM	to	6:15 PM	0	0	1	0	0	1	2	0	0	0	0	0	0	1	0	0	**5**
5:30 PM	to	6:30 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	**4**
5:45 PM	to	6:45 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	**4**
6:00 PM	to	7:00 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	**3**

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5:15 PM to 6:15 PM

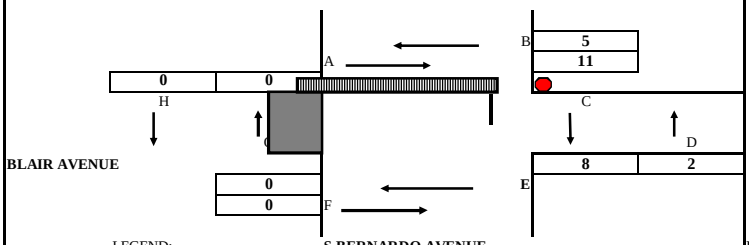
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	1	3	0	1	**5**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

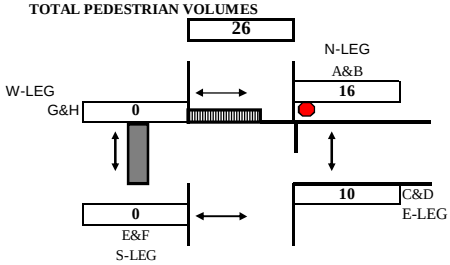
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**			**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**			**DAY:**	**TUESDAY**
E-W APPROACH:	**BLAIR AVENUE**			**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**4:00 PM**	**TO**	**7:00 PM**	**FILE:**	**3805027-3PM**

PEAK HOUR
5:15 PM TO **6:15 PM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES
26



BY LEG:		**BY DIRECTION:**	
N-LEG	**16**	**NB**(D+G)	**2**
S-LEG	**0**	**SB**(C+H)	**8**
E-LEG	**10**	**EB**(A+F)	**11**
W-LEG	**0**	**WB**(B+E)	**5**

TIME PERIOD			**NORTH X-WALK**		**EAST X-WALK**		**SOUTH X-WALK**		**WEST X-WALK**		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
04:00 PM	---	04:15 PM	0	0	0	1	0	0	0	0	***1***
04:15 PM	---	04:30 PM	0	0	1	1	0	1	0	0	***3***
04:30 PM	---	04:45 PM	0	2	2	1	0	1	0	0	***6***
04:45 PM	---	05:00 PM	1	2	2	1	0	1	0	0	***7***
05:00 PM	---	05:15 PM	3	3	2	1	0	1	0	0	***10***
05:15 PM	---	05:30 PM	9	3	4	2	0	1	0	0	***19***
05:30 PM	---	05:45 PM	11	6	7	2	0	1	0	0	***27***
05:45 PM	---	06:00 PM	11	8	10	3	0	1	0	0	***33***
06:00 PM	---	06:15 PM	14	8	10	3	0	1	0	0	***36***
06:15 PM	---	06:30 PM	15	8	10	3	0	1	0	0	***37***
06:30 PM	---	06:45 PM	17	8	11	4	0	1	0	0	***41***
06:45 PM	---	07:00 PM	17	8	12	4	0	1	0	0	***42***
TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	0	0	0	1	0	0	0	0	***1***
04:15 PM	---	04:30 PM	0	0	1	0	0	1	0	0	***2***
04:30 PM	---	04:45 PM	0	2	1	0	0	0	0	0	***3***
04:45 PM	---	05:00 PM	1	0	0	0	0	0	0	0	***1***
05:00 PM	---	05:15 PM	2	1	0	0	0	0	0	0	***3***
05:15 PM	---	05:30 PM	6	0	2	1	0	0	0	0	***9***
05:30 PM	---	05:45 PM	2	3	3	0	0	0	0	0	***8***
05:45 PM	---	06:00 PM	0	2	3	1	0	0	0	0	***6***
06:00 PM	---	06:15 PM	3	0	0	0	0	0	0	0	***3***
06:15 PM	---	06:30 PM	1	0	0	0	0	0	0	0	***1***
06:30 PM	---	06:45 PM	2	0	1	1	0	0	0	0	***4***
06:45 PM	---	07:00 PM	0	0	1	0	0	0	0	0	***1***
HOURLY TOTALS											
04:00 PM	---	05:00 PM	1	2	2	1	0	1	0	0	***7***
04:15 PM	---	05:15 PM	3	3	2	0	0	1	0	0	***9***
04:30 PM	---	05:30 PM	9	3	3	1	0	0	0	0	***16***
04:45 PM	---	05:45 PM	11	4	5	1	0	0	0	0	***21***
05:00 PM	---	06:00 PM	10	6	8	2	0	0	0	0	***26***
05:15 PM	---	06:15 PM	11	5	8	2	0	0	0	0	***26***
05:30 PM	---	06:30 PM	6	5	6	1	0	0	0	0	***18***
05:45 PM	---	06:45 PM	6	2	4	2	0	0	0	0	***14***
06:00 PM	---	07:00 PM	6	0	2	1	0	0	0	0	***9***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

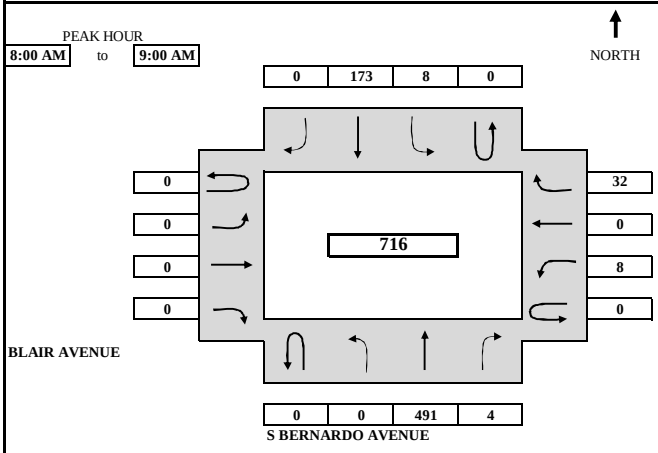
5:15 PM	to	6:15 PM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		2	8	11	5	**26**
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		16	0	10	0	**26**

B.A.Y.M.E.T.R.I.C.S.

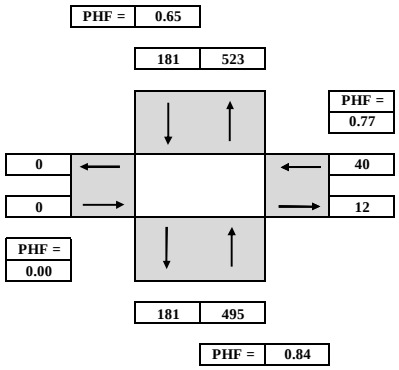
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**BLAIR AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-3AM**

PEAK HOUR **8:00 AM** to **9:00 AM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM			35	3		0	26							0		3	**67**
7:15 AM	to	7:30 AM			68	4		2	67							1		8	**150**
7:30 AM	to	7:45 AM			124	5		2	130							4		17	**282**
7:45 AM	to	8:00 AM			198	6		4	179							9		21	**417**
8:00 AM	to	8:15 AM			316	8		7	246							10		33	**620**
8:15 AM	to	8:30 AM			461	10		8	284							12		41	**816**
8:30 AM	to	8:45 AM			580	10		9	324							14		49	**986**
8:45 AM	to	9:00 AM			689	10		12	352							17		53	**1133**
9:00 AM	to	9:15 AM			811	10		14	396							18		62	**1311**
9:15 AM	to	9:30 AM			928	11		15	436							19		65	**1474**
9:30 AM	to	9:45 AM			1040	14		18	481							20		71	**1644**
9:45 AM	to	10:00 AM			1120	16		20	511							21		74	**1762**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	35	3	0	0	26	0	0	0	0	0	0	0	0	3	**67**
7:15 AM	to	7:30 AM	0	0	33	1	0	2	41	0	0	0	0	0	0	1	0	5	**83**
7:30 AM	to	7:45 AM	0	0	56	1	0	0	63	0	0	0	0	0	0	3	0	9	**132**
7:45 AM	to	8:00 AM	0	0	74	1	0	2	49	0	0	0	0	0	0	5	0	4	**135**
8:00 AM	to	8:15 AM	0	0	118	2	0	3	67	0	0	0	0	0	0	1	0	12	**203**
8:15 AM	to	8:30 AM	0	0	145	2	0	1	38	0	0	0	0	0	0	2	0	8	**196**
8:30 AM	to	8:45 AM	0	0	119	0	0	1	40	0	0	0	0	0	0	2	0	8	**170**
8:45 AM	to	9:00 AM	0	0	109	0	0	3	28	0	0	0	0	0	0	3	0	4	**147**
9:00 AM	to	9:15 AM	0	0	122	0	0	2	44	0	0	0	0	0	0	1	0	9	**178**
9:15 AM	to	9:30 AM	0	0	117	1	0	1	40	0	0	0	0	0	0	1	0	3	**163**
9:30 AM	to	9:45 AM	0	0	112	3	0	3	45	0	0	0	0	0	0	1	0	6	**170**
9:45 AM	to	10:00 AM	0	0	80	2	0	2	30	0	0	0	0	0	0	1	0	3	**118**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	198	6	0	4	179	0	0	0	0	0	0	9	0	21	**417**
7:15 AM	to	8:15 AM	0	0	281	5	0	7	220	0	0	0	0	0	0	10	0	30	**553**
7:30 AM	to	8:30 AM	0	0	393	6	0	6	217	0	0	0	0	0	0	11	0	33	**666**
7:45 AM	to	8:45 AM	0	0	456	5	0	7	194	0	0	0	0	0	0	10	0	32	**704**
8:00 AM	to	9:00 AM	0	0	491	4	0	8	173	0	0	0	0	0	0	8	0	32	**716**
8:15 AM	to	9:15 AM	0	0	495	2	0	7	150	0	0	0	0	0	0	8	0	29	**691**
8:30 AM	to	9:30 AM	0	0	467	1	0	7	152	0	0	0	0	0	0	7	0	24	**658**
8:45 AM	to	9:45 AM	0	0	460	4	0	9	157	0	0	0	0	0	0	6	0	22	**658**
9:00 AM	to	10:00 AM	0	0	431	6	0	8	159	0	0	0	0	0	0	4	0	21	**629**

PEAK HOUR SUMMARY

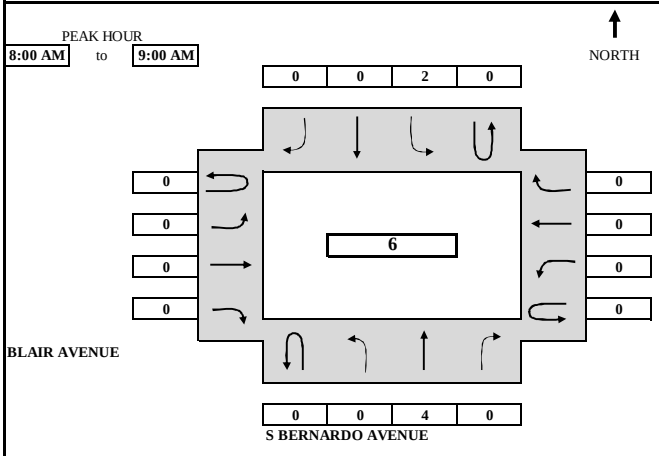
8:00 AM to 9:00 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	0	491	4	0	8	173	0	0	0	0	0	0	8	0	32	**716**
PHF BY MOVEMENT	0.00	0.00	0.85	0.50	0.00	0.67	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.67	OVERALL
PHF BY APPROACH	0.84				0.65				0.00				0.77				**0.88**
BICYCLE	4				2				0				0				**6**
PEDESTRIAN	0				4				2				1				**7**
	N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:	3				0				4				0				**7**

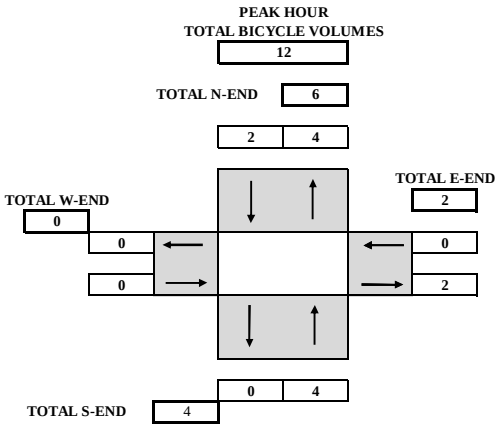
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**BLAIR AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-3AM**





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
7:15 AM	to	7:30 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	**4**
7:30 AM	to	7:45 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	**4**
7:45 AM	to	8:00 AM	0	0	2	2	0	0	0	0	0	0	0	0	0	1	0	0	**5**
8:00 AM	to	8:15 AM	0	0	4	2	0	2	0	0	0	0	0	0	0	1	0	0	**9**
8:15 AM	to	8:30 AM	0	0	5	2	0	2	0	0	0	0	0	0	0	1	0	0	**10**
8:30 AM	to	8:45 AM	0	0	5	2	0	2	0	0	0	0	0	0	0	1	0	0	**10**
8:45 AM	to	9:00 AM	0	0	6	2	0	2	0	0	0	0	0	0	0	1	0	0	**11**
9:00 AM	to	9:15 AM	0	0	7	2	0	2	1	0	0	0	0	0	0	1	0	1	**14**
9:15 AM	to	9:30 AM	0	0	7	2	0	2	3	0	0	0	0	0	0	1	0	1	**16**
9:30 AM	to	9:45 AM	0	0	8	2	0	2	4	0	0	0	0	0	0	1	0	1	**18**
9:45 AM	to	10:00 AM	0	0	8	2	0	2	5	0	0	0	0	0	0	1	0	1	**19**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
7:15 AM	to	7:30 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	**3**
7:30 AM	to	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:45 AM	to	8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
8:00 AM	to	8:15 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	**4**
8:15 AM	to	8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:45 AM	to	9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
9:00 AM	to	9:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	**3**
9:15 AM	to	9:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	**2**
9:30 AM	to	9:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
9:45 AM	to	10:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	2	2	0	0	0	0	0	0	0	0	0	1	0	0	**5**
7:15 AM	to	8:15 AM	0	0	4	1	0	2	0	0	0	0	0	0	0	1	0	0	**8**
7:30 AM	to	8:30 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	**6**
7:45 AM	to	8:45 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	**6**
8:00 AM	to	9:00 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	**6**
8:15 AM	to	9:15 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1	**5**
8:30 AM	to	9:30 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	1	**6**
8:45 AM	to	9:45 AM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	1	**8**
9:00 AM	to	10:00 AM	0	0	2	0	0	0	5	0	0	0	0	0	0	0	0	1	**8**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

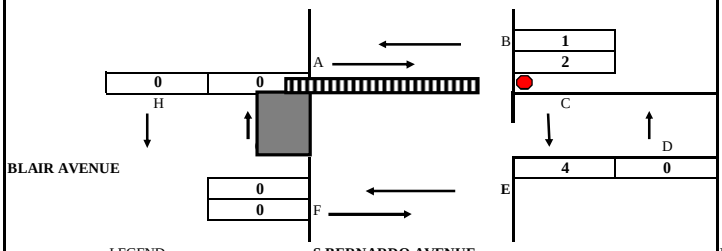
8:00 AM to 9:00 AM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	4	2	0	0	**6**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

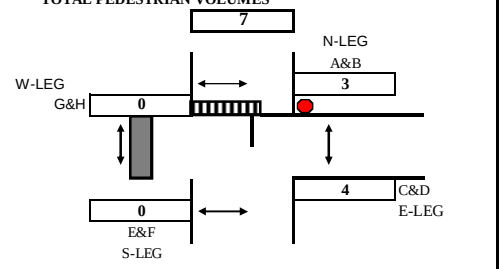
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**			**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**			**DAY:**	**TUESDAY**
E-W APPROACH:	**BLAIR AVENUE**			**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**7:00 AM**	**TO**	**10:00 AM**	**FILE:**	**3805027-3AM**

PEAK HOUR
8:00 AM TO **9:00 AM**



LEGEND:
S BERNARDO AVENUE
CROSSWALK
SIDEWALK
STOP CONTROL LINE
STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES



BY LEG:		**BY DIRECTION:**	
N-LEG	3	**NB**(D+G)	0
S-LEG	0	**SB**(C+H)	4
E-LEG	4	**EB**(A+F)	2
W-LEG	0	**WB**(B+E)	1

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
07:00 AM	---	07:15 AM	0	1	1	0	0	0	0	0	***2***
07:15 AM	---	07:30 AM	1	1	1	0	0	0	0	0	***3***
07:30 AM	---	07:45 AM	5	2	1	0	0	0	0	0	***8***
07:45 AM	---	08:00 AM	5	2	1	0	0	0	0	0	***8***
08:00 AM	---	08:15 AM	7	3	2	0	0	0	0	0	***12***
08:15 AM	---	08:30 AM	7	3	4	0	0	0	0	0	***14***
08:30 AM	---	08:45 AM	7	3	4	0	0	0	0	0	***14***
08:45 AM	---	09:00 AM	7	3	5	0	0	0	0	0	***15***
09:00 AM	---	09:15 AM	8	5	8	1	0	0	0	0	***22***
09:15 AM	---	09:30 AM	8	6	10	1	0	0	0	0	***25***
09:30 AM	---	09:45 AM	8	8	14	1	0	0	0	0	***31***
09:45 AM	---	10:00 AM	8	9	14	1	0	0	0	0	***32***
TOTAL BY PERIOD											
07:00 AM	---	07:15 AM	0	1	1	0	0	0	0	0	***2***
07:15 AM	---	07:30 AM	1	0	0	0	0	0	0	0	***1***
07:30 AM	---	07:45 AM	4	1	0	0	0	0	0	0	***5***
07:45 AM	---	08:00 AM	0	0	0	0	0	0	0	0	***0***
08:00 AM	---	08:15 AM	2	1	1	0	0	0	0	0	***4***
08:15 AM	---	08:30 AM	0	0	2	0	0	0	0	0	***2***
08:30 AM	---	08:45 AM	0	0	0	0	0	0	0	0	***0***
08:45 AM	---	09:00 AM	0	0	1	0	0	0	0	0	***1***
09:00 AM	---	09:15 AM	1	2	3	1	0	0	0	0	***7***
09:15 AM	---	09:30 AM	0	1	2	0	0	0	0	0	***3***
09:30 AM	---	09:45 AM	0	2	4	0	0	0	0	0	***6***
09:45 AM	---	10:00 AM	0	1	0	0	0	0	0	0	***1***
HOURLY TOTALS											
07:00 AM	---	08:00 AM	5	2	1	0	0	0	0	0	***8***
07:15 AM	---	08:15 AM	7	2	1	0	0	0	0	0	***10***
07:30 AM	---	08:30 AM	6	2	3	0	0	0	0	0	***11***
07:45 AM	---	08:45 AM	2	1	3	0	0	0	0	0	***6***
08:00 AM	---	09:00 AM	2	1	4	0	0	0	0	0	***7***
08:15 AM	---	09:15 AM	1	2	6	1	0	0	0	0	***10***
08:30 AM	---	09:30 AM	1	3	6	1	0	0	0	0	***11***
08:45 AM	---	09:45 AM	1	5	10	1	0	0	0	0	***17***
09:00 AM	---	10:00 AM	1	6	9	1	0	0	0	0	***17***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

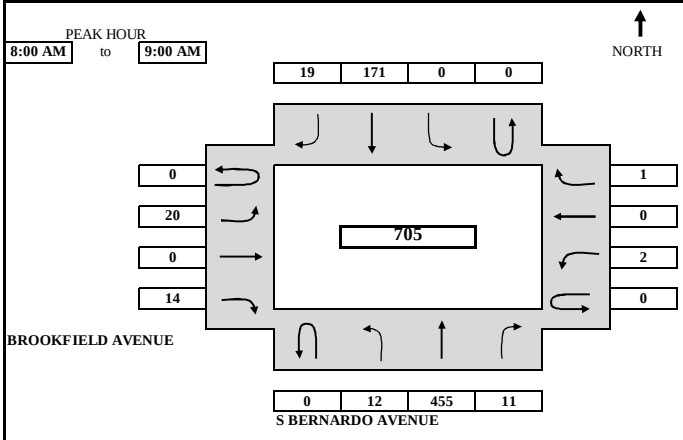
8:00 AM	to	9:00 AM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		0	4	2	1	7
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		3	0	4	0	7

B.A.Y.M.E.T.R.I.C.S.

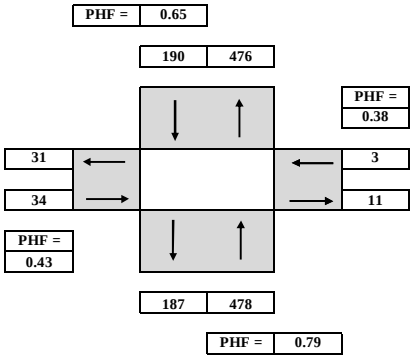
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-4AM**

PEAK HOUR **8:00 AM** to **9:00 AM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		0	32	0		0	25	1		5	0	2		2	0	0	**67**
7:15 AM	to	7:30 AM		1	68	2		0	65	3		5	0	3		3	0	0	**150**
7:30 AM	to	7:45 AM		1	120	2		0	126	3		8	0	5		3	0	0	**268**
7:45 AM	to	8:00 AM		2	192	3		1	188	6		12	0	6		3	0	0	**413**
8:00 AM	to	8:15 AM		5	300	8		1	253	14		20	0	18		3	0	0	**622**
8:15 AM	to	8:30 AM		12	442	10		1	288	21		24	0	18		3	0	0	**819**
8:30 AM	to	8:45 AM		12	541	12		1	327	24		30	0	20		4	0	1	**972**
8:45 AM	to	9:00 AM		14	647	14		1	359	25		32	0	20		5	0	1	**1118**
9:00 AM	to	9:15 AM		15	763	15		1	398	31		39	0	23		5	0	1	**1291**
9:15 AM	to	9:30 AM		15	864	17		1	440	34		51	0	27		6	0	1	**1456**
9:30 AM	to	9:45 AM		15	953	19		1	476	37		59	0	27		7	1	1	**1596**
9:45 AM	to	10:00 AM		17	1028	20		1	510	40		69	0	33		7	1	1	**1727**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	32	0	0	0	25	1	0	5	0	2	0	2	0	0	**67**
7:15 AM	to	7:30 AM	0	1	36	2	0	0	40	2	0	0	0	1	0	1	0	0	**83**
7:30 AM	to	7:45 AM	0	0	52	0	0	0	61	0	0	3	0	2	0	0	0	0	**118**
7:45 AM	to	8:00 AM	0	1	72	1	0	1	62	3	0	4	0	1	0	0	0	0	**145**
8:00 AM	to	8:15 AM	0	3	108	5	0	0	65	8	0	8	0	12	0	0	0	0	**209**
8:15 AM	to	8:30 AM	0	7	142	2	0	0	35	7	0	4	0	0	0	0	0	0	**197**
8:30 AM	to	8:45 AM	0	0	99	2	0	0	39	3	0	6	0	2	0	1	0	1	**153**
8:45 AM	to	9:00 AM	0	2	106	2	0	0	32	1	0	2	0	0	0	1	0	0	**146**
9:00 AM	to	9:15 AM	0	1	116	1	0	0	39	6	0	7	0	3	0	0	0	0	**173**
9:15 AM	to	9:30 AM	0	0	101	2	0	0	42	3	0	12	0	4	0	1	0	0	**165**
9:30 AM	to	9:45 AM	0	0	89	2	0	0	36	3	0	8	0	0	0	1	1	0	**140**
9:45 AM	to	10:00 AM	0	2	75	1	0	0	34	3	0	10	0	6	0	0	0	0	**131**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	2	192	3	0	1	188	6	0	12	0	6	0	3	0	0	**413**
7:15 AM	to	8:15 AM	0	5	268	8	0	1	228	13	0	15	0	16	0	1	0	0	**555**
7:30 AM	to	8:30 AM	0	11	374	8	0	1	223	18	0	19	0	15	0	0	0	0	**669**
7:45 AM	to	8:45 AM	0	11	421	10	0	1	201	21	0	22	0	15	0	1	0	1	**704**
8:00 AM	to	9:00 AM	0	12	455	11	0	0	171	19	0	20	0	14	0	2	0	1	**705**
8:15 AM	to	9:15 AM	0	10	463	7	0	0	145	17	0	19	0	5	0	2	0	1	**669**
8:30 AM	to	9:30 AM	0	3	422	7	0	0	152	13	0	27	0	9	0	3	0	1	**637**
8:45 AM	to	9:45 AM	0	3	412	7	0	0	149	13	0	29	0	7	0	3	1	0	**624**
9:00 AM	to	10:00 AM	0	3	381	6	0	0	151	15	0	37	0	13	0	2	1	0	**609**

PEAK HOUR SUMMARY

8:00 AM to 9:00 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	12	455	11	0	0	171	19	0	20	0	14	0	2	0	1	**705**
PHF BY MOVEMENT	0.00	0.43	0.80	0.55	0.00	0.00	0.66	0.59	0.00	0.63	0.00	0.29	0.00	0.50	0.00	0.25	OVERALL
PHF BY APPROACH	0.79				0.65				0.43				0.38				**0.84**
BICYCLE	4				3				0				1				**8**
PEDESTRIAN	20				21				0				0				**41**
	N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:	0				0				0				41				**41**

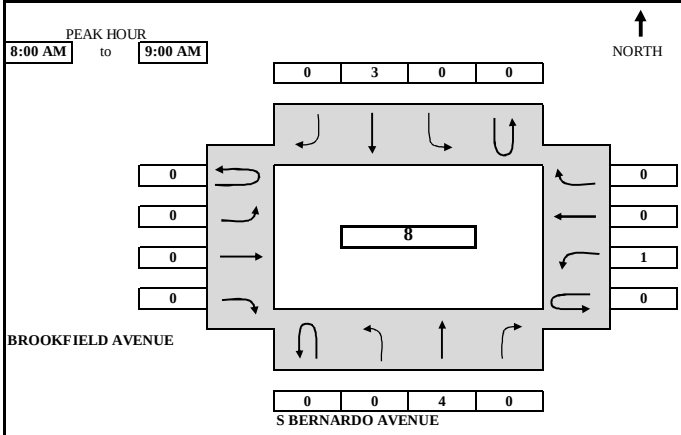
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

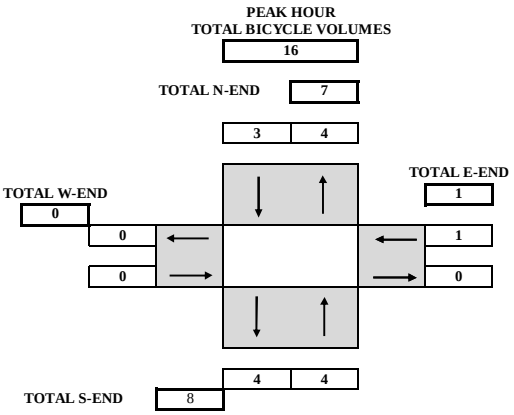
B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-4AM**

PEAK HOUR **8:00 AM** to **9:00 AM**





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
7:15 AM	to	7:30 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
7:30 AM	to	7:45 AM	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	**4**
7:45 AM	to	8:00 AM	0	0	2	0	0	0	2	1	0	0	0	0	0	0	0	0	**5**
8:00 AM	to	8:15 AM	0	0	3	0	0	0	3	1	0	0	0	0	0	1	0	0	**8**
8:15 AM	to	8:30 AM	0	0	5	0	0	0	4	1	0	0	0	0	0	1	0	0	**11**
8:30 AM	to	8:45 AM	0	0	5	0	0	0	4	1	0	0	0	0	0	1	0	0	**11**
8:45 AM	to	9:00 AM	0	0	6	0	0	0	5	1	0	0	0	0	0	1	0	0	**13**
9:00 AM	to	9:15 AM	0	0	6	0	0	0	6	1	0	0	0	0	0	1	0	0	**14**
9:15 AM	to	9:30 AM	0	0	9	0	0	0	6	1	0	0	0	0	0	1	0	0	**17**
9:30 AM	to	9:45 AM	0	0	10	0	0	0	7	1	0	0	0	0	0	1	0	0	**19**
9:45 AM	to	10:00 AM	0	0	10	0	0	0	8	1	0	0	0	0	0	1	0	0	**20**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
7:15 AM	to	7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
7:30 AM	to	7:45 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	**2**
7:45 AM	to	8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
8:00 AM	to	8:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	**3**
8:15 AM	to	8:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	**3**
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:45 AM	to	9:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
9:00 AM	to	9:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
9:15 AM	to	9:30 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
9:30 AM	to	9:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
9:45 AM	to	10:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	2	0	0	0	2	1	0	0	0	0	0	0	0	0	**5**
7:15 AM	to	8:15 AM	0	0	2	0	0	0	3	1	0	0	0	0	0	1	0	0	**7**
7:30 AM	to	8:30 AM	0	0	4	0	0	0	3	1	0	0	0	0	0	1	0	0	**9**
7:45 AM	to	8:45 AM	0	0	3	0	0	0	3	0	0	0	0	0	0	1	0	0	**7**
8:00 AM	to	9:00 AM	0	0	4	0	0	0	3	0	0	0	0	0	0	1	0	0	**8**
8:15 AM	to	9:15 AM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	**6**
8:30 AM	to	9:30 AM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	**6**
8:45 AM	to	9:45 AM	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	**8**
9:00 AM	to	10:00 AM	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	**7**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

8:00 AM to 9:00 AM

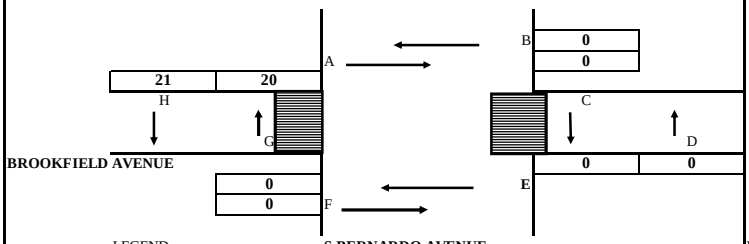
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	4	3	0	1	**8**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

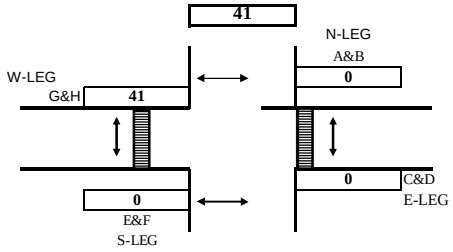
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**7:00 AM TO 10:00 AM**	**FILE:**	**3805027-4AM**

PEAK HOUR
8:00 AM TO **9:00 AM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES



BY LEG:		**BY DIRECTION:**	
N-LEG	**0**	**NB**(D+G)	**20**
S-LEG	**0**	**SB**(C+H)	**21**
E-LEG	**0**	**EB**(A+F)	**0**
W-LEG	**41**	**WB**(B+E)	**0**

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
07:00 AM	---	07:15 AM	0	0	1	0	0	0	3	0	***4***
07:15 AM	---	07:30 AM	0	0	2	0	0	0	3	2	***7***
07:30 AM	---	07:45 AM	0	0	2	0	0	0	4	2	***8***
07:45 AM	---	08:00 AM	0	0	2	0	0	0	4	10	***16***
08:00 AM	---	08:15 AM	0	0	2	0	0	0	9	26	***37***
08:15 AM	---	08:30 AM	0	0	2	0	0	0	20	27	***49***
08:30 AM	---	08:45 AM	0	0	2	0	0	0	24	30	***56***
08:45 AM	---	09:00 AM	0	0	2	0	0	0	24	31	***57***
09:00 AM	---	09:15 AM	0	0	2	0	0	0	25	31	***58***
09:15 AM	---	09:30 AM	0	0	2	0	0	0	25	32	***59***
09:30 AM	---	09:45 AM	0	0	2	0	0	0	25	35	***62***
09:45 AM	---	10:00 AM	0	0	2	0	0	0	25	35	***62***
TOTAL BY PERIOD											
07:00 AM	---	07:15 AM	0	0	1	0	0	0	3	0	***4***
07:15 AM	---	07:30 AM	0	0	1	0	0	0	0	2	***3***
07:30 AM	---	07:45 AM	0	0	0	0	0	0	1	0	***1***
07:45 AM	---	08:00 AM	0	0	0	0	0	0	0	8	***8***
08:00 AM	---	08:15 AM	0	0	0	0	0	0	5	16	***21***
08:15 AM	---	08:30 AM	0	0	0	0	0	0	11	1	***12***
08:30 AM	---	08:45 AM	0	0	0	0	0	0	4	3	***7***
08:45 AM	---	09:00 AM	0	0	0	0	0	0	0	1	***1***
09:00 AM	---	09:15 AM	0	0	0	0	0	0	1	0	***1***
09:15 AM	---	09:30 AM	0	0	0	0	0	0	0	1	***1***
09:30 AM	---	09:45 AM	0	0	0	0	0	0	0	3	***3***
09:45 AM	---	10:00 AM	0	0	0	0	0	0	0	0	***0***
HOURLY TOTALS											
07:00 AM	---	08:00 AM	0	0	2	0	0	0	4	10	***16***
07:15 AM	---	08:15 AM	0	0	1	0	0	0	6	26	***33***
07:30 AM	---	08:30 AM	0	0	0	0	0	0	17	25	***42***
07:45 AM	---	08:45 AM	0	0	0	0	0	0	20	28	***48***
08:00 AM	---	09:00 AM	0	0	0	0	0	0	20	21	***41***
08:15 AM	---	09:15 AM	0	0	0	0	0	0	16	5	***21***
08:30 AM	---	09:30 AM	0	0	0	0	0	0	5	5	***10***
08:45 AM	---	09:45 AM	0	0	0	0	0	0	1	5	***6***
09:00 AM	---	10:00 AM	0	0	0	0	0	0	1	4	***5***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

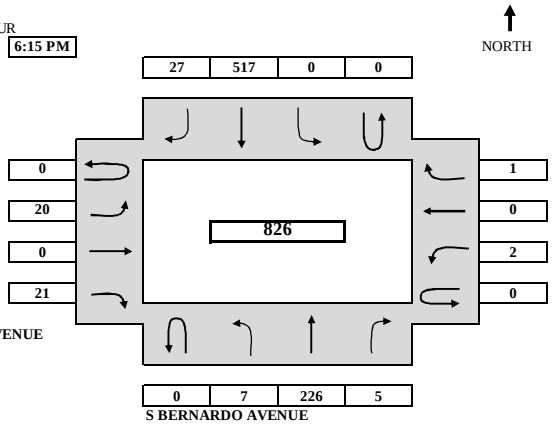
8:00 AM to 9:00 AM					
VOLUME BY DIRECTION	NB	SB	EB	WB	TOTAL
PEDESTRIAN	20	21	0	0	**41**
VOLUME BY LEG	N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN	0	0	0	41	**41**

B.A.Y.M.E.T.R.I.C.S.

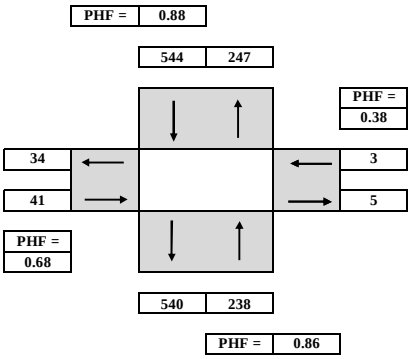
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-2PM**

PEAK HOUR **5:15 PM** to **6:15 PM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		0	49	0		0	64	8		10	0	6		1	0	0	**138**
4:15 PM	to	4:30 PM		3	96	2		0	143	13		17	0	12		3	0	0	**289**
4:30 PM	to	4:45 PM		4	137	4		0	232	17		20	0	15		5	0	1	**435**
4:45 PM	to	5:00 PM		4	180	5		0	332	25		24	0	21		6	0	1	**598**
5:00 PM	to	5:15 PM		4	223	7		0	451	32		25	0	24		6	0	3	**775**
5:15 PM	to	5:30 PM		4	278	10		0	570	36		31	0	29		8	0	3	**969**
5:30 PM	to	5:45 PM		5	327	10		0	719	41		35	0	34		8	0	3	**1182**
5:45 PM	to	6:00 PM		9	383	11		0	853	49		37	0	38		8	0	3	**1391**
6:00 PM	to	6:15 PM		11	449	12		0	968	59		45	0	45		8	0	4	**1601**
6:15 PM	to	6:30 PM		11	499	13		1	1082	64		49	0	48		11	0	4	**1782**
6:30 PM	to	6:45 PM		12	535	14		1	1191	72		53	0	58		11	0	4	**1951**
6:45 PM	to	7:00 PM		13	597	14		2	1272	77		59	0	60		12	0	4	**2110**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	49	0	0	0	64	8	0	10	0	6	0	1	0	0	**138**
4:15 PM	to	4:30 PM	0	3	47	2	0	0	79	5	0	7	0	6	0	2	0	0	**151**
4:30 PM	to	4:45 PM	0	1	41	2	0	0	89	4	0	3	0	3	0	2	0	1	**146**
4:45 PM	to	5:00 PM	0	0	43	1	0	0	100	8	0	4	0	6	0	1	0	0	**163**
5:00 PM	to	5:15 PM	0	0	43	2	0	0	119	7	0	1	0	3	0	0	0	2	**177**
5:15 PM	to	5:30 PM	0	0	55	3	0	0	119	4	0	6	0	5	0	2	0	0	**194**
5:30 PM	to	5:45 PM	0	1	49	0	0	0	149	5	0	4	0	5	0	0	0	0	**213**
5:45 PM	to	6:00 PM	0	4	56	1	0	0	134	8	0	2	0	4	0	0	0	0	**209**
6:00 PM	to	6:15 PM	0	2	66	1	0	0	115	10	0	8	0	7	0	0	0	1	**210**
6:15 PM	to	6:30 PM	0	0	50	1	0	1	114	5	0	4	0	3	0	3	0	0	**181**
6:30 PM	to	6:45 PM	0	1	36	1	0	0	109	8	0	4	0	10	0	0	0	0	**169**
6:45 PM	to	7:00 PM	0	1	62	0	0	1	81	5	0	6	0	2	0	1	0	0	**159**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	4	180	5	0	0	332	25	0	24	0	21	0	6	0	1	**598**
4:15 PM	to	5:15 PM	0	4	174	7	0	0	387	24	0	15	0	18	0	5	0	3	**637**
4:30 PM	to	5:30 PM	0	1	182	8	0	0	427	23	0	14	0	17	0	5	0	3	**680**
4:45 PM	to	5:45 PM	0	1	190	6	0	0	487	24	0	15	0	19	0	3	0	2	**747**
5:00 PM	to	6:00 PM	0	5	203	6	0	0	521	24	0	13	0	17	0	2	0	2	**793**
5:15 PM	to	6:15 PM	0	7	226	5	0	0	517	27	0	20	0	21	0	2	0	1	**826**
5:30 PM	to	6:30 PM	0	7	221	3	0	1	512	28	0	18	0	19	0	3	0	1	**813**
5:45 PM	to	6:45 PM	0	7	208	4	0	1	472	31	0	18	0	24	0	3	0	1	**769**
6:00 PM	to	7:00 PM	0	4	214	3	0	2	419	28	0	22	0	22	0	4	0	1	**719**

PEAK HOUR SUMMARY

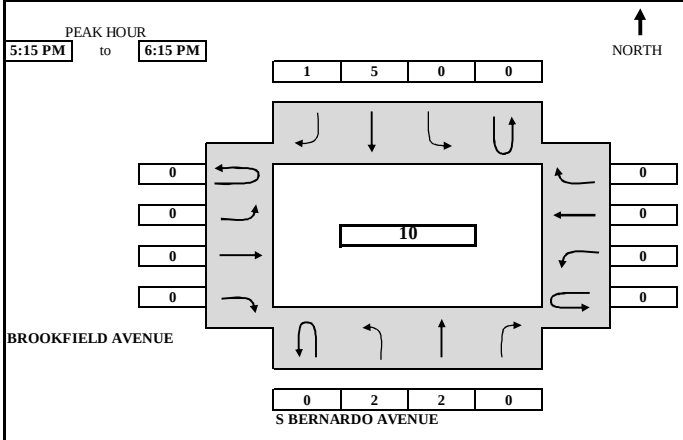
5:15 PM to 6:15 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	7	226	5	0	0	517	27	0	20	0	21	0	2	0	1	**826**
PHF BY MOVEMENT	0.00	0.44	0.86	0.42	0.00	0.00	0.87	0.68	0.00	0.63	0.00	0.75	0.00	0.25	0.00	0.25	OVERALL
PHF BY APPROACH	0.86				0.88				0.68				0.38				**0.97**
BICYCLE	4				6				0				0				**10**
PEDESTRIAN	14				0				0				0				**14**
	N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:	0				0				0				14				**14**

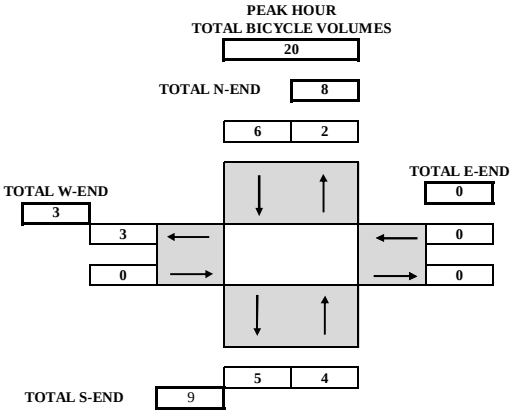
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN SUNNYVALE	**SURVEY DATE:**	5/15/2018	**DAY:**	TUESDAY
N-S APPROACH:	S BERNARDO AVENUE	**SURVEY TIME:**	4:00 PM	**TO**	7:00 PM
E-W APPROACH:	BROOKFIELD AVENUE	**JURISDICTION:**	SUNNYVALE	**FILE:**	3805027-2PM





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
4:15 PM	to	4:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
4:30 PM	to	4:45 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	**3**
4:45 PM	to	5:00 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	**3**
5:00 PM	to	5:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	**3**
5:15 PM	to	5:30 PM	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	**6**
5:30 PM	to	5:45 PM	0	1	3	0	0	0	5	0	0	0	0	0	0	0	0	0	**9**
5:45 PM	to	6:00 PM	0	1	3	0	0	0	6	0	0	0	0	0	0	0	0	0	**10**
6:00 PM	to	6:15 PM	0	2	4	0	0	0	6	1	0	0	0	0	0	0	0	0	**13**
6:15 PM	to	6:30 PM	0	2	4	0	0	0	6	1	0	0	0	0	0	0	0	0	**13**
6:30 PM	to	6:45 PM	0	2	4	0	0	0	6	1	0	0	0	0	0	0	0	0	**13**
6:45 PM	to	7:00 PM	0	2	4	0	0	0	7	1	0	1	0	0	0	0	0	0	**15**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**2**
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:30 PM	to	4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 PM	to	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:15 PM	to	5:30 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	**3**
5:30 PM	to	5:45 PM	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**3**
5:45 PM	to	6:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
6:00 PM	to	6:15 PM	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	**3**
6:15 PM	to	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:30 PM	to	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:45 PM	to	7:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	**2**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	**3**
4:15 PM	to	5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
4:30 PM	to	5:30 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	**4**
4:45 PM	to	5:45 PM	0	1	1	0	0	0	4	0	0	0	0	0	0	0	0	0	**6**
5:00 PM	to	6:00 PM	0	1	1	0	0	0	5	0	0	0	0	0	0	0	0	0	**7**
5:15 PM	to	6:15 PM	0	2	2	0	0	0	5	1	0	0	0	0	0	0	0	0	**10**
5:30 PM	to	6:30 PM	0	2	2	0	0	0	2	1	0	0	0	0	0	0	0	0	**7**
5:45 PM	to	6:45 PM	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	**4**
6:00 PM	to	7:00 PM	0	1	1	0	0	0	1	1	0	1	0	0	0	0	0	0	**5**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

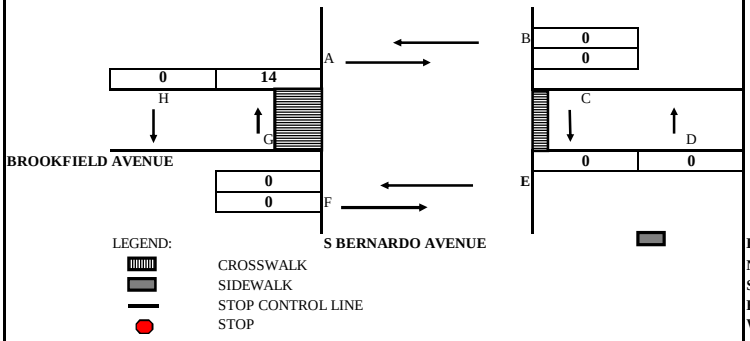
5:15 PM to 6:15 PM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	4	6	0	0	**10**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

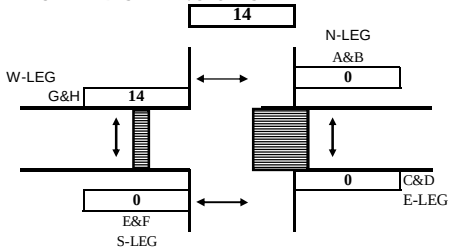
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**BROOKFIELD AVENUE**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**4:00 PM TO 7:00 PM**	**FILE:**	**3805027-2PM**

PEAK HOUR
5:15 PM TO **6:15 PM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES
14



BY LEG:		**BY DIRECTION:**	
N-LEG	**0**	**NB**(D+G)	**14**
S-LEG	**0**	**SB**(C+H)	**0**
E-LEG	**0**	**EB**(A+F)	**0**
W-LEG	**14**	**WB**(B+E)	**0**

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		To	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*TOTAL*
SURVEY DATA											
04:00 PM	---	04:15 PM	0	0	0	0	0	0	3	3	***6***
04:15 PM	---	04:30 PM	0	0	1	0	0	0	6	4	***11***
04:30 PM	---	04:45 PM	0	0	1	0	0	0	6	4	***11***
04:45 PM	---	05:00 PM	0	0	1	0	0	0	6	6	***13***
05:00 PM	---	05:15 PM	0	0	1	1	0	0	8	7	***17***
05:15 PM	---	05:30 PM	0	0	1	1	0	0	10	7	***19***
05:30 PM	---	05:45 PM	0	0	1	1	0	0	12	7	***21***
05:45 PM	---	06:00 PM	0	0	1	1	0	0	19	7	***28***
06:00 PM	---	06:15 PM	0	0	1	1	0	0	22	7	***31***
06:15 PM	---	06:30 PM	0	0	1	1	0	0	22	8	***32***
06:30 PM	---	06:45 PM	0	0	1	1	0	0	24	9	***35***
06:45 PM	---	07:00 PM	0	0	3	1	0	0	24	9	***37***
TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	0	0	0	0	0	0	3	3	***6***
04:15 PM	---	04:30 PM	0	0	1	0	0	0	3	1	***5***
04:30 PM	---	04:45 PM	0	0	0	0	0	0	0	0	***0***
04:45 PM	---	05:00 PM	0	0	0	0	0	0	0	2	***2***
05:00 PM	---	05:15 PM	0	0	0	1	0	0	2	1	***4***
05:15 PM	---	05:30 PM	0	0	0	0	0	0	2	0	***2***
05:30 PM	---	05:45 PM	0	0	0	0	0	0	2	0	***2***
05:45 PM	---	06:00 PM	0	0	0	0	0	0	7	0	***7***
06:00 PM	---	06:15 PM	0	0	0	0	0	0	3	0	***3***
06:15 PM	---	06:30 PM	0	0	0	0	0	0	0	1	***1***
06:30 PM	---	06:45 PM	0	0	0	0	0	0	2	1	***3***
06:45 PM	---	07:00 PM	0	0	2	0	0	0	0	0	***2***
HOURLY TOTALS											
04:00 PM	---	05:00 PM	0	0	1	0	0	0	6	6	***13***
04:15 PM	---	05:15 PM	0	0	1	1	0	0	5	4	***11***
04:30 PM	---	05:30 PM	0	0	0	1	0	0	4	3	***8***
04:45 PM	---	05:45 PM	0	0	0	1	0	0	6	3	***10***
05:00 PM	---	06:00 PM	0	0	0	1	0	0	13	1	***15***
05:15 PM	---	06:15 PM	0	0	0	0	0	0	14	0	***14***
05:30 PM	---	06:30 PM	0	0	0	0	0	0	12	1	***13***
05:45 PM	---	06:45 PM	0	0	0	0	0	0	12	2	***14***
06:00 PM	---	07:00 PM	0	0	2	0	0	0	5	2	***9***

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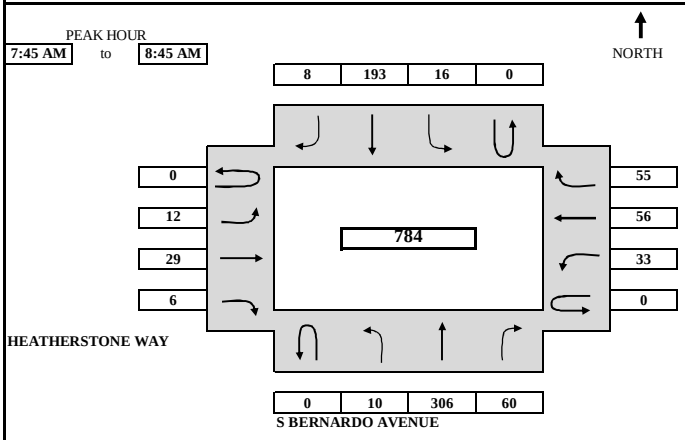
5:15 PM	to	6:15 PM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		14	0	0	0	**14**
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		0	0	0	14	**14**

B.A.Y.M.E.T.R.I.C.S.

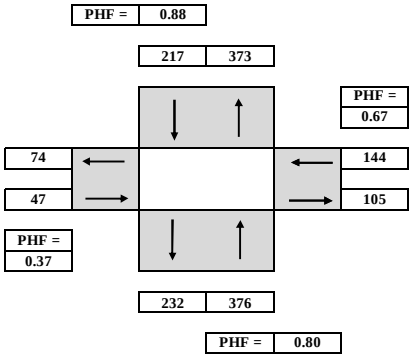
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**HEATHERSTONE WAY**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-5AM**

PEAK HOUR **7:45 AM** to **8:45 AM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		1	27	3		2	25	0		1	0	0		1	1	1	**62**
7:15 AM	to	7:30 AM		2	56	6		3	79	2		2	0	2		3	2	4	**161**
7:30 AM	to	7:45 AM		3	113	12		6	149	2		2	1	2		6	5	11	**312**
7:45 AM	to	8:00 AM		5	166	22		12	205	2		2	2	3		9	11	20	**459**
8:00 AM	to	8:15 AM		6	243	61		18	257	3		8	27	4		27	30	37	**721**
8:15 AM	to	8:30 AM		11	335	68		20	301	7		12	28	5		39	48	56	**930**
8:30 AM	to	8:45 AM		13	419	72		22	342	10		14	30	8		39	61	66	**1096**
8:45 AM	to	9:00 AM		15	498	73		24	378	12		14	33	11		41	67	73	**1239**
9:00 AM	to	9:15 AM		19	566	77		27	415	14		14	35	12		43	72	79	**1373**
9:15 AM	to	9:30 AM		26	641	78		31	458	14		15	35	14		45	78	83	**1518**
9:30 AM	to	9:45 AM		29	714	82		31	502	14		15	37	16		49	82	91	**1662**
9:45 AM	to	10:00 AM		31	773	83		31	543	14		15	39	16		52	83	93	**1773**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	1	27	3	0	2	25	0	0	1	0	0	0	1	1	1	**62**
7:15 AM	to	7:30 AM	0	1	29	3	0	1	54	2	0	1	0	2	0	2	1	3	**99**
7:30 AM	to	7:45 AM	0	1	57	6	0	3	70	0	0	0	1	0	0	3	3	7	**151**
7:45 AM	to	8:00 AM	0	2	53	10	0	6	56	0	0	0	1	1	0	3	6	9	**147**
8:00 AM	to	8:15 AM	0	1	77	39	0	6	52	1	0	6	25	1	0	18	19	17	**262**
8:15 AM	to	8:30 AM	0	5	92	7	0	2	44	4	0	4	1	1	0	12	18	19	**209**
8:30 AM	to	8:45 AM	0	2	84	4	0	2	41	3	0	2	2	3	0	0	13	10	**166**
8:45 AM	to	9:00 AM	0	2	79	1	0	2	36	2	0	0	3	3	0	2	6	7	**143**
9:00 AM	to	9:15 AM	0	4	68	4	0	3	37	2	0	0	2	1	0	2	5	6	**134**
9:15 AM	to	9:30 AM	0	7	75	1	0	4	43	0	0	1	0	2	0	2	6	4	**145**
9:30 AM	to	9:45 AM	0	3	73	4	0	0	44	0	0	0	2	2	0	4	4	8	**144**
9:45 AM	to	10:00 AM	0	2	59	1	0	0	41	0	0	0	2	0	0	3	1	2	**111**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	5	166	22	0	12	205	2	0	2	2	3	0	9	11	20	**459**
7:15 AM	to	8:15 AM	0	5	216	58	0	16	232	3	0	7	27	4	0	26	29	36	**659**
7:30 AM	to	8:30 AM	0	9	279	62	0	17	222	5	0	10	28	3	0	36	46	52	**769**
7:45 AM	to	8:45 AM	0	10	306	60	0	16	193	8	0	12	29	6	0	33	56	55	**784**
8:00 AM	to	9:00 AM	0	10	332	51	0	12	173	10	0	12	31	8	0	32	56	53	**780**
8:15 AM	to	9:15 AM	0	13	323	16	0	9	158	11	0	6	8	8	0	16	42	42	**652**
8:30 AM	to	9:30 AM	0	15	306	10	0	11	157	7	0	3	7	9	0	6	30	27	**588**
8:45 AM	to	9:45 AM	0	16	295	10	0	9	160	4	0	1	7	8	0	10	21	25	**566**
9:00 AM	to	10:00 AM	0	16	275	10	0	7	165	2	0	1	6	5	0	11	16	20	**534**

PEAK HOUR SUMMARY

7:45 AM	to	8:45 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
			NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME			0	10	306	60	0	16	193	8	0	12	29	6	0	33	56	55	**784**
PHF BY MOVEMENT			0.00	0.50	0.83	0.38	0.00	0.67	0.86	0.50	0.00	0.50	0.29	0.50	0.00	0.46	0.74	0.72	OVERALL
PHF BY APPROACH			0.80				0.88				0.37				0.67				**0.75**
BICYCLE			3				1				1				8				**13**
PEDESTRIAN			41				99				167				58				**365**
			N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:			47				178				51				89				**365**

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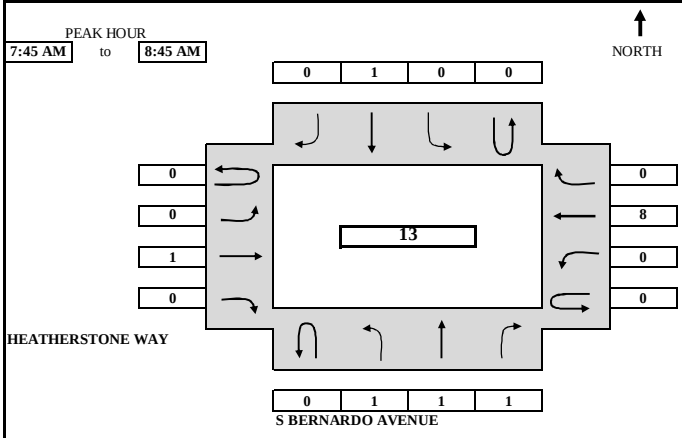
B.A.Y.M.E.T.R.I.C.S.

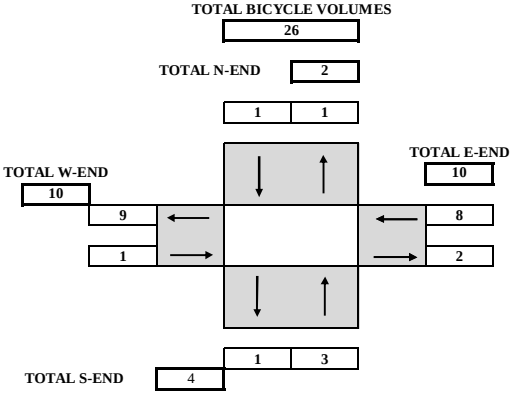
BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**HEATHERSTONE WAY**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-5AM**

PEAK HOUR **7:45 AM** to **8:45 AM**



PEAK HOUR TOTAL BICYCLE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	0	0	1	0	0	0	2	1	0	0	0	0	0	0	1	0	**5**
7:15 AM	to	7:30 AM	0	0	1	0	0	0	2	1	0	0	0	0	0	0	1	0	**5**
7:30 AM	to	7:45 AM	0	0	2	0	0	0	2	1	0	0	0	0	0	0	1	0	**6**
7:45 AM	to	8:00 AM	0	0	2	1	0	0	3	1	0	0	0	0	0	0	2	0	**9**
8:00 AM	to	8:15 AM	0	0	2	1	0	0	3	1	0	0	0	0	0	0	3	0	**10**
8:15 AM	to	8:30 AM	0	0	3	1	0	0	3	1	0	0	0	0	0	0	8	0	**16**
8:30 AM	to	8:45 AM	0	1	3	1	0	0	3	1	0	0	1	0	0	0	9	0	**19**
8:45 AM	to	9:00 AM	0	1	3	1	0	0	4	1	0	1	1	0	0	0	9	0	**21**
9:00 AM	to	9:15 AM	0	1	3	1	0	0	5	2	0	1	1	0	0	0	11	0	**25**
9:15 AM	to	9:30 AM	0	1	5	1	0	0	5	2	0	1	1	0	0	0	14	0	**30**
9:30 AM	to	9:45 AM	0	1	5	1	0	0	6	2	0	1	2	0	0	0	15	1	**34**
9:45 AM	to	10:00 AM	0	1	5	1	0	0	7	2	0	1	3	0	0	0	15	1	**36**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	1	0	0	0	2	1	0	0	0	0	0	0	1	0	**5**
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:30 AM	to	7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
7:45 AM	to	8:00 AM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	**3**
8:00 AM	to	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
8:15 AM	to	8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	**6**
8:30 AM	to	8:45 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	**3**
8:45 AM	to	9:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	**2**
9:00 AM	to	9:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	**4**
9:15 AM	to	9:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	**5**
9:30 AM	to	9:45 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	**4**
9:45 AM	to	10:00 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	**2**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	2	1	0	0	3	1	0	0	0	0	0	0	2	0	**9**
7:15 AM	to	8:15 AM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	2	0	**5**
7:30 AM	to	8:30 AM	0	0	2	1	0	0	1	0	0	0	0	0	0	0	7	0	**11**
7:45 AM	to	8:45 AM	0	1	1	1	0	0	1	0	0	0	1	0	0	0	8	0	**13**
8:00 AM	to	9:00 AM	0	1	1	0	0	0	1	0	0	1	1	0	0	0	7	0	**12**
8:15 AM	to	9:15 AM	0	1	1	0	0	0	2	1	0	1	1	0	0	0	8	0	**15**
8:30 AM	to	9:30 AM	0	1	2	0	0	0	2	1	0	1	1	0	0	0	6	0	**14**
8:45 AM	to	9:45 AM	0	0	2	0	0	0	3	1	0	1	1	0	0	0	6	1	**15**
9:00 AM	to	10:00 AM	0	0	2	0	0	0	3	1	0	0	2	0	0	0	6	1	**15**

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7:45 AM to 8:45 AM

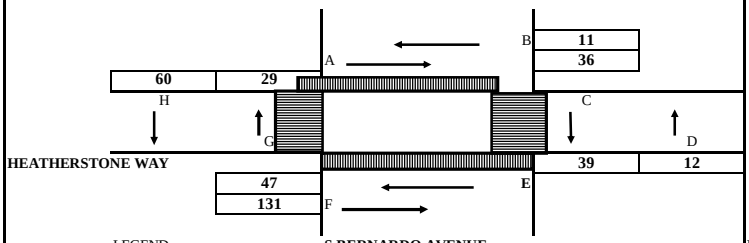
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	3	1	1	8	**13**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

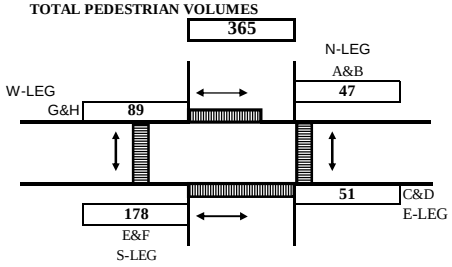
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**HEATHERSTONE WAY**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**7:00 AM TO 10:00 AM**	**FILE:**	**3805027-5AM**

PEAK HOUR **7:45 AM** TO **8:45 AM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR TOTAL PEDESTRIAN VOLUMES



BY LEG:		**BY DIRECTION:**	
N-LEG	**47**	**NB**(D+G)	**41**
S-LEG	**178**	**SB**(C+H)	**99**
E-LEG	**51**	**EB**(A+F)	**167**
W-LEG	**89**	**WB**(B+E)	**58**

TIME PERIOD			NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		
From		To	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*TOTAL*
SURVEY DATA											
07:00 AM	---	07:15 AM	0	0	1	0	1	0	0	0	***2***
07:15 AM	---	07:30 AM	0	1	3	0	1	1	0	1	***7***
07:30 AM	---	07:45 AM	0	2	4	1	1	2	0	1	***11***
07:45 AM	---	08:00 AM	3	3	7	4	2	15	0	7	***41***
08:00 AM	---	08:15 AM	35	7	42	10	17	131	7	59	***308***
08:15 AM	---	08:30 AM	35	13	42	13	46	132	27	60	***368***
08:30 AM	---	08:45 AM	36	13	43	13	48	133	29	61	***376***
08:45 AM	---	09:00 AM	36	13	44	13	49	133	29	61	***378***
09:00 AM	---	09:15 AM	36	13	44	14	49	134	29	64	***383***
09:15 AM	---	09:30 AM	36	13	44	14	50	134	31	64	***386***
09:30 AM	---	09:45 AM	37	15	44	14	50	134	33	66	***393***
09:45 AM	---	10:00 AM	38	16	44	14	51	134	33	67	***397***
TOTAL BY PERIOD											
07:00 AM	---	07:15 AM	0	0	1	0	1	0	0	0	***2***
07:15 AM	---	07:30 AM	0	1	2	0	0	1	0	1	***5***
07:30 AM	---	07:45 AM	0	1	1	1	0	1	0	0	***4***
07:45 AM	---	08:00 AM	3	1	3	3	1	13	0	6	***30***
08:00 AM	---	08:15 AM	32	4	35	6	15	116	7	52	***267***
08:15 AM	---	08:30 AM	0	6	0	3	29	1	20	1	***60***
08:30 AM	---	08:45 AM	1	0	1	0	2	1	2	1	***8***
08:45 AM	---	09:00 AM	0	0	1	0	1	0	0	0	***2***
09:00 AM	---	09:15 AM	0	0	0	1	0	1	0	3	***5***
09:15 AM	---	09:30 AM	0	0	0	0	1	0	2	0	***3***
09:30 AM	---	09:45 AM	1	2	0	0	0	0	2	2	***7***
09:45 AM	---	10:00 AM	1	1	0	0	1	0	0	1	***4***
HOURLY TOTALS											
07:00 AM	---	08:00 AM	3	3	7	4	2	15	0	7	***41***
07:15 AM	---	08:15 AM	35	7	41	10	16	131	7	59	***306***
07:30 AM	---	08:30 AM	35	12	39	13	45	131	27	59	***361***
07:45 AM	---	08:45 AM	36	11	39	12	47	131	29	60	***365***
08:00 AM	---	09:00 AM	33	10	37	9	47	118	29	54	***337***
08:15 AM	---	09:15 AM	1	6	2	4	32	3	22	5	***75***
08:30 AM	---	09:30 AM	1	0	2	1	4	2	4	4	***18***
08:45 AM	---	09:45 AM	1	2	1	1	2	1	4	5	***17***
09:00 AM	---	10:00 AM	2	3	0	1	2	1	4	6	***19***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

7:45 AM	to	8:45 AM					
VOLUME BY DIRECTION			NB	SB	EB	WB	TOTAL
PEDESTRIAN			41	99	167	58	**365**
VOLUME BY LEG			N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN			47	178	51	89	**365**

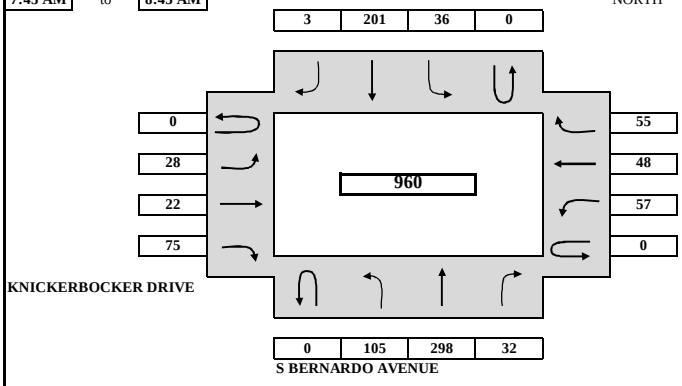
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

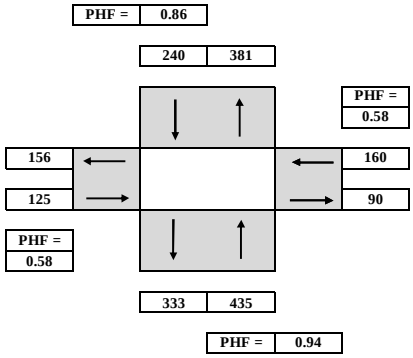
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**KNICKERBOCKER DRIVE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-6AM**

PEAK HOUR **7:45 AM** to **8:45 AM**

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		4	26	3		0	23	1		1	2	9		2	3	2	**76**
7:15 AM	to	7:30 AM		10	54	4		2	76	1		2	5	17		5	9	4	**189**
7:30 AM	to	7:45 AM		17	90	4		6	152	1		2	8	40		14	9	13	**356**
7:45 AM	to	8:00 AM		36	156	11		18	205	1		7	10	64		20	12	21	**561**
8:00 AM	to	8:15 AM		47	235	33		33	258	3		24	25	86		41	25	39	**849**
8:15 AM	to	8:30 AM		77	318	35		39	315	4		27	28	110		67	45	62	**1127**
8:30 AM	to	8:45 AM		122	388	36		42	353	4		30	30	115		71	57	68	**1316**
8:45 AM	to	9:00 AM		159	473	37		44	395	5		31	32	132		75	64	71	**1518**
9:00 AM	to	9:15 AM		202	570	38		46	433	6		34	35	139		78	68	76	**1725**
9:15 AM	to	9:30 AM		228	656	39		48	483	8		36	39	160		84	74	80	**1935**
9:30 AM	to	9:45 AM		251	739	40		50	529	10		38	40	184		87	78	83	**2129**
9:45 AM	to	10:00 AM		266	805	42		51	570	12		39	41	197		88	81	88	**2280**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	4	26	3	0	0	23	1	0	1	2	9	0	2	3	2	**76**
7:15 AM	to	7:30 AM	0	6	28	1	0	2	53	0	0	1	3	8	0	3	6	2	**113**
7:30 AM	to	7:45 AM	0	7	36	0	0	4	76	0	0	0	3	23	0	9	0	9	**167**
7:45 AM	to	8:00 AM	0	19	66	7	0	12	53	0	0	5	2	24	0	6	3	8	**205**
8:00 AM	to	8:15 AM	0	11	79	22	0	15	53	2	0	17	15	22	0	21	13	18	**288**
8:15 AM	to	8:30 AM	0	30	83	2	0	6	57	1	0	3	3	24	0	26	20	23	**278**
8:30 AM	to	8:45 AM	0	45	70	1	0	3	38	0	0	3	2	5	0	4	12	6	**189**
8:45 AM	to	9:00 AM	0	37	85	1	0	2	42	1	0	1	2	17	0	4	7	3	**202**
9:00 AM	to	9:15 AM	0	43	97	1	0	2	38	1	0	3	3	7	0	3	4	5	**207**
9:15 AM	to	9:30 AM	0	26	86	1	0	2	50	2	0	2	4	21	0	6	6	4	**210**
9:30 AM	to	9:45 AM	0	23	83	1	0	2	46	2	0	2	1	24	0	3	4	3	**194**
9:45 AM	to	10:00 AM	0	15	66	2	0	1	41	2	0	1	1	13	0	1	3	5	**151**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	36	156	11	0	18	205	1	0	7	10	64	0	20	12	21	**561**
7:15 AM	to	8:15 AM	0	43	209	30	0	33	235	2	0	23	23	77	0	39	22	37	**773**
7:30 AM	to	8:30 AM	0	67	264	31	0	37	239	3	0	25	23	93	0	62	36	58	**938**
7:45 AM	to	8:45 AM	0	105	298	32	0	36	201	3	0	28	22	75	0	57	48	55	**960**
8:00 AM	to	9:00 AM	0	123	317	26	0	26	190	4	0	24	22	68	0	55	52	50	**957**
8:15 AM	to	9:15 AM	0	155	335	5	0	13	175	3	0	10	10	53	0	37	43	37	**876**
8:30 AM	to	9:30 AM	0	151	338	4	0	9	168	4	0	9	11	50	0	17	29	18	**808**
8:45 AM	to	9:45 AM	0	129	351	4	0	8	176	6	0	8	10	69	0	16	21	15	**813**
9:00 AM	to	10:00 AM	0	107	332	5	0	7	175	7	0	8	9	65	0	13	17	17	**762**

PEAK HOUR SUMMARY

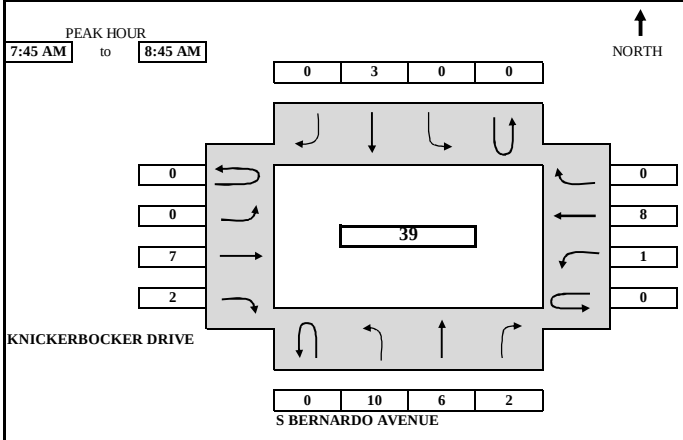
7:45 AM	to	8:45 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
			NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME			0	105	298	32	0	36	201	3	0	28	22	75	0	57	48	55	**960**
PHF BY MOVEMENT			0.00	0.58	0.90	0.36	0.00	0.60	0.88	0.38	0.00	0.41	0.37	0.78	0.00	0.55	0.60	0.60	OVERALL
PHF BY APPROACH				0.94				0.86				0.58				0.58			**0.83**
BICYCLE				18				3				9				9			**39**
PEDESTRIAN				53				24				24				48			**149**
				N-LEG				**S-LEG**				**E-LEG**				**W-LEG**			
PEDESTRIAN BY LEG:				24				48				56				21			**149**

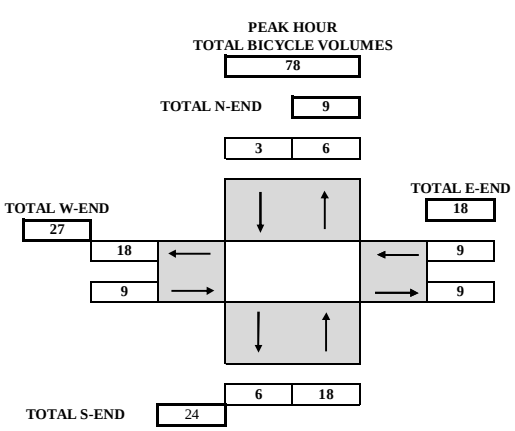
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**10:00 AM**
E-W APPROACH:	**KNICKERBOCKER DRIVE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-6AM**





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	0	1	1	0	0	0	2	0	0	0	1	0	0	0	1	0	**6**
7:15 AM	to	7:30 AM	0	4	1	0	0	1	2	0	0	0	3	0	0	0	2	0	**13**
7:30 AM	to	7:45 AM	0	5	2	0	0	1	2	0	0	0	3	0	0	0	4	0	**17**
7:45 AM	to	8:00 AM	0	7	3	1	0	1	3	0	0	0	6	0	0	0	4	0	**25**
8:00 AM	to	8:15 AM	0	7	6	2	0	1	4	0	0	0	9	1	0	0	9	0	**39**
8:15 AM	to	8:30 AM	0	13	8	2	0	1	5	0	0	0	10	2	0	1	9	0	**51**
8:30 AM	to	8:45 AM	0	15	8	2	0	1	5	0	0	0	10	2	0	1	12	0	**56**
8:45 AM	to	9:00 AM	0	15	8	2	0	1	6	0	0	0	11	3	0	1	13	0	**60**
9:00 AM	to	9:15 AM	0	20	8	2	0	1	7	0	0	0	11	3	0	1	16	0	**69**
9:15 AM	to	9:30 AM	0	21	11	2	0	1	7	0	0	0	12	3	0	1	18	0	**76**
9:30 AM	to	9:45 AM	0	21	11	2	0	1	8	0	0	0	13	3	0	1	18	0	**78**
9:45 AM	to	10:00 AM	0	21	11	2	0	1	10	0	0	0	14	5	0	1	20	0	**85**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	1	1	0	0	0	2	0	0	0	1	0	0	0	1	0	**6**
7:15 AM	to	7:30 AM	0	3	0	0	0	1	0	0	0	0	2	0	0	0	1	0	**7**
7:30 AM	to	7:45 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	**4**
7:45 AM	to	8:00 AM	0	2	1	1	0	0	1	0	0	0	3	0	0	0	0	0	**8**
8:00 AM	to	8:15 AM	0	0	3	1	0	0	1	0	0	0	3	1	0	0	5	0	**14**
8:15 AM	to	8:30 AM	0	6	2	0	0	0	1	0	0	0	1	1	0	1	0	0	**12**
8:30 AM	to	8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	**5**
8:45 AM	to	9:00 AM	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	**4**
9:00 AM	to	9:15 AM	0	5	0	0	0	0	1	0	0	0	0	0	0	0	3	0	**9**
9:15 AM	to	9:30 AM	0	1	3	0	0	0	0	0	0	0	1	0	0	0	2	0	**7**
9:30 AM	to	9:45 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	**2**
9:45 AM	to	10:00 AM	0	0	0	0	0	0	2	0	0	0	1	2	0	0	2	0	**7**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	7	3	1	0	1	3	0	0	0	6	0	0	0	4	0	**25**
7:15 AM	to	8:15 AM	0	6	5	2	0	1	2	0	0	0	8	1	0	0	8	0	**33**
7:30 AM	to	8:30 AM	0	9	7	2	0	0	3	0	0	0	7	2	0	1	7	0	**38**
7:45 AM	to	8:45 AM	0	10	6	2	0	0	3	0	0	0	7	2	0	1	8	0	**39**
8:00 AM	to	9:00 AM	0	8	5	1	0	0	3	0	0	0	5	3	0	1	9	0	**35**
8:15 AM	to	9:15 AM	0	13	2	0	0	0	3	0	0	0	2	2	0	1	7	0	**30**
8:30 AM	to	9:30 AM	0	8	3	0	0	0	2	0	0	0	2	1	0	0	9	0	**25**
8:45 AM	to	9:45 AM	0	6	3	0	0	0	3	0	0	0	3	1	0	0	6	0	**22**
9:00 AM	to	10:00 AM	0	6	3	0	0	0	4	0	0	0	3	2	0	0	7	0	**25**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

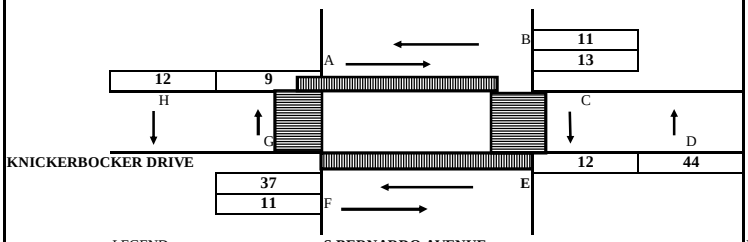
7:45 AM to 8:45 AM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	18	3	9	9	**39**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

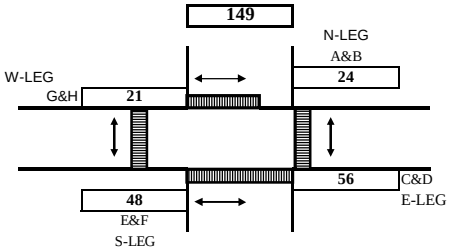
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**	**DAY:**	**TUESDAY**
E-W APPROACH:	**KNICKERBOCKER DRIVE**	**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**7:00 AM TO 10:00 AM**	**FILE:**	**3805027-6AM**

PEAK HOUR
7:45 AM TO **8:45 AM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES



BY LEG:		**BY DIRECTION:**	
N-LEG	**24**	**NB**(D+G)	**53**
S-LEG	**48**	**SB**(C+H)	**24**
E-LEG	**56**	**EB**(A+F)	**24**
W-LEG	**21**	**WB**(B+E)	**48**

TIME PERIOD From		To	NORTH X-WALK A	B	EAST X-WALK C	D	SOUTH X-WALK E	F	WEST X-WALK G	H	TOTAL
SURVEY DATA											
07:00 AM	---	07:15 AM	1	1	3	0	0	1	0	0	***6***
07:15 AM	---	07:30 AM	2	1	4	0	1	1	1	0	***10***
07:30 AM	---	07:45 AM	3	1	5	1	1	2	3	0	***16***
07:45 AM	---	08:00 AM	3	2	6	9	1	11	3	0	***35***
08:00 AM	---	08:15 AM	14	3	10	41	33	11	11	3	***126***
08:15 AM	---	08:30 AM	15	11	16	42	38	12	12	10	***156***
08:30 AM	---	08:45 AM	16	12	17	45	38	13	12	12	***165***
08:45 AM	---	09:00 AM	16	13	17	47	38	14	12	12	***169***
09:00 AM	---	09:15 AM	17	14	18	47	38	14	12	12	***172***
09:15 AM	---	09:30 AM	17	14	18	47	39	14	12	12	***173***
09:30 AM	---	09:45 AM	17	14	19	47	40	15	12	12	***176***
09:45 AM	---	10:00 AM	17	14	19	47	40	15	12	13	***177***
TOTAL BY PERIOD											
07:00 AM	---	07:15 AM	1	1	3	0	0	1	0	0	***6***
07:15 AM	---	07:30 AM	1	0	1	0	1	0	1	0	***4***
07:30 AM	---	07:45 AM	1	0	1	1	0	1	2	0	***6***
07:45 AM	---	08:00 AM	0	1	1	8	0	9	0	0	***19***
08:00 AM	---	08:15 AM	11	1	4	32	32	0	8	3	***91***
08:15 AM	---	08:30 AM	1	8	6	1	5	1	1	7	***30***
08:30 AM	---	08:45 AM	1	1	1	3	0	1	0	2	***9***
08:45 AM	---	09:00 AM	0	1	0	2	0	1	0	0	***4***
09:00 AM	---	09:15 AM	1	1	1	0	0	0	0	0	***3***
09:15 AM	---	09:30 AM	0	0	0	0	1	0	0	0	***1***
09:30 AM	---	09:45 AM	0	0	1	0	1	1	0	0	***3***
09:45 AM	---	10:00 AM	0	0	0	0	0	0	0	1	***1***
HOURLY TOTALS											
07:00 AM	---	08:00 AM	3	2	6	9	1	11	3	0	***35***
07:15 AM	---	08:15 AM	13	2	7	41	33	10	11	3	***120***
07:30 AM	---	08:30 AM	13	10	12	42	37	11	11	10	***146***
07:45 AM	---	08:45 AM	13	11	12	44	37	11	9	12	***149***
08:00 AM	---	09:00 AM	13	11	11	38	37	3	9	12	***134***
08:15 AM	---	09:15 AM	3	11	8	6	5	3	1	9	***46***
08:30 AM	---	09:30 AM	2	3	2	5	1	2	0	2	***17***
08:45 AM	---	09:45 AM	1	2	2	2	2	2	0	0	***11***
09:00 AM	---	10:00 AM	1	1	2	0	2	1	0	1	***8***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

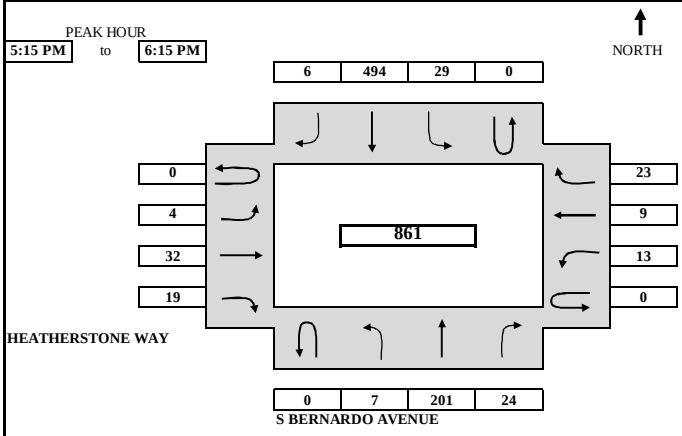
7:45 AM	to	8:45 AM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		53	24	24	48	**149**
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		24	48	56	21	**149**

B.A.Y.M.E.T.R.I.C.S.

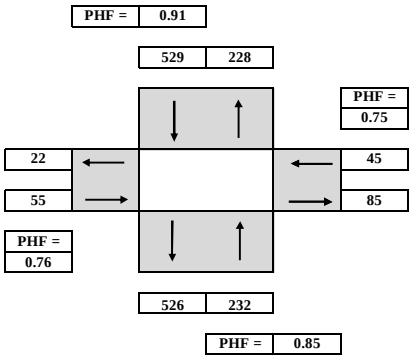
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN SUNNYVALE	**SURVEY DATE:**	5/15/2018	**DAY:**	TUESDAY
N-S APPROACH:	S BERNARDO AVENUE	**SURVEY TIME:**	4:00 PM	**TO**	7:00 PM
E-W APPROACH:	HEATHERSTONE WAY	**JURISDICTION:**	SUNNYVALE	**FILE:**	3805027-5PM

PEAK HOUR 5:15 PM to 6:15 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		2	29	4		7	71	1		1	3	0		3	5	2	**128**
4:15 PM	to	4:30 PM		3	78	8		10	149	2		1	4	1		7	8	8	**279**
4:30 PM	to	4:45 PM		5	120	14		14	229	2		2	8	2		12	8	13	**429**
4:45 PM	to	5:00 PM		5	147	19		21	323	3		4	13	6		16	10	17	**584**
5:00 PM	to	5:15 PM		5	186	24		30	416	3		5	16	8		22	12	21	**748**
5:15 PM	to	5:30 PM		7	227	29		37	544	5		6	25	12		27	13	25	**957**
5:30 PM	to	5:45 PM		8	276	34		45	664	6		6	32	16		28	17	28	**1160**
5:45 PM	to	6:00 PM		9	333	44		54	797	9		8	42	22		31	18	36	**1403**
6:00 PM	to	6:15 PM		12	387	48		59	910	9		9	48	27		35	21	44	**1609**
6:15 PM	to	6:30 PM		15	445	51		69	1020	11		13	53	28		39	23	48	**1815**
6:30 PM	to	6:45 PM		16	487	54		75	1116	14		14	55	30		41	25	53	**1980**
6:45 PM	to	7:00 PM		20	524	61		82	1195	15		14	62	33		46	28	54	**2134**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	2	29	4	0	7	71	1	0	1	3	0	0	3	5	2	**128**
4:15 PM	to	4:30 PM	0	1	49	4	0	3	78	1	0	0	1	1	0	4	3	6	**151**
4:30 PM	to	4:45 PM	0	2	42	6	0	4	80	0	0	1	4	1	0	5	0	5	**150**
4:45 PM	to	5:00 PM	0	0	27	5	0	7	94	1	0	2	5	4	0	4	2	4	**155**
5:00 PM	to	5:15 PM	0	0	39	5	0	9	93	0	0	1	3	2	0	6	2	4	**164**
5:15 PM	to	5:30 PM	0	2	41	5	0	7	128	2	0	1	9	4	0	5	1	4	**209**
5:30 PM	to	5:45 PM	0	1	49	5	0	8	120	1	0	0	7	4	0	1	4	3	**203**
5:45 PM	to	6:00 PM	0	1	57	10	0	9	133	3	0	2	10	6	0	3	1	8	**243**
6:00 PM	to	6:15 PM	0	3	54	4	0	5	113	0	0	1	6	5	0	4	3	8	**206**
6:15 PM	to	6:30 PM	0	3	58	3	0	10	110	2	0	4	5	1	0	4	2	4	**206**
6:30 PM	to	6:45 PM	0	1	42	3	0	6	96	3	0	1	2	2	0	2	2	5	**165**
6:45 PM	to	7:00 PM	0	4	37	7	0	7	79	1	0	0	7	3	0	5	3	1	**154**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	5	147	19	0	21	323	3	0	4	13	6	0	16	10	17	**584**
4:15 PM	to	5:15 PM	0	3	157	20	0	23	345	2	0	4	13	8	0	19	7	19	**620**
4:30 PM	to	5:30 PM	0	4	149	21	0	27	395	3	0	5	21	11	0	20	5	17	**678**
4:45 PM	to	5:45 PM	0	3	156	20	0	31	435	4	0	4	24	14	0	16	9	15	**731**
5:00 PM	to	6:00 PM	0	4	186	25	0	33	474	6	0	4	29	16	0	15	8	19	**819**
5:15 PM	to	6:15 PM	0	7	201	24	0	29	494	6	0	4	32	19	0	13	9	23	**861**
5:30 PM	to	6:30 PM	0	8	218	22	0	32	476	6	0	7	28	16	0	12	10	23	**858**
5:45 PM	to	6:45 PM	0	8	211	20	0	30	452	8	0	8	23	14	0	13	8	25	**820**
6:00 PM	to	7:00 PM	0	11	191	17	0	28	398	6	0	6	20	11	0	15	10	18	**731**

PEAK HOUR SUMMARY

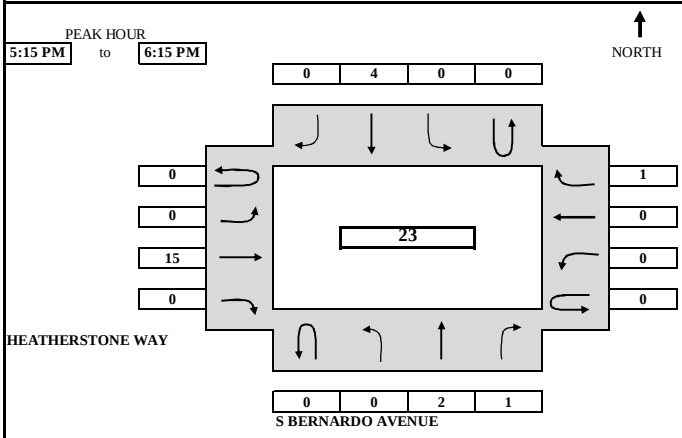
5:15 PM to 6:15 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	7	201	24	0	29	494	6	0	4	32	19	0	13	9	23	**861**
PHF BY MOVEMENT	0.00	0.58	0.88	0.60	0.00	0.81	0.93	0.50	0.00	0.50	0.80	0.79	0.00	0.65	0.56	0.72	OVERALL
PHF BY APPROACH	0.85				0.91				0.76				0.75				**0.89**
BICYCLE	3				4				15				1				**23**
PEDESTRIAN	20				8				9				18				**55**
	N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:	3				24				6				22				**55**

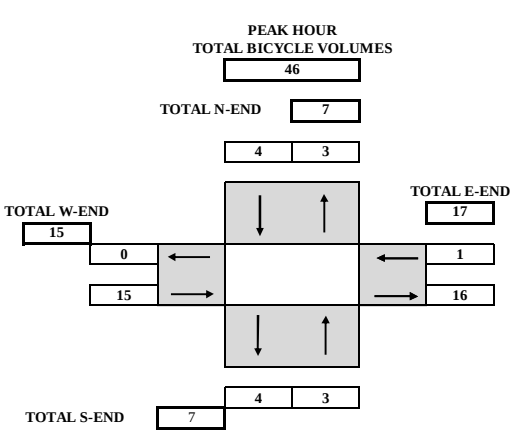
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**HEATHERSTONE WAY**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-5PM**





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
4:15 PM	to	4:30 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	**3**
4:30 PM	to	4:45 PM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	1	0	**5**
4:45 PM	to	5:00 PM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	1	0	**5**
5:00 PM	to	5:15 PM	0	0	3	0	0	0	1	0	0	1	1	0	0	0	1	0	**7**
5:15 PM	to	5:30 PM	0	0	3	1	0	0	3	0	0	1	3	0	0	0	1	0	**12**
5:30 PM	to	5:45 PM	0	0	4	1	0	0	4	0	0	1	8	0	0	0	1	1	**20**
5:45 PM	to	6:00 PM	0	0	4	1	0	0	5	0	0	1	14	0	0	0	1	1	**27**
6:00 PM	to	6:15 PM	0	0	5	1	0	0	5	0	0	1	16	0	0	0	1	1	**30**
6:15 PM	to	6:30 PM	0	0	5	2	0	0	5	0	0	1	17	0	0	0	1	1	**32**
6:30 PM	to	6:45 PM	0	0	5	2	0	0	5	0	0	1	20	0	0	0	1	1	**35**
6:45 PM	to	7:00 PM	0	0	5	2	0	0	6	0	0	1	21	0	0	0	1	1	**37**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
4:15 PM	to	4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
4:30 PM	to	4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	**2**
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 PM	to	5:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	**2**
5:15 PM	to	5:30 PM	0	0	0	1	0	0	2	0	0	0	2	0	0	0	0	0	**5**
5:30 PM	to	5:45 PM	0	0	1	0	0	0	1	0	0	0	5	0	0	0	0	1	**8**
5:45 PM	to	6:00 PM	0	0	0	0	0	0	1	0	0	0	6	0	0	0	0	0	**7**
6:00 PM	to	6:15 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	**3**
6:15 PM	to	6:30 PM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	**2**
6:30 PM	to	6:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	**3**
6:45 PM	to	7:00 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	**2**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	1	0	**5**
4:15 PM	to	5:15 PM	0	0	1	0	0	0	1	0	0	1	1	0	0	0	1	0	**5**
4:30 PM	to	5:30 PM	0	0	1	1	0	0	2	0	0	1	3	0	0	0	1	0	**9**
4:45 PM	to	5:45 PM	0	0	1	1	0	0	3	0	0	1	8	0	0	0	0	1	**15**
5:00 PM	to	6:00 PM	0	0	1	1	0	0	4	0	0	1	14	0	0	0	0	1	**22**
5:15 PM	to	6:15 PM	0	0	2	1	0	0	4	0	0	0	15	0	0	0	0	1	**23**
5:30 PM	to	6:30 PM	0	0	2	1	0	0	2	0	0	0	14	0	0	0	0	1	**20**
5:45 PM	to	6:45 PM	0	0	1	1	0	0	1	0	0	0	12	0	0	0	0	0	**15**
6:00 PM	to	7:00 PM	0	0	1	1	0	0	1	0	0	0	7	0	0	0	0	0	**10**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

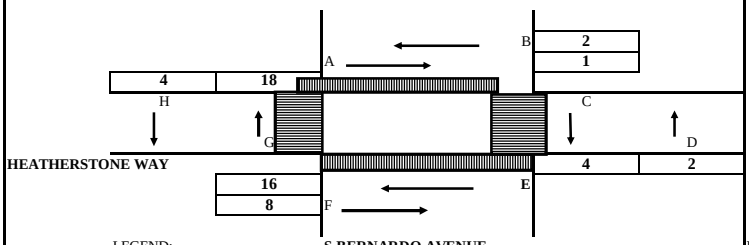
5:15 PM to 6:15 PM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	3	4	15	1	**23**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

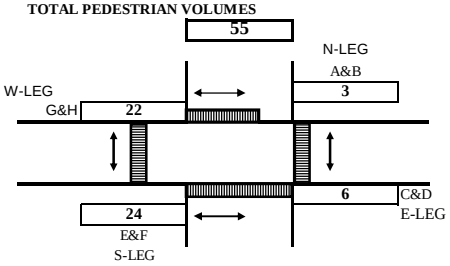
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**			**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**			**DAY:**	**TUESDAY**
E-W APPROACH:	**HEATHERSTONE WAY**			**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**4:00 PM**	**TO**	**7:00 PM**	**FILE:**	**3805027-5PM**

PEAK HOUR
5:15 PM TO **6:15 PM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES



BY LEG:		**BY DIRECTION:**	
N-LEG	**3**	**NB**(D+G)	**20**
S-LEG	**24**	**SB**(C+H)	**8**
E-LEG	**6**	**EB**(A+F)	**9**
W-LEG	**22**	**WB**(B+E)	**18**

TIME PERIOD			**NORTH X-WALK**		**EAST X-WALK**		**SOUTH X-WALK**		**WEST X-WALK**		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
04:00 PM	---	04:15 PM	2	0	0	0	0	0	5	0	***7***
04:15 PM	---	04:30 PM	3	2	1	0	0	0	5	0	***11***
04:30 PM	---	04:45 PM	3	2	1	0	0	1	5	0	***12***
04:45 PM	---	05:00 PM	3	2	1	0	0	5	5	3	***19***
05:00 PM	---	05:15 PM	5	2	1	2	1	7	7	5	***30***
05:15 PM	---	05:30 PM	5	2	1	2	3	8	12	5	***38***
05:30 PM	---	05:45 PM	5	3	1	3	7	8	14	6	***47***
05:45 PM	---	06:00 PM	6	3	3	3	12	12	23	7	***69***
06:00 PM	---	06:15 PM	6	4	5	4	17	15	25	9	***85***
06:15 PM	---	06:30 PM	10	4	7	4	20	17	26	13	***101***
06:30 PM	---	06:45 PM	11	4	7	5	23	17	30	13	***110***
06:45 PM	---	07:00 PM	11	4	7	5	24	18	30	16	***115***
TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	2	0	0	0	0	0	5	0	***7***
04:15 PM	---	04:30 PM	1	2	1	0	0	0	0	0	***4***
04:30 PM	---	04:45 PM	0	0	0	0	0	1	0	0	***1***
04:45 PM	---	05:00 PM	0	0	0	0	0	4	0	3	***7***
05:00 PM	---	05:15 PM	2	0	0	2	1	2	2	2	***11***
05:15 PM	---	05:30 PM	0	0	0	0	2	1	5	0	***8***
05:30 PM	---	05:45 PM	0	1	0	1	4	0	2	1	***9***
05:45 PM	---	06:00 PM	1	0	2	0	5	4	9	1	***22***
06:00 PM	---	06:15 PM	0	1	2	1	5	3	2	2	***16***
06:15 PM	---	06:30 PM	4	0	2	0	3	2	1	4	***16***
06:30 PM	---	06:45 PM	1	0	0	1	3	0	4	0	***9***
06:45 PM	---	07:00 PM	0	0	0	0	1	1	0	3	***5***
HOURLY TOTALS											
04:00 PM	---	05:00 PM	3	2	1	0	0	5	5	3	***19***
04:15 PM	---	05:15 PM	3	2	1	2	1	7	2	5	***23***
04:30 PM	---	05:30 PM	2	0	0	2	3	8	7	5	***27***
04:45 PM	---	05:45 PM	2	1	0	3	7	7	9	6	***35***
05:00 PM	---	06:00 PM	3	1	2	3	12	7	18	4	***50***
05:15 PM	---	06:15 PM	1	2	4	2	16	8	18	4	***55***
05:30 PM	---	06:30 PM	5	2	6	2	17	9	14	8	***63***
05:45 PM	---	06:45 PM	6	1	6	2	16	9	16	7	***63***
06:00 PM	---	07:00 PM	5	1	4	2	12	6	7	9	***46***

Tel : (510) 232-1271 ***Fax: (510) 232-1272***

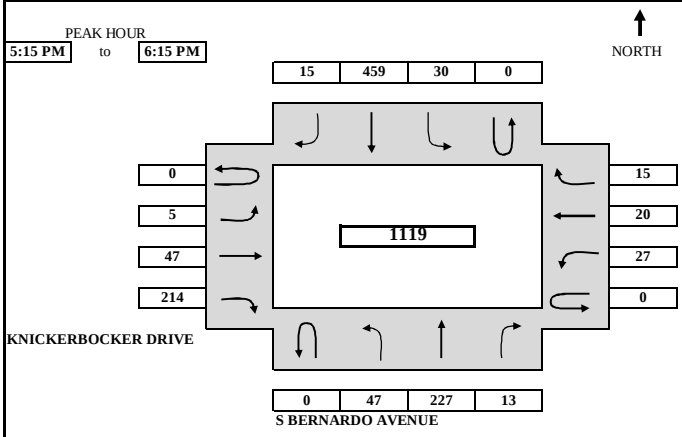
5:15 PM	to	6:15 PM				
VOLUME BY DIRECTION		NB	SB	EB	WB	TOTAL
PEDESTRIAN		20	8	9	18	**55**
VOLUME BY LEG		N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN		3	24	6	22	**55**

B.A.Y.M.E.T.R.I.C.S.

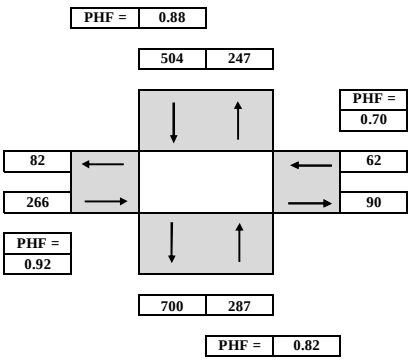
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**KNICKERBOCKER DRIVE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-6PM**

PEAK HOUR **5:15 PM** to **6:15 PM**



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		6	59	3		8	66	0		2	6	28		4	6	5	**193**
4:15 PM	to	4:30 PM		13	105	9		12	135	5		5	16	57		6	11	10	**384**
4:30 PM	to	4:45 PM		25	146	9		21	209	6		5	17	83		14	11	16	**562**
4:45 PM	to	5:00 PM		32	176	14		27	300	8		6	25	115		19	14	21	**757**
5:00 PM	to	5:15 PM		37	220	17		32	387	14		8	34	170		21	16	23	**979**
5:15 PM	to	5:30 PM		49	273	21		41	502	18		9	39	230		26	21	24	**1253**
5:30 PM	to	5:45 PM		61	323	25		47	620	21		11	54	285		33	26	26	**1532**
5:45 PM	to	6:00 PM		67	379	27		56	750	25		12	69	334		41	33	33	**1826**
6:00 PM	to	6:15 PM		84	447	30		62	846	29		13	81	384		48	36	38	**2098**
6:15 PM	to	6:30 PM		92	498	32		66	953	33		15	92	419		53	39	44	**2336**
6:30 PM	to	6:45 PM		98	550	38		74	1039	37		18	102	449		56	44	45	**2550**
6:45 PM	to	7:00 PM		105	589	38		77	1117	40		21	107	482		62	49	46	**2733**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	6	59	3	0	8	66	0	0	2	6	28	0	4	6	5	**193**
4:15 PM	to	4:30 PM	0	7	46	6	0	4	69	5	0	3	10	29	0	2	5	5	**191**
4:30 PM	to	4:45 PM	0	12	41	0	0	9	74	1	0	0	1	26	0	8	0	6	**178**
4:45 PM	to	5:00 PM	0	7	30	5	0	6	91	2	0	1	8	32	0	5	3	5	**195**
5:00 PM	to	5:15 PM	0	5	44	3	0	5	87	6	0	2	9	55	0	2	2	2	**222**
5:15 PM	to	5:30 PM	0	12	53	4	0	9	115	4	0	1	5	60	0	5	5	1	**274**
5:30 PM	to	5:45 PM	0	12	50	4	0	6	118	3	0	2	15	55	0	7	5	2	**279**
5:45 PM	to	6:00 PM	0	6	56	2	0	9	130	4	0	1	15	49	0	8	7	7	**294**
6:00 PM	to	6:15 PM	0	17	68	3	0	6	96	4	0	1	12	50	0	7	3	5	**272**
6:15 PM	to	6:30 PM	0	8	51	2	0	4	107	4	0	2	11	35	0	5	3	6	**238**
6:30 PM	to	6:45 PM	0	6	52	6	0	8	86	4	0	3	10	30	0	3	5	1	**214**
6:45 PM	to	7:00 PM	0	7	39	0	0	3	78	3	0	3	5	33	0	6	5	1	**183**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	32	176	14	0	27	300	8	0	6	25	115	0	19	14	21	**757**
4:15 PM	to	5:15 PM	0	31	161	14	0	24	321	14	0	6	28	142	0	17	10	18	**786**
4:30 PM	to	5:30 PM	0	36	168	12	0	29	367	13	0	4	23	173	0	20	10	14	**869**
4:45 PM	to	5:45 PM	0	36	177	16	0	26	411	15	0	6	37	202	0	19	15	10	**970**
5:00 PM	to	6:00 PM	0	35	203	13	0	29	450	17	0	6	44	219	0	22	19	12	**1069**
5:15 PM	to	6:15 PM	0	47	227	13	0	30	459	15	0	5	47	214	0	27	20	15	**1119**
5:30 PM	to	6:30 PM	0	43	225	11	0	25	451	15	0	6	53	189	0	27	18	20	**1083**
5:45 PM	to	6:45 PM	0	37	227	13	0	27	419	16	0	7	48	164	0	23	18	19	**1018**
6:00 PM	to	7:00 PM	0	38	210	11	0	21	367	15	0	9	38	148	0	21	16	13	**907**

PEAK HOUR SUMMARY

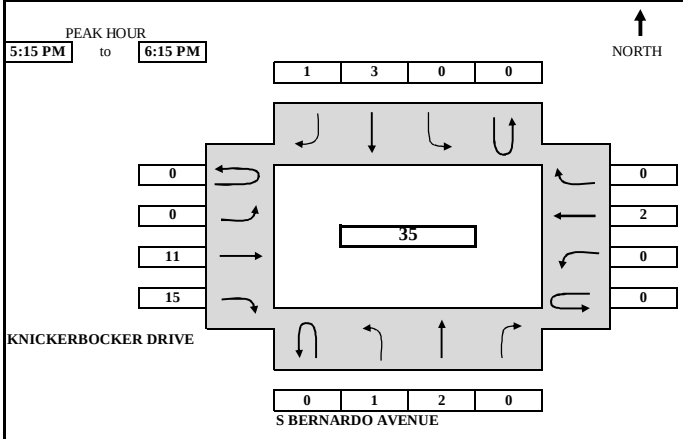
5:15 PM to 6:15 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	47	227	13	0	30	459	15	0	5	47	214	0	27	20	15	**1119**
PHF BY MOVEMENT	0.00	0.69	0.83	0.81	0.00	0.83	0.88	0.94	0.00	0.63	0.78	0.89	0.00	0.84	0.71	0.54	OVERALL
PHF BY APPROACH	0.82				0.88				0.92				0.70				**0.95**
BICYCLE	3				4				26				2				**35**
PEDESTRIAN	4				8				3				3				**18**
	N-LEG				**S-LEG**				**E-LEG**				**W-LEG**				
PEDESTRIAN BY LEG:	2				4				8				4				**18**

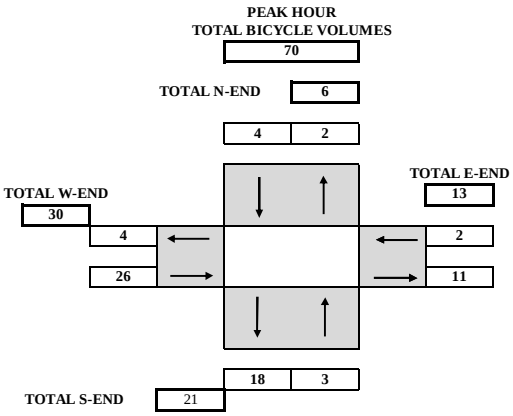
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**	**SURVEY DATE:**	**5/15/2018**	**DAY:**	**TUESDAY**
N-S APPROACH:	**S BERNARDO AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**7:00 PM**
E-W APPROACH:	**KNICKERBOCKER DRIVE**	**JURISDICTION:**	**SUNNYVALE**	**FILE:**	**3805027-6PM**





TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
4:15 PM	to	4:30 PM	0	2	1	0	0	0	1	1	0	0	0	0	0	0	0	0	**5**
4:30 PM	to	4:45 PM	0	2	1	0	0	0	1	1	0	0	0	0	0	0	1	1	**7**
4:45 PM	to	5:00 PM	0	2	1	0	0	0	1	1	0	0	2	2	0	0	1	1	**11**
5:00 PM	to	5:15 PM	0	3	1	0	0	0	1	1	0	0	3	6	0	0	1	1	**17**
5:15 PM	to	5:30 PM	0	3	1	0	0	0	2	2	0	0	4	7	0	0	1	1	**21**
5:30 PM	to	5:45 PM	0	3	2	0	0	0	3	2	0	0	9	14	0	0	1	1	**35**
5:45 PM	to	6:00 PM	0	3	2	0	0	0	4	2	0	0	12	19	0	0	1	1	**44**
6:00 PM	to	6:15 PM	0	4	3	0	0	0	4	2	0	0	14	21	0	0	3	1	**52**
6:15 PM	to	6:30 PM	0	4	4	0	0	0	4	2	0	0	17	25	0	0	4	1	**61**
6:30 PM	to	6:45 PM	0	5	4	0	0	0	4	2	0	0	19	29	0	0	5	1	**69**
6:45 PM	to	7:00 PM	0	6	4	0	0	0	5	2	0	0	20	31	0	0	6	1	**75**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
4:15 PM	to	4:30 PM	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	**3**
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	**2**
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	**4**
5:00 PM	to	5:15 PM	0	1	0	0	0	0	0	0	0	0	1	4	0	0	0	0	**6**
5:15 PM	to	5:30 PM	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	**4**
5:30 PM	to	5:45 PM	0	0	1	0	0	0	1	0	0	0	5	7	0	0	0	0	**14**
5:45 PM	to	6:00 PM	0	0	0	0	0	0	1	0	0	0	3	5	0	0	0	0	**9**
6:00 PM	to	6:15 PM	0	1	1	0	0	0	0	0	0	0	2	2	0	0	2	0	**8**
6:15 PM	to	6:30 PM	0	0	1	0	0	0	0	0	0	0	3	4	0	0	1	0	**9**
6:30 PM	to	6:45 PM	0	1	0	0	0	0	0	0	0	0	2	4	0	0	1	0	**8**
6:45 PM	to	7:00 PM	0	1	0	0	0	0	1	0	0	0	1	2	0	0	1	0	**6**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	2	1	0	0	0	1	1	0	0	2	2	0	0	1	1	**11**
4:15 PM	to	5:15 PM	0	2	0	0	0	0	1	1	0	0	3	6	0	0	1	1	**15**
4:30 PM	to	5:30 PM	0	1	0	0	0	0	1	1	0	0	4	7	0	0	1	1	**16**
4:45 PM	to	5:45 PM	0	1	1	0	0	0	2	1	0	0	9	14	0	0	0	0	**28**
5:00 PM	to	6:00 PM	0	1	1	0	0	0	3	1	0	0	10	17	0	0	0	0	**33**
5:15 PM	to	6:15 PM	0	1	2	0	0	0	3	1	0	0	11	15	0	0	2	0	**35**
5:30 PM	to	6:30 PM	0	1	3	0	0	0	2	0	0	0	13	18	0	0	3	0	**40**
5:45 PM	to	6:45 PM	0	2	2	0	0	0	1	0	0	0	10	15	0	0	4	0	**34**
6:00 PM	to	7:00 PM	0	3	2	0	0	0	1	0	0	0	8	12	0	0	5	0	**31**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

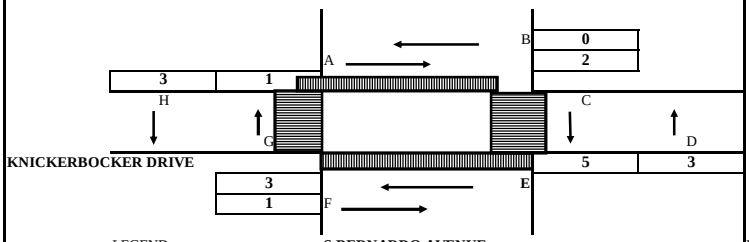
5:15 PM to 6:15 PM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	3	4	26	2	**35**

B.A.Y.M.E.T.R.I.C.S.

PEDESTRIAN MOVEMENT SUMMARY

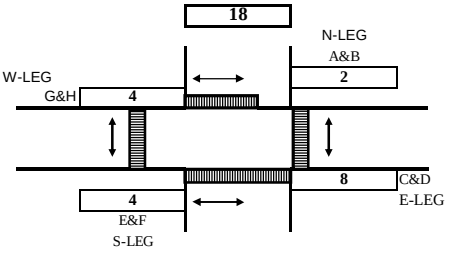
PROJECT:	**TRAFFIC COUNTS IN SUNNYVALE**			**SURVEY DATE:**	**5/15/2018**
N-S APPROACH:	**S BERNARDO AVENUE**			**DAY:**	**TUESDAY**
E-W APPROACH:	**KNICKERBOCKER DRIVE**			**JURISDICTION:**	**SUNNYVALE**
SURVEY PERIOD:	**4:00 PM**	**TO**	**7:00 PM**	**FILE:**	**3805027-6PM**

PEAK HOUR
5:15 PM TO **6:15 PM**



LEGEND:
- CROSSWALK
- SIDEWALK
- STOP CONTROL LINE
- STOP

PEAK HOUR
TOTAL PEDESTRIAN VOLUMES
18



BY LEG:		**BY DIRECTION:**	
N-LEG	**2**	**NB**(D+G)	**4**
S-LEG	**4**	**SB**(C+H)	**8**
E-LEG	**8**	**EB**(A+F)	**3**
W-LEG	**4**	**WB**(B+E)	**3**

TIME PERIOD			**NORTH X-WALK**		**EAST X-WALK**		**SOUTH X-WALK**		**WEST X-WALK**		
From		**To**	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***TOTAL***
SURVEY DATA											
04:00 PM	---	04:15 PM	0	0	0	0	0	0	1	0	***1***
04:15 PM	---	04:30 PM	0	0	0	0	0	1	1	1	***3***
04:30 PM	---	04:45 PM	0	0	0	0	0	1	1	1	***3***
04:45 PM	---	05:00 PM	0	0	0	0	0	1	1	2	***4***
05:00 PM	---	05:15 PM	1	1	1	2	0	2	1	2	***10***
05:15 PM	---	05:30 PM	1	1	1	2	0	2	2	2	***11***
05:30 PM	---	05:45 PM	2	1	1	3	3	3	2	3	***18***
05:45 PM	---	06:00 PM	3	1	4	4	3	3	2	5	***25***
06:00 PM	---	06:15 PM	3	1	6	5	3	3	2	5	***28***
06:15 PM	---	06:30 PM	3	3	6	7	3	4	2	6	***34***
06:30 PM	---	06:45 PM	3	3	6	8	4	4	2	6	***36***
06:45 PM	---	07:00 PM	3	3	6	9	5	6	4	6	***42***
TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	0	0	0	0	0	0	1	0	***1***
04:15 PM	---	04:30 PM	0	0	0	0	0	1	0	1	***2***
04:30 PM	---	04:45 PM	0	0	0	0	0	0	0	0	***0***
04:45 PM	---	05:00 PM	0	0	0	0	0	0	0	1	***1***
05:00 PM	---	05:15 PM	1	1	1	2	0	1	0	0	***6***
05:15 PM	---	05:30 PM	0	0	0	0	0	0	1	0	***1***
05:30 PM	---	05:45 PM	1	0	0	1	3	1	0	1	***7***
05:45 PM	---	06:00 PM	1	0	3	1	0	0	0	2	***7***
06:00 PM	---	06:15 PM	0	0	2	1	0	0	0	0	***3***
06:15 PM	---	06:30 PM	0	2	0	2	0	1	0	1	***6***
06:30 PM	---	06:45 PM	0	0	0	1	1	0	0	0	***2***
06:45 PM	---	07:00 PM	0	0	0	1	1	2	2	0	***6***
HOURLY TOTALS											
04:00 PM	---	05:00 PM	0	0	0	0	0	1	1	2	***4***
04:15 PM	---	05:15 PM	1	1	1	2	0	2	0	2	***9***
04:30 PM	---	05:30 PM	1	1	1	2	0	1	1	1	***8***
04:45 PM	---	05:45 PM	2	1	1	3	3	2	1	2	***15***
05:00 PM	---	06:00 PM	3	1	4	4	3	2	1	3	***21***
05:15 PM	---	06:15 PM	2	0	5	3	3	1	1	3	***18***
05:30 PM	---	06:30 PM	2	2	5	5	3	2	0	4	***23***
05:45 PM	---	06:45 PM	1	2	5	5	1	1	0	3	***18***
06:00 PM	---	07:00 PM	0	2	2	5	2	3	2	1	***17***

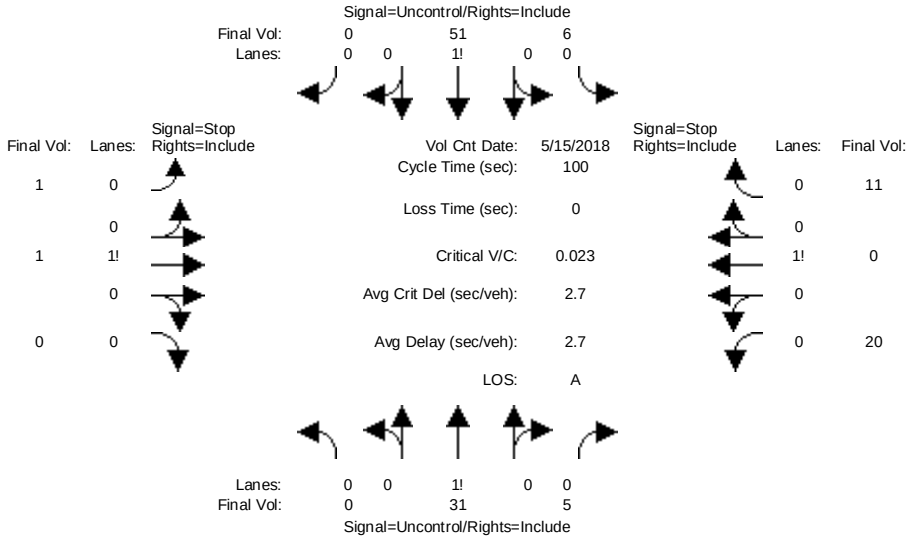
Tel : (510) 232-1271 ***Fax: (510) 232-1272***

5:15 PM	to	6:15 PM			
VOLUME BY DIRECTION	NB	SB	EB	WB	TOTAL
PEDESTRIAN	4	8	3	3	**18**
VOLUME BY LEG	N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN	2	4	8	4	**18**

Appendix C
Existing Conditions Analysis

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Intersection #1: S Knickerbocker Dr / Brookfield Ave



Street Name:	S Knickerbocker Dr						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM												
Base Vol:	0	31	5	6	51	0	1	1	0	20	0	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	31	5	6	51	0	1	1	0	20	0	11
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	31	5	6	51	0	1	1	0	20	0	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	31	5	6	51	0	1	1	0	20	0	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	31	5	6	51	0	1	1	0	20	0	11
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	xxxxx	7.1	6.5	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	xxxxx	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	36	xxxx	xxxxx	102	99	xxxxx	97	97	34
Potent Cap.:	xxxx	xxxx	xxxxx	1588	xxxx	xxxxx	884	795	xxxxx	890	797	1046
Move Cap.:	xxxx	xxxx	xxxxx	1588	xxxx	xxxxx	872	792	xxxxx	887	794	1046
Volume/Cap:	xxxx	xxxx	xxxx	0.00	xxxx	xxxx	0.00	0.00	xxxx	0.02	0.00	0.01
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	830	xxxx	xxxxx	xxxx	937	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	9.3	xxxx	xxxxx	xxxxx	9.0	xxxxx
Shared LOS:	*	*	*	A	*	*	A	*	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			9.3			9.0		
ApproachLOS:	*			*			A			A		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #1 S Knickerbocker Dr / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

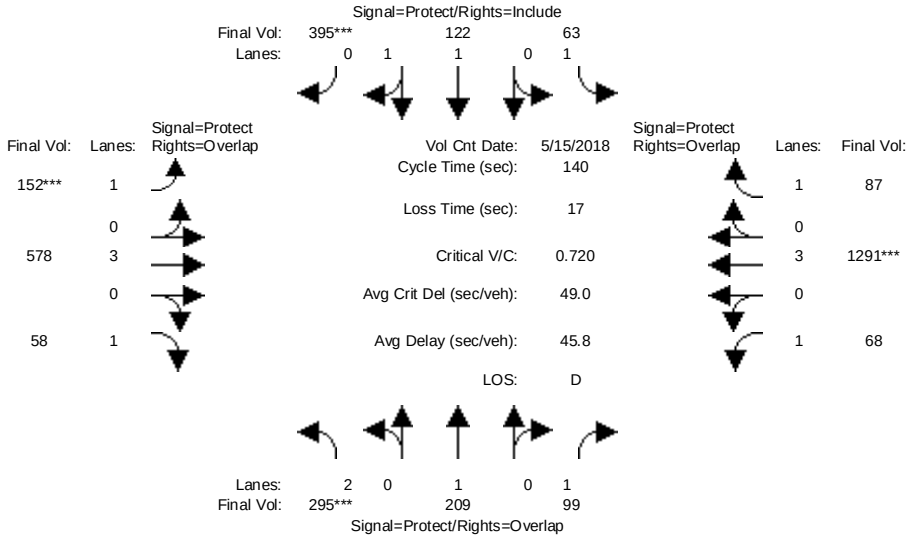

```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        0  0  0  1  0    0  1  0  0  0    0  1  0  0  0    0  0  1! 0  0
Initial Vol:    0   31     5     6   51     0     1    1     0    20    0    11
ApproachDel:    xxxxxx           xxxxxx             9.3             9.0
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=2]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=126]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.
--------------------------------------------------------------------------------
Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=31]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=126]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
               Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #1 S Knickerbocker Dr / Brookfield Ave
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        0  0  0  1  0    0  1  0  0  0    0  1  0  0  0    0  0  1! 0  0
Initial Vol:    0   31     5     6   51     0     1    1     0    20    0    11
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             93
Minor Approach Volume:           31
Minor Approach Volume Threshold: 853
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #2: S Bernardo Ave / W El Camino Real

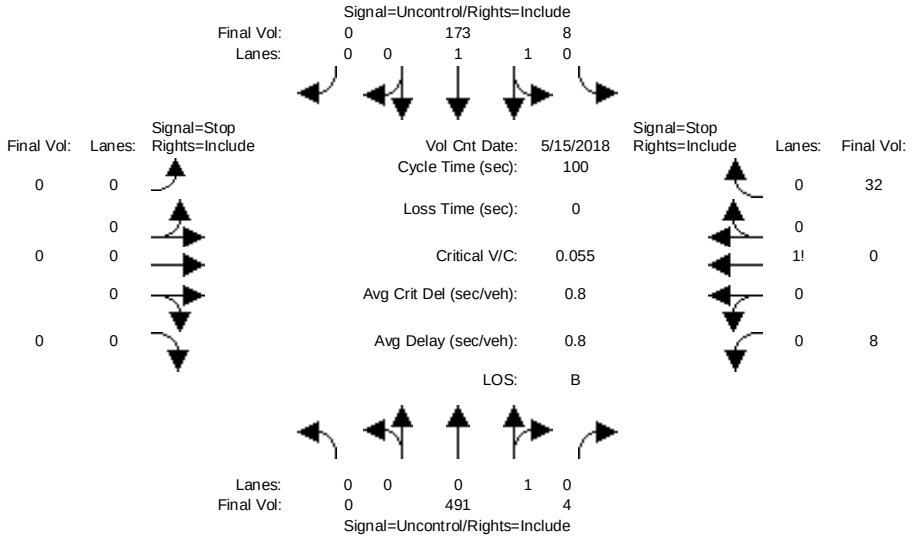


Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM												
Base Vol:	295	209	99	63	122	395	152	578	58	68	1291	87
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	295	209	99	63	122	395	152	578	58	68	1291	87
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	295	209	99	63	122	395	152	578	58	68	1291	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	295	209	99	63	122	395	152	578	58	68	1291	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	295	209	99	63	122	395	152	578	58	68	1291	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	295	209	99	63	122	395	152	578	58	68	1291	87
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	1900	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.09	0.11	0.06	0.04	0.06	0.23	0.09	0.10	0.03	0.04	0.23	0.05
Crit Moves:	****					****	****				****	
Green Time:	18.2	32.5	59.6	29.6	43.9	43.9	16.9	33.8	52.0	27.1	44.0	73.6
Volume/Cap:	0.72	0.47	0.13	0.17	0.20	0.72	0.72	0.42	0.09	0.20	0.72	0.09
Uniform Del:	58.5	46.4	24.5	45.2	35.3	42.6	59.3	44.8	28.6	47.4	42.5	16.6
IncremntDel:	6.1	0.8	0.1	0.2	0.0	3.6	11.4	0.2	0.1	0.3	1.5	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	64.6	47.2	24.6	45.4	35.3	46.2	70.7	45.0	28.6	47.7	44.0	16.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	64.6	47.2	24.6	45.4	35.3	46.2	70.7	45.0	28.6	47.7	44.0	16.6
LOS by Move:	E	D	C	D	D+	D	E	D	C	D	D	B
HCM2kAvgQ:	187	187	66	60	93	428	206	176	42	66	429	48

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Intersection #3: S Bernardo Ave / Blair Ave




```
Street Name:          S Bernardo Ave                    Blair Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM
Base Vol:       0  491     4     8  173     0     0    0     0     8    0    32
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  491     4     8  173     0     0    0     0     8    0    32
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  491     4     8  173     0     0    0     0     8    0    32
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  491     4     8  173     0     0    0     0     8    0    32
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0  491     4     8  173     0     0    0     0     8    0    32
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   495 xxxx xxxxx  xxxx xxxx xxxxx   596  682   493
Potent Cap.: xxxx xxxx xxxxx  1079 xxxx xxxxx  xxxx xxxx xxxxx   470  375   580
Move Cap.:   xxxx xxxx xxxxx  1079 xxxx xxxxx  xxxx xxxx xxxxx   467  372   580
Volume/Cap:  xxxx xxxx  xxxx  0.01 xxxx  xxxx  xxxx xxxx  xxxx  0.02 0.00  0.06
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.6 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   8.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  553 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.2 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   8.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 12.0 xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    B     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             12.0
ApproachLOS:         *                *                *                B
Note: Queue reported is the distance per lane in feet.
                    Peak Hour Delay Signal Warrant Report
********************************************************************************
Intersection #3 S Bernardo Ave / Blair Ave
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```



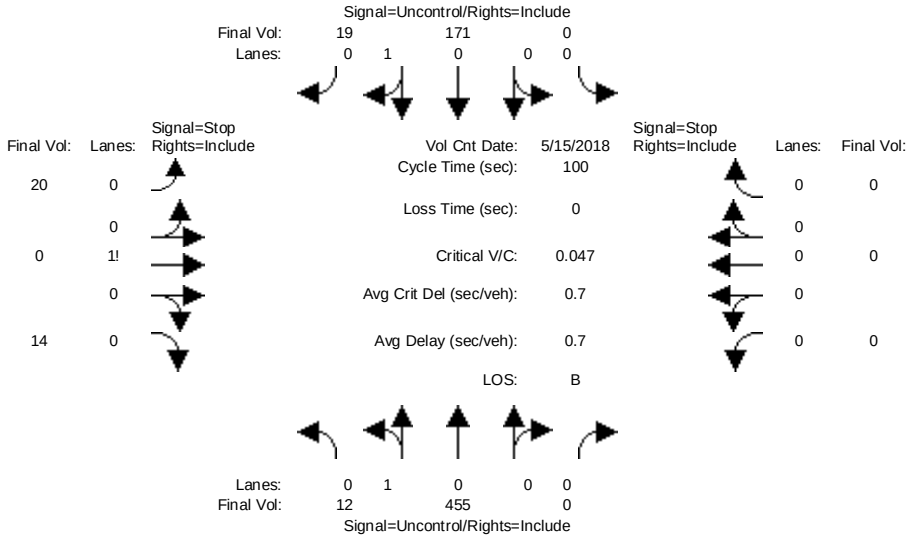
```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        0  0  0  1  0    0  1  1  0  0    0  0  0  0  0    0  0  1! 0  0
Initial Vol:    0  491     4     8  173     0     0    0     0     8    0    32
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             12.0
------------|---------------||---------------||---------------||---------------|
Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=40]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=716]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
               Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #3 S Bernardo Ave / Blair Ave
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        0  0  0  1  0    0  1  1  0  0    0  0  0  0  0    0  0  1! 0  0
Initial Vol:    0  491     4     8  173     0     0    0     0     8    0    32
------------|---------------||---------------||---------------||---------------|
Major Street Volume:              676
Minor Approach Volume:            40
Minor Approach Volume Threshold: 420
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Intersection #4: S Bernardo Ave / Brookfield Ave




```
Street Name:          S Bernardo Ave                    Brookfield Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM
Base Vol:      12  455     0     0  171    19    20    0    14     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   12  455     0     0  171    19    20    0    14     0    0     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   12  455     0     0  171    19    20    0    14     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    12  455     0     0  171    19    20    0    14     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   12  455     0     0  171    19    20    0    14     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  190 xxxx xxxxx  xxxx xxxx xxxxx   660  660   181  xxxx xxxx xxxxx
Potent Cap.: 1396 xxxx xxxxx  xxxx xxxx xxxxx   431  386   867  xxxx xxxx xxxxx
Move Cap.:   1396 xxxx xxxxx  xxxx xxxx xxxxx   429  383   867  xxxx xxxx xxxxx
Volume/Cap:  0.01 xxxx  xxxx  xxxx xxxx  xxxx  0.05 0.00  0.02  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    0.7 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  541 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.0 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 12.1 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    B     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             12.1           xxxxxx
ApproachLOS:         *                *                B                *
Note: Queue reported is the distance per lane in feet.
                    Peak Hour Delay Signal Warrant Report
********************************************************************************
Intersection #4 S Bernardo Ave / Brookfield Ave
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0 1! 0	0	0	0	0 0
Initial Vol:	12	455	0	0	171	19	20	0	14	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.1			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=34]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=691]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #4 S Bernardo Ave / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0 1! 0	0	0	0	0 0
Initial Vol:	12	455	0	0	171	19	20	0	14	0	0	0

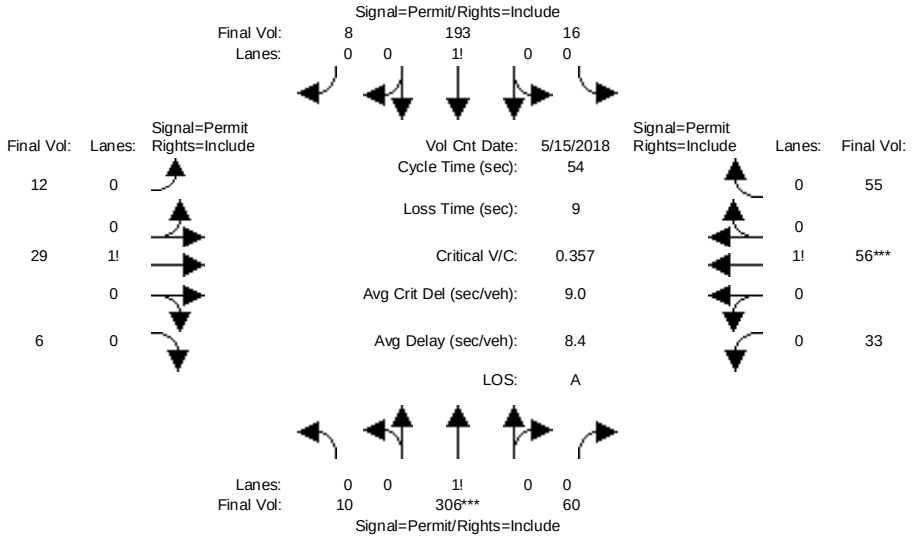
Major Street Volume: 657
Minor Approach Volume: 34
Minor Approach Volume Threshold: 331

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #5: S Bernardo Ave / Heatherstone Wy

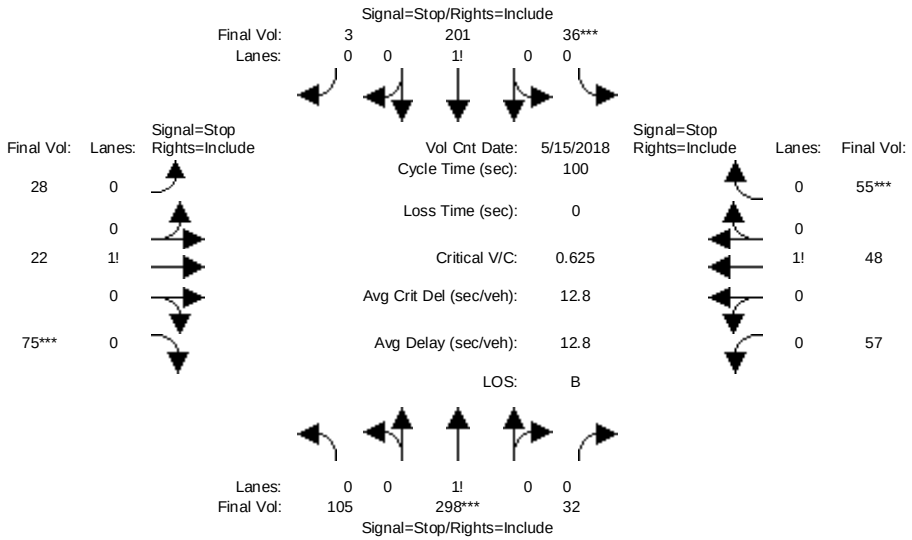


Street Name:	S Bernardo Ave						Heatherstone Wy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	15	15	15	15	15	15	6	6	6	6	6	6
Y+R:	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 15 May 2018 << 7:45 AM - 8:45 AM												
Base Vol:	10	306	60	16	193	8	12	29	6	33	56	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	306	60	16	193	8	12	29	6	33	56	55
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	306	60	16	193	8	12	29	6	33	56	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	306	60	16	193	8	12	29	6	33	56	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	306	60	16	193	8	12	29	6	33	56	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	306	60	16	193	8	12	29	6	33	56	55
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.03	0.81	0.16	0.07	0.89	0.04	0.25	0.62	0.13	0.23	0.39	0.38
Final Sat.:	47	1424	279	129	1556	65	447	1080	223	401	681	668
Capacity Analysis Module:												
Vol/Sat:	0.21	0.21	0.21	0.12	0.12	0.12	0.03	0.03	0.03	0.08	0.08	0.08
Crit Moves:		****									****	
Green Time:	32.5	32.5	32.5	32.5	32.5	32.5	12.5	12.5	12.5	12.5	12.5	12.5
Volume/Cap:	0.36	0.36	0.36	0.21	0.21	0.21	0.12	0.12	0.12	0.36	0.36	0.36
Uniform Del:	5.4	5.4	5.4	4.9	4.9	4.9	16.4	16.4	16.4	17.4	17.4	17.4
IncremntDel:	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	5.6	5.6	5.6	5.0	5.0	5.0	16.5	16.5	16.5	18.0	18.0	18.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	5.6	5.6	5.6	5.0	5.0	5.0	16.5	16.5	16.5	18.0	18.0	18.0
LOS by Move:	A	A	A	A	A	A	B	B	B	B	B	B
HCM2kAvgQ:	56	56	56	24	24	24	18	18	18	51	51	51

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing AM

Intersection #6: S Bernardo Ave / S Knickerbocker Dr



Street Name:	S Bernardo Ave						S Knickerbocker Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 15 May 2018 << 7:45 AM - 8:45 AM												
Base Vol:	105	298	32	36	201	3	28	22	75	57	48	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	105	298	32	36	201	3	28	22	75	57	48	55
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	105	298	32	36	201	3	28	22	75	57	48	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	105	298	32	36	201	3	28	22	75	57	48	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	105	298	32	36	201	3	28	22	75	57	48	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	105	298	32	36	201	3	28	22	75	57	48	55
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.24	0.69	0.07	0.15	0.84	0.01	0.22	0.18	0.60	0.36	0.30	0.34
Final Sat.:	168	477	51	97	540	8	130	102	347	206	173	198
Capacity Analysis Module:												
Vol/Sat:	0.62	0.62	0.62	0.37	0.37	0.37	0.22	0.22	0.22	0.28	0.28	0.28
Crit Moves:		****		****					****			****
Delay/Veh:	15.5	15.5	15.5	11.1	11.1	11.1	9.8	9.8	9.8	10.5	10.5	10.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.5	15.5	15.5	11.1	11.1	11.1	9.8	9.8	9.8	10.5	10.5	10.5
LOS by Move:	C	C	C	B	B	B	A	A	A	B	B	B
ApproachDel:	15.5			11.1			9.8			10.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	15.5			11.1			9.8			10.5		
LOS by Appr:	C			B			A			B		
AllWayAvgQ:	36.1	36.1	36.1	12.8	12.8	12.8	5.2	5.2	5.2	7.5	7.5	7.5

Note: Queue reported is the distance per lane in feet.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #6 S Bernardo Ave / S Knickerbocker Dr

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	105	298	32	36	201	3	28	22	75	57	48	55

Major Street Volume: 675
Minor Approach Volume: 160
Minor Approach Volume Threshold: 324

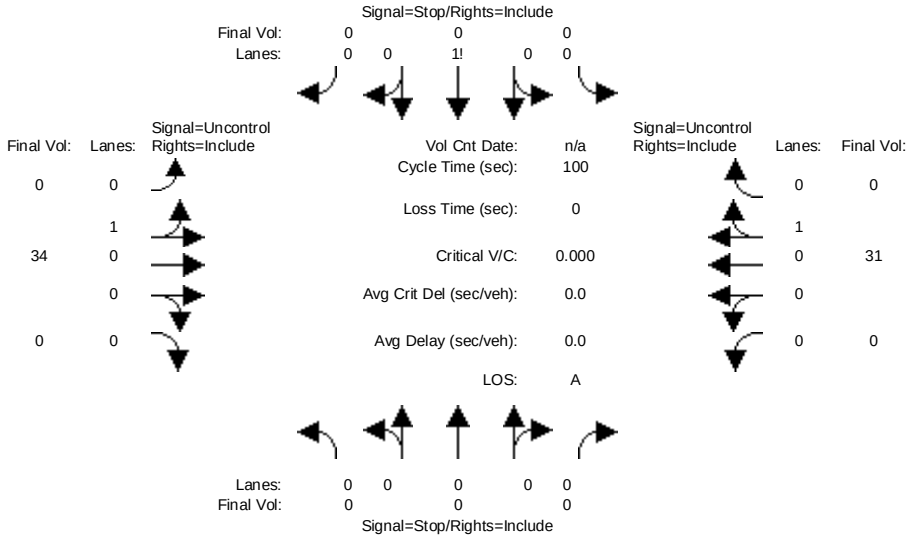
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Intersection #7: Project Driveway/ Brookfield Ave



Street Name:	Project Driveway						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:AM												
Base Vol:	0	0	0	0	0	0	0	34	0	0	31	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	34	0	0	31	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	34	0	0	31	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	0	0	0	0	34	0	0	31	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	0	0	0	34	0	0	31	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	65	65	31	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	946	830	1049	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	946	830	1049	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.00	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	0	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 0 1 0 0			0 0 1 0 0		
Initial Vol:	0	0	0	0	0	0	0	34	0	0	31	0
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 0 1 0 0			0 0 1 0 0		
Initial Vol:	0	0	0	0	0	0	0	34	0	0	31	0

Major Street Volume: 65
Minor Approach Volume: 0
Minor Approach Volume Threshold: 948

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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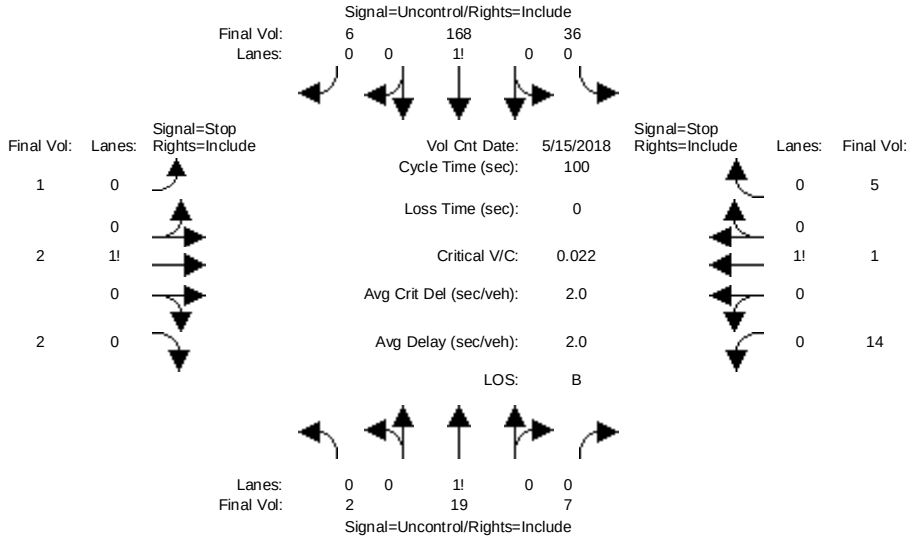
Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM

Intersection #1: S Knickerbocker Dr / Brookfield Ave



Street Name:	S Knickerbocker Dr						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	2	19	7	36	168	6	1	2	2	14	1	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	19	7	36	168	6	1	2	2	14	1	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	19	7	36	168	6	1	2	2	14	1	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	19	7	36	168	6	1	2	2	14	1	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	19	7	36	168	6	1	2	2	14	1	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	174	xxxx	xxxxx	26	xxxx	xxxxx	273	273	171	272	273	23
Potent Cap.:	1415	xxxx	xxxxx	1601	xxxx	xxxxx	684	637	878	685	638	1060
Move Cap.:	1415	xxxx	xxxxx	1601	xxxx	xxxxx	667	622	878	669	622	1060
Volume/Cap:	0.00	xxxx	xxxx	0.02	xxxx	xxxx	0.00	0.00	0.00	0.02	0.00	0.00
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	1.7	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.5	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	715	xxxxx	xxxx	734	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.1	xxxxx	xxxxx	10.0	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			10.1			10.0		
ApproachLOS:	*			*			B			B		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #1 S Knickerbocker Dr / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Initial Vol:	2	19	7	36	168	6	1	2	2	14	1	5
ApproachDel:	xxxxxx			xxxxxx			10.1			10.0		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=263]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=263]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

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a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #1 S Knickerbocker Dr / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Initial Vol:	2	19	7	36	168	6	1	2	2	14	1	5

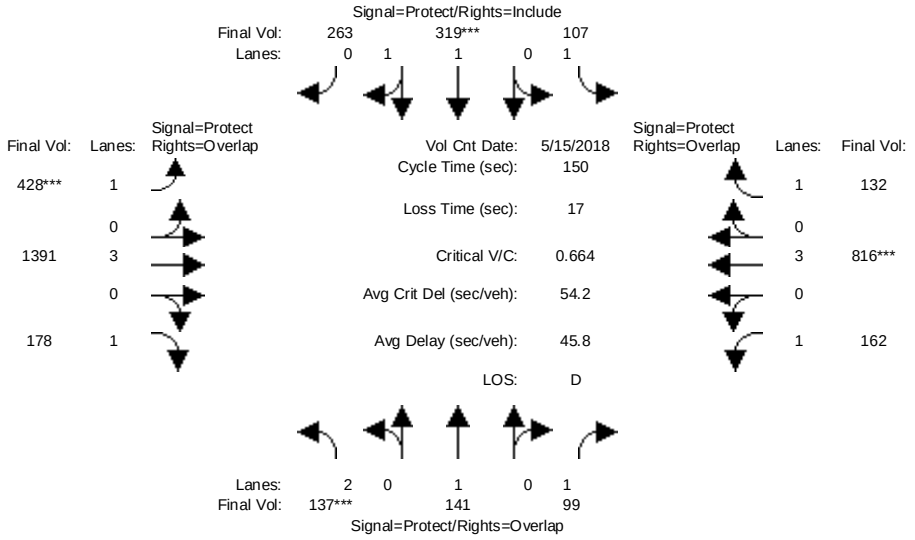
Major Street Volume: 238
Minor Approach Volume: 20
Minor Approach Volume Threshold: 602

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #2: S Bernardo Ave / W El Camino Real

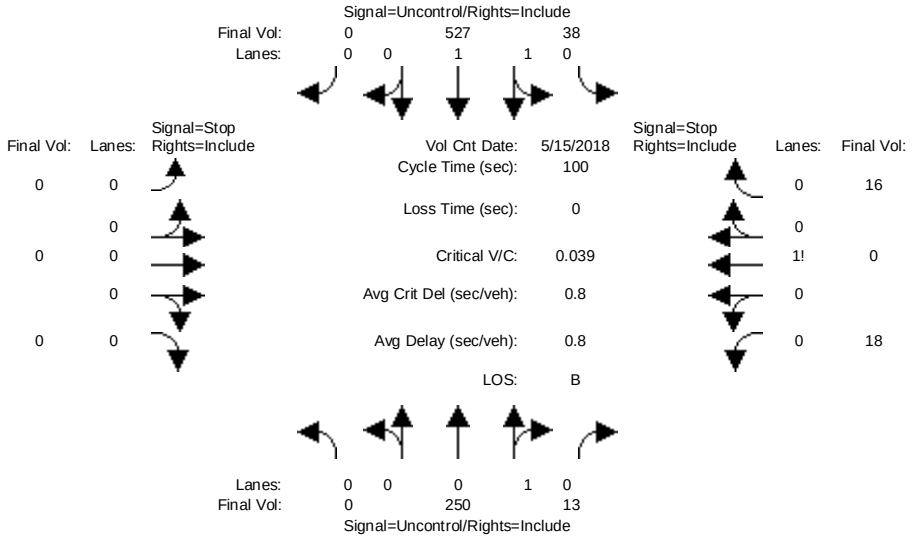


Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 5:45 PM - 6:45 PM												
Base Vol:	137	141	99	107	319	263	428	1391	178	162	816	132
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	137	141	99	107	319	263	428	1391	178	162	816	132
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	137	141	99	107	319	263	428	1391	178	162	816	132
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	137	141	99	107	319	263	428	1391	178	162	816	132
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	137	141	99	107	319	263	428	1391	178	162	816	132
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	137	141	99	107	319	263	428	1391	178	162	816	132
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.95	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.07	0.93	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	2027	1671	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.04	0.07	0.06	0.06	0.16	0.16	0.24	0.24	0.10	0.09	0.14	0.08
Crit Moves:	****				****		****				****	
Green Time:	14.0	24.2	47.5	24.2	34.4	34.4	53.4	61.4	75.4	23.3	31.3	55.4
Volume/Cap:	0.47	0.46	0.18	0.38	0.69	0.69	0.69	0.60	0.20	0.60	0.69	0.20
Uniform Del:	64.5	57.0	37.2	56.2	52.9	52.9	41.2	34.6	20.7	59.0	54.9	32.2
IncremntDel:	1.2	1.1	0.2	0.9	2.4	2.4	3.2	0.4	0.1	3.6	1.7	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	65.6	58.1	37.3	57.1	55.3	55.3	44.4	35.1	20.8	62.6	56.6	32.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	65.6	58.1	37.3	57.1	55.3	55.3	44.4	35.1	20.8	62.6	56.6	32.4
LOS by Move:	E	E+	D+	E+	E+	E+	D	D+	C+	E	E+	C-
HCM2kAvgQ:	89	143	85	123	334	334	464	413	118	204	311	108

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM

Intersection #3: S Bernardo Ave / Blair Ave



Street Name:	S Bernardo Ave						Blair Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	0	250	13	38	527	0	0	0	0	18	0	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	250	13	38	527	0	0	0	0	18	0	16
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	250	13	38	527	0	0	0	0	18	0	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	250	13	38	527	0	0	0	0	18	0	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	250	13	38	527	0	0	0	0	18	0	16
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	263	xxxx	xxxxx	xxxx	xxxx	xxxxx	596	860	257
Potent Cap.:	xxxx	xxxx	xxxxx	1313	xxxx	xxxxx	xxxx	xxxx	xxxxx	470	296	787
Move Cap.:	xxxx	xxxx	xxxxx	1313	xxxx	xxxxx	xxxx	xxxx	xxxxx	459	287	787
Volume/Cap:	xxxx	xxxx	xxxx	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	0.04	0.00	0.02
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	571	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.7	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.7		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #3 S Bernardo Ave / Blair Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 1 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	250	13	38	527	0	0	0	0	18	0	16
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.7		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=34]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=862]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #3 S Bernardo Ave / Blair Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 1 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	250	13	38	527	0	0	0	0	18	0	16

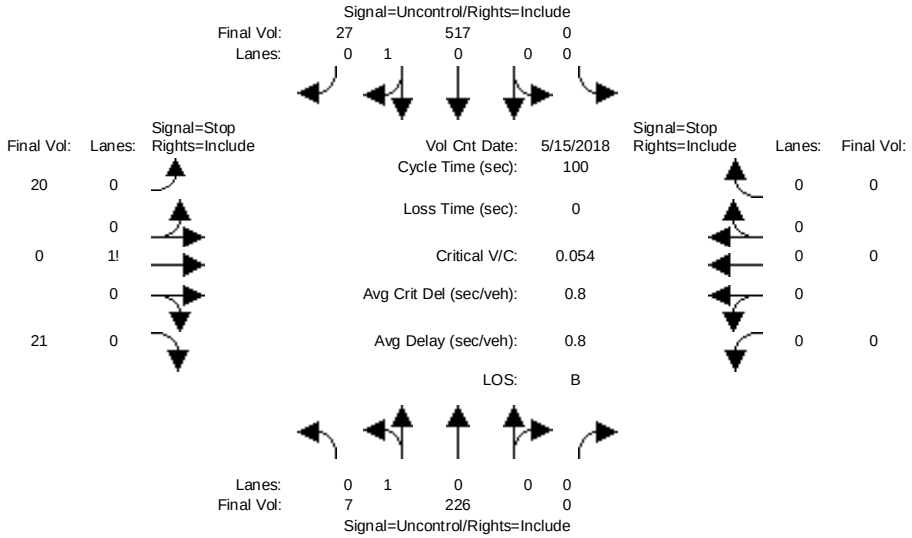
Major Street Volume: 828
Minor Approach Volume: 34
Minor Approach Volume Threshold: 350

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM

Intersection #4: S Bernardo Ave / Brookfield Ave



Street Name:	S Bernardo Ave						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	7	226	0	0	517	27	20	0	21	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	226	0	0	517	27	20	0	21	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	226	0	0	517	27	20	0	21	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	7	226	0	0	517	27	20	0	21	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	226	0	0	517	27	20	0	21	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	544	xxxx	xxxxx	xxxx	xxxx	xxxxx	771	771	531	xxxx	xxxx	xxxxx
Potent Cap.:	1035	xxxx	xxxxx	xxxx	xxxx	xxxxx	371	333	552	xxxx	xxxx	xxxxx
Move Cap.:	1035	xxxx	xxxxx	xxxx	xxxx	xxxxx	370	331	552	xxxx	xxxx	xxxxx
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.05	0.00	0.04	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	445	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.9	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			13.9			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #4 S Bernardo Ave / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0 0	1! 0	0	0	0	0 0
Initial Vol:	7	226	0	0	517	27	20	0	21	0	0	0
ApproachDel:	xxxxxx			xxxxxx			13.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=41]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=818]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #4 S Bernardo Ave / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0 0	1! 0	0	0	0	0 0
Initial Vol:	7	226	0	0	517	27	20	0	21	0	0	0

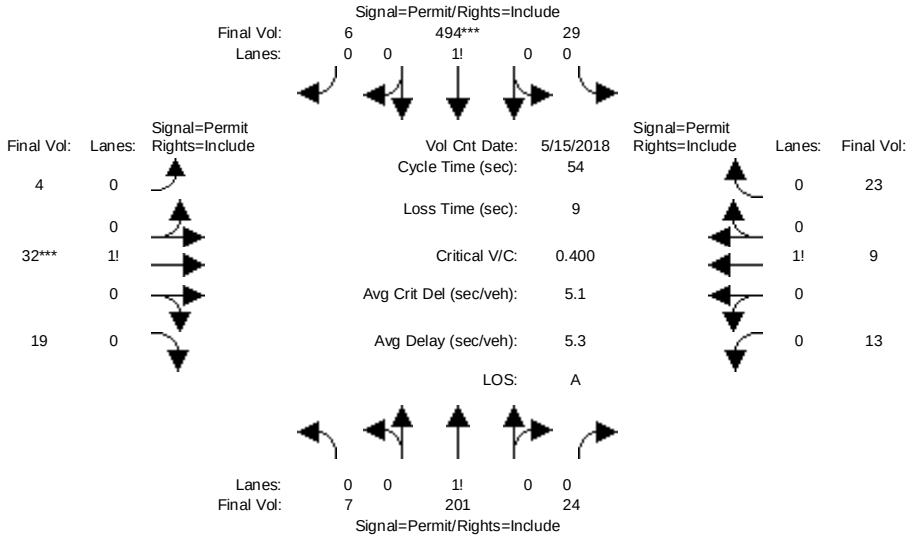
Major Street Volume: 777
Minor Approach Volume: 41
Minor Approach Volume Threshold: 287

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #5: S Bernardo Ave / Heatherstone Wy

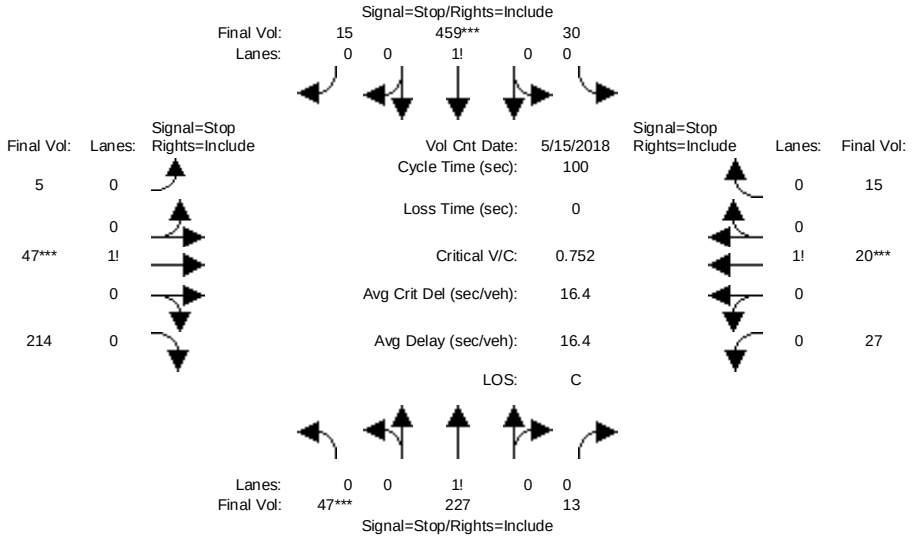


Street Name:	S Bernardo Ave						Heatherstone Wy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	15	15	15	15	15	15	6	6	6	6	6	6
Y+R:	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	7	201	24	29	494	6	4	32	19	13	9	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	201	24	29	494	6	4	32	19	13	9	23
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	201	24	29	494	6	4	32	19	13	9	23
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	7	201	24	29	494	6	4	32	19	13	9	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	201	24	29	494	6	4	32	19	13	9	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	201	24	29	494	6	4	32	19	13	9	23
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.03	0.87	0.10	0.05	0.94	0.01	0.07	0.58	0.35	0.29	0.20	0.51
Final Sat.:	53	1516	181	96	1634	20	127	1018	605	506	350	894
Capacity Analysis Module:												
Vol/Sat:	0.13	0.13	0.13	0.30	0.30	0.30	0.03	0.03	0.03	0.03	0.03	0.03
Crit Moves:					****			****				
Green Time:	39.0	39.0	39.0	39.0	39.0	39.0	6.0	6.0	6.0	6.0	6.0	6.0
Volume/Cap:	0.18	0.18	0.18	0.42	0.42	0.42	0.28	0.28	0.28	0.23	0.23	0.23
Uniform Del:	2.4	2.4	2.4	3.0	3.0	3.0	22.0	22.0	22.0	21.9	21.9	21.9
IncremntDel:	0.1	0.1	0.1	0.2	0.2	0.2	0.8	0.8	0.8	0.6	0.6	0.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	2.5	2.5	2.5	3.2	3.2	3.2	22.8	22.8	22.8	22.5	22.5	22.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	2.5	2.5	2.5	3.2	3.2	3.2	22.8	22.8	22.8	22.5	22.5	22.5
LOS by Move:	A	A	A	A	A	A	C+	C+	C+	C+	C+	C+
HCM2kAvgQ:	6	6	6	93	93	93	30	30	30	24	24	24

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing PM

Intersection #6: S Bernardo Ave / S Knickerbocker Dr



Street Name:	S Bernardo Ave						S Knickerbocker Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	47	227	13	30	459	15	5	47	214	27	20	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	47	227	13	30	459	15	5	47	214	27	20	15
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	47	227	13	30	459	15	5	47	214	27	20	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	47	227	13	30	459	15	5	47	214	27	20	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	47	227	13	30	459	15	5	47	214	27	20	15
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	47	227	13	30	459	15	5	47	214	27	20	15
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.16	0.79	0.05	0.06	0.91	0.03	0.02	0.18	0.80	0.44	0.32	0.24
Final Sat.:	101	486	28	40	611	20	11	106	482	209	155	116
Capacity Analysis Module:												
Vol/Sat:	0.47	0.47	0.47	0.75	0.75	0.75	0.44	0.44	0.44	0.13	0.13	0.13
Crit Moves:	****			****			****			****		
Delay/Veh:	12.9	12.9	12.9	21.4	21.4	21.4	12.2	12.2	12.2	10.1	10.1	10.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.9	12.9	12.9	21.4	21.4	21.4	12.2	12.2	12.2	10.1	10.1	10.1
LOS by Move:	B	B	B	C	C	C	B	B	B	B	B	B
ApproachDel:	12.9			21.4			12.2			10.1		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	12.9			21.4			12.2			10.1		
LOS by Appr:	B			C			B			B		
AllWayAvgQ:	18.5	18.5	18.5	61.2	61.2	61.2	15.5	15.5	15.5	2.6	2.6	2.6

Note: Queue reported is the distance per lane in feet.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #6 S Bernardo Ave / S Knickerbocker Dr

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	47	227	13	30	459	15	5	47	214	27	20	15

Major Street Volume: 791
Minor Approach Volume: 266
Minor Approach Volume Threshold: 282

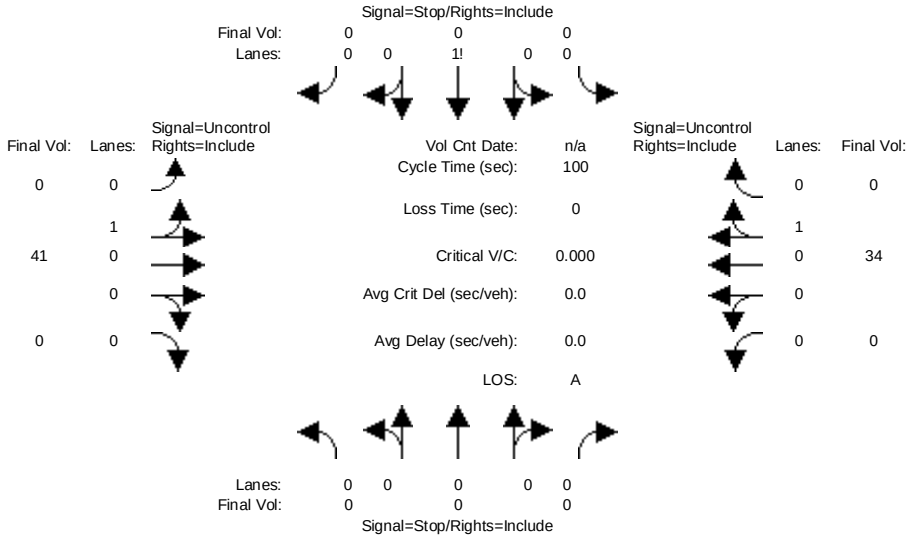
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM

Intersection #7: Project Driveway/ Brookfield Ave



Street Name:	Project Driveway						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: PM												
Base Vol:	0	0	0	0	0	0	0	41	0	0	34	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	41	0	0	34	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	0	0	0	41	0	0	34	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	0	0	0	0	41	0	0	34	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	0	0	0	41	0	0	34	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	75	75	34	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	933	819	1045	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	933	819	1045	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.00	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	0	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	*			*			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 0	0 0		0 0	1! 0	0	0 0	1 0	0	0 0	1 0	0
Initial Vol:	0	0	0	0	0	0	0	41	0	0	34	0
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 0	0 0		0 0	1! 0	0	0 0	1 0	0	0 0	1 0	0
Initial Vol:	0	0	0	0	0	0	0	41	0	0	34	0

Major Street Volume: 75
Minor Approach Volume: 0
Minor Approach Volume Threshold: 910

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Appendix D
Approved Project Trips

Approved Project Trip Generation - 803 W. El Camino Real

Land Use	Size	Unit	Daily Rate	Daily Trips	AM Peak Hour						PM Peak Hour					
					Rate	In%	In	Out%	Out	Total	Rate	In%	In	Out%	Out	Total
Existing Commercial	Not in Use...Under construction															
Proposed																
Single Family Homes[2]	9	dwelling units	9.44	85	0.74	25%	2	75%	5	7	0.99	63%	6	37%	3	9
Hotel Rooms[3]	51	rooms	8.36	426	0.47	59%	14	41%	10	24	0.60	51%	16	49%	15	31
Apartments[4]	40	dwelling units	5.44	218	0.36	26%	4	74%	11	14	0.44	61%	11	39%	7	18
Commercial[1]	5,662	sq ft	37.75	214	0.94	62%	3	38%	2	5	3.81	48%	10	52%	11	22
Total Proposed Trips				943			23		28	50			42		36	79
Proposed with Trip Reduction																
Single Family Homes[2]				76			1		5	6			5		3	8
Hotel Rooms[3]				418			14		10	23			15		15	30
Apartments[4]				209			4		11	14			10		7	17
Commercial[1]				205			3		2	5			10		11	21
Total Proposed Trips with reduction				909			22		26	48			40		35	75
Net New Trips				909			22		26	48			40		35	75

Notes:

All rates are from Institute of Tranpsortation Engineers, Trip Generation, 10th Edition

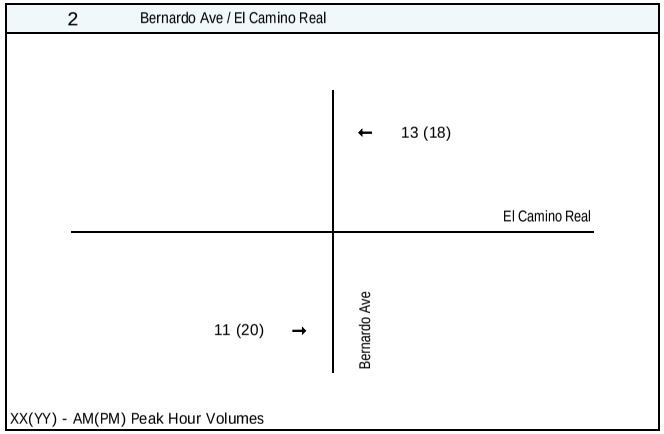
1. Land Use Code 820: Shopping Center (average rates, expressed in trips per 1000 sq ft).
2. Land Use Code 210: Single-Family Detached Housing (average rates, expressed in trips per dwelling unit).
3. Land Use Code 310: Hotel (average rates, expressed in trips per room).
4. Land Use Code 221: Multifamily Housing (Mid-Rise) (average rates, expressed in trips per dewlling unit).

The project is eligible for Trip reductions according to VTA TIA Guidelines...the min reduction of 10% is used for this calculation

approved project trips

2	Bernardo Ave	El Camino Real	0	0	0	0	0	0	0	11	0	0	13	0	0	0	0	0	0	0	0	20	0	0	18	0

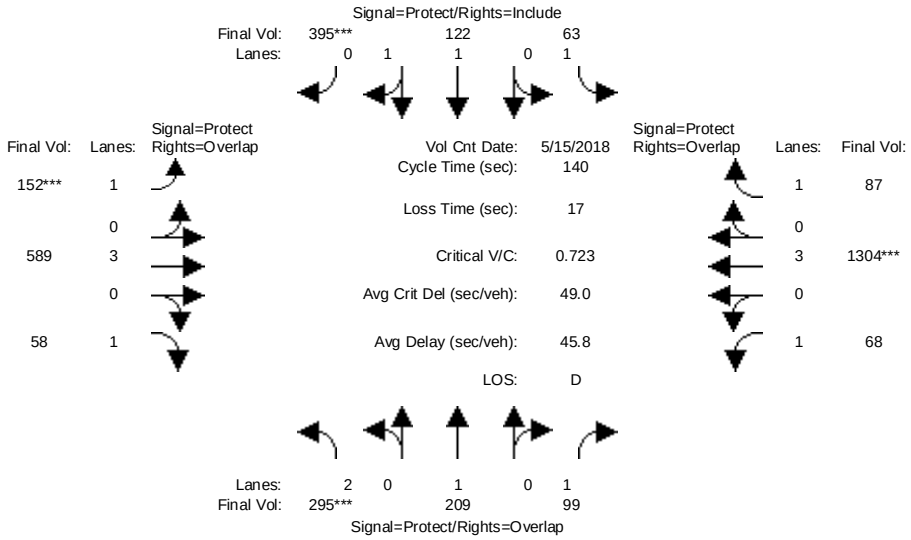
It is assumed that half of the trips generated by the approved project will go to/from east and half go to/from west from the approved project...therefore, the study intersection gets only half of the trips generated from the approved project.



Appendix E
Background Conditions Analysis

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Background AM

Intersection #2: S Bernardo Ave / W El Camino Real

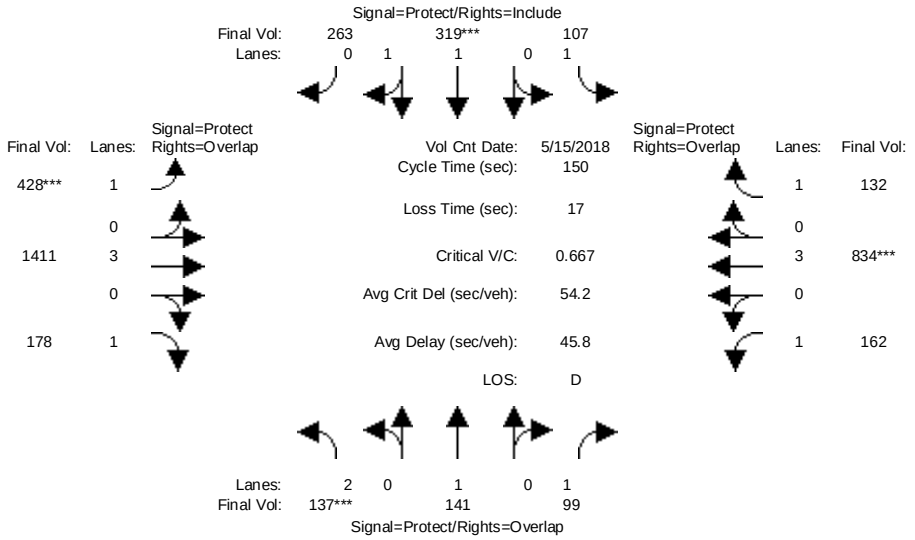


Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM												
Base Vol:	295	209	99	63	122	395	152	578	58	68	1291	87
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	295	209	99	63	122	395	152	578	58	68	1291	87
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
approved:	0	0	0	0	0	0	0	11	0	0	13	0
Initial Fut:	295	209	99	63	122	395	152	589	58	68	1304	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	295	209	99	63	122	395	152	589	58	68	1304	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	295	209	99	63	122	395	152	589	58	68	1304	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	295	209	99	63	122	395	152	589	58	68	1304	87
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	1900	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.09	0.11	0.06	0.04	0.06	0.23	0.09	0.10	0.03	0.04	0.23	0.05
Crit Moves:	****					****	****				****	
Green Time:	18.1	32.4	59.6	29.5	43.7	43.7	16.8	34.0	52.1	27.2	44.3	73.8
Volume/Cap:	0.72	0.48	0.13	0.17	0.21	0.72	0.72	0.43	0.09	0.20	0.72	0.09
Uniform Del:	58.5	46.5	24.5	45.3	35.4	42.8	59.3	44.8	28.5	47.3	42.4	16.5
IncremntDel:	6.3	0.8	0.1	0.2	0.0	3.6	11.7	0.2	0.1	0.3	1.5	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	64.8	47.3	24.6	45.5	35.4	46.4	71.0	45.0	28.6	47.6	43.9	16.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	64.8	47.3	24.6	45.5	35.4	46.4	71.0	45.0	28.6	47.6	43.9	16.5
LOS by Move:	E	D	C	D	D+	D	E	D	C	D	D	B
HCM2kAvgQ:	188	187	66	60	94	429	206	179	42	66	433	48

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Background PM

Intersection #2: S Bernardo Ave / W El Camino Real



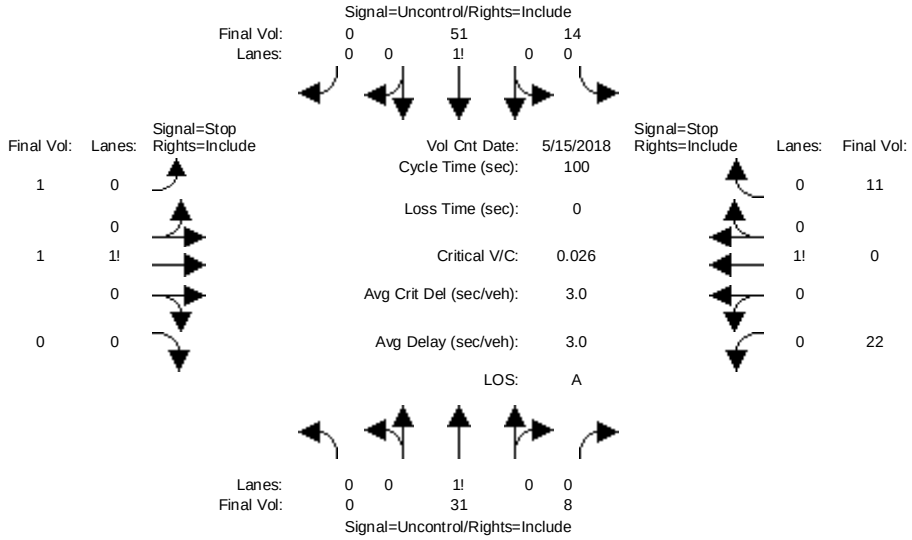
Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 5:45 PM - 6:45 PM												
Base Vol:	137	141	99	107	319	263	428	1391	178	162	816	132
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	137	141	99	107	319	263	428	1391	178	162	816	132
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
approved:	0	0	0	0	0	0	0	20	0	0	18	0
Initial Fut:	137	141	99	107	319	263	428	1411	178	162	834	132
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	137	141	99	107	319	263	428	1411	178	162	834	132
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	137	141	99	107	319	263	428	1411	178	162	834	132
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	137	141	99	107	319	263	428	1411	178	162	834	132
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.95	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.07	0.93	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	2027	1671	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.04	0.07	0.06	0.06	0.16	0.16	0.24	0.25	0.10	0.09	0.15	0.08
Crit Moves:	****				****		****				****	
Green Time:	14.0	24.1	47.2	24.1	34.2	34.2	53.1	61.7	75.7	23.1	31.8	55.8
Volume/Cap:	0.47	0.46	0.18	0.38	0.69	0.69	0.69	0.60	0.20	0.60	0.69	0.20
Uniform Del:	64.5	57.1	37.4	56.3	53.1	53.1	41.4	34.5	20.5	59.2	54.6	32.0
IncremntDel:	1.2	1.1	0.2	0.9	2.5	2.5	3.3	0.4	0.1	3.8	1.7	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	65.6	58.2	37.5	57.2	55.6	55.6	44.8	34.9	20.6	62.9	56.3	32.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	65.6	58.2	37.5	57.2	55.6	55.6	44.8	34.9	20.6	62.9	56.3	32.1
LOS by Move:	E	E+	D+	E+	E+	E+	D	C-	C+	E	E+	C-
HCM2kAvgQ:	89	143	85	123	335	335	466	419	117	205	317	108

Note: Queue reported is the distance per lane in feet.

Appendix F
Existing + Project Conditions Analysis

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project AM

Intersection #1: S Knickerbocker Dr / Brookfield Ave




```
Street Name:         S Knickerbocker Dr                  Brookfield Ave
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM
Base Vol:       0   31     5     6   51     0     1    1     0    20    0    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   31     5     6   51     0     1    1     0    20    0    11
Added Vol:      0    0     3     8    0     0     0    0     0     2    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0   31     8    14   51     0     1    1     0    22    0    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0   31     8    14   51     0     1    1     0    22    0    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0   31     8    14   51     0     1    1     0    22    0    11
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx   7.1  6.5 xxxxx   7.1  6.5   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx   3.5  4.0 xxxxx   3.5  4.0   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    39 xxxx xxxxx   120  118 xxxxx   115  114    35
Potent Cap.: xxxx xxxx xxxxx  1584 xxxx xxxxx   861  776 xxxxx   867  780  1044
Move Cap.:   xxxx xxxx xxxxx  1584 xxxx xxxxx   846  769 xxxxx   860  773  1044
Volume/Cap:  xxxx xxxx  xxxx  0.01 xxxx  xxxx  0.00 0.00  xxxx  0.03 0.00  0.01
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.7 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx   806 xxxx xxxxx  xxxx  914 xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.0 xxxx xxxxx   0.0 xxxx xxxxx xxxxx  0.1 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.3 xxxx xxxxx   9.5 xxxx xxxxx xxxxx  9.1 xxxxx
Shared LOS:     *    *     *     A    *     *     A    *     *     *    A     *
ApproachDel:    xxxxxx           xxxxxx              9.5             9.1
ApproachLOS:         *                *                A               A
Note: Queue reported is the distance per lane in feet.
                  Peak Hour Delay Signal Warrant Report
********************************************************************************
Intersection #1 S Knickerbocker Dr / Brookfield Ave
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 1 0 0 0			0 0 1! 0 0		
Initial Vol:	0	31	8	14	51	0	1	1	0	22	0	11
ApproachDel:	xxxxxx			xxxxxx			9.5			9.1		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=2]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=139]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=33]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=139]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #1 S Knickerbocker Dr / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 1 0 0 0			0 0 1! 0 0		
Initial Vol:	0	31	8	14	51	0	1	1	0	22	0	11

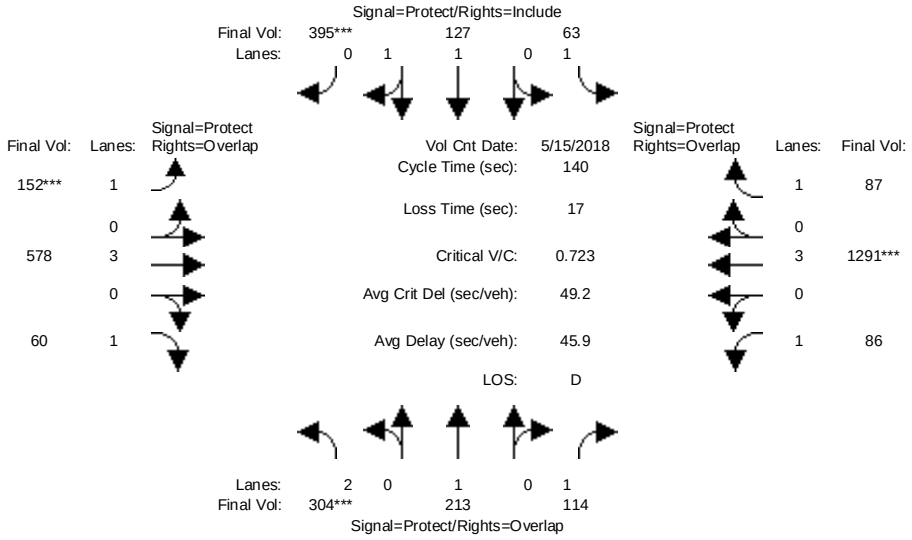
Major Street Volume: 104
Minor Approach Volume: 33
Minor Approach Volume Threshold: 823

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Project AM

Intersection #2: S Bernardo Ave / W El Camino Real

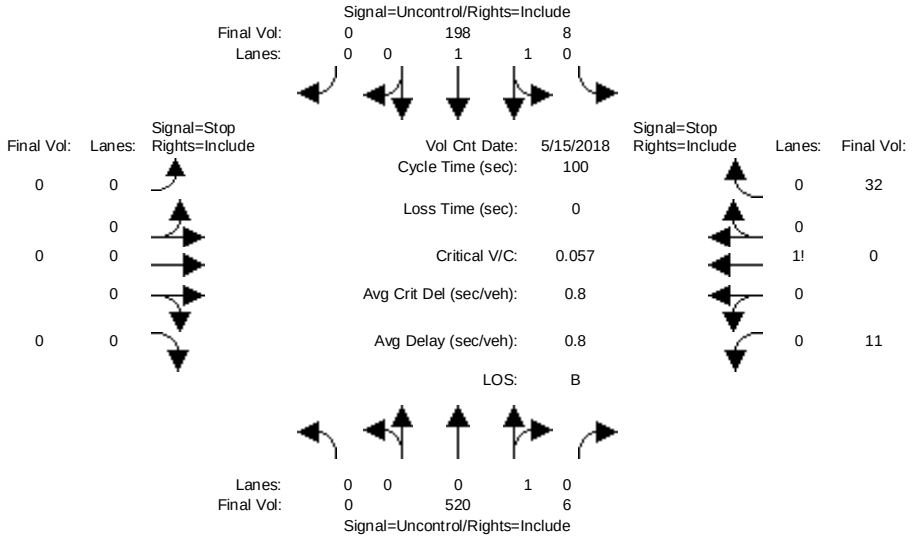


Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM												
Base Vol:	295	209	99	63	122	395	152	578	58	68	1291	87
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	295	209	99	63	122	395	152	578	58	68	1291	87
Added Vol:	9	4	15	0	5	0	0	0	2	18	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	304	213	114	63	127	395	152	578	60	86	1291	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	304	213	114	63	127	395	152	578	60	86	1291	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	304	213	114	63	127	395	152	578	60	86	1291	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	304	213	114	63	127	395	152	578	60	86	1291	87
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	1900	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.11	0.07	0.04	0.07	0.23	0.09	0.10	0.03	0.05	0.23	0.05
Crit Moves:	****					****	****				****	
Green Time:	18.7	33.0	59.9	29.4	43.7	43.7	16.8	33.7	52.4	27.0	43.8	73.2
Volume/Cap:	0.72	0.48	0.15	0.17	0.21	0.72	0.72	0.42	0.09	0.26	0.72	0.10
Uniform Del:	58.2	46.1	24.5	45.3	35.5	42.8	59.4	44.9	28.4	48.0	42.7	16.8
IncremntDel:	6.1	0.8	0.1	0.2	0.0	3.6	11.7	0.2	0.1	0.4	1.5	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	64.3	46.9	24.6	45.5	35.6	46.4	71.1	45.1	28.5	48.4	44.2	16.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	64.3	46.9	24.6	45.5	35.6	46.4	71.1	45.1	28.5	48.4	44.2	16.8
LOS by Move:	E	D	C	D	D+	D	E	D	C	D	D	B
HCM2kAvgQ:	193	190	77	60	98	429	206	176	44	86	430	49

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project AM

Intersection #3: S Bernardo Ave / Blair Ave



Street Name:	S Bernardo Ave						Blair Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM												
Base Vol:	0	491	4	8	173	0	0	0	0	8	0	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	491	4	8	173	0	0	0	0	8	0	32
Added Vol:	0	29	2	0	25	0	0	0	0	3	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	520	6	8	198	0	0	0	0	11	0	32
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	520	6	8	198	0	0	0	0	11	0	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	520	6	8	198	0	0	0	0	11	0	32
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	526	xxxx	xxxxx	xxxx	xxxx	xxxxx	638	737	523
Potent Cap.:	xxxx	xxxx	xxxxx	1051	xxxx	xxxxx	xxxx	xxxx	xxxxx	444	348	558
Move Cap.:	xxxx	xxxx	xxxxx	1051	xxxx	xxxxx	xxxx	xxxx	xxxxx	441	346	558
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	0.00	0.06
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.6	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	523	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.3	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	12.5	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.5		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #3 S Bernardo Ave / Blair Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 1 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	520	6	8	198	0	0	0	0	11	0	32
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.5		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=43]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=775]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #3 S Bernardo Ave / Blair Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 1 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	520	6	8	198	0	0	0	0	11	0	32

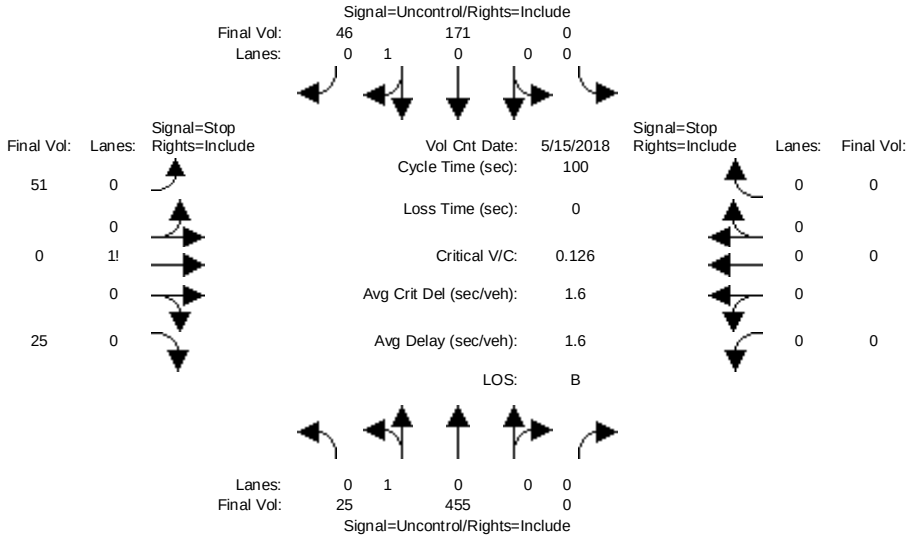
Major Street Volume: 732
Minor Approach Volume: 43
Minor Approach Volume Threshold: 392

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project AM

Intersection #4: S Bernardo Ave / Brookfield Ave



Street Name:	S Bernardo Ave						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM												
Base Vol:	12	455	0	0	171	19	20	0	14	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	12	455	0	0	171	19	20	0	14	0	0	0
Added Vol:	13	0	0	0	0	27	31	0	11	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	25	455	0	0	171	46	51	0	25	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	25	455	0	0	171	46	51	0	25	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	455	0	0	171	46	51	0	25	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	217	xxxx	xxxxx	xxxx	xxxx	xxxxx	699	699	194	xxxx	xxxx	xxxxx
Potent Cap.:	1365	xxxx	xxxxx	xxxx	xxxx	xxxxx	409	366	853	xxxx	xxxx	xxxxx
Move Cap.:	1365	xxxx	xxxxx	xxxx	xxxx	xxxxx	403	360	853	xxxx	xxxx	xxxxx
Volume/Cap:	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	0.13	0.00	0.03	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	1.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	488	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	13.7	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			13.7			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #4 S Bernardo Ave / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0 1! 0	0	0	0 0	0 0
Initial Vol:	25	455	0	0	171	46	51	0	25	0	0	0
ApproachDel:	xxxxxx			xxxxxx			13.7			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=76]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=773]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #4 S Bernardo Ave / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0 1! 0	0	0	0 0	0 0
Initial Vol:	25	455	0	0	171	46	51	0	25	0	0	0

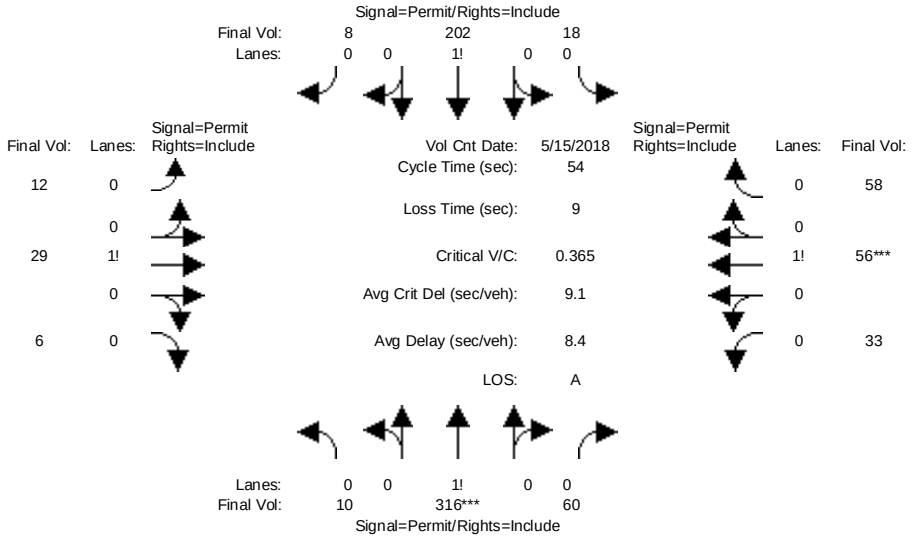
Major Street Volume: 697
Minor Approach Volume: 76
Minor Approach Volume Threshold: 316

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Project AM

Intersection #5: S Bernardo Ave / Heatherstone Wy

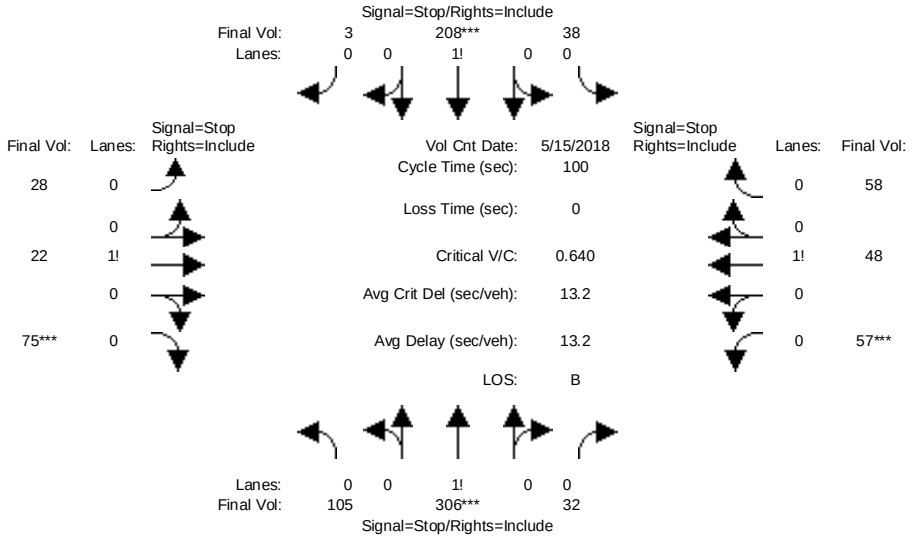


Street Name:	S Bernardo Ave						Heatherstone Wy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	15	15	15	15	15	15	6	6	6	6	6	6
Y+R:	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 15 May 2018 << 7:45 AM - 8:45 AM												
Base Vol:	10	306	60	16	193	8	12	29	6	33	56	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	306	60	16	193	8	12	29	6	33	56	55
Added Vol:	0	10	0	2	9	0	0	0	0	0	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	316	60	18	202	8	12	29	6	33	56	58
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	316	60	18	202	8	12	29	6	33	56	58
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	316	60	18	202	8	12	29	6	33	56	58
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	316	60	18	202	8	12	29	6	33	56	58
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.03	0.82	0.15	0.08	0.89	0.03	0.25	0.62	0.13	0.22	0.38	0.40
Final Sat.:	45	1433	272	138	1550	61	447	1080	223	393	667	690
Capacity Analysis Module:												
Vol/Sat:	0.22	0.22	0.22	0.13	0.13	0.13	0.03	0.03	0.03	0.08	0.08	0.08
Crit Moves:		****									****	
Green Time:	32.6	32.6	32.6	32.6	32.6	32.6	12.4	12.4	12.4	12.4	12.4	12.4
Volume/Cap:	0.37	0.37	0.37	0.22	0.22	0.22	0.12	0.12	0.12	0.37	0.37	0.37
Uniform Del:	5.4	5.4	5.4	4.9	4.9	4.9	16.5	16.5	16.5	17.5	17.5	17.5
IncremntDel:	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.6	0.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	5.7	5.7	5.7	5.0	5.0	5.0	16.6	16.6	16.6	18.0	18.0	18.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	5.7	5.7	5.7	5.0	5.0	5.0	16.6	16.6	16.6	18.0	18.0	18.0
LOS by Move:	A	A	A	A	A	A	B	B	B	B-	B-	B-
HCM2kAvgQ:	58	58	58	26	26	26	18	18	18	53	53	53

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing plus Project AM

Intersection #6: S Bernardo Ave / S Knickerbocker Dr



Street Name:	S Bernardo Ave						S Knickerbocker Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 15 May 2018 << 7:45 AM - 8:45 AM												
Base Vol:	105	298	32	36	201	3	28	22	75	57	48	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	105	298	32	36	201	3	28	22	75	57	48	55
Added Vol:	0	8	0	2	7	0	0	0	0	0	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	105	306	32	38	208	3	28	22	75	57	48	58
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	105	306	32	38	208	3	28	22	75	57	48	58
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	105	306	32	38	208	3	28	22	75	57	48	58
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	105	306	32	38	208	3	28	22	75	57	48	58
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.24	0.69	0.07	0.15	0.84	0.01	0.22	0.18	0.60	0.35	0.29	0.36
Final Sat.:	164	478	50	98	535	8	128	100	342	200	169	204
Capacity Analysis Module:												
Vol/Sat:	0.64	0.64	0.64	0.39	0.39	0.39	0.22	0.22	0.22	0.28	0.28	0.28
Crit Moves:		****			****				****	****		
Delay/Veh:	16.0	16.0	16.0	11.4	11.4	11.4	9.9	9.9	9.9	10.6	10.6	10.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.0	16.0	16.0	11.4	11.4	11.4	9.9	9.9	9.9	10.6	10.6	10.6
LOS by Move:	C	C	C	B	B	B	A	A	A	B	B	B
ApproachDel:		16.0			11.4			9.9			10.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		16.0			11.4			9.9			10.6	
LOS by Appr:		C			B			A			B	
AllWayAvgQ:	38.3	38.3	38.3	13.7	13.7	13.7	5.3	5.3	5.3	7.7	7.7	7.7

Note: Queue reported is the distance per lane in feet.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #6 S Bernardo Ave / S Knickerbocker Dr

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Initial Vol:	105	306	32	38	208	3	28	22	75	57	48	58

Major Street Volume: 692
Minor Approach Volume: 163
Minor Approach Volume Threshold: 318

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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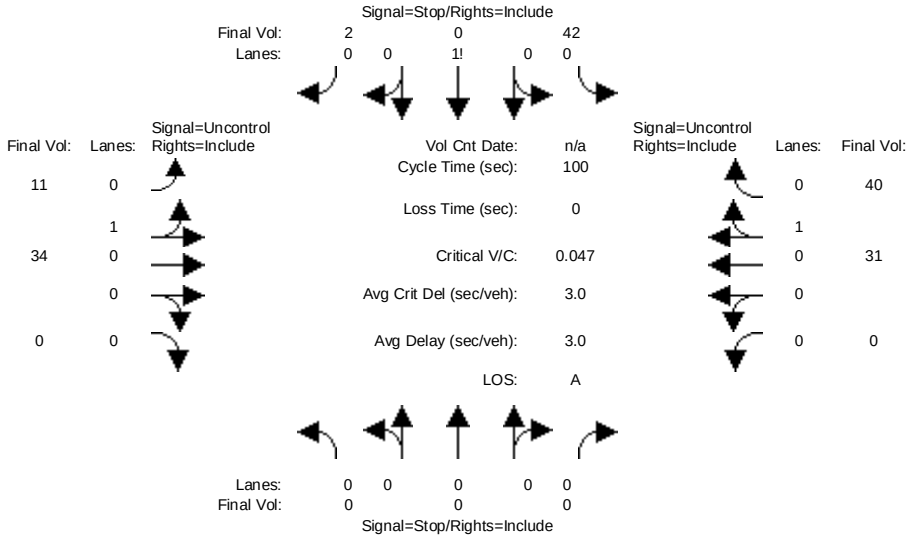
Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project AM

Intersection #7: Project Driveway/ Brookfield Ave



Street Name:	Project Driveway						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:AM												
Base Vol:	0	0	0	0	0	0	0	34	0	0	31	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	34	0	0	31	0
Added Vol:	0	0	0	42	0	2	11	0	0	0	0	40
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	42	0	2	11	34	0	0	31	40
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	42	0	2	11	34	0	0	31	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	42	0	2	11	34	0	0	31	40
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	107	107	51	71	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	895	787	1023	1542	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	890	781	1023	1542	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.05	0.00	0.00	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	896	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.2	xxxxx	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.2			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	42	0	2	11	34	0	0	31	40
ApproachDel:	xxxxxx			9.2			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=44]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=160]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	42	0	2	11	34	0	0	31	40

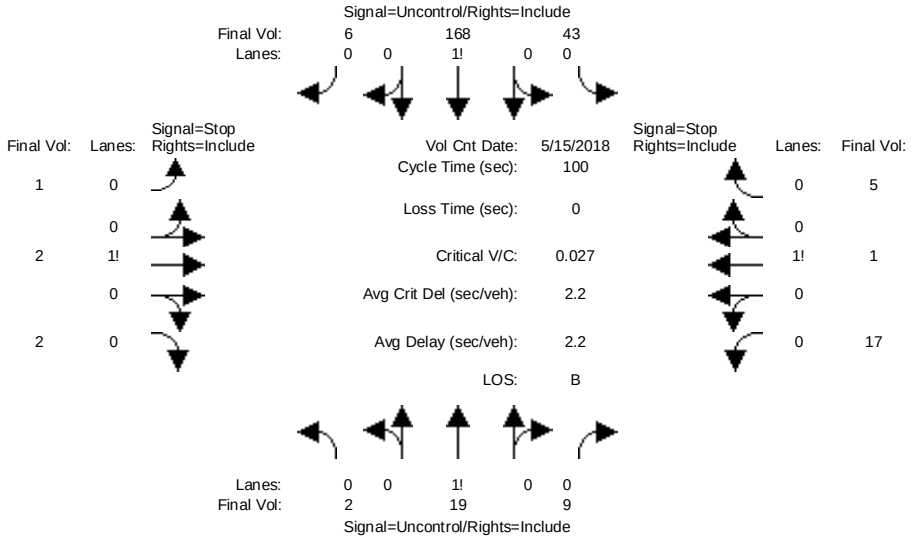
Major Street Volume: 116
Minor Approach Volume: 44
Minor Approach Volume Threshold: 794

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project PM

Intersection #1: S Knickerbocker Dr / Brookfield Ave



Street Name:	S Knickerbocker Dr						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	2	19	7	36	168	6	1	2	2	14	1	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	19	7	36	168	6	1	2	2	14	1	5
Added Vol:	0	0	2	7	0	0	0	0	0	3	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	19	9	43	168	6	1	2	2	17	1	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	19	9	43	168	6	1	2	2	17	1	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	19	9	43	168	6	1	2	2	17	1	5
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	174	xxxx	xxxxx	28	xxxx	xxxxx	288	289	171	287	288	24
Potent Cap.:	1415	xxxx	xxxxx	1599	xxxx	xxxxx	669	624	878	670	626	1059
Move Cap.:	1415	xxxx	xxxxx	1599	xxxx	xxxxx	650	606	878	652	608	1059
Volume/Cap:	0.00	xxxx	xxxx	0.03	xxxx	xxxx	0.00	0.00	0.00	0.03	0.00	0.00
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.5	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	703	xxxxx	xxxx	709	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.2	xxxxx	xxxxx	10.2	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			10.2			10.2		
ApproachLOS:	*			*			B			B		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #1 S Knickerbocker Dr / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met


```
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
Initial Vol:    2   19     9    43  168     6     1    2     2    17    1     5
ApproachDel:    xxxxxx           xxxxxx            10.2             10.2
------------|---------------||---------------||---------------||---------------|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=275]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.
--------------------------------------------------------------------------------
Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=23]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=275]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
               Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #1 S Knickerbocker Dr / Brookfield Ave
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
Initial Vol:    2   19     9    43  168     6     1    2     2    17    1     5
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             247
Minor Approach Volume:           23
Minor Approach Volume Threshold: 592
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
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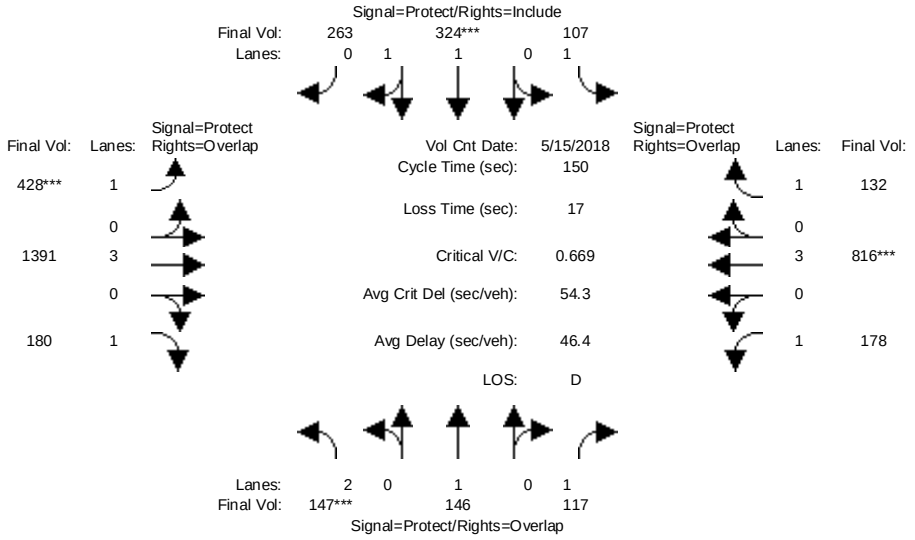
Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Project PM

Intersection #2: S Bernardo Ave / W El Camino Real

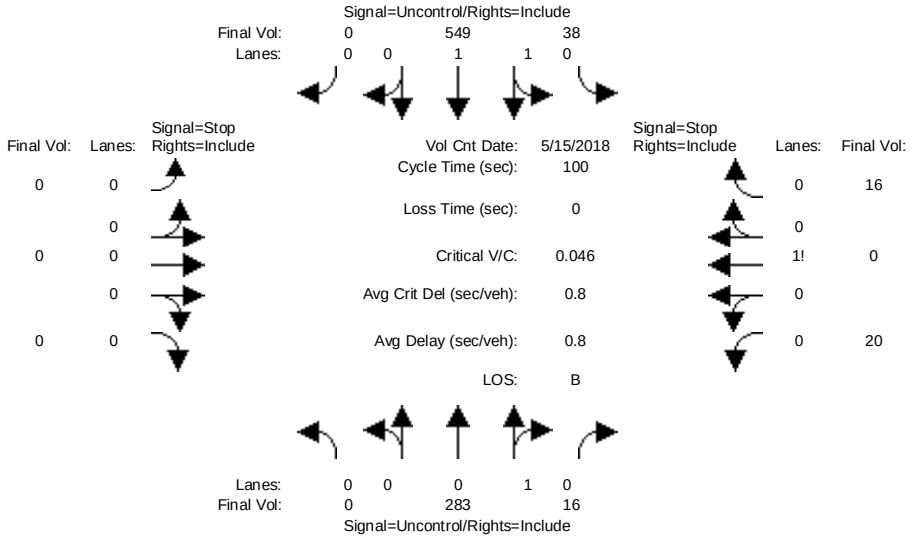


Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 5:45 PM - 6:45 PM												
Base Vol:	137	141	99	107	319	263	428	1391	178	162	816	132
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	137	141	99	107	319	263	428	1391	178	162	816	132
Added Vol:	10	5	18	0	5	0	0	0	2	16	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	147	146	117	107	324	263	428	1391	180	178	816	132
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	147	146	117	107	324	263	428	1391	180	178	816	132
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	147	146	117	107	324	263	428	1391	180	178	816	132
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	147	146	117	107	324	263	428	1391	180	178	816	132
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.95	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.08	0.92	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	2041	1657	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.08	0.07	0.06	0.16	0.16	0.24	0.24	0.10	0.10	0.14	0.08
Crit Moves:	****				****		****				****	
Green Time:	14.0	24.3	49.1	24.3	34.6	34.6	53.3	59.6	73.6	24.8	31.2	55.5
Volume/Cap:	0.50	0.47	0.20	0.38	0.69	0.69	0.69	0.61	0.21	0.61	0.69	0.20
Uniform Del:	64.7	57.1	36.4	56.1	52.8	52.8	41.3	36.0	21.7	58.1	54.9	32.2
IncremntDel:	1.3	1.2	0.2	0.8	2.4	2.4	3.3	0.5	0.1	3.9	1.7	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	66.0	58.2	36.5	57.0	55.2	55.2	44.6	36.5	21.8	62.0	56.7	32.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	66.0	58.2	36.5	57.0	55.2	55.2	44.6	36.5	21.8	62.0	56.7	32.4
LOS by Move:	E	E+	D+	E+	E+	E+	D	D+	C+	E	E+	C-
HCM2kAvgQ:	96	148	100	123	337	337	465	423	122	223	311	108

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project PM

Intersection #3: S Bernardo Ave / Blair Ave



Street Name:	S Bernardo Ave						Blair Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	0	250	13	38	527	0	0	0	0	18	0	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	250	13	38	527	0	0	0	0	18	0	16
Added Vol:	0	33	3	0	22	0	0	0	0	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	283	16	38	549	0	0	0	0	20	0	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	283	16	38	549	0	0	0	0	20	0	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	283	16	38	549	0	0	0	0	20	0	16
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	299	xxxx	xxxxx	xxxx	xxxx	xxxxx	642	916	291
Potent Cap.:	xxxx	xxxx	xxxxx	1274	xxxx	xxxxx	xxxx	xxxx	xxxxx	442	274	753
Move Cap.:	xxxx	xxxx	xxxxx	1274	xxxx	xxxxx	xxxx	xxxx	xxxxx	432	266	753
Volume/Cap:	xxxx	xxxx	xxxx	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	0.05	0.00	0.02
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	2.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	533	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	12.2	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.2		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

****

Intersection #3 S Bernardo Ave / Blair Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 1 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	283	16	38	549	0	0	0	0	20	0	16
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.2		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=36]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=922]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #3 S Bernardo Ave / Blair Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 1 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	283	16	38	549	0	0	0	0	20	0	16

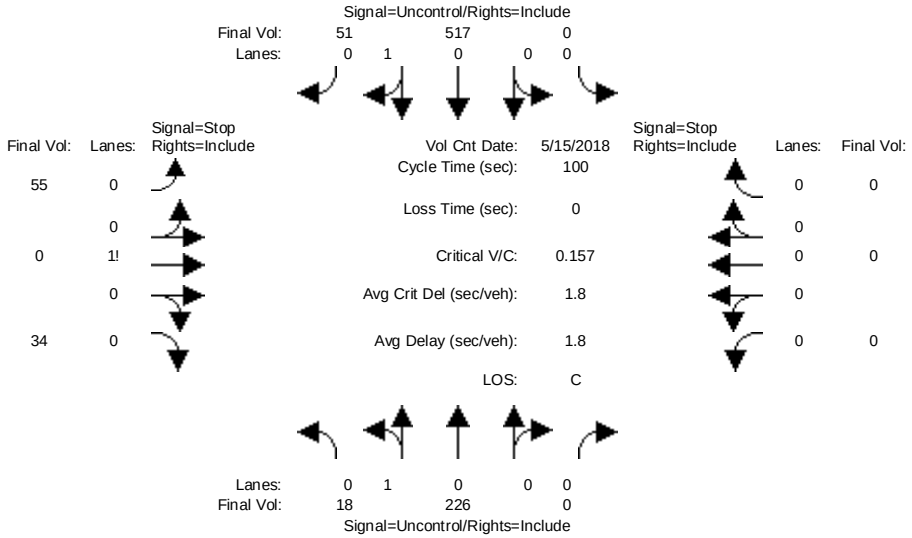
Major Street Volume: 886
Minor Approach Volume: 36
Minor Approach Volume Threshold: 327

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project PM

Intersection #4: S Bernardo Ave / Brookfield Ave




```
Street Name:          S Bernardo Ave                    Brookfield Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM
Base Vol:       7  226     0     0  517    27    20    0    21     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    7  226     0     0  517    27    20    0    21     0    0     0
Added Vol:     11    0     0     0    0    24    35    0    13     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   18  226     0     0  517    51    55    0    34     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    18  226     0     0  517    51    55    0    34     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   18  226     0     0  517    51    55    0    34     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx
FollowUpTim:  2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  568 xxxx xxxxx  xxxx xxxx xxxxx   805  805   543  xxxx xxxx xxxxx
Potent Cap.: 1014 xxxx xxxxx  xxxx xxxx xxxxx   355  319   544  xxxx xxxx xxxxx
Move Cap.:   1014 xxxx xxxxx  xxxx xxxx xxxxx   350  313   544  xxxx xxxx xxxxx
Volume/Cap:  0.02 xxxx  xxxx  xxxx xxxx  xxxx  0.16 0.00  0.06  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    1.4 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:  8.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    A    *     *     *    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx  405 xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.8 xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  8.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx 16.4 xxxxx xxxxx xxxx xxxxx
Shared LOS:     A    *     *     *    *     *     *    C     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx             16.4           xxxxxx
ApproachLOS:         *                *                C              *
Note: Queue reported is the distance per lane in feet.
                    Peak Hour Delay Signal Warrant Report
********************************************************************************
Intersection #4 S Bernardo Ave / Brookfield Ave
********************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
```


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0 1! 0	0	0	0 0	0 0
Initial Vol:	18	226	0	0	517	51	55	0	34	0	0	0
ApproachDel:	xxxxxx			xxxxxx			16.4			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=89]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=901]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #4 S Bernardo Ave / Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0 1! 0	0	0	0 0	0 0
Initial Vol:	18	226	0	0	517	51	55	0	34	0	0	0

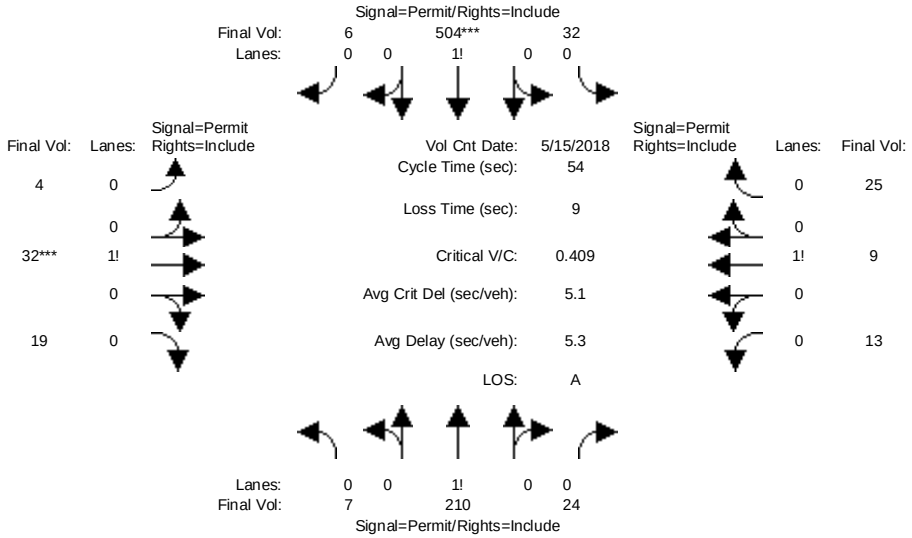
Major Street Volume: 812
Minor Approach Volume: 89
Minor Approach Volume Threshold: 275

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Project PM

Intersection #5: S Bernardo Ave / Heatherstone Wy

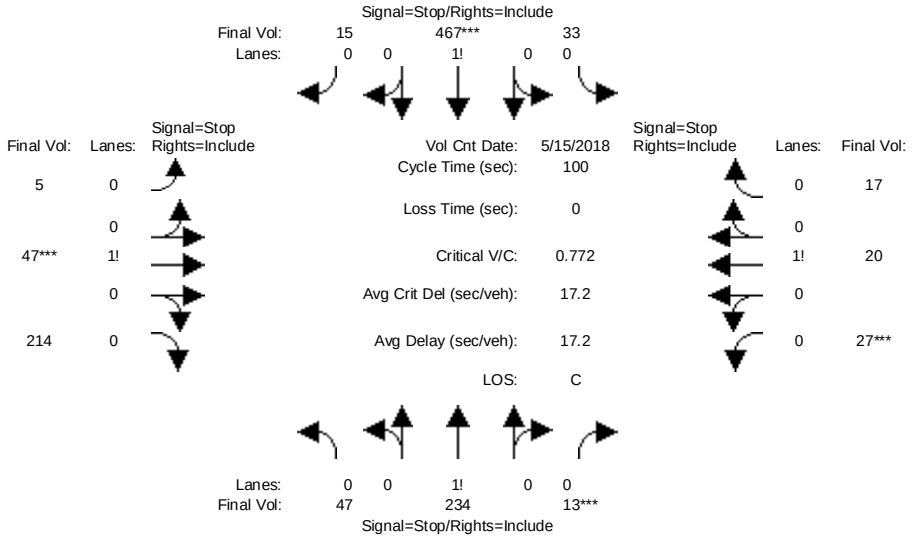


Street Name:	S Bernardo Ave						Heatherstone Wy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	15	15	15	15	15	15	6	6	6	6	6	6
Y+R:	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	7	201	24	29	494	6	4	32	19	13	9	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	201	24	29	494	6	4	32	19	13	9	23
Added Vol:	0	9	0	3	10	0	0	0	0	0	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	210	24	32	504	6	4	32	19	13	9	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	7	210	24	32	504	6	4	32	19	13	9	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	210	24	32	504	6	4	32	19	13	9	25
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	210	24	32	504	6	4	32	19	13	9	25
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.03	0.87	0.10	0.06	0.93	0.01	0.07	0.58	0.35	0.28	0.19	0.53
Final Sat.:	51	1525	174	103	1627	19	127	1018	605	484	335	931
Capacity Analysis Module:												
Vol/Sat:	0.14	0.14	0.14	0.31	0.31	0.31	0.03	0.03	0.03	0.03	0.03	0.03
Crit Moves:					****			****				
Green Time:	39.0	39.0	39.0	39.0	39.0	39.0	6.0	6.0	6.0	6.0	6.0	6.0
Volume/Cap:	0.19	0.19	0.19	0.43	0.43	0.43	0.28	0.28	0.28	0.24	0.24	0.24
Uniform Del:	2.4	2.4	2.4	3.0	3.0	3.0	22.0	22.0	22.0	21.9	21.9	21.9
IncremntDel:	0.1	0.1	0.1	0.2	0.2	0.2	0.8	0.8	0.8	0.6	0.6	0.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	2.5	2.5	2.5	3.3	3.3	3.3	22.8	22.8	22.8	22.6	22.6	22.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	2.5	2.5	2.5	3.3	3.3	3.3	22.8	22.8	22.8	22.6	22.6	22.6
LOS by Move:	A	A	A	A	A	A	C+	C+	C+	C+	C+	C+
HCM2kAvgQ:	6	6	6	96	96	96	30	30	30	25	25	25

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing plus Project PM

Intersection #6: S Bernardo Ave / S Knickerbocker Dr



Street Name:	S Bernardo Ave						S Knickerbocker Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 15 May 2018 << 5:15 PM - 6:15 PM												
Base Vol:	47	227	13	30	459	15	5	47	214	27	20	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	47	227	13	30	459	15	5	47	214	27	20	15
Added Vol:	0	7	0	3	8	0	0	0	0	0	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	47	234	13	33	467	15	5	47	214	27	20	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	47	234	13	33	467	15	5	47	214	27	20	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	47	234	13	33	467	15	5	47	214	27	20	17
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	47	234	13	33	467	15	5	47	214	27	20	17
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.16	0.80	0.04	0.06	0.91	0.03	0.02	0.18	0.80	0.42	0.31	0.27
Final Sat.:	98	486	27	43	605	19	11	104	476	203	150	128
Capacity Analysis Module:												
Vol/Sat:	0.48	0.48	0.48	0.77	0.77	0.77	0.45	0.45	0.45	0.13	0.13	0.13
Crit Moves:			****		****			****			****	
Delay/Veh:	13.2	13.2	13.2	22.8	22.8	22.8	12.4	12.4	12.4	10.2	10.2	10.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.2	13.2	13.2	22.8	22.8	22.8	12.4	12.4	12.4	10.2	10.2	10.2
LOS by Move:	B	B	B	C	C	C	B	B	B	B	B	B
ApproachDel:	13.2			22.8			12.4			10.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	13.2			22.8			12.4			10.2		
LOS by Appr:	B			C			B			B		
AllWayAvgQ:	19.6	19.6	19.6	67.0	67.0	67.0	15.8	15.8	15.8	2.7	2.7	2.7

Note: Queue reported is the distance per lane in feet.

Peak Hour Volume Signal Warrant Report [Urban]

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Intersection #6 S Bernardo Ave / S Knickerbocker Dr

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	47	234	13	33	467	15	5	47	214	27	20	17

Major Street Volume: 809
Minor Approach Volume: 266
Minor Approach Volume Threshold: 276

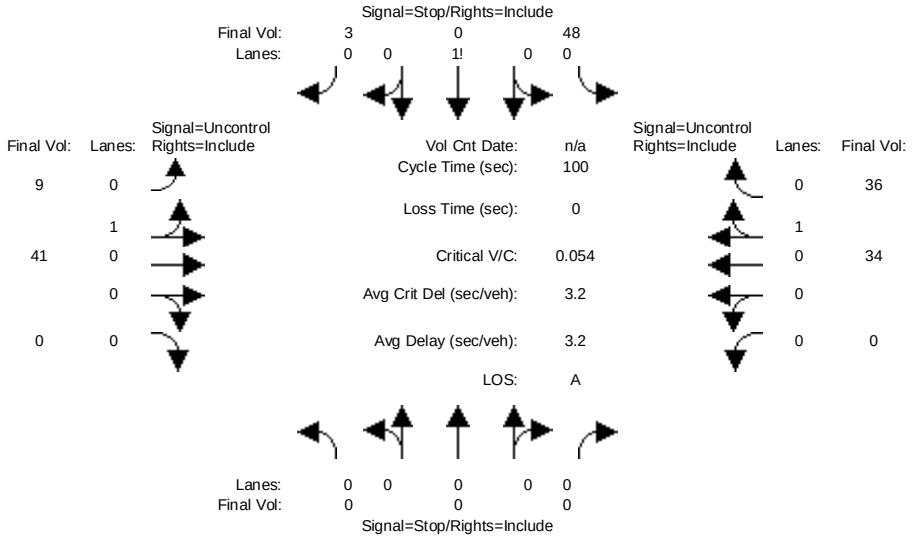
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing plus Project PM

Intersection #7: Project Driveway/ Brookfield Ave



Street Name:	Project Driveway						Brookfield Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: PM												
Base Vol:	0	0	0	0	0	0	0	41	0	0	34	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	41	0	0	34	0
Added Vol:	0	0	0	48	0	3	9	0	0	0	0	36
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	48	0	3	9	41	0	0	34	36
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	48	0	3	9	41	0	0	34	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	48	0	3	9	41	0	0	34	36
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	111	111	52	70	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	891	783	1021	1544	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	887	778	1021	1544	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.05	0.00	0.00	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	894	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.3	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.3			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

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Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	48	0	3	9	41	0	0	34	36
ApproachDel:	xxxxxx			9.3			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=51]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=171]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #7 Project Driveway/ Brookfield Ave

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	48	0	3	9	41	0	0	34	36

Major Street Volume: 120
Minor Approach Volume: 51
Minor Approach Volume Threshold: 785

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Appendix G

Queuing Summary

existing am q
Future Queue Length Report (feet)

Node	Intersection	Northbound L	Northbound -- T	Northbound -- R	Southbound L	Southbound -- T	Southbound -- R	Eastbound L	Eastbound -- T	Eastbound -- R	Westbound L	Westbound -- T	Westbound -- R
#1	[2Way95thQ]:	xxxx	xxxx	xxxx	0.3	0.3	xxxx	0.2	0.2	xxxx	2.6	2.6	2.6
#2	[HCM2kAvgQ]:	187	187	66	60	93	428	206	176	42	66	429	48
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	0.6	0.6	xxxx	xxxx	xxxx	xxxx	5.8	5.8	5.8
#4	[2Way95thQ]:	0.7	0.7	xxxx	xxxx	xxxx	xxxx	5.0	5.0	5.0	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	56	56	56	24	24	24	18	18	18	51	51	51
#6	[AllWayAvgQ]	36.1	36.1	36.1	12.8	12.8	12.8	5.2	5.2	5.2	7.5	7.5	7.5
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

existing pm q
Future Queue Length Report (feet)

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
#1	[2Way95thQ]:	0.1	xxxx	xxxx	1.7	xxxx	xxxx	0.5	0.5	0.5	2.1	2.1	2.1
#2	[HCM2kAvgQ]:	89	143	85	123	334	334	464	413	118	204	311	108
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	2.2	2.2	xxxx	xxxx	xxxx	xxxx	4.7	4.7	4.7
#4	[2Way95thQ]:	0.5	0.5	xxxx	xxxx	xxxx	xxxx	7.6	7.6	7.6	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	6	6	6	93	93	93	30	30	30	24	24	24
#6	[AllWayAvgQ]	18.5	18.5	18.5	61.2	61.2	61.2	15.5	15.5	15.5	2.6	2.6	2.6
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

existing+prj am q
Future Queue Length Report (feet)

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
#1	[2Way95thQ]:	xxxx	xxxx	xxxx	0.7	0.7	xxxx	0.2	0.2	xxxx	2.8	2.8	2.8
#2	[HCM2kAvgQ]:	193	190	77	60	98	429	206	176	44	86	430	49
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	0.6	0.6	xxxx	xxxx	xxxx	xxxx	6.7	6.7	6.7
#4	[2Way95thQ]:	1.4	1.4	xxxx	xxxx	xxxx	xxxx	13.7	13.7	13.7	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	58	58	58	26	26	26	18	18	18	53	53	53
#6	[AllWayAvgQ]	38.3	38.3	38.3	13.7	13.7	13.7	5.3	5.3	5.3	7.7	7.7	7.7
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	3.9	3.9	3.9	0.5	0.5	xxxx	xxxx	xxxx	xxxx

existing+prj pm q
Future Queue Length Report (feet)

Node	Intersection	Northbound L	Northbound -- T	Northbound -- R	Southbound L	Southbound -- T	Southbound -- R	Eastbound L	Eastbound -- T	Eastbound -- R	Westbound L	Westbound -- T	Westbound -- R
#1	[2Way95thQ]:	0.1	xxxx	xxxx	2.1	xxxx	xxxx	0.5	0.5	0.5	2.5	2.5	2.5
#2	[HCM2kAvgQ]:	96	148	100	123	337	337	465	423	122	223	311	108
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	2.3	2.3	xxxx	xxxx	xxxx	xxxx	5.4	5.4	5.4
#4	[2Way95thQ]:	1.4	1.4	xxxx	xxxx	xxxx	xxxx	20.7	20.7	20.7	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	6	6	6	96	96	96	30	30	30	25	25	25
#6	[AllWayAvgQ]	19.6	19.6	19.6	67.0	67.0	67.0	15.8	15.8	15.8	2.7	2.7	2.7
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	4.5	4.5	4.5	0.4	0.4	xxxx	xxxx	xxxx	xxxx

background am q
Future Queue Length Report (feet)

Node	Intersection	Northbound L	Northbound -- T	Northbound -- R	Southbound L	Southbound -- T	Southbound -- R	Eastbound L	Eastbound -- T	Eastbound -- R	Westbound L	Westbound -- T	Westbound -- R
#1	[2Way95thQ]:	xxxx	xxxx	xxxx	0.3	0.3	xxxx	0.2	0.2	xxxx	2.6	2.6	2.6
#2	[HCM2kAvgQ]:	188	187	66	60	94	429	206	179	42	66	433	48
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	0.6	0.6	xxxx	xxxx	xxxx	xxxx	5.8	5.8	5.8
#4	[2Way95thQ]:	0.7	0.7	xxxx	xxxx	xxxx	xxxx	5.0	5.0	5.0	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	56	56	56	24	24	24	18	18	18	51	51	51
#6	[AllWayAvgQ]	36.1	36.1	36.1	12.8	12.8	12.8	5.2	5.2	5.2	7.5	7.5	7.5
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

background pm q
Future Queue Length Report (feet)

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
#1	[2Way95thQ]:	0.1	xxxx	xxxx	1.7	xxxx	xxxx	0.5	0.5	0.5	2.1	2.1	2.1
#2	[HCM2kAvgQ]:	89	143	85	123	335	335	466	419	117	205	317	108
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	2.2	2.2	xxxx	xxxx	xxxx	xxxx	4.7	4.7	4.7
#4	[2Way95thQ]:	0.5	0.5	xxxx	xxxx	xxxx	xxxx	7.6	7.6	7.6	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	6	6	6	93	93	93	30	30	30	24	24	24
#6	[AllWayAvgQ]	18.5	18.5	18.5	61.2	61.2	61.2	15.5	15.5	15.5	2.6	2.6	2.6
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

background+prj am q
Future Queue Length Report (feet)

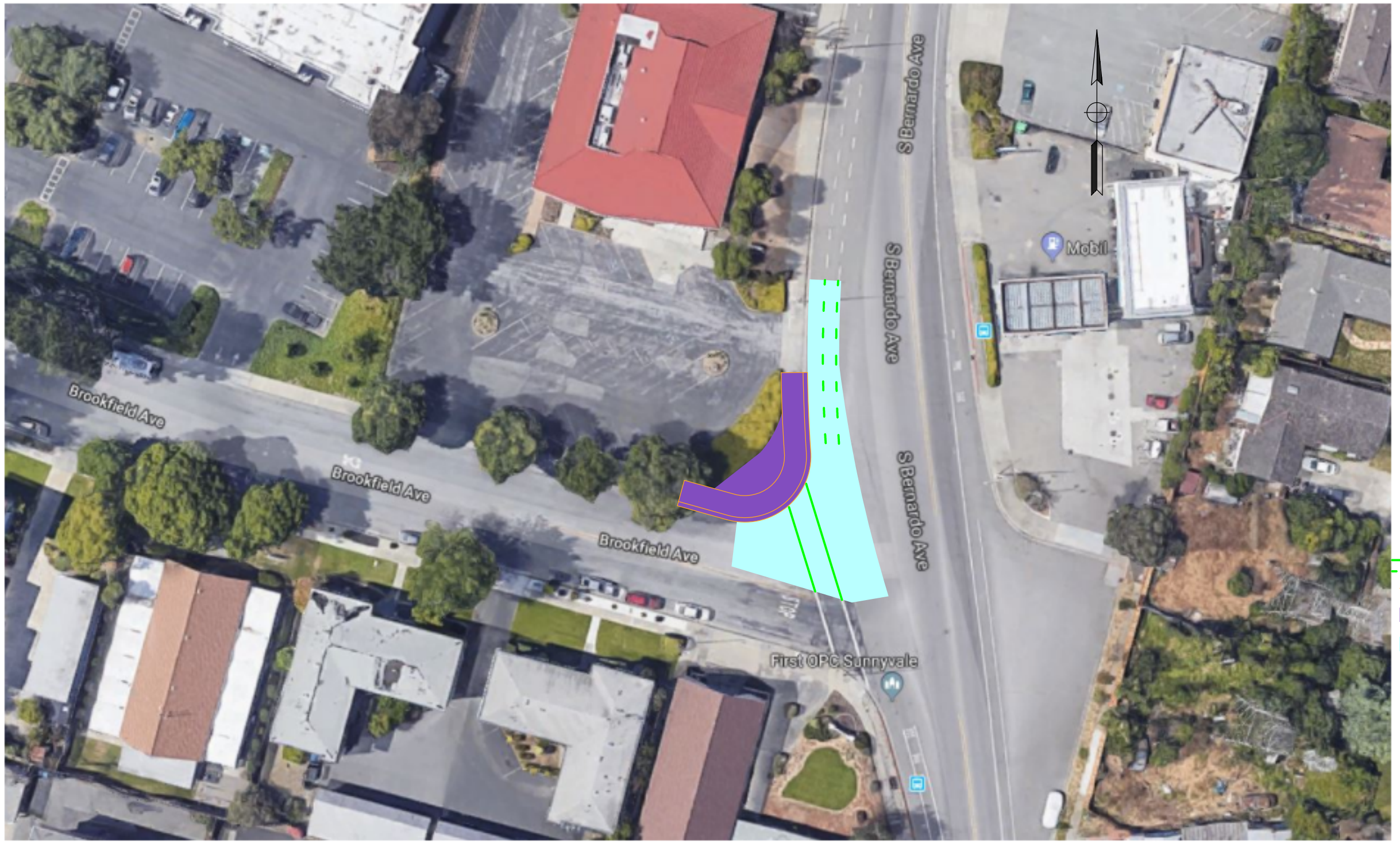
Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
#1	[2Way95thQ]:	xxxx	xxxx	xxxx	0.7	0.7	xxxx	0.2	0.2	xxxx	2.8	2.8	2.8
#2	[HCM2kAvgQ]:	193	190	77	60	98	430	207	180	44	85	435	49
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	0.6	0.6	xxxx	xxxx	xxxx	xxxx	6.7	6.7	6.7
#4	[2Way95thQ]:	1.4	1.4	xxxx	xxxx	xxxx	xxxx	13.7	13.7	13.7	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	58	58	58	26	26	26	18	18	18	53	53	53
#6	[AllWayAvgQ]	38.3	38.3	38.3	13.7	13.7	13.7	5.3	5.3	5.3	7.7	7.7	7.7
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	3.9	3.9	3.9	0.5	0.5	xxxx	xxxx	xxxx	xxxx

background+prj pm q
Future Queue Length Report (feet)

Node	Intersection	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R
#1	[2Way95thQ]:	0.1	xxxx	xxxx	2.1	xxxx	xxxx	0.5	0.5	0.5	2.5	2.5	2.5
#2	[HCM2kAvgQ]:	96	148	100	123	338	338	467	430	122	224	317	108
#3	[2Way95thQ]:	xxxx	xxxx	xxxx	2.3	2.3	xxxx	xxxx	xxxx	xxxx	5.4	5.4	5.4
#4	[2Way95thQ]:	1.4	1.4	xxxx	xxxx	xxxx	xxxx	20.7	20.7	20.7	xxxx	xxxx	xxxx
#5	[HCM2kAvgQ]:	6	6	6	96	96	96	30	30	30	25	25	25
#6	[AllWayAvgQ]	19.6	19.6	19.6	67.0	67.0	67.0	15.8	15.8	15.8	2.7	2.7	2.7
#7	[2Way95thQ]:	xxxx	xxxx	xxxx	4.5	4.5	4.5	0.4	0.4	xxxx	xxxx	xxxx	xxxx

Appendix H

Intersection #4 Proposed Improvements



Appendix H

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY
July 09, 2018

Intersection #4 Proposed Improvements

Sunnyvale

AECOM

Select Current Vehicle

Group Vehicles By:

- (•) Library
- ( ) Region
- ( ) Class
- ( ) Country
- ( ) # of Parts
- ( ) No Group
- ( ) Recent 5

CALTRANS 2012 (US)
CALTRANSM 2005 (US)
CALTRANSM 2008 (US)
CEREMA 2014 (FR)
CERTU-AFNOR 2013 (FR)
CET-SP BT33 1983 (BR)
CROW (NL)
CROW 2004 (NL)
CROW 2012 (NL)
CROW Advieslijst LZV

Units: feet

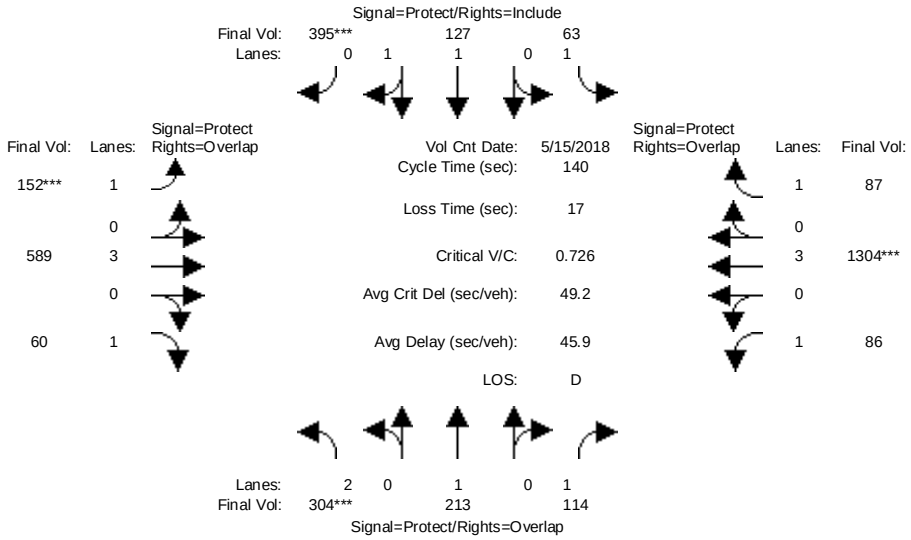
Library	Vehicle Name	Class	Region	Lock	# Parts	Length	Wheelbase	Trailer Len.
CALTRANS 2012 (US)	40' BUS	Bus	North A...	41.0	1	40.00	25.00	N/A
CALTRANS 2012 (US)	45' BUS	Bus	North A...	44.3	1	45.00	28.50	N/A
CALTRANS 2012 (US)	ARTICULATED BUS	Bus	North A...	38.3	2	60.00	22.00	21.20
CALTRANS 2012 (US)	CA LEGAL - 65 FT (60 F...	Transport Truck	North A...	20.9	2	65.00	20.00	45.00
CALTRANS 2012 (US)	CA LEGAL - 65 FT	Transport Truck	North A...	26.3	2	65.00	20.00	45.00
CALTRANS 2012 (US)	STAA - STANDARD	Transport Truck	North A...	26.3	2	72.00	23.00	48.00

Appendix I

Background + Project Conditions Analysis

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Background plus Project AM

Intersection #2: S Bernardo Ave / W El Camino Real

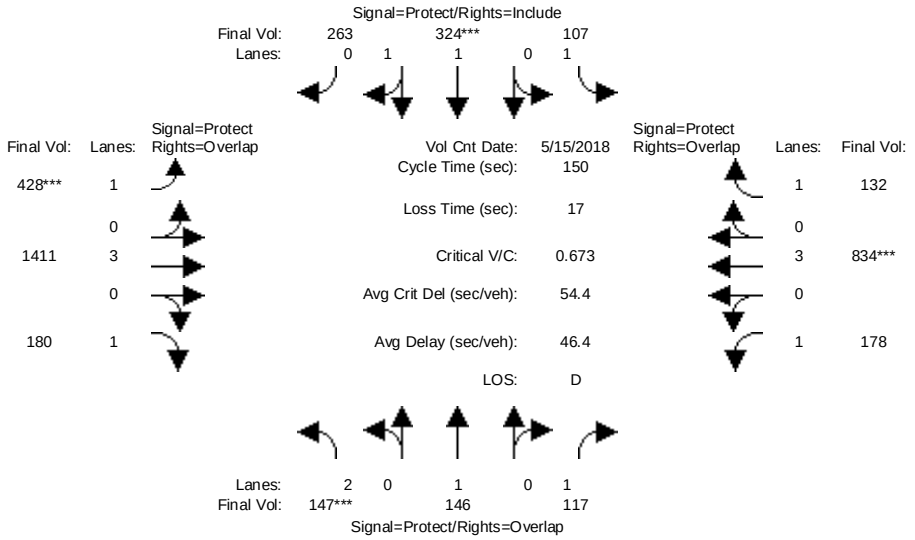


Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 8:00 AM - 9:00 AM												
Base Vol:	295	209	99	63	122	395	152	578	58	68	1291	87
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	295	209	99	63	122	395	152	578	58	68	1291	87
Added Vol:	9	4	15	0	5	0	0	0	2	18	0	0
approved:	0	0	0	0	0	0	0	11	0	0	13	0
Initial Fut:	304	213	114	63	127	395	152	589	60	86	1304	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	304	213	114	63	127	395	152	589	60	86	1304	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	304	213	114	63	127	395	152	589	60	86	1304	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	304	213	114	63	127	395	152	589	60	86	1304	87
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	1900	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.11	0.07	0.04	0.07	0.23	0.09	0.10	0.03	0.05	0.23	0.05
Crit Moves:	****					****	****				****	
Green Time:	18.6	32.8	59.9	29.3	43.5	43.5	16.7	33.8	52.4	27.1	44.1	73.4
Volume/Cap:	0.73	0.48	0.15	0.17	0.21	0.73	0.73	0.43	0.09	0.25	0.73	0.09
Uniform Del:	58.2	46.2	24.5	45.4	35.6	42.9	59.4	44.9	28.4	47.9	42.6	16.7
IncremntDel:	6.2	0.8	0.1	0.2	0.0	3.7	12.0	0.2	0.1	0.4	1.5	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	64.5	47.0	24.6	45.6	35.7	46.6	71.4	45.1	28.4	48.3	44.1	16.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	64.5	47.0	24.6	45.6	35.7	46.6	71.4	45.1	28.4	48.3	44.1	16.7
LOS by Move:	E	D	C	D	D+	D	E	D	C	D	D	B
HCM2kAvgQ:	193	190	77	60	98	430	207	180	44	85	435	49

Note: Queue reported is the distance per lane in feet.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing plus Background plus Project PM

Intersection #2: S Bernardo Ave / W El Camino Real



Street Name:	S Bernardo Ave						W El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	14	14	14	14	14	12	15	15	12	15	15
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Volume Module: >> Count Date: 15 May 2018 << 5:45 PM - 6:45 PM												
Base Vol:	137	141	99	107	319	263	428	1391	178	162	816	132
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	137	141	99	107	319	263	428	1391	178	162	816	132
Added Vol:	10	5	18	0	5	0	0	0	2	16	0	0
approved:	0	0	0	0	0	0	0	20	0	0	18	0
Initial Fut:	147	146	117	107	324	263	428	1411	180	178	834	132
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	147	146	117	107	324	263	428	1411	180	178	834	132
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	147	146	117	107	324	263	428	1411	180	178	834	132
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	147	146	117	107	324	263	428	1411	180	178	834	132
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.92	1.00	0.95	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	2.00	1.00	1.00	1.00	1.00	1.08	0.92	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3150	1900	1750	1750	2041	1657	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.08	0.07	0.06	0.16	0.16	0.24	0.25	0.10	0.10	0.15	0.08
Crit Moves:	****				****		****				****	
Green Time:	14.0	24.2	48.8	24.2	34.4	34.4	53.0	60.0	74.0	24.6	31.7	55.9
Volume/Cap:	0.50	0.48	0.21	0.38	0.69	0.69	0.69	0.62	0.21	0.62	0.69	0.20
Uniform Del:	64.7	57.2	36.6	56.2	53.0	53.0	41.6	35.9	21.5	58.3	54.7	31.9
IncremntDel:	1.3	1.2	0.2	0.9	2.5	2.5	3.4	0.5	0.1	4.1	1.8	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	66.0	58.3	36.7	57.1	55.5	55.5	44.9	36.4	21.6	62.4	56.4	32.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	66.0	58.3	36.7	57.1	55.5	55.5	44.9	36.4	21.6	62.4	56.4	32.1
LOS by Move:	E	E+	D+	E+	E+	E+	D	D+	C+	E	E+	C-
HCM2kAvgQ:	96	148	100	123	338	338	467	430	122	224	317	108

Note: Queue reported is the distance per lane in feet.

Cindy Hom

From: Allen Yu
Sent: Monday, September 16, 2019 1:58 PM
To: Cindy Hom
Subject: Re: File # 2019-7502

Hi Cindy,

I'm not sure if my last email was a little too open-ended... but if you have a more detailed agenda of the hearing and a summary of current state of project, can you please point me where to get it?

Regarding my concerns, here is a brief summary:

Looks like the city is to hold a hearing regarding a project to put in a 120 children childcare / after school facility at 755 S. Bernardo Ave. and to do a class 1 categorical exemption from CEQA (environmental studies) next week.

A quick google search revealed that Class 1 categorical exemptions are meant for facilities that are put to existing uses.

The building concerned used to be a AAA building then a half occupied medical facility. A 120 children student is a very different beast! I do not think a 120 children student facility should count as existing use!

A 120 children facility is a large facility. It would be located right at the center of a bend that is already busy and tricky to navigate. There is that Safeway shopping plaza right down the street, a gas station across the street, and a couple of neighborhood strip malls already. The bend already has blind spots. Depending on how cars are parked, and how fast people may be driving, I have seen several close calls! I am very concerned that we are now contemplating adding a large childcare facility right at the bend and potentially have busy parents rushing in and out during rush hours to pick up and drop off their kids.

This is already a very densely occupied area. There are apartments all around the building. The intersection concerned is just a block or two from Cherry Chase Elementary. It will make Cherry Chase feel different.

And it's not just the traffic. There is a large apartment complex, for example. I wonder if anyone has thought about waking up to sound of children around 7 and dealing with noises all the way till 6...?

I don't think it is a good idea to go through with a categorical exemption for this project. Putting a large childcare / after school wiill be very disruptive for the community. I think the city should do its utmost diligence i doing a careful detailed review of this project of all potential impacts - noise, traffic, and other things that a regular citizen may not even be aware - before allowing it to continue.

Best,

Allen

16.09.2019, 13:08, "Allen Yu"

Hi Cindy,

We got a letter regarding 755 S. Bernardo Ave special development permit notice of public hearing. Where can we find more information about this? I personally have several objections to having a major childcare / afterschool at that location...

Thanks,

Allen

Cindy Hom

From: Marti Coppage
Sent: Monday, September 16, 2019 8:06 PM
To: Cindy Hom
Subject: Proposed daycare on Bernardo

I saw a rant on the Nextdoor about this - 755 S. Bernardo. The guy who posted the rant encouraged folks to direct their comments to you, so that's why I'm writing.

I think a daycare at this location is a fine idea. We desperately need more daycare options for parents and this actually is a great spot. There's parking, it's close to Cherry Chase, and walkable from Sunnyvale Middle.

I don't know if you will get a bunch of complaints, but I hope not.

Marti Coppage
1095 Blair Ave.