

Sunnyvale Grade Separation Feasibility Study



Sunnyvale Avenue



Mary Avenue

Prepared for
City of Sunnyvale



Prepared by



Community Outreach



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Sunnyvale Grade Separation Feasibility Study
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EXECUTIVE SUMMARY

Background Introduction

The City of Sunnyvale (City) is conducting a feasibility study (Study) of a project to vertically separate the road and the Caltrain trackway (grade separation) at two locations: Mary Avenue and Sunnyvale Avenue. The grade separation project aims to improve safety, enhance pedestrian and bicycle access, improve transportation efficiency, and reduce noise in the vicinity of the existing railroad at-grade crossings. The objective of the Study was to identify the preferred options at each location which will be advanced to the environmental clearance and design development phases of work. With the preferred options selected for both Mary Avenue and Sunnyvale Avenue crossings, the City will proceed with applying for grants from State and Federal. To identify preferred options, the study evaluated a range of criteria including safety, multimodal access and circulation, motorized vehicular traffic circulation, community support, and cost implications. Other related considerations consisted of visual, constructability, stage construction, right of way and utility relocation impacts and requirements.

The Santa Clara Valley Transportation Authority (VTA) 2016 Measure B Program identifies Caltrain Grade Separations as a program category with an allocation of 11.11% of the program tax revenue, estimated at \$700M within the 30-year span of the measure, to complete eight (8) grade separations in the cities of Mountain View, Palo Alto, and Sunnyvale. Two (2) of the grade separations are in Sunnyvale. With input from the three (3) Cities, VTA prepared and the VTA Board approved an Implementation Plan to distribute the fund. The City of Sunnyvale is estimated to receive \$175M which is approximately 25% of the Caltrain Grade Separation program funding allocated for the three (3) cities.

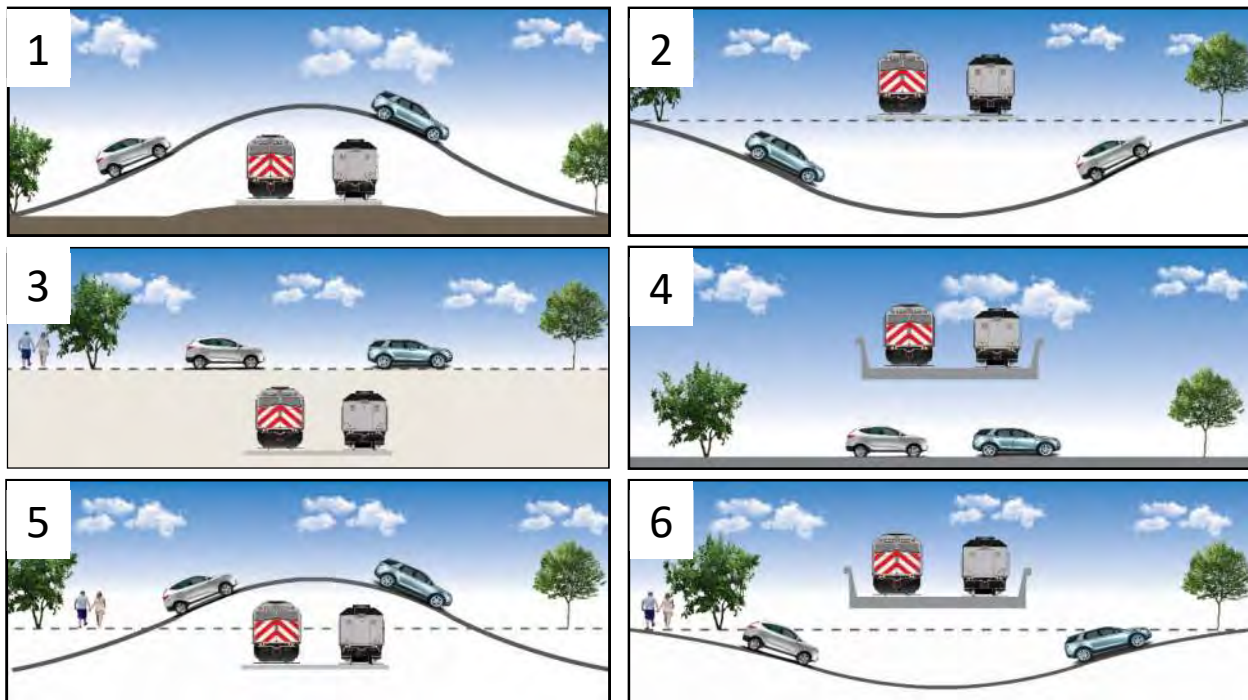
The City of Sunnyvale with BKF Engineers (BKF) has prepared this Study to assess, screen, and evaluate the options. With information from the Study, Mary Avenue Underpass with Jughandle Option and Mary Avenue and Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option were selected by the Sunnyvale City Council for the Mary Avenue Grade Separation and Sunnyvale Avenue Grade Separation. Both options are feasible and ready for the next phase

Summary of Work Conducted

Preliminary Options

In May 2017, six (6) preliminary grade separation options were initially evaluated for each grade separation location at Mary Avenue and Sunnyvale Avenue. The six (6) initial options for each location were as follows:

1. Roadway Underpass (railroad to remain at present elevation; roadway is depressed beneath railroad tracks)
2. Roadway Overpass (railroad to remain at present elevation; roadway is elevated over railroad tracks)
3. Depressed Railroad (roadway to remain at present elevation; railroad is depressed beneath roadway)
4. Elevated Railroad (roadway to remain at present elevation; railroad is elevated over roadway)
5. Split Overpass (partially elevated roadway, partially depressed railroad)
6. Split Underpass (partially elevated railroad, partially depressed roadway)



During the initial selection process, the preliminary geometry, roadway profiles, impacts and design considerations of the preliminary options were reviewed and evaluated based on preliminary investigations. After the initial review of the preliminary options, the City of Sunnyvale directed BKF to develop additional options as listed below:

Mary Avenue:

1. Roadway Underpass with Jughandle (Evelyn Avenue remain at present elevation with an undercrossing at depressed Mary Avenue)

Sunnyvale Avenue:

2. Roadway Underpass Tunnel (Evelyn Avenue and Hendy Avenue remain at present elevations with an undercrossing at depressed Sunnyvale Avenue)
3. Bicycle/Pedestrian Overcrossing (Bicycle and pedestrian only bridge over the railroad tracks, Sunnyvale Avenue does not connect between Hendy and Evelyn avenues)
4. Bicycle/Pedestrian Undercrossing (Bicycle and pedestrian only tunnel under the railroad tracks, Sunnyvale Avenue does not connect between Hendy and Evelyn avenues)

All the options were summarized and presented to the community, potential stakeholders, the Bicycle and Pedestrian Advisory Commission (BPAC) and City Council. To create project awareness and a channel for communication and develop a level of consensus of the proposed project at Mary and Sunnyvale avenues, multiple community meetings were held for the community, businesses, potential stakeholders, BPAC and City Council.

Meetings Conducted

During the course of the Study, several community meetings were conducted and presented to local community, businesses, BPAC, and regional officials. Below is a list of dates that meetings had been held:

- July 12, 2017 – Agency Stakeholder (VTA, County of Santa Clara, City of Mountain View and Caltrain) Meeting

- July 26, 2017 – Business Outreach Meeting
- August 10, 2017 – Mary Avenue Community Meeting
- August 17, 2017 – Bicycle and Pedestrian Advisory Committee (BPAC) Meeting
- August 22, 2017 – Mary Avenue Expressions Neighborhood Meeting
- August 24, 2017 – Sunnyvale Avenue Meeting
- September 6, 2017 – Downtown Association Meeting
- September 2017 – Mary Avenue Online Survey
- September 2017 – Sunnyvale Avenue Online Survey
- October 17, 2017 – Joint City Council and BPAC Meeting
- January 23, 2018 – City Council Meeting

Due to COVID-19 pandemic, the Study was placed on hold and resumed in 2022 when additional meetings were conducted to update the community and stakeholders:

- April 5, 2022 – City Council Study Session
- June 8, 2022 – Mary Avenue Community Meeting
- June 9, 2022 – Sunnyvale Avenue Community Meeting
- June 13 to July 31, 2022 – Online Survey
- July 6, 2022 – Sunnyvale Downtown Association Board Meeting
- July 13, 2022 – Caltrain Stakeholder Meeting
- July 21, 2022 – Bicycle and Pedestrian Advisory Commission Meeting for Sunnyvale Ave
- July 28, 2022 – Chamber of Commerce Policy and Business Committee Meeting
- August 1, 2022 – Bicycle and Pedestrian Advisory Commission Meeting for Mary Ave
- August 8, 2022 – Chamber of Commerce Board Meeting
- August 30, 2022 – City Council Public Hearing on Mary Avenue
- September 27, 2022 – City Council Public Hearing on Sunnyvale Avenue

Various methods of outreach were utilized to engage the community and obtain feedback on the options. The outreach methods included the following:

- City Project Webpage regular updates
- Multiple emails to project subscription list
- City Manager’s Update – May 13, 2022
- Art & Wine Festival Booth – June 4-5, 2022
- Multiple NextDoor posts
- Multiple Facebook posts
- Horizon Center Article – Summer 2022
- Notifications from the Chamber of Commerce
- Notifications from the Sunnyvale Downtown Association

- Direct outreach to and meetings with local businesses, residents, property owners, homeowners' associations, community neighborhood groups, schools, places of worship, and other impacted stakeholders.

Meeting minutes from the July 21, 2022, and August 1, 2022, BPAC meetings are included as Attachments G and H.

A Draft Feasibility Study was presented to the City Council on August 30, 2022 and September 27, 2022. Meeting minutes from the August 30, 2022, and September 27, 2022, City Council Meetings are included as Attachments I and J.

Identification of the Studied Options

Based on the findings and feedback received from the community and stakeholders through the community outreach activities and the results of the online survey, the studied options (see Studied Option Section below) were identified, selected, and further developed as directed by the City Council at the City Council meetings:

- On October 17, 2017, the City Council accepted the recommendation to further develop two (2) options for each grade separation location but instructed the project to add the evaluation of the depressed railroad (railroad depressed beneath the roadway) option at Mary Avenue crossing based on community support, lower noise impacts and opportunities for creating new open space or developable land.
- On January 23, 2018, after listening to the presentation from City staff, the City Council directed the City staff to drop the depressed railroad option at Mary Avenue crossing and focus the Study on the originally recommended two options at each grade separation location for further development and evaluation.
- On April 5, 2022, the City Council received a project update at a Study session. The Study was discussed and the City Council supported continuing and completing the Study of the four options identified in the October 17, 2017 and January 23, 2018 City Council meetings (studied options).

Studied Options

A total of four (4) options are evaluated in this Study. The studied options are as follows:

At Mary Avenue Crossing:

- Mary Avenue Underpass (Mary Avenue and Evelyn Avenue depressed)
- Mary Avenue Underpass with Jughandle (Mary Avenue depressed)

At Sunnyvale Avenue Crossing:

- Sunnyvale Avenue Underpass Tunnel (Sunnyvale Avenue depressed)
- Sunnyvale Avenue Bicycle/Pedestrian Undercrossing (Sunnyvale Avenue road closure)

Selected Options

On August 30, 2022, after listening to a presentation by City staff of the two (2) options for Mary Avenue, the City Council selected Mary Avenue with Jughandle Option and directed the City staff to proceed with the next phase.

On September 27, 2022, the City Council was presented with two (2) options for Sunnyvale Avenue from the City staff. The City Council selected Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option and directed the City staff to proceed with the next phase.

Meeting minutes from the August 30, 2022, and September 27, 2022, City Council Meetings are included as Attachments I and J.

Next Steps

Environmental Assessment and Clearance

The Study was used to establish a preferred option for each grade separation location at Mary Avenue and Sunnyvale Avenue. The preferred options will be further developed to conduct the environmental assessment and obtain environmental clearance prior to proceeding to the final design and construction phases.

Funding

Funding opportunities include the VTA 2016 Measure B Grade Separation Program, California 190 Grade Separation Prioritization Program, One Bay Area Grant Program, as well as local Traffic Impact Fees (TIF), State and Federal budgeting and funding programs. City staff has already begun pursuing funding opportunities for the future phases of both grade separation projects. Funding pursuits will target capturing the entire cost required for the projects.

References

- Caltrain Business Plan, City of Sunnyvale Booklet, May 2019, Caltrain (2017)
https://caltrain2040.org/wp-content/uploads/CBP_CIA_R2_Booklet_Sunnyvale-2.pdf
- Caltrain Engineering Standards (currently being updated)
<https://www.caltrain.com/about-caltrain/doing-business/engineering/engineering-standards>
- VTA (2017) FY18-19 Transit Service Plan <http://nextnetwork.vta.org/>
- City of Sunnyvale (2003) Downtown Specific Plan
<https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?BlobID=22785>
- City of Sunnyvale Vision Zero Plan
<https://www.sunnyvale.ca.gov/home/showpublisheddocument/2858/637822670451930000>
- City of Sunnyvale Complete Streets Policy
<https://www.sunnyvale.ca.gov/home/showpublisheddocument/606/637819113533270000>
- City of Sunnyvale Downtown Specific Plan (September 2020)
<https://www.sunnyvale.ca.gov/home/showpublisheddocument/1910/637821539276000000>
- City of Sunnyvale Downtown Specific Plan Amendment
<https://www.sunnyvale.ca.gov/business-and-development/projects-in-sunnyvale/long-range-planning-initiatives/downtown-specific-plan-amendment>
- Sunnyvale's Active Transportation Plan
<https://www.sunnyvale.ca.gov/home/showpublisheddocument/2844/637822670426570000>

1. Introduction

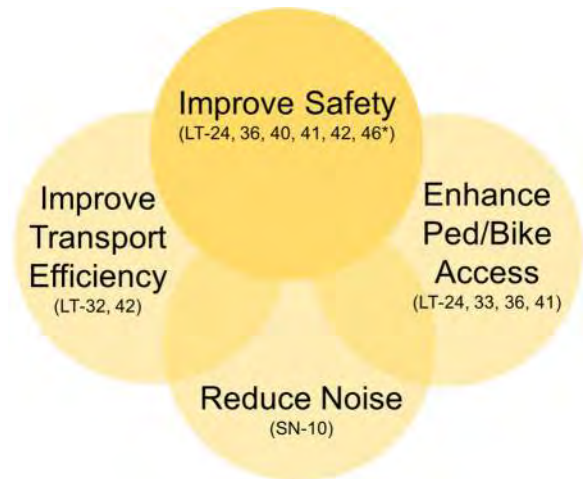
1.1 Goals and Objectives

The City of Sunnyvale is conducting a feasibility study (Study) of a project to vertically separate the roadway and railroad trackway (grade separation) at Mary Avenue and Sunnyvale Avenue, see Attachment A for Project Vicinity Map. The project goals for the grade separations are to:

- improve safety by removing conflicts between pedestrians, bicyclists, vehicles, and trains;
- enhance pedestrian and bicycle access;
- improve transportation efficiency; and
- reduce noise in the vicinity of railroad crossings in Sunnyvale.

These goals support the general policies outlined in Section 1.3 Policy Context.

The objectives of the Study are (1) to identify feasible option(s); (2) and to advance the environmental analysis, detailed design, and future funding efforts related to providing grade separation in Sunnyvale. In order to identify the preferred grade separation option for each location, the Study evaluates criteria related to multimodal access, traffic circulation, utility relocation, right of way, visual, and noise impacts; as well as structural, construction and staging considerations, and preliminary cost estimates.



1.2 Background

Location

Sunnyvale is situated at the heart of Silicon Valley and connected to the greater San Francisco Bay Area via the Caltrain railroad corridor, US 101, and State Route 237. The studied at-grade crossings of the Caltrain railway line are located at Mary Avenue near Evelyn Avenue in the western portion of the city, and Sunnyvale Avenue near Hendy and Evelyn avenues in the Historic Downtown District. The Study addresses the relationship between the roadway and railway line as well as adjacent intersections and land uses that could be affected. Depending on the option, the study area also includes areas that will be affected by construction, staging, and alterations in traffic circulations.

Existing Conditions

Multimodal Access Conditions

The Caltrain railroad corridor provides regional transit service for daily commuters traveling between San Francisco, the Peninsula and Silicon Valley. Since starting a Baby Bullet service in 2003, Caltrain ridership has more than doubled, providing measurable congestion relief for roads and freeways in the region. In conjunction with this ridership increase, Caltrain service has increased their operations from 76 weekday services in 2003 to 104 in 2020. Due to COVID-19 pandemic, the Caltrain Annual Passenger Counts were not conducted in 2020 and

2021. The last count that was done in 2019 identified that the downtown Sunnyvale Station was the seventh busiest station in the Caltrain system, serving over 3,208 riders each day.¹

In Sunnyvale, the Caltrain railroad corridor has two (2) at-grade crossings at Mary Avenue in the western portion of the city and Sunnyvale Avenue which is situated in close proximity to the Downtown Sunnyvale Caltrain station. In 2018, Caltrain began preparation of the Caltrain Business Plan. The Caltrain Business Plan aims to help Caltrain support the changing and growing region and meet future demands on the system. Per Caltrain 2040 Long Range Service Vision, in October 2019 Caltrain Board approved a resolution approving the Caltrain Long Range Service Vision that “directs the railroad to continue its planning for a potential higher growth level of service as well as potential new regional and mega-regional connection.” The Service Vision would increase the number of trains traveling along the corridor between San Francisco and San Jose’s Diridon station from the current 104 to between 174 and 348 trains per weekday by 2040.

Caltrain has embarked on an electrification project that will electrify the railroad corridor from San Francisco Caltrain Station to the Tamien Caltrain Station. Electrification improvements include converting diesel-hauled trains to electric trains, increasing service to six trains per peak hour per direction, and maintaining operating speeds up to 79 mph. The electrification project is currently in construction and the launch of electrified service is scheduled for 2024.

California High Speed Rail Authority is presently investigating to utilize the Caltrain tracks along this corridor for its trains. On August 18, 2022, the California High-Speed Rail Authority Board of Directors certified the Final Environmental Impact Report/Environmental Impact Statement (Final EIR/EIS) and approved the approximately 43 miles project for the San Jose-San Francisco segment. It is projected that an additional 130 High Speed Rail trains would be added to the corridor every weekday.

Mary Avenue is a minor arterial roadway with Class II bicycle facilities that run north-south. South of Central Expressway, Mary Avenue is primarily residential, and north of Central Expressway land uses are primarily commercial, office and Research and Development (R&D).

According to City of Sunnyvale, average weekday motor vehicle trips (AWDT) report, in 2017 pre-COVID-19, approximately 16,000 motor vehicles traveled along Mary Avenue each day,² with a peak of 2,050 motor vehicle crossing the Caltrain railroad during the morning peak hour and 2,400 during the evening peak hour. At the Mary/Evelyn Avenue intersection, there were about 140 pedestrian and bicycle movements during the morning peak hour and 100 in the evening peak hour³.

In December 2021, the City conducted another traffic count for motor vehicles traveling along Mary Avenue. Approximately 14,600 motor vehicles travel along Mary Avenue each day with 720 during the morning peak hour and 890 during the evening peak hours.

Sunnyvale Avenue rail crossing is located within Sunnyvale’s historic core, 700 feet east of the Downtown Sunnyvale Caltrain Station and within walking distance of key public spaces, and employment, retail and cultural destinations. The street is classified as a residential collector north of Evelyn Avenue, and a minor arterial south of Evelyn Avenue.

¹ Caltrain “2019 Annual Passenger Count Key Findings Report”. Accessed from <https://www.caltrain.com/about-caltrain/statistics-reports/ridership>

² City of Sunnyvale (2017) Average weekday motor vehicle trips (AWDT) reported for Mary Avenue between Evelyn and El Camino Real 5/10/2017

³ Ped/bike counts are not broken out by direction or turn movements.

Pre-COVID-19, the segment south of Evelyn Avenue, Sunnyvale Avenue carries approximately 12,000 daily motor vehicles. At the tracks, there are approximately 900 motor vehicle movements during the evening peak hour and 630 in the morning peak hour.

Traffic counts conducted in December 2021 by the City of Sunnyvale showed that Sunnyvale Avenue carries approximately 7,100 daily motor vehicles each day with 220 and 385 during morning and evening peak hours, respectively.

Sunnyvale Avenue and the Downtown district serve an important transit access role for the Downtown Sunnyvale Caltrain Station and VTA Transit Center, a major transit hub. Sunnyvale Avenue also serves as part of a priority bicycle route between residential areas in the south, the transit hub, Downtown area, and employment areas in Moffett Park (which can be reached via Sunnyvale Avenue using the Borregas Avenue pedestrian/bike bridges across US-101 and SR-237). No recent pedestrian and bicycle traffic count has been conducted or documented.

VTA Bus Route 55 currently travels along Sunnyvale Avenue crossing the railroad tracks⁴. It is highly used by the Fremont High School students and surrounding neighborhood. Route 20 and 21 also travel through the project area.^{5&6} Route 20 is impacted by the Sunnyvale Avenue Underpass Tunnel Option.

Accident Data

Safety and the elimination of collisions at railroad crossings is a primary objective with the introduction of grade separations. Collisions that occur along the Caltrain railroad corridor are addressed by San Mateo County Sheriff's Office in their role as the Transit Police Bureau for the Caltrain system. Based on accident/incident reports for highway-rail grade crossing provided by the Department of Transportation Federal Railroad Administration (FRA), the number of reported accidents at Mary Avenue and Sunnyvale Avenue are tabulated in Table 1.1 and Table 1.2 below:

Table 1.1 Railroad Accidents at Mary Avenue Crossing		
Date of Accident	Highway User Involved	Fatal (yes/no)
5/4/2021	Pedestrian	Yes
1/11/2016	Auto	No
8/3/2015	Auto	No
2/3/2011	Pedestrian	No
Table 1.2 Railroad Accidents at Sunnyvale Avenue Crossing		
Date of Accident	Highway User Involved	Fatal (yes/no)
1/11/2018	Auto	No
1/28/1981	Other	No
11/06/1975	Auto	No

As train volumes and speeds increase, the probability of collisions at at-grade crossings increases, causing a greater safety concern.

Caltrain has indicated that there is ample evidence that grade separation is an effective tool in preventing all types of pedestrian/bicycle-train and vehicle-train collisions. Caltrain also completed implementing positive train control (PTC) on April 2020 and received FRA PTC

⁴ Route 55 Line: https://moovitapp.com/index/en/public_transit-line-55-SF_Bay_Area_CA-22-224-500372-0

⁵ Route 20 Milpitas BART-Sunnyvale Transit Center:
https://www.vta.org/sites/default/files/route_schedule_pdfs/current/route_20/route_20_schedule.pdf

⁶ Route 21 Stanford Shopping Center – Santa Clara Transit Center:
https://www.vta.org/sites/default/files/route_schedule_pdfs/current/route_21/route_21_schedule.pdf

certification on December of 2020.⁷ The PTC would prevent train-to-train collisions and eliminate the need for double pre-emption of crossing gates and bells near the station.

1.3 Policy Context

General Plan

The General Plan is the document that establishes the principles, policies, standards and priorities for all development within a city. Sunnyvale's General Plan includes a Land Use and Transportation Element (LUTE) that was approved in 2017 and Safety and Noise Element that was included in the 2011 Consolidated General Plan. These two elements establish various policies that are related to grade separation as listed below:

⁷ Caltrain "Positive Train Control (PTC)": <https://www.caltrain.com/media/543/download?inline>

Grade Separation Goal General Plan Policy

	Land Use and Transportation Element
Improve Transportation Efficiency	<p>LT-32 Require roadway and signal improvements for development projects to improve multimodal transportation system efficiency.</p> <p>LT-42 Ensure effective and safe traffic flows for all modes of transport through physical and operational transportation improvements.</p> <p>LT-36 Facilitate safe and orderly traffic flow and promote school pedestrian and bicycle safety.</p> <p>LT-40 Provide safe access to city streets for all modes of transportation. Safety considerations of all transport modes shall take priority over capacity considerations of any one transport mode.</p> <p>LT-46 Support statewide, regional, and sub-regional efforts that provide for a safe, effective transportation system that serves all travel modes consistent with established service standards.</p>
Improve safety	<p>LT-24 Promote modes of travel and actions that provide safe access to city streets and reduce single-occupant vehicle trips and trip lengths locally and regionally.</p> <p>The order of consideration of transportation users shall be: (1) Pedestrians, (2) Non-automotive (bikes, three-wheeled bikes, scooters, etc.), (3) Mass transit vehicles, (4) Delivery vehicles, (5) Single-occupant automobiles</p>
Enhance Pedestrian and Bicycle Access	<p>LT-36 Facilitate safe and orderly traffic flow and promote school pedestrian and bicycle safety.</p> <p>LT-41 Ensure that the movement of cars, trucks and transit vehicles, bicycles, and pedestrians of all ages and abilities does not divide the community. City streets are public spaces and an integral part of the community fabric.</p> <p>LT-33 Prioritize transportation subsidies and project financing over time to the most environmentally friendly modes and services. Support bicycling through planning, engineering, education, encouragement, and enforcement.</p>
	Safety and Noise Element
Reduce Noise	<p>SN-10 Maintained or Reduced Transportation Noise. Preserve and enhance the quality of neighborhoods by maintaining or reducing the levels of noise generated by transportation facilities.</p>

Downtown Specific Plan

Given the importance of the Downtown District, the General Plan is supplemented by the Downtown Specific Plan, which provides more guidance for this area.⁸ The Downtown Specific Plan establishes a vision of “an enhanced, traditional downtown serving the community with a variety of destinations in a pedestrian-friendly environment”. The Specific Plan also outlines policies and strategies to improve street character, encourage preservation of historic resources, create a sense of arrival, encourage strong pedestrian and bicycle linkages, facilitate use of mass transit, promote high quality development, and maintain motor vehicle traffic service levels.

Future Developments

With the continuation of construction of the CityLine Sunnyvale Project which includes residential, office, and commercial spaces, and continued development planned in and around the Sunnyvale Avenue at-grade crossing and Downtown Sunnyvale Caltrain Station, Caltrain ridership would more than likely grow proportionally, which inevitably results in further delays and congestion at the Sunnyvale Avenue crossing.

Although the proposed developments identified in Figure 1 below mainly concentrate around or close to Sunnyvale Avenue, the figure does demonstrate the evolution of the City transforming into a denser community. Each development will not only generate additional vehicular traffic, but also pedestrian and bicycle traffic, making it even more important to eliminate the safety issues associated with at-grade crossings.

Figure 1



**Due to limited space on Figure 1, lots of developments near Mary Avenue crossing are not shown. Those developments can be found from the link provided in the reference footnote.⁹*

⁸ City of Sunnyvale (2003) Downtown Specific Plan
<https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?BlobID=22785>

⁹ Development Projects within City of Sunnyvale: <https://www.sunnyvale.ca.gov/business-and-development/projects-in-sunnyvale/development-reports>

Per Traffic Memorandum, prepared by Kimley-Horn, dated July 13, 2022, existing Mary and Sunnyvale avenues are heavily saturated with traffic. The additions of new office buildings and parking structure, and residential units of adjacent areas and neighborhoods would further exacerbate the safety and traffic delays at the crossings.

Existing and future traffic impacts associated with new developments would require further consideration since many of these surrounding projects would be fully developed and new development projects would potentially be coming by the time of construction of the grade separations.

Caltrain Electrification

The Caltrain Electrification Project (aka the Caltrain Modernization Program) would allow faster and more frequent electric trains to replace Caltrain's current equipment through the installation of overhead catenary cables. The Electrification Project is expected to be launched in 2024 and is expected to be accompanied by an increase in daily service. The City would need to closely coordinate with Caltrain/PCJPB (Peninsula Corridor Joint Powers Board) to account for requirements associated with electrification. Caltrain is working with cities to encourage grade separation of 42 at-grade crossings along the corridor.

California High Speed Rail

Caltrain has agreements with the California High Speed Rail Authority (CHSRA) that would allow High Speed Rail (HSR) trains to operate in the Caltrain corridor using a blended corridor system. This service aims to achieve HSR service between San Francisco and Los Angeles with speeds of up to 110 mph. In the Final EIR/EIS, Table S-2, Mary Avenue (Sunnyvale) is identified to be kept at-grade with a four-quadrant gate application to be utilized. However, at the City Council Meeting on August 30, 2022, the City Council voted to move forward with the grade separation at Mary Avenue crossing. See Section 7.3, Next Step.

2. Community Outreach

A crucial aspect of this project is recognizing that the potential safety benefits offered by a location traffic/train separation are counterbalanced by concerns of property values, noise, aesthetics, and construction cost and duration. As a result, solicitation of community participation assisted in identifying community attitudes and priorities toward the project and options.

Community meetings were held for the general public, BPAC and City Council with the objectives of (1) creating and bringing project awareness to the public, especially surrounding communities that are being affected; (2) providing a communication channel to the public to voice questions and concerns; (3) promoting civic engagement and strengthening communities through addressing their societal needs; and (4) establishing a level of consensus for grade separations among neighborhood residents and businesses.

Below is a list of community outreach activities and public meetings that expanded beyond traditional meetings and were held throughout the project duration:

- Project webpage
- On-going Business Outreach Meetings
- July 12, 2017 – Agency Stakeholder Meeting
- July 26, 2017 – Business Outreach Meeting
- Aug. 10, 2017 - Mary Avenue Community Meeting (100 participants)

- Aug. 17, 2017 - Bicycle and Pedestrian Advisory Commission Meeting
- Aug. 22, 2017 - Mary Avenue Expressions Complex Meeting
- Aug. 24, 2017 - Sunnyvale Avenue Community Meeting (65 participants)
- Sept. 2017 - Mary Avenue Online Survey (128 responses)
- Sept. 2017 - Sunnyvale Avenue Online Survey (77 responses)
- Sept. 6, 2017 - Sunnyvale Downtown Association Meeting
- Oct. 17, 2017 - City Council and BPAC Joint Meeting
- Jan. 23, 2018 - City Council Meeting
- April 5, 2022 - City Council Study Session
- May 13, 2022 - City Manager's Update
- Multiple Email blasts
- June 4-5, 2022 - Art & Wine Festival booth
- Multiple NextDoor posts
- Multiple Facebook posts
- Summer 2022 - Horizon article
- June 8, 2022 - Mary Avenue Community Meeting
- June 9, 2022 - Sunnyvale Avenue Community Meeting
- June 13-July 31, 2022 – Online Survey (462 responses)
- Downtown Association Board
- Chamber of Commerce Policy and Business Committee
- Chamber of Commerce Board
- Agency Stakeholder Meetings
- Direct emails, letters and meetings:
 - ✓ Local Businesses
 - ✓ Residents
 - ✓ Property Owners
 - ✓ Impacted Stakeholders
 - ✓ HOAs
 - ✓ Community Groups
 - ✓ Schools
 - ✓ Places of worship
 - ✓ VTA

A sample of a flyer depicting the community outreach is shown below.



Caltrain Grade Separation Study
Tell us your preferred crossing options

The City plans to lower the roadways at the Mary and Sunnyvale Avenue Caltrain crossings. The road would go beneath the railroad tracks. This project - called a grade separation - will:

- Improve safety for all travelers,
- Improve bicycle and pedestrian pathways, and
- Decrease traffic delay and noise from the railroad gates.

We are studying two options for each intersection. Your input will help determine the best option for each location.

Project Webpage: Go to <https://sunnyvale.ca.gov> and search for "Caltrain Grade Separation". Stay informed by email using the "Subscribe" link at the top of the project webpage.

For more information, contact:
Angela Obeso, Principal Transportation Engineer, at aobeso@sunnyvale.ca.gov or (408) 737-7557

Upcoming Community Meetings:
Join us at the community meetings to hear about the study's findings and voice your feedback about the options.

June 8 Wed	Mary Avenue Caltrain Crossing Community Meeting 6:00pm Zoom info to be posted on project webpage and emailed to subscribers This meeting will focus on the options for the Mary Avenue crossing only.
June 9 Thurs	Sunnyvale Avenue Caltrain Crossing Community Meeting 6:00pm Zoom info to be posted on project webpage and emailed to subscribers This meeting will focus on the options for the Sunnyvale Avenue crossing only.
June 13 - July 31	Online Survey Link to be posted on project webpage and emailed to subscribers Options for both crossing locations will be presented online with a survey for providing your feedback.
July 21 Thurs	Bicycle and Pedestrian Advisory Commission Meeting 7:00pm Zoom info to be posted on project webpage and emailed to subscribers The Bicycle and Pedestrian Advisory Committee will recommend preferred options to City Council.
Aug 30 Tues	City Council Meeting 7:00pm Zoom info to be posted on project webpage and emailed to subscribers City Council will select a preferred option for each crossing location.

 Sunnyvale

3. Evaluation Analysis

3.1 Design Criteria

In evaluating the feasibility of the potential grade separations in the City of Sunnyvale, basic design criteria that included safety, traffic operations, right of way issues, constructability (structural and work duration), construction costs, utility impacts, potential environmental issues, and community concerns were considered and applied.

Assessing traffic operations included the consideration of the number and severity of accidents experienced at each location, vehicular volume, posted roadway speed, and pedestrian and bicycle impacts. A Traffic and Circulation Memorandum (Memo), dated July 13, 2022, was prepared for the Study which provided a summary of results for No-Build and Build scenarios for the Mary Avenue Underpass Option, the Mary Avenue Underpass with Jughandle Option, the Sunnyvale Avenue Underpass Tunnel Option, the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option, and the Mary Avenue Underpass with Jughandle and Connector Ramps Option. A summary including volume redistribution and assignment, traffic measures of effectiveness, and a multimodal impact analysis are summarized in the Memo, see Attachment E.

Assessing train operations included the consideration of train crossing frequency at each location, maximum railway speed, and type of facility (spur/mainline). Assessing design criteria included consideration of the proximity of intersecting streets, right of way acquisition, stage construction, utility relocations, grading limits, and construction costs. Assessing community input included the consideration of visual and noise impacts, access points and option access, land use, and public outreach responses.

In assessment of design criteria, right of way impacts, including utilities, played a pivotal role in the analyses. Right of way acquisitions, which included both full and partial parcel takes, were determined for each option. Additional design constraints considered in each option include: constructability, construction staging, utility relocations, drainage improvements, and meeting ADA requirements for pedestrian access.

For the roadway design, the American Association of State Highway and Transportation Officials (AASHTO), and for the railroad design, the Caltrain Engineering Standards, dated August 31, 2020, were used as the basis of the design criteria for the grade separation options. All options adhere to the AASHTO design standard with the exception of the Mary Avenue Underpass with Jughandle Option, which provides a maximum roadway grade of 7%. For sidewalks, driveways, and ramps, the Americans with Disabilities Act (ADA) Standards for Accessible Design criteria and requirements were followed.

Table 3.1 below summarizes the design criteria that were used in developing options.

Table 3.1 - Design Criteria

	Roadway	Railroad
Grades	4.75%	1.2% 0.8% for temporary rail
Design speed	30 - 45 mph Based on posted speed plus 5 mph	79 mph for shoofly (temp rail) 110 mph for final condition
Bridge depth	5' Supporting roadway	6.75' Supporting railroad
Vertical clearance	Underpass 15.5' over roadway Roadway lowered 22'	Overpass 27' over railroad Roadway 32' above ground

4. Mary Avenue Shortlisted Options

4.1 Mary Avenue Underpass Option

This option proposes to depress both Evelyn and Mary avenues and their intersection approximately 25' to create an underpass at the Caltrain railroad crossing, thus grade separating train traffic from vehicular/pedestrian/bicycle traffic, see Attachment C. Along Mary Avenue, the proposed roadway improvements begin at Carson Drive and end at California

Avenue. Along Evelyn Avenue, the proposed roadway improvements begin approximately 550' east of and end approximately 650' west of the Mary Avenue intersection.

The proposed roadway improvements include:

- Depression of Mary Avenue to provide:
 - For southbound direction - Three (3) 11-foot wide through lanes and two (2) 11-foot wide exclusive left turn lanes;
 - For northbound direction - Three (3) 11-foot wide through lanes and two (2) 11-foot wide exclusive left turn lanes;
 - Six-foot wide sidewalk along both Mary Avenue north and southbound directions;
 - Six-foot wide Class II bicycle facilities along both Mary Avenue north and southbound directions;
- Depression of Evelyn Avenue to provide:
 - For westbound direction - One (1) 11-foot wide exclusive left turn lane, one (1) 11-foot wide through lane, and one (1) 11-foot wide shared through and right turn lane;
 - For eastbound direction - One (1) 11-foot wide exclusive left turn lane, one (1) 11-foot wide through lane, and one (1) 11-foot wide shared through and right turn lane;
 - Six-foot wide sidewalk along Evelyn Avenue eastbound direction;
 - Six-foot wide Class II bicycle facilities along both Evelyn Avenue eastbound and westbound directions
- Construction of retaining walls along both sides of Mary Avenue and Evelyn Avenue within the depressed roadway section;
- Construction of a railroad bridge crossing Mary Avenue;
- Reconstruction/modification of five (5) driveways;
- Replacement and reconstruction of all curb ramps to improve pedestrian safety;
- Installation of new traffic signal at the Mary Avenue/Evelyn Avenue intersection;
- Relocation of existing utilities

In order to support the depressed Mary Avenue Underpass Option, other roadway improvements may include, but are not limited to: lighting, drainage/hydraulics including pump station, water quality (post construction BMPs), signage (including sign structures), pavement delineation, and landscaping.

4.1.1 Structure Work

This option requires a number of permanent structures to be constructed, including retaining walls and a bridge. Temporary structures such as supports for deep excavations and temporary bridges are required depending on the staging sequence.

For purposes of this Study, providing a shoofly¹⁰ for the railroad tracks is a possible construction option for developing construction concepts. This construction option would include installation of a temporary shoofly bridge, including temporary bridge supports to divert rail traffic away from the current Mary Avenue at-grade crossing and to provide

¹⁰ Shoofly - Temporary track used to avoid an obstacle that blocks movement on the normal track section

access for roadway excavation and bridge installation. This would enable trains to continue to operate throughout the duration of the construction of this project, as required by Caltrain and UPRR.

The depressions of Mary and Evelyn avenues would be constructed by excavating between parallel retaining walls on both sides of the roadways. One railroad bridge would be constructed at existing grade to carry two railroad tracks over the lowered Mary Avenue. This rail bridge, approximately 140 feet long by 37 feet wide, would be supported at the ends and in the center in the median of Mary Avenue. Based on current Caltrain standards, the most preferred bridge type consists of multiple steel girders with cast-in-place concrete or steel deck.

To maintain traffic on Mary Avenue during construction of the depressed roadway, a temporary support wall would be required along the median of Mary Avenue to facilitate excavation on half of the roadway. Once the shoofly is in place for rail traffic, the permanent rail bridge on the excavation side can be installed. Roadway excavation can be conducted below the rail bridge and construction of the roadway bridge within this side of Mary Avenue can be completed (i.e., a top-down construction method).

After one side of Mary Avenue depressed roadway is completed, vehicular and pedestrian/bicycle traffic would then be shifted to the new roadway to allow for construction on the opposite side while rail traffic riding on the shoofly. Refer to Section 4.1.2 Construction Staging for further discussion on staging and traffic handling.

4.1.2 Construction Staging

Prior to the beginning of any work zone deployment, the Project will enact a public information and outreach campaign to give ample notice to the general public, residents of the community, local businesses, and all impacted public and private services. The campaign's mission is to address the public's concerns, minimize traffic delays and provide a smoother transition to the temporary and ultimate conditions by managing expectations.

For purposes of this Study, the following construction staging was assumed as it provides the necessary balance between being able to effectively and timely construct the grade separation while minimizing impacts to the surrounding community by maintaining Mary Avenue open at all times. Refer to Section 4.1.3, "Other Construction Methods," for further discussion on construction options.

Stage construction and traffic handling for the construction of the Mary Avenue Underpass Option could be handled in two major stages.

Stage 1

The first stage could include construction of the temporary shoofly structure and tracks, construction of the main track structure, excavation and open trench construction of the east side of Mary Avenue and Evelyn Avenue east of Mary Avenue. During this stage, the east side of Mary Avenue would be closed and traffic would be shifted to the existing west side of Mary Avenue while maintaining two-way traffic (minimum one lane in each direction). Evelyn Avenue east of Mary/Evelyn Avenue intersection would be closed for through movements, with access to local traffic only. Evelyn Avenue, west of the intersection, would maintain one lane in each direction. With the trains operating on the shoofly at existing grade, roadway excavation and construction of the underpass and retaining walls on the east side of Mary Avenue can occur. Construction of Evelyn Avenue roadway improvements east of Mary Avenue shall be constructed concurrently in this

stage. Access to the existing properties would remain open. Through traffic on Evelyn Avenue would be detoured to surrounding streets.

Stage 2

The second stage could include completion of the remainder of the railroad track structure, and excavation and open trench construction of the west side of Mary Avenue and Evelyn Avenue west of Mary Avenue. During this stage, the west side of Mary Avenue would be closed and traffic shifted to newly constructed east side of Mary Avenue. Evelyn Avenue would be closed for through movements, with only access open to local traffic. While railroad operations continue on the shoofly, the remainder of the railroad structure would be completed. Upon completion of the structure, railroad train operations would be shifted to the main tracks. Construction of the Evelyn Avenue roadway improvements west of Mary Avenue/Evelyn Avenue intersection could be done concurrently with the improvements on the west side of Mary Avenue including the removal of the shoofly. Access to existing properties shall remain open. Through traffic on Evelyn Avenue would be detoured to surrounding streets.

4.1.3 Other Construction Methods

There are several construction methods that would minimize the disruption to railroad traffic and do not require a shoofly. Two methods that could potentially be used at this location include box jacking and micro tunneling. These construction methods do not require open trenching at the railroad track. Box jacking and micro tunneling methods could potentially be employed with live traffic over a box or tunnel. These methods could provide benefits in terms of safety and minimized disruption to rail operations and local traffic. These various construction methods will be evaluated in detail to determine the best method for each location as part of future phases.

4.1.4 Evaluation of Construction Methods

Currently, Caltrain is electrifying the corridor and expects to complete the electrification process by mid-2024. When Mary Avenue begins construction, the electrified Overhead Contact System (OCS) will be in place along the corridor, which would make construction of the undercrossing a more complex undertaking. Building across the electrified corridor would require careful consideration and coordination with Caltrain.

Therefore, it is recommended that the box jacking construction method be evaluated during future phases of the project since it could provide increased safety for the public, faster project execution, and less disruption to vehicle, bicycle, pedestrian and rail traffic. Additionally, this method would not require the use of a shoofly track, which would require relocation of electrification poles and the building of a temporary bridge to maintain Caltrain traffic during the construction. Further study of various construction methods should be performed in the next phases in order to determine the optimal construction method for selection.

4.2 Mary Avenue Underpass with Jughandle Option

For this option, Mary Avenue is depressed while Evelyn Avenue and Caltrain stay at the existing elevation. Therefore, direct turning movements between Evelyn and Mary avenues are eliminated. To accommodate turning movements between Mary and Evelyn avenues, a jughandle roadway is proposed to connect the two roadways. The Jughandle is situated at the southwest corner of the current Mary Avenue/Evelyn Avenue intersection. New signalized intersections are proposed at either end of the Jughandle, one on Mary Avenue opposite the existing Magnolia Square Apartments and the other on Evelyn Avenue at 970 W Evelyn

Avenue (see Attachment C). Along Mary Avenue, the proposed roadway improvements begin at Bidwell Avenue and end at California Avenue. Along Evelyn Avenue, the proposed roadway improvements begin approximately 500' east of Mary Avenue at 136 W Evelyn Avenue and end approximately 700' west of Mary Avenue at 922 W Evelyn Avenue.

The proposed roadway improvements include:

- Depression of Mary Avenue to provide:
 - For southbound direction - Two (2) 11-foot wide through lanes and two (2) 11-foot wide exclusive left turn lanes;
 - For northbound direction - Two (2) 11-foot wide through lanes and two (2) 11-foot wide exclusive right turn lane from Mary Avenue northbound to Jughandle westbound directions;
 - Six-foot wide split-profile sidewalk along both Mary Avenue north and southbound directions;
 - Six-foot wide Class II bicycle facilities along both Mary Avenue north and southbound directions;
- Widening Evelyn Avenue:
 - For eastbound direction - One (1) 12-foot wide through lane and one (1) 12-foot wide exclusive left turn lane from Evelyn Avenue eastbound to Jughandle northbound directions. The lane configuration changes to two (2) 11-foot wide through lanes for Evelyn Avenue once it passes the Evelyn Avenue and Jughandle intersection.
 - For westbound direction – One (1) 11-foot wide through lane and two (2) 12-foot wide exclusive right turn lanes from Evelyn Avenue westbound to Jughandle northbound directions. The lane configuration change to one (1) 12-foot wide through lane.
 - Six-foot wide sidewalk facility along Evelyn Avenue westbound direction
 - Six-foot wide Class II bicycle facilities along both Evelyn Avenue west and eastbound directions
- Construction of Jughandle;
 - Five (5) 12-foot wide lane cross-section, with 4-foot wide median shoulders in both directions and 4-foot wide median
 - Six-foot wide sidewalk facilities along Jughandle in both directions.
 - Six-foot wide Class II bicycle facilities along both Jughandle east and westbound directions.
- Construction of retaining walls along Mary Avenue along the depressed segment;
- Construction of a railroad bridge crossing Mary Avenue;
- Construction of an Evelyn Avenue bridge crossing Mary Avenue;
- Reconstruction/modification of three (3) driveways;
- Replacement and reconstruction of all curb ramps to improve pedestrian safety;
- Installation of new traffic signals at both ends of the Jughandle;
- Relocation of existing utilities;

In order to support the Mary Avenue Underpass with Jughandle option, other roadway improvements may include, but are not limited to: lighting, drainage/hydraulics including pump station, water quality (post construction BMPs), signage (including sign structures), pavement delineation, and landscaping.

4.2.1 Structure Work

Similar to Mary Avenue Underpass option, this option requires a bridge crossing, roughly 37 feet in width, to carry tracks over Mary Avenue. Additionally, since Evelyn Avenue remains at grade, a second bridge would be required to carry Evelyn Avenue vehicular traffic over Mary Avenue. The vehicular bridge width is on the order of 68 feet. Both the rail and vehicular bridges are approximately 110 feet in length. The rail bridge structure depth from top of rail to bottom is estimated to be 6.75 feet which includes a 28-inch minimum vertical offset from top of rail to top of bridge deck. The two bridges would be supported at both ends on either side of Mary Avenue and at the Mary Avenue median.

Construction staging for this option would essentially be the same as that for the Mary Avenue Underpass Option. To maintain traffic on Mary Avenue, a temporary support wall would be required along the median of Mary Avenue to facilitate excavation on one side at a time. A temporary shoofly bridge would also be needed to support the shoofly while allowing excavation to continue under the shoofly. The permanent vehicular bridge carrying Evelyn Avenue traffic would be constructed last, after the permanent rail bridge is in place and the shoofly is no longer needed.

Please see Section 4.1.4, for proposed evaluation of other construction methods.

4.2.2 Construction Staging

Prior to the beginning of any work zone deployment, the Project will enact a public information and outreach campaign to give ample notice to the general public, residents of the community, local businesses, and all impacted public and private services. The campaign's mission is to address the public's concerns, minimize traffic delays and provide a smoother transition to the temporary and ultimate conditions by managing expectations.

For purposes of this Study, the following construction staging was assumed as it provides the necessary balance between being able to effectively and timely construct the grade separation while minimizing impacts to the surrounding community by maintaining Mary Avenue open at all times. Refer to Section 4.1.3, "Other Construction Methods," for further discussion on construction options.

Stage construction and traffic handling for the construction of the Mary Avenue Underpass with Jughandle Option would be handled in four major stages.

Stage 1

The first stage would be the construction of the permanent railroad bridge structure to maintain railroad track operations during future Mary Avenue Underpass excavation. Prior to constructing the permanent railroad bridge structure, temporary shoofly tracks would be constructed to maintain railroad operations while work on the permanent tracks would take place. The temporary shoofly tracks would occupy the northern half Evelyn Avenue, while maintaining the southern half of Evelyn Avenue open for two-way traffic. Mary Avenue traffic would be maintained as existing. After train traffic has been shifted to the shoofly tracks, top-down construction of the permanent railroad bridge structure is anticipated be completed during weekend closures of Mary Avenue. When the bridge piers and abutments are in place, the permanent railroad bridge deck would be constructed in two substages, constructing half of the Mary Avenue bridge deck and tracks at a time while maintaining the

other half open for two-way traffic. Following completion of the railroad bridge deck, Mary Avenue can be fully reopened to traffic and the permanent Caltrain tracks can be reopened to railroad traffic while removing the shoofly tracks. Minimal weekend closures of Mary Avenue may be required for miscellaneous construction activities.

Stage 2

The second stage would be construction of the permanent Evelyn Avenue bridge structure to maintain traffic on Evelyn Avenue during future Mary Avenue Underpass excavation. Similar to stage 1, top-down construction of the permanent bridge structure is anticipated to be completed during weekend closures Evelyn Avenue. When the bridge piers and abutments are in place, the permanent Evelyn Avenue bridge deck would be constructed in multiple substages to maintain two-way traffic for both Mary Avenue and Evelyn Avenue. Excavation and construction of the Jughandle that does not require closures can begin concurrently with the construction of the Evelyn Avenue bridge structure. Minimal weekend closures Evelyn Avenue may be required for miscellaneous construction activities.

Stage 3

The third stage would be construction of the east side of the Mary Avenue Underpass and completion of the Jughandle. Since the Evelyn Avenue bridge is completed, excavation of the east side of Mary Avenue can begin concurrently with construction of the Jughandle, while maintaining two-way traffic on the west side of Mary Avenue. Traffic on Evelyn Avenue would be maintained as existing.

Stage 4

The final stage would be construction of the west side of the Mary Avenue Underpass. During this stage, the Jughandle can be opened to traffic and excavation of the west side of Mary Avenue can begin. Two-way traffic will be maintained on the east side of Mary Avenue and traffic on Evelyn Avenue would be maintained as existing.

4.3 Mary Avenue Underpass with Jughandle and Connector Ramps Option

To maintain some existing turning movements at the Mary Avenue/Evelyn Avenue intersection, the Mary Avenue Underpass with Jughandle and Connector Ramps Option was developed. The roadway geometric layout for this option is similar to the Mary Avenue Underpass with Jughandle. The difference is that two (2) single-lane connector ramps that connect westbound Evelyn Avenue traffic with northbound Mary Avenue and southbound Mary Avenue traffic with westbound Evelyn Avenue are introduced. These direct connector ramps would help reduce delays and inconvenience to the high traffic volumes on Evelyn Avenue westbound and Mary Avenue northbound directions. A traffic signal would be needed for the westbound Evelyn Avenue to northbound Mary Avenue ramp.

With the addition of the connector ramps, Evelyn Avenue is required to shift southerly approximately 28 feet to provide ample space to construct the ramps. Shifting Evelyn Avenue south would encroach into the frontages of businesses situated along Evelyn Avenue in the eastbound direction, thus affecting access to the existing businesses. Retaining walls including safety barrier and fence need to be constructed between connector ramps, Evelyn Avenue and Caltrain tracks.

Preliminary designs revealed that this option would impact a total of 16 businesses along Evelyn Avenue. Fourteen parcels require partial takes and two (2) parcels require full right of way acquisition.

The option was eliminated from further evaluation and development due to the significant right of way impacts.

4.4 Safety

Railroad crossings pose a threat to the safety of all modes of traffic crossing the tracks. The Mary Avenue at-grade crossing creates numerous conflict points for cars, trains, pedestrians, and bicyclists along Mary Avenue. The crossing forces both cars and trains to reduce their speed, increasing travel time and congestion of cars, decreasing overall efficiency of the rail network, and generating more air and noise pollutants to the surrounding communities.

Removing the at-grade rail crossing would substantially increase safety by removing the vehicle-train conflicts and pedestrian/bicyclist-train conflicts, and delays for both trains and cars could be improved. The severity of collisions with trains is of concern due to the mass of trains and the time required for trains to come to a stop. Roadway traffic including bikes and pedestrians would move freely under the railroad tracks. By removing wait times due to gates for a passing train, the roadway capacity increases by eliminating the delay caused by a previous railroad crossing. Most importantly, the rate of collisions with trains is eliminated as the crossing no longer puts traffic in front of trains.

4.5 Right of Way Impacts

Under Mary Avenue Underpass Option, both Evelyn and Mary avenues are depressed while only Mary Avenue is depressed under Mary Avenue Underpass with Jughandle Option. Thus, more private properties and businesses would be impacted by the Mary Avenue Underpass option than the option with the Jughandle.

For Mary Avenue Underpass Option, it is estimated that three (3) parcels require full acquisition, one parcel requires partial or “sliver” take, and five (5) driveways would need to be reconstructed to different grades. Due to site condition, twenty-eight (28) parking stalls would be eliminated at Magnolia Square Apartments complex.

As for Mary Avenue Underpass with Jughandle Option, one (1) parcel potentially requires full acquisition, and three (3) driveways need to be reconstructed. With the split profile, the Mary Avenue Underpass with Jughandle Option only eliminates ten (10) parking spaces at Magnolia Square Apartments complex.

Because Mary Avenue is depressed under both options, utility easement corridors are necessary for utility relocation. Although utility easement widths and lengths are different depending on option, the easements must be negotiated with property owners and acquired for the utility relocation before construction can begin.

The right of way impacts for the options are tabulated in Table 4.1 below.

Table 4.1 Right of Way Impact					
Options	Full Parcel Acquisition	Partial Parcel Takes	Loss of Parking Spaces @ Magnolia Square Apt.	*Utility Corridor Easements	*Number of Driveway Modifications
Mary Avenue Underpass	3	1	28	4	5
Mary Avenue Underpass Tunnel with Jughandle	1	0	10	3	3

**For locations, lengths, and widths of utility easements and driveway modifications, see Attachment D*

There are two (2) parcels that are currently owed by the City of Sunnyvale that would be impacted by the Mary Avenue Underpass with Jughandle Option. Since the parcels belong to the City, it is not considered a right-of-way impact and not included in the cost estimates as a right-of-way take. However, the businesses presently occupying these parcels would be affected and have to vacate. The two (2) affected businesses are Golden West Collision Center (970 W Evelyn Avenue), and Family Towing (108 S Mary Avenue).

4.6 Environmental Impacts

Because the grade separation would allow the Caltrain gates and bells to be removed and the trains would no longer be required to sound their horn while traveling through the crossing, noise would be reduced under both Mary Avenue Underpass Option and Mary Avenue Underpass with Jughandle Option. However, other impacts to environmentally sensitive resources could still occur as a result of the grade separation.

Below is a list of environmental considerations:

- Property impacts primarily borne by commercial properties such as lead renovation, deteriorating asbestos, microbial contamination – gas station, car repair shop, collision center
- Potential soil contamination issues (gas station, car repair)
- Landscape removal
- Nesting birds could be a concern and potentially require mitigation during construction.
- No natural habitat or aquatic resources appear present. No permits (e.g. 404, 1602, 408, BCDC) appear needed.
- No historic structures appear present, nor are any local landmarks or heritage trees located in the project area.
- Archaeological resources may be present.
- Potential noise effects from Jughandle on residences along Bidwell Avenue.
- Signalized intersection on Mary Avenue/Jughandle could create potential noise concerns at Magnolia Square apartments.
- Removal of crossing gates, signals would result in beneficial effect on noise

- Underpass should not create any visual or aesthetic concerns. Removal of crossing signals, gates would result in beneficial aesthetic effect.
- No parks, recreational or other potential 4(f) resources appear present.
- Temporary construction impacts such as noise and vibration, dust, and visual degradation.

Preliminary findings indicate that both proposed options are qualified as Statutorily Exemption per CEQA Section 15282 (g), "Removal of an At-Grade Crossing." For NEPA, grade crossings are qualified for Categorical Exclusion under NEPA (FRA 771.116).

Since there is no waters of the US nor waters of the State situated within or near the project limits, regulatory permits/approval from San Francisco Bay Regional Water Quality Control Board (RWQCB) 401 Water Quality Certification Permit is not required. However, the project is required to obtain tree pruning and removal permit from City of Sunnyvale, under Section 19.94, "Tree Preservation."

4.7 Utility Impacts

Due to similarities of both options, the utility companies and types that are impacted are identical. However, the utility lengths and relocation locations are different between the two options. Below is a list of utility lines that would be impacted by both options:

- City of Sunnyvale – Sanitary Sewer, Water, Storm Drain
- PG&E – Gas, Electricity
- AT&T – Telephone
- Cablecom – Fiber Optic
- Century Link – Fiber Optic
- Level 3 Communications– Fiber Optic
- Verizon – Fiber Optic
- XO Communications – Fiber Optic

It is important to note that utilities identified in this Study reflect information that is based on information provided by others. The exact location of underground and overhead utilities is conceptual and preliminary in nature and would require further evaluation during the environmental and design phases to confirm the accuracy. The proposed improvements would require utility relocation. Public utility easements are required to house the relocated utilities. Pump stations would be needed to continue the continuity of the existing storm drain and sanitary sewer system through the depressed sections of roadway.

4.8 Transportation Impacts

4.8.1 Mary Avenue Underpass Option

For the Mary Avenue Underpass Option, both Mary and Evelyn avenues are depressed and remain connected, all the turning movements at the intersection remain the same as represented under the no-build scenario since the roadway geometric layout relatively remains the same as existing condition. The local streets would, however, no longer interact with the Caltrain railroad tracks. Because Mary and Evelyn avenues would be approximately 25 feet below existing elevation, it would disconnect access to some of the local properties due to elevation difference.

There would be no traffic rerouted under this option. Since no redistribution of traffic is proposed under this option, operations for other intersections along Mary Avenue do not change. The Mary/Evelyn Avenue intersection would still operate at the same LOS as No Build option, under projected 2035 volumes. But since the intersection would not be subjected to gate downtime at the railroad crossing, delay would be substantially reduced in both AM and PM peak periods. Queue lengths would be reduced for the majority of the movements under this option but they are still long and may exceed storage pocket lengths in some approaches. The Mary Avenue Underpass Option reduces the travel times along Mary Avenue compared to the No Build option.

Table 4.2 below shows the Level of Services (LOS) comparison between Mary Avenue Underpass Option and No-Build.

Table 4.2 LOS Comparison Between Mary Avenue Underpass versus No-Build (2035)				
Options	Mary Ave/Evelyn Ave (Existing Condition)		Mary Ave/Evelyn Ave Intersection	
	AM Peak Hrs.	PM Peak Hrs.	AM Peak Hrs.	PM Peak Hrs.
No-Build	(LOS) F	(LOS) F	n/a	n/a
Mary Ave Underpass	n/a	n/a	(LOS) F	(LOS) F

4.8.2 Mary Avenue Underpass with Jughandle Option

For this option, only Mary Avenue is depressed while Evelyn Avenue and the Caltrain railroad would remain at existing elevation. A road connector or “Jughandle” would provide connection from Mary Avenue to existing Evelyn Avenue, and vice versa. For this scenario, all the turning movements at the Mary Avenue/Evelyn Avenue intersection are redistributed through the Jughandle. Some movements have improvements through reduction in vehicular delay, while others have greater delays. The through movements on both Mary and Evelyn avenues would have fewer delays since they would travel through one signalized intersection with less traffic volumes. All turning movements from Evelyn Avenue to Mary Avenue would need to travel through both Jughandle intersections (at Mary Avenue and Evelyn Avenue).

Table 4.3 below shows the Levels of Services (LOS) comparison between Mary Avenue Underpass with Jughandle Option and No-Build.

Table 4.3 LOS Comparison Between Mary Avenue w/ Jughandle versus No-Build (2035)						
Options	Mary Ave/Evelyn Ave (Existing Condition)		Mary Ave/Jughandle Intersection		Evelyn Ave/Jughandle Intersection	
	AM Peak Hrs.	PM Peak Hrs.	AM Peak Hrs.	PM Peak Hrs.	AM Peak Hrs.	PM Peak Hrs.
No-Build	(LOS) F	(LOS) F	n/a	n/a	n/a	n/a
Mary Ave Underpass with Jughandle	n/a	n/a	(LOS) F	(LOS) C	(LOS) D	(LOS) E

With an exception to AM peak hours at Mary Avenue/Jughandle, traffic operations improve under the Underpass with Jughandle Option when comparing to No-Build. The delay for the majority of movements substantially decreases with the Jughandle option in both AM and PM peak hours.

4.9 Multimodal Considerations

4.9.1 Pedestrian/Bicycle

Mary Avenue Underpass Option

For the Mary Avenue Underpass Option, pedestrians and bicyclists would no longer be exposed to conflicts with trains. Sidewalk and Class II bicycle facilities are provided on Mary and Evelyn avenues, comparable to the existing condition. The pedestrians and bicyclists, however, will experience an up and down elevation change when passing through the Mary and Evelyn Avenue intersection with 4.75% grade slopes. It is noted that no sidewalk is provided on the northside of Evelyn Avenue which is similar to the existing condition.

The City of Sunnyvale Active Transportation Plan (ATP) currently recommends Class IV and Class II bike lanes along Mary Avenue for north and south of Evelyn Avenue and Mary Avenue intersection, respectively¹¹. As for Evelyn Avenue, the City has a current project to install a multi-use trail on north side of Evelyn Avenue from Bernardo to Mathilda Place.¹²

Mary Avenue Underpass with Jughandle Option

For the Mary Avenue Underpass with Jughandle Option, pedestrians and bicyclists would also no longer be exposed to conflicts with trains. However, under this option, bicyclists traveling along the roadway profile would experience a maximum grade of 7% on Mary Avenue. Bicyclists would experience an up and down elevation change when traveling through this area. With the split profile sidewalk, the pedestrians and bicyclists experience a maximum 5% grade which meets ADA requirements. Along Jughandle, bicyclists and pedestrian would experience 3% maximum grade.

The City of Sunnyvale Active Transportation Plan (ATP) currently recommends Class IV and Class II bike lanes along Mary Avenue for north and south of Evelyn Avenue and Mary Avenue intersection, respectively¹³. As for Evelyn Avenue, the City has a current project to install a multi-use trail on north side of Evelyn Avenue from Bernardo to Mathilda Place.¹⁴ While the graphics for this option do not include a standard Class IV bike lane to the north of the Mary/Evelyn Avenue intersection, this will be evaluated in greater detail during the final design phase. Additionally, the final design phase will evaluate other ways to increase the bicycle and pedestrian infrastructure of this option that are in addition to what is recommended in the ATP. These will be incorporated as appropriate to balance impacts to adjacent properties.

Pedestrian and Class II bicycle facilities on Evelyn Avenue would be the same as existing conditions. There is a sidewalk running along southside of Evelyn Avenue. Class II bicycle facilities are provided on both sides of Evelyn Avenue, matching existing configuration. This option would not introduce any new conflict and so would not preclude the City's planned multi-use trail.

Although the traffic study was not performed with the multi-use trail scenario, it is from engineering judgement that the addition of the multi-use trail would result in a slight

¹¹ 2020 Sunnyvale Active Transportation Plan:

<https://www.sunnyvale.ca.gov/home/showpublisheddocument/2844/637822670426570000>

¹² Evelyn Avenue Multi-Use Trail:

<https://bondaccountability.resources.ca.gov/Project.aspx?ProjectPK=48260&PropositionPK=49>

¹³ 2020 Sunnyvale Active Transportation Plan:

<https://www.sunnyvale.ca.gov/home/showpublisheddocument/2844/637822670426570000>

¹⁴ Evelyn Avenue Multi-Use Trail:

<https://bondaccountability.resources.ca.gov/Project.aspx?ProjectPK=48260&PropositionPK=49>

degradation of the traffic operations at Evelyn Avenue/Jughandle intersection due to the added pedestrian/bicyclist crossing. The intersection operations may require a longer cycle length and/or slightly longer vehicle delays with the additional of a pedestrian phase across Evelyn Avenue. This will be further evaluated during the final design phase.

There would be no direct connection for pedestrians and bicyclists between Evelyn Avenue and Mary Avenue. Pedestrian and bicyclists would use the Jughandle to get to and from Mary Avenue to Evelyn Avenue, and vice versa.

4.9.2 Transit

There are no transit routes within the project area on Mary Avenue or Evelyn Avenue therefore there are no impacts to transit routing.

4.10 Estimated Costs

Preliminary estimates have been prepared for both options, and include construction capital costs, right of way acquisitions, and costs related to design and environmental services. These costs are in 2029 dollars.

For Mary Avenue Underpass Option: Cost ranges between \$375 – 425 Million

For Mary Avenue Underpass with Jughandle Option: Cost ranges between \$280 – 320 Million

Table 4.4 below provides a general breakdown of the cost associated with each option.

Table 4.4 Cost Estimate Breakdown		
	Mary Avenue Underpass	Mary Avenue Underpass with Jughandle
Environmental Engineering	\$36 - \$41 Million	\$29 - \$34 Million
Right-of-Way	\$65 - \$74 Million	\$25 - \$28 Million
Final Design (PS&E)	\$67 - \$75 Million	\$55 - \$63 Million
Construction Capital Cost	\$207 - \$235 Million	\$171 - \$195 Million
Grand Total	\$375 - \$425 Million	\$280 - \$320 Million

4.11 Summary of Findings

Two options were studied/evaluated for the grade separation at Mary Avenue. Both options achieve the project's main goals and objectives:

- Improve safety;
- Enhance pedestrian and bicycle access;
- Improve transportation efficiency; and
- Reduce noise in the vicinity of rail crossings at Sunnyvale Avenue.

Both options have resemblances and differences. For comparison between two options, see Table 4.5 below. Differences are highlighted in bold.

Table 4.5 Mary Avenue Options Comparison		
	Underpass	Underpass with Jughandle
Safety	Improved over “no build”	Improved over “no build”
Noise	Decreased from “no build”	Decreased from “no build”
Circulation - Vehicle	Same pattern as “no build”	Altered pattern
	Greater delay than Jughandle	Reduced delay
	Longer or similar travel times	Shorter or similar travel times
Circulation – Bicycle and Pedestrian	Same pattern as “no build”	Altered pattern
	Same conflict points as “no build”	Decreased conflicts points
Potential Private Property Impacts	More complex property impacts	Less complex property impacts
Construction Impacts	Impacts on both Mary and Evelyn	Construction impacts only on Mary
	More driveway impacts	Less driveway impacts
	More utility impacts	Less utility impacts
	Similar railroad maintenance road	Similar railroad maintenance road
	More roadway reconstruction	Less roadway reconstruction
Construction Cost Estimate	More construction time	Less construction time
Construction Cost Estimate	Higher cost: \$375M - \$425M	Lower cost: \$280M - \$320M

Mary Avenue is heavily saturated with traffic in the No-Build scenario. While the two proposed options eliminate the rail crossing conflicts, they do not address overall capacity constraints on the corridor. Therefore, while the options reduce delay for most movements through the Mary Avenue and Evelyn Avenue areas, movements with deficient levels of delay still persist.

Both proposed options provide substantial delay and queuing benefits to traffic movements on Evelyn and Mary avenues relative to No-Build conditions. By distributing vehicle conflicts amongst two intersections, the Mary Avenue Underpass with Jughandle Option achieves better LOS comparing to Mary Avenue Underpass Option. The traffic analysis shows that LOS under the Mary Avenue Underpass Option would be similar to the No Build scenario.

Both Mary Avenue grade separation options substantially improve safety for pedestrians, bicyclists, and vehicles by eliminating conflicts with trains. With the Mary Avenue Underpass with Jughandle option, most pedestrians and bicyclists through the intersection would experience some out-of-direction travel through Jughandle from Mary Avenue to Evelyn Avenue, and vice versa. Bicyclists and pedestrians would encounter and cross two (2) intersections (Mary Avenue/Jughandle; Jughandle/Evelyn Avenue) comparing to Mary Underpass option which has one (1) intersection (Mary Avenue/Evelyn Avenue). The two (2) intersections of the Jughandle option are both smaller and handle smaller volumes of vehicular traffic.

To further increase safety for pedestrians and bicyclists, protected intersections and separated bicycle lanes will be evaluated and incorporated during the final design phase.

The Mary Avenue Underpass Option costs are considerably higher than the Mary Avenue Underpass with Jughandle Option. The differences in cost are a direct reflection of the Mary Avenue Underpass Option having more right of way impacts, utility relocations, and roadway

and structure construction costs compared to the Mary Avenue Underpass with Jughandle Option.

5. Sunnyvale Avenue Grade Separation Options

5.1 Sunnyvale Avenue Underpass Tunnel Option

This option proposes a tunnel beneath Evelyn Avenue, the Caltrain railroad, and Hendy Avenue, see Attachment C. Vehicles traveling along Evelyn Avenue would no longer have direct connections to Sunnyvale Avenue, or vice versa. As for Hendy Avenue to Sunnyvale Avenue connections, only Hendy Avenue westbound connecting to Sunnyvale Avenue northbound and Sunnyvale Avenue southbound connecting to Hendy Avenue westbound are provided while other connections for vehicle movements are cut-off including direct connections from Sunnyvale Avenue to Hendy Avenue. Through traffic on Hendy Avenue would remain the same. Along Sunnyvale Avenue, the proposed roadway improvements begin at Washington Avenue and end approximately 550' north of Hendy Avenue. For Evelyn and Hendy avenues, the improvements begin approximately 350' west and approximately 350' east of Sunnyvale Avenue.

The proposed roadway improvements include:

- Construction of an approximate 46-foot wide and 500-foot long tunnel underneath Sunnyvale Avenue from Hendy Avenue/Sunnyvale Avenue intersection to approximately 200 feet south of Evelyn Avenue/Sunnyvale intersection to provide:
 - Two (2) 11-foot wide through lanes;
 - Six-foot wide Class II bicycle facility for both directions
 - Twelve-foot wide multi-use path
- Installation of pedestrians/bicyclists ramps at southwest quadrant of Hendy Avenue/Sunnyvale Avenue intersection, and at northwest corner of Evelyn Avenue/Sunnyvale Avenue intersection;
- Connecting to the tunnel ends by constructing retaining walls on both sides of Sunnyvale Avenue where roadway is still depressed;
- Reconfiguration of the southern leg of Evelyn Avenue and Sunnyvale Avenue intersection into a cul-de-sac;
- Reconstruction/modification of six (6) driveways;
- Replacement and reconstruction of all impacted curb ramps to improve pedestrian safety;
- New Class II bicycle lanes on Hendy, Evelyn, Sunnyvale avenues;
- Modification to traffic signals at Sunnyvale Avenue/Evelyn Avenue and Sunnyvale Avenue/Hendy Avenue intersections;
- Relocation of existing utilities.

In order to support the Sunnyvale Avenue Underpass Tunnel Option, other roadway improvements may include, but are not limited to: lighting, ventilation, drainage/hydraulics

including pump station, water quality (post construction BMPs), signage (including sign structures), pavement delineation, and landscaping.

5.1.1 Structure Work

The proposed option is to construct an approximate 500-foot tunnel box from Hendy Avenue/Sunnyvale Avenue intersection to Evelyn Avenue/Sunnyvale Avenue intersection to accommodate vehicular and pedestrian/bicycle traffic. The widest portion of the tunnel would require a clear width on the order of 46 feet.

A number of construction methods have been evaluated for this location. Due to the proximity of the Caltrain station, box jacking construction method is assumed for evaluation of this option to minimize impacts to the railroad including nearby Caltrain station. Although Caltrain currently does not have standard criteria for box jacking as discussed in Section 4.1.3, "Other Construction Methods", box jacking appears to be a feasible method. This is based on this location's similarities in size and scope to nearby recent projects including Bernardo Grade Separation and Mountain View (MV) Transit Center Project situated in Cities of Mountain View and Sunnyvale that are currently being studied.

With the experiences and evaluations from Bernardo Avenue Grade Separation and MV Transit Center Projects, the first step is to install temporary shoring to support an excavation area adjacent to the final box location. A concrete tunnel box would then be constructed in the excavated pit. The box would jack through the ground to its final position with the hydraulic jacks. This construction method does not require open excavation at the tracks. Jacking operation may potentially be performed with live vehicle and rail traffic over the box. The proposed construction method would need to go through an evaluation and selection process with Caltrain and the City, and obtain approval during the environmental and final design phases.

Once a section of the box is jacked through, underneath, and beyond the railroad tracks, the rest of the tunnel would be constructed using open excavation construction method. Temporary supports would be required on either side of the tunnel box for the excavation and installation of the tunnel.

Pedestrian and bicycle access to the tunnel would be provided by ramp structures at each end of the tunnel. Concrete retaining walls of various heights and types would be required to support the cuts along the Sunnyvale Avenue and pedestrian/bicycle ramps.

5.1.2 Staging/Construction

Prior to the beginning of any work zone deployment, the Project will enact a public information and outreach campaign to give ample notice to the general public, residents of the community, local businesses, and all impacted public and private services. This will include outreach to and coordination with VTA regarding the bus routes that travel through the project area. The campaign's mission is to address the public's concerns, minimize traffic delays and provide a smoother transition to the temporary and ultimate conditions by managing expectations.

For purposes of this Study, the following construction staging was assumed as it provides the necessary balance between being able to effectively and timely construct the grade separation while minimizing impacts to the surrounding community. Refer to Section 4.1.3, "Other Construction Methods," for further discussion on construction options.

Stage construction and traffic handling for the construction of the Sunnyvale Avenue Underpass Tunnel Option would be handled in three major stages.

Stage 1

The first stage would be the roadway widening on the west side of Sunnyvale Avenue, north of Hendy Avenue, to maintain driveway access to the residents during stage 2 when the majority of the construction is performed.

Stage 2

The second stage would include excavation and construction of the underpass tunnel structure, retaining walls, and roadway improvements north of Evelyn Avenue. Since tunnel construction underneath the railroad tracks is anticipated to be by box jacking, shoofly tracks for the railroad would not be required. Construction beyond the railroad tracks is proposed to be by open trench construction and require closure of Sunnyvale and Hendy avenues. Construction during this stage will include the north half of Evelyn Avenue, while maintaining the south half of Evelyn Avenue open to maintain two-way traffic. A southbound right turn lane for driveway access from Sunnyvale Avenue to westbound Hendy Avenue is expected to remain open via the roadway widening completed during the first stage. All impacted traffic would be detoured to surrounding streets. Access to businesses and residences would remain open with minimum disruption during construction.

Stage 3

The third stage would include excavation and construction of underpass tunnel structure, retaining walls, and roadway improvements south of Evelyn Avenue. Construction during this stage will include the south half of Evelyn Avenue, with two-way traffic being shifted to the newly constructed north half of Evelyn Avenue constructed in Stage 2. Hendy Avenue can be reopened to traffic while Sunnyvale Avenue will remain closed during construction of the tunnel. Access to business would remain open with minimum disruption during construction.

5.2 Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option

The Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option consists of improvements along Sunnyvale, Evelyn, Hendy avenues. The segment of Sunnyvale Avenue between Hendy and Evelyn avenues would be closed to vehicular traffic and converted to a pedestrian and bicycle undercrossing only.

The improvements for this option include:

- Constructing an approximately 80-foot long and 25-foot wide box tunnel beneath the existing railroad tracks;
- Constructing pedestrian stair and pedestrian/bicycle access ramps at both ends of the undercrossing. This includes retaining walls along the access ramps;
- Realigning Hendy Avenue/Sunnyvale Avenue intersection to enhance mobility, reduce vehicular conflict zones, and improve bicycle and pedestrian safety;
- Modifying and reconstructing Emergency Vehicle Access/trash collecting road at Villa Del Sol Apartments;
- Reconstructing sidewalks, curb ramps, and Class II bikeway along Hendy Avenue, Evelyn Avenue, and Sunnyvale Avenue;
- Modifying traffic signals at Hendy Avenue/Sunnyvale and Evelyn Avenue/Sunnyvale Avenue intersections.

5.2.1 Structure Work

Under this option, Sunnyvale Avenue would be permanently closed between Evelyn Avenue and Hendy Avenue. A tunnel box on the order of 80 feet long, with estimated clear width of 25 feet and clear height of 10 feet, would be jacked underneath the railroad track to minimize impact to the railroad operations. The construction method would be similar to Section 5.1.1, “Sunnyvale Avenue Underpass Tunnel Option”.

5.2.2 Staging/Construction

Prior to the beginning of any work zone deployment, the Project will enact a public information and outreach campaign to give ample notice to the general public, residents of the community, local businesses, and all impacted public and private services. This will include outreach to and coordination with VTA regarding the bus routes that travel through the project area. The campaign's mission is to address the public's concerns, minimize traffic delays and provide a smoother transition to the temporary and ultimate conditions by managing expectations.

For purposes of this Study, the following construction staging was assumed as it provides the necessary balance between being able to effectively and timely construct the grade separation while minimizing impacts to the surrounding community. Refer to Section 4.1.3, “Other Construction Methods,” for further discussion on construction options.

There is only one construction stage for this option. It is similar to Sunnyvale Avenue Underpass Tunnel Option Construction Stage 2, as described in Section 5.1.2, “Staging/Construction”. This stage would require closure of Sunnyvale Avenue and partial closures of Evelyn Avenue and Hendy Avenue, while still maintaining two-way traffic for both streets.

5.3 Safety

Railroad crossings pose a threat to the safety of all modes of traffic crossing the tracks. The Sunnyvale Avenue at-grade crossing creates numerous conflict points for vehicles, trains, pedestrians, and bicyclists along Sunnyvale Avenue due to the proximity of the Hendy/Sunnyvale Avenue and Evelyn/Sunnyvale Avenue intersections with the rail crossing. The crossing forces both cars and trains to reduce their speed, increasing travel time and congestion of cars, decreasing overall efficiency of the rail network, and generating more air and noise pollutants to the surrounding communities.

Removing the at-grade rail crossing would substantially increase safety by removing the vehicle-train conflicts and pedestrian/bicyclist-train conflicts, and delays for both trains and cars could be improved. The severity of collisions with trains is of concern due to the mass of trains and the time required for trains to come to a stop. Roadway traffic including bikes and pedestrians would move freely under the railroad tracks. By removing wait times due to gates for a passing train, the roadway capacity increases by eliminating the delay caused by a previous railroad crossing. Most importantly, the rate of collisions with trains is eliminated as the crossing no longer puts traffic in front of trains.

5.4 Right of Way Impacts

Lowering of Sunnyvale Avenue as proposed in the Sunnyvale Avenue Underpass Tunnel Option would impact more private properties when compared to Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option.

North of the railroad tracks, along Sunnyvale Avenue, the Sunnyvale Avenue Underpass Tunnel Option requires a longer segment of Sunnyvale Avenue to be lowered due to the depth/clearance required for a vehicular tunnel box underneath the railroad tracks. As a result, all turning movements between Sunnyvale Avenue and Evelyn Avenue is disconnected and most turning movements between Sunnyvale Avenue and Hendy Avenue are disconnected. To maintain right turn connections from Hendy Avenue westbound to Sunnyvale Avenue northbound and from Sunnyvale Avenue southbound to Hendy Avenue westbound, widening to both sides of Sunnyvale Avenue would be required. This would have sliver right of way impacts to property frontages situated on both sides of Sunnyvale Avenue. For the Sunnyvale Avenue Bicycle/ Pedestrian Undercrossing Option, only one (1) property requires partial take due to Hendy/Sunnyvale Avenue intersection realignment.

South of the railroad tracks, due to lower roadway profile, the Sunnyvale Avenue Underpass Tunnel Option requires more reconstruction work onto private properties, including affecting driveway accesses to businesses, when compared to Sunnyvale Avenue Bicycle/ Pedestrian Undercrossing Option.

Table 5.1 below presents the right of way impact for each option.

Table 5.1 Right of Way Impact				
Options	Full Parcel Acquisition	Partial Parcel Takes	*Utility Corridor Easements	*Number of Driveway Modifications
Underpass Tunnel	0	9	2	6
Pedestrian/Bike Undercrossing	0	1	1	1

* For locations, lengths, and widths of utility easements and driveway modifications, see Attachment D

5.5 Environmental Impacts

Noise impact would be tremendously reduced with both options at Sunnyvale Avenue because the grade separation would allow the Caltrain gates and bells to be removed and the trains would no longer sound their horn while traveling through the crossing. However, to the trains would still sound their horns as the approach the nearby Caltrain Station. Other impacts to environmentally sensitive resources could still occur as a result of the project.

Below is a list of environmental considerations:

- Property effects appear minor, sliver frontage effects;
- Property impacts affect parking lots with no displacement of businesses;
- Potential for soil contamination (car repair, industrial);
- No natural habitat or aquatic resources appear present. Some tree removal may be required throughout the project area. Nesting birds could be a concern during construction.
- Historic resources – several properties in the northeast quadrant of Sunnyvale Avenue and Hendy Avenue appear to be over 50 years old including the Hendy Iron Works

(Northrup Grumman) which is a local landmark.¹⁵ The Vargas Redwood Trees, which are also a local landmark located and one Heritage Tree (American Chestnut) are located at 501 Hendy Avenue and could be affected.

- There is also a Downtown Historic District west and south of the Caltrain tracks which does not appear to be adversely affected. May need to evaluate historic character of properties under local historic preservation requirements.
- Archaeological resources may be present.
- Noise effects appear minor, may be beneficial with removal of crossing gates and signals;
- Underpass should not create any visual or aesthetic concerns. Removal of crossing signals, gates would result in beneficial aesthetic effect.
- No park or recreational facilities appear present.
- Temporary construction impacts such as noise and vibration, dust, and visual degradation.

Preliminary findings indicate that both proposed options are qualified as Statutorily Exemption per CEQA Section 15282 (g), "Removal of an At-Grade Crossing." For NEPA, grade crossings are qualified for Categorical Exclusion under NEPA (FRA 771.116).

Since there is no waters of the US or waters of the State situated within or near the project limits, regulatory permits/approval from San Francisco Bay Regional Water Quality Control Board (RWQCB) 401 Water Quality Certification Permit is not required. However, the Project is required to obtain tree pruning and removal permit from City of Sunnyvale, under Section 19.94, "Tree Preservation."

5.6 Utility Impacts

Preliminary investigation indicates there are minimal utility impacts/relocations under Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option because tunneling on Sunnyvale Avenue is limited between Hendy and Evelyn avenues.

For Sunnyvale Avenue Underpass Tunnel Option, there are numerous utilities that would be impacted and require relocation. Below is the list of utility lines that would be affected:

- City of Sunnyvale – Sanitary Sewer, Storm Drain, Water
- PG&E – Gas, Electricity
- AT&T – Telephone
- Cablecom – Fiber Optic
- Century Link – Fiber Optic
- Level 3 Communications– Fiber Optic
- Verizon – Fiber Optic
- XO Communications – Fiber Optic

¹⁵ Constructed in 1906, Hendy Iron Works was an industrial pioneer in Sunnyvale. Originally producing equipment for mining gold and silver, the company supplied marine engines in both World War I and World War II. In continuous operation from 1906 to 1946, the company was purchased by Westinghouse Electric in 1947. The water tower stored the city's emergency water supply in the early 1900s.

It is important to note that utilities identified in this Study reflect information that is based on information provided by others. The exact location of underground and overhead utilities is conceptual and preliminary in nature and would require further evaluation during the environmental and design phases to confirm the accuracy. The proposed improvements would require utility relocation. Public utility easements are required to house the relocated utilities. Pump stations would be needed to continue the continuity of the existing storm drain and sanitary sewer system through the depressed sections of roadway.

5.7 Transportation Impacts

5.7.1 Sunnyvale Avenue Underpass Tunnel Option

Under this option, all turning movements between Sunnyvale and Evelyn avenues and most of turning movements between Sunnyvale and Hendy avenues would be disconnected. Vehicles that make turn movements would need to reroute using nearby streets. Vehicle circulation would be altered from existing condition since Sunnyvale Avenue would no longer connect to Evelyn and Hendy Avenue directly, with exceptions to the two right turn movements from Hendy Avenue westbound to Sunnyvale Avenue northbound and from Sunnyvale Avenue southbound to Hendy Avenue westbound. However, vehicular delays for those traveling straight on Sunnyvale Avenue between Washington and California avenues would be eliminated due to the removal of three existing intersections at Evelyn Avenue, Hendy Avenue, and railroad tracks. Thus, travel times are substantially lower on Sunnyvale Avenue. Travel time for those who currently make turning movements between Sunnyvale Avenue and Evelyn and Hendy avenues would increase due to vehicles being rerouted.

With the volume redistribution, streets including Fair Oaks, Mathilda and Washington avenues would be affected. For those vehicles using Sunnyvale Avenue to connect to Evelyn and/or Hendy avenues, they would need to use the Sunnyvale /Washington Avenue intersection to get to Fair Oaks Avenue on the south and Sunnyvale/California Avenue intersection to get to Fair Oaks Avenue on the north. When comparing to the No-Build option, delays at the intersections of Sunnyvale/Washington Avenue and Sunnyvale/California avenues increase. However, there would be a decrease in delay at Fair Oaks Avenue and Kifer Road intersection since drivers more likely choose Fair Oaks/California Avenue intersection. Delays at the intersection of Fair Oaks/California Avenue is similar to No-Build option.

For travel times along Fair Oaks, Sunnyvale, and California, and Mathilda avenues, see Table 5.2 below.

Table 5.2 Underpass Tunnel – Corridor Travel Time Comparison						
Corridor	Segment	Direction	AM Peak Hour (sec.)		PM Peak Hour (sec.)	
			2035 No-Build	2035 Build Tunnel	2035 No-Build	2035 Build Tunnel
Mathilda	Indo to Washington	SB	181	178	565	582
	McKinley to California	NB	367	374	161	162
Fair Oaks	Arques to Evelyn	SB	160	126	466	428
	McKinley to California	NB	389	431	273	329
Sunnyvale	Arques to Evelyn	SB	325	186	775	409
	McKinley to California	NB	306	88	335	121

5.7.2 Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option

Under this option, all vehicles wishing to travel between Evelyn and Hendy avenues would no longer be able to use Sunnyvale Avenue across the railroad tracks. Bicyclists and pedestrians still travel via box tunnel underneath the railroad tracks. Vehicles that currently traveled north and south of Sunnyvale Avenue would need to reroute using parallel roads with railroad crossings, such as Mathilda and Fair Oak avenues. T-intersections are created at both Evelyn and Hendy avenues to maintain the connections between those streets and Sunnyvale Avenue. This option reduces the number of conflict points between vehicular traffic and active transportation modes such as bicycles and pedestrians, thus would increase safety.

The shifting of traffic from Sunnyvale Avenue to Mathilda and Fair Oaks avenues results in an increased delay to the parallel roadways in the morning and evening travel times.

For travel time comparison between this option and No-Build, see Table 5.3 below.

Table 5.3 Pedestrian/Bike Crossing – Corridor Travel Time Comparison						
Corridor	Segment	Direction	AM Peak Hour (sec.)		PM Peak Hour (sec.)	
			2035 No-Build	2035 Build Tunnel	2035 No-Build	2035 Build Tunnel
Mathilda	Indo to Washington	SB	181	174	565	622
	McKinley to California	NB	367	389	161	175
Fair Oaks	Arques to Evelyn	SB	160	291	466	660
	McKinley to California	NB	389	624	273	362
Sunnyvale	Arques to Evelyn	SB	325	-	775	-
	McKinley to California	NB	306	-	335	-

5.8 Multimodal Considerations

5.8.1 Pedestrian/Bike

Sunnyvale Avenue Underpass Tunnel Option

For this option, pedestrians would no longer be exposed to conflicts with trains. The pedestrians would experience grade changes due to the depression of the pedestrian walkway along Sunnyvale Avenue. This option provides a 12-foot wide multi-use path on the west side of the proposed tunnel on Sunnyvale Avenue. Bicyclists could choose to use this path. The path is elevated above vehicle paths and would be accessed through the pedestrian ramps. The ramps are located on the northwest corner of the Sunnyvale/Evelyn Avenue intersection and the southwest corner of the Sunnyvale/Hendy Avenue intersection. Due to the locations of the access ramps there would be out-of-direction travel for pedestrians that do not originate west of Sunnyvale Avenue on both Evelyn and Hendy avenues. To maintain ADA compliance, switch back ramps are introduced at both ends of the pedestrian tunnel. Access from Hendy Avenue would be from switchback ramp or stair at the Sunnyvale/Hendy Avenue intersection and mid-block crossing east of Murphy Avenue. Access from Evelyn Avenue would be via a switchback ramp at the Sunnyvale/Evelyn Avenue intersection or through the main Caltrain entrance on the south side of the tracks. Pedestrian movements along Hendy, Evelyn, and Sunnyvale avenues are still the same as existing.

Class II bicycle lanes are provided on both sides of Sunnyvale Avenue. The bike lanes would follow the same roadway profile. Evelyn Avenue would have Class II bicycle lanes in each direction on both sides of Sunnyvale Avenue, as existing. To the east of Sunnyvale Avenue, Hendy Avenue would have Class II bicycle facilities in both directions. To the west of Sunnyvale Avenue, a bicycle facility is provided along westbound Hendy Avenue only. Bicyclists could also choose to use the multi-use path with the pedestrians to travel under the railroad tracks.

Sunnyvale Avenue Bicycle/ Pedestrian Undercrossing Option

Similar to the Sunnyvale Avenue Underpass Tunnel Option, a pedestrian undercrossing would remove the conflict between pedestrians, cyclists, and trains, which would provide substantial safety benefits.

Pedestrians and bicyclists would continue to have access along Sunnyvale Avenue between Evelyn and Hendy avenues via pedestrian/bicycle crossing tunnel. Access from Hendy Avenue would be from switchback ramp or stair at the Sunnyvale/Hendy Avenue intersection. Access from Evelyn Avenue would be via a curved ramp or stair from the Sunnyvale/Evelyn Avenue intersection. Pedestrians would experience fewer conflicts with vehicles at both Sunnyvale/Evelyn Avenue and Sunnyvale/Hendy Avenue intersections because one leg is closed to vehicles at each intersection.

Conflicts between bicyclists and pedestrians with trains would be removed. Sunnyvale Avenue on either side of the bicycle and pedestrian tunnel would have Class II bicycle facilities. To the north, this would connect to the Class II-B buffered bicycle lanes that the City is currently implementing. Evelyn Avenue would continue to have a Class II bicycle facility. To the east of Sunnyvale Avenue, Hendy Avenue would have Class II bicycle facilities in both directions. To the west of Sunnyvale Avenue, a bicycle facility is provided along westbound Hendy Avenue only.

5.8.2 Transit

VTA runs bus Routes 20, 21, and 55 through the intersection of Sunnyvale Avenue and Evelyn Avenue.

Under both options, Route 21 is not affected as this bus line does not make any turns at the intersection and can still travel along Evelyn Avenue from the Sunnyvale Caltrain Station with no changes to the route map.

Route 20 makes a left turn from westbound Evelyn Avenue to southbound Sunnyvale Avenue. This route stops at the VTA Transit Center on Frances Street. This route would not be affected by the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option since the tunnel ends at Evelyn Avenue. However, this turning movement will be removed under the Sunnyvale Avenue Underpass Tunnel Option because Evelyn Avenue no longer has a connection to Sunnyvale Avenue. Therefore, VTA would have to make modifications to the existing route. The route could use other local streets to make the necessary movements to get to the VTA Transit Center on Frances Street. Additional analysis would be needed during future phases.

As for Route 55, it currently travels along Sunnyvale Avenue crossing the railroad tracks to westbound Evelyn Avenue in the southbound direction and eastbound Evelyn Avenue to northbound Sunnyvale Avenue in the northbound direction. Under both options, this route would no longer be able to travel between Sunnyvale and Evelyn avenues. Under the Bicycle/Pedestrian Undercrossing Option, this route would no longer be able to cross the Caltrain tracks at Sunnyvale Avenue. Since Route 55 has one of VTA's highest ridership, and is the only route that connects Lakewood Village and the Sunnyvale Neighbors of Arbor Including LaLinda (SNAIL) neighborhood with Fremont High School and the VTA Transit Center on Frances Street, VTA would be required to make route alterations to maintain bus access to the communities. The route could use other local streets under the Sunnyvale Avenue Underpass Tunnel Option. The route would need to use an adjacent grade separation such as Mathilda Avenue or Fair Oaks Avenue under the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option.

Coordination with VTA and their transit routing plans will be required to maintain these routes.

5.9 Estimated Costs

Preliminary estimates have been prepared for both options, and include construction capital costs, right of way acquisitions, and costs related to design and environmental services. These costs are in 2029 dollars.

For Sunnyvale Avenue Underpass Tunnel Option: Cost ranges between \$225 – 275 Million

For Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option: Cost ranges between \$90 – 120 Million

The cost break-downs for each option are shown in Table 5.4 below:

Table 5.4 Cost Estimate Breakdown		
	Sunnyvale Avenue Tunnel	Sunnyvale Avenue Bicycle/Pedestrian Undercrossing
Environmental Engineering	\$25 - \$30 Million	\$10 - \$14 Million
Right-of-Way	\$14 - \$17 Million	\$1 - \$2 Million
Final Design (PS&E)	\$45 - \$55 Million	\$19 - \$25 Million
Construction Capital Cost	\$141 - \$173 Million	\$60 - \$79 Million
Grand Total	\$225 - \$275 Million	\$90 - \$120 Million

5.10 Summary of Findings

Two options were evaluated for the grade separation at Sunnyvale Avenue. Both options achieve its goals and objectives:

- Improve safety;
- Enhance pedestrian and bicycle access;
- Improve transportation efficiency; and
- Reduce noise in the vicinity of rail crossings at Sunnyvale Avenue.

Both options have resemblances and differences. For comparison between two options, see Table 5.5 below. Differences are highlighted in bold.

Table 5.5 Sunnyvale Avenue Option Comparison		
	Sunnyvale Avenue Tunnel	Sunnyvale Avenue Bicycle/Pedestrian Undercrossing
Safety	Improved over “no build”	Improved over “no build”
Noise	Decreased from “no build”	Decreased from “no build”
Circulation - Vehicle	Reduced or similar delays	Increased or similar delays
	Shorter travel times - Sunnyvale	Longer travel times - Sunnyvale
	Shorter travel times - Mathilda	Longer travel times - Mathilda
	Shorter travel times – Fair Oaks	Longer travel times – Fair Oaks
	Potential to add parking and loading zone	
Circulation – Bicycle and Pedestrian	Separated facility	Separated facility
	Open space opportunity	
	At-grade connectivity	
Circulation - Transit	Local VTA bus rerouting	Farther VTA bus rerouting
Potential Private Property Impacts	More property impacts	Less property impacts
Construction Impacts	More driveway impacts – minor	Less driveway impacts
	More utility impacts	Less utility impacts
	More roadway reconstruction	Less roadway reconstruction
	More construction time	Less construction time
Construction Cost Estimate	More construction time	Less construction time
Construction Cost Estimate	Higher cost: \$225M - \$275M	Lower cost: \$90M - \$120M

Due to the preservation of through movements on Sunnyvale Avenue, the Sunnyvale Avenue Underpass Tunnel Option requires less rerouting of traffic to Mathilda and Fair Oaks Avenue and thus performs generally better than the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option in terms of vehicular corridor travel time on study area roadways and overall network delay. The Sunnyvale Avenue Underpass Tunnel Option results in a large decrease in corridor travel time on Sunnyvale Avenue comparing to No-Build.

The Sunnyvale Avenue Underpass Tunnel Option results in less vehicular rerouting and thus relatively better performance along Mathilda and Fair Oaks avenues than the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option, but does increase turning activity at a number of intersections in the immediate vicinity of the grade crossing, resulting in increased delay at number of intersections. However, of the two proposed options, the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option reroutes a greater volume of vehicles to Mathilda and Fair Oaks avenues, resulting in less delay at the intersections immediately around the existing grade crossing (Hendy/Sunnyvale Avenue; Evelyn/Sunnyvale Avenue), but three intersections along Fair Oaks Avenue become deficient or are already deficient and experience greater delay for vehicles. In addition, the peak direction travel time along those alternate roadways more substantially increases with the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option. Considered together, the vehicular congestion effects associated with the Sunnyvale Avenue Bicycle/ Pedestrian Undercrossing Option are moderately greater than with the Sunnyvale Avenue Underpass Tunnel Option.

Both options provide accommodations for pedestrians and bicyclists, although the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option provides a much higher-quality facility across the railroad tracks since it would be dedicated only to a bicycle/pedestrian undercrossing. It also results in less out-of- direction travel for both bicyclists and pedestrians by allowing for more direct ramping.

The Sunnyvale Avenue Underpass Tunnel Option would impact bus Routes 20 and 55, although the changes in routing could be more localized. The Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option would only impact bus Route 55, but would require the route to travel farther to cross the railroad tracks.

The Sunnyvale Avenue Underpass Tunnel Option costs almost three (3) times higher when compared to the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option. The differences in cost are due to the difference in magnitude of right of way impacts, utility relocation, and roadway and structure construction impacts.

6. Coordination and Stakeholders

It is important that all parties affected by the project and that have a stake in the outcome are identified, informed and provided with an opportunity to offer input. Stakeholders have included and will continue to include, but are not be limited to, the following:

- Residents
- Business owners
- Community representatives
- Schools and churches within the area
- Neighborhood groups
- Homeowner associates

- Caltrain/PCJPB
- California Public Utilities Commission (CPUC)
- California High Speed Rail Authority
- VTA
- Utility Providers
- Emergency services
- Other service providers (such as garbage and delivery)
- Bicycle groups (BPAC and advocate groups)
- Others outside the study area with an interest in the project

Coordination in future phases should occur early with local officials and community leaders to help ensure that project stakeholders are involved and provided feedback. It is anticipated the list of stakeholders will grow throughout the future phases of work.

7. Implementation

7.1 Potential Funding Opportunities

Funding opportunities include the VTA 2016 Measure B Grade Separation Program, California 190 Grade Separation Prioritization Program, One Bay Area Grant, as well as other local, State and Federal Funding opportunities.

7.2 Suggested Phasing

It is suggested that the locations move forward into environmental clearance and final design as separate projects. Phasing of construction of each grade separation will depend on the availability of funding. If there is enough funding, the City will move forward with the grade separation at both Mary and Sunnyvale avenues. At this time, it is anticipated that Mary Avenue grade separation will move into the environmental phase first. Sunnyvale Avenue grade separation timeline will be determined at a later date.

7.3 Next Steps

The Draft Feasibility Report was presented to the City Council on Tuesday August 30, 2022, for Mary Avenue options, and September 27, 2022, for Sunnyvale Avenue options.

After listening to the City staff and participants, the City Council selected Mary Avenue Underpass with Jughandle Option for Mary Avenue and Sunnyvale Avenue Bicycle/Pedestrian Underpass Option for Sunnyvale Avenue location, and instructed the City staff to move forward.

The City is coordinating with Caltrain to move forward with the Environmental Clearance and Review process for Mary Avenue location. The Sunnyvale Avenue location will follow on a timeline to be determined.

8. ATTACHMENTS

- A. Project Vicinity Map
- B. Location Map
- C. Roadway Plan and Profile Sheets
- D. Utility Easements and Driveway Modifications
- E. Traffic Memo
- F. April 5, 2022, City Council Meeting Minutes
- G. July 21, 2022, BPAC Meeting Minutes for Mary Avenue
- H. August 1, 2022, BPAC Meeting Minutes for Sunnyvale Avenue.
- I. August 30, 2022, City Council Meeting Minutes
- J. September 27, 2022, City Council Meeting Minutes

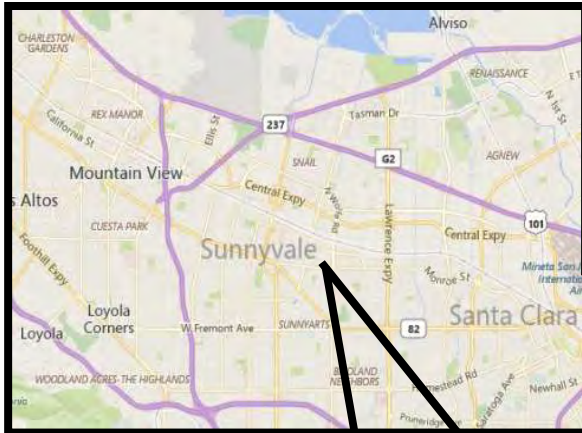
ATTACHMENT A

PROJECT VICINITY MAP

Project Vicinity Map

Sunnyvale Grade Separation Feasibility Study

Sunnyvale, CA



ATTACHMENT B

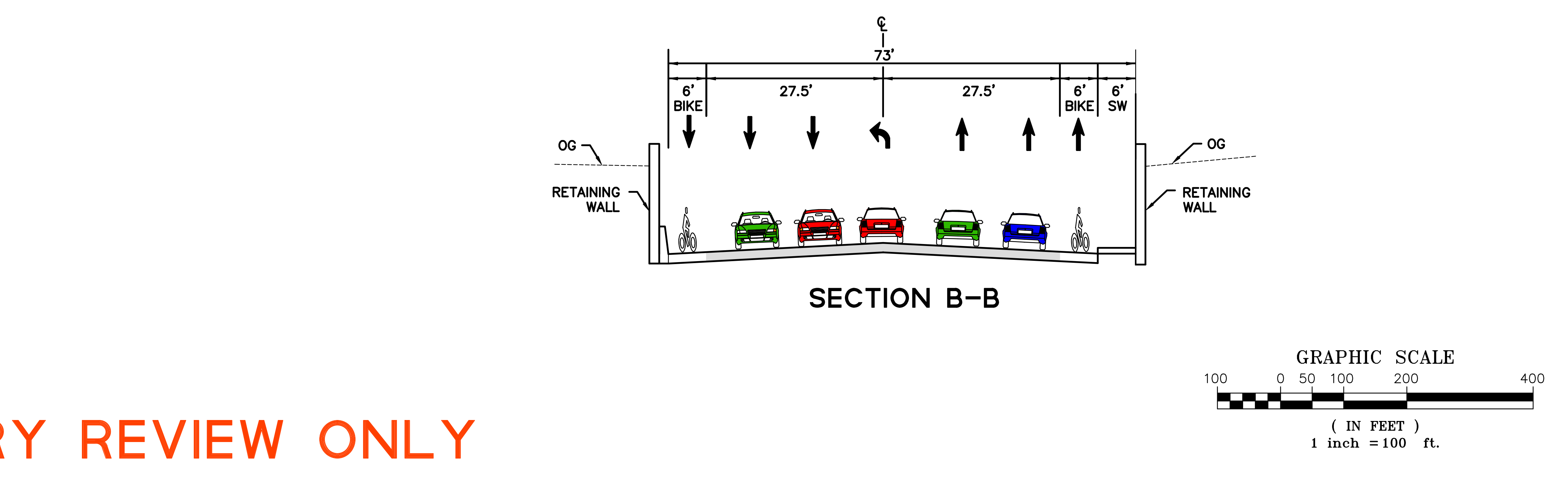
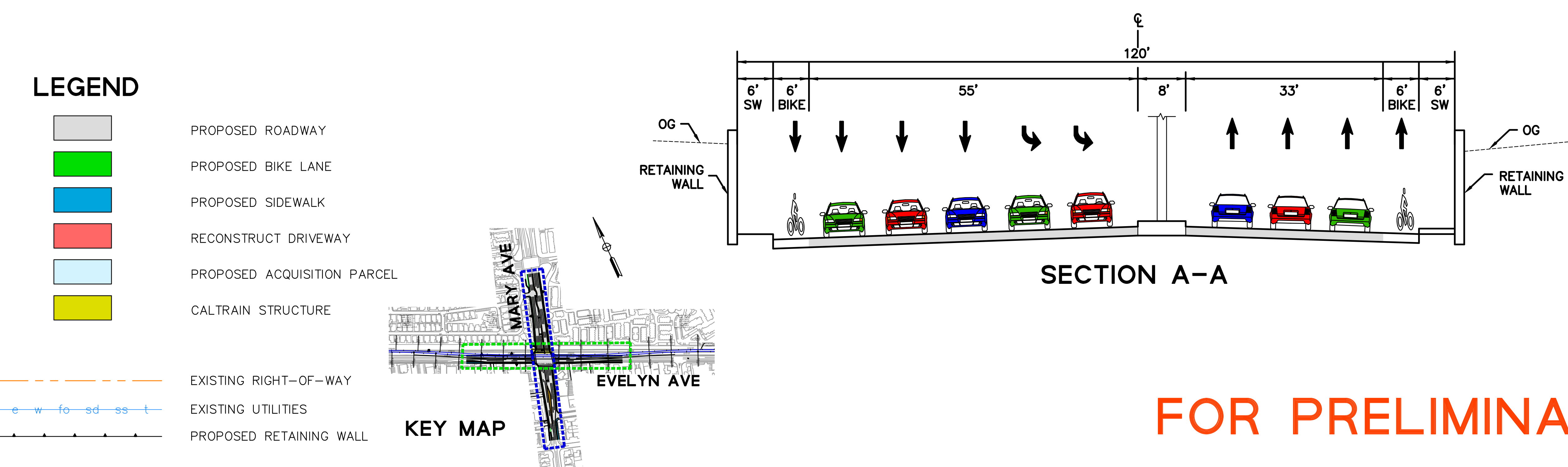
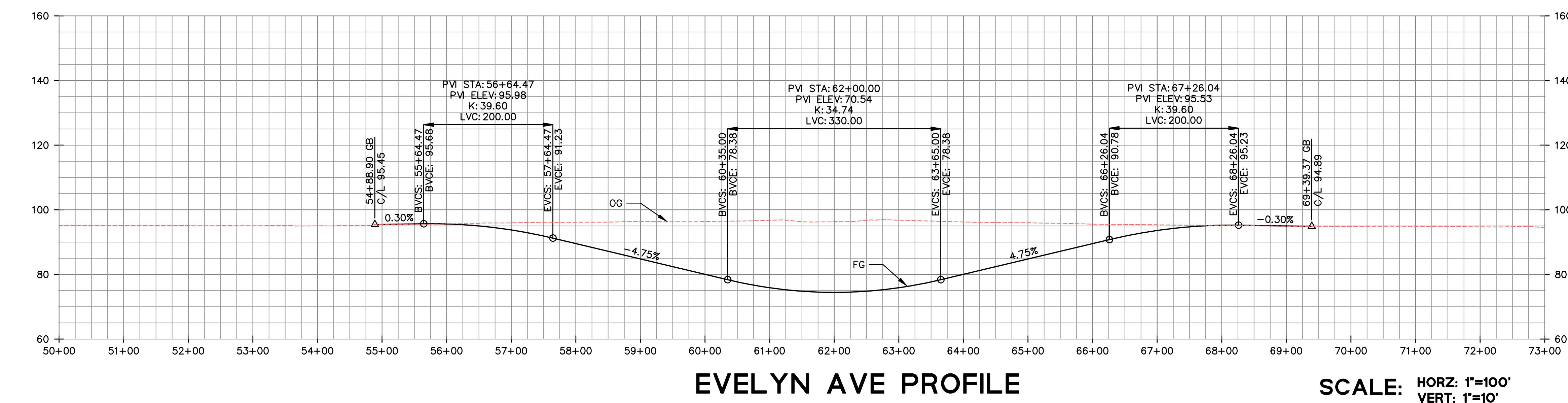
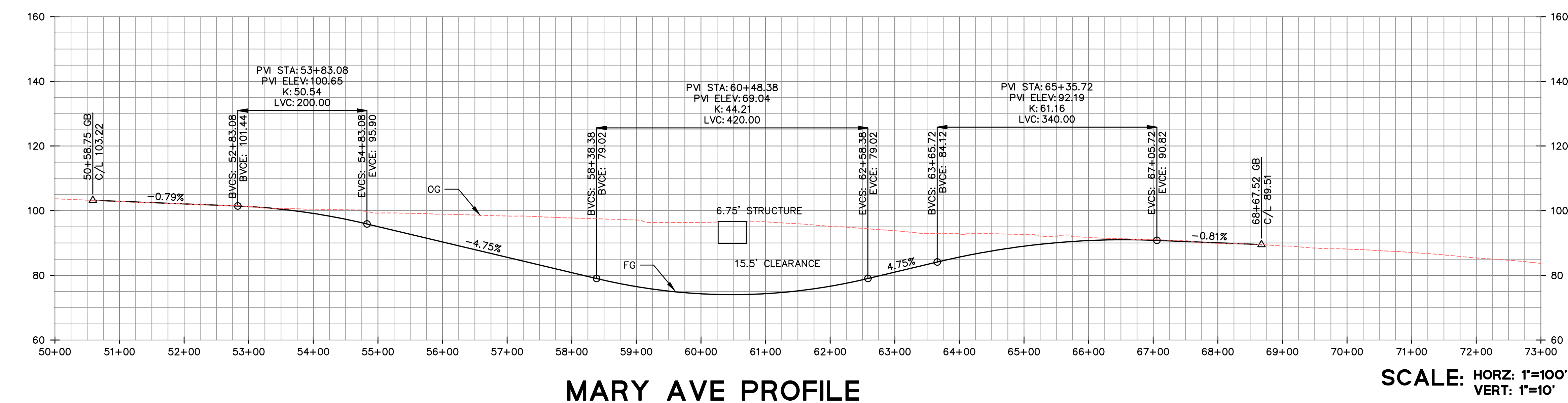
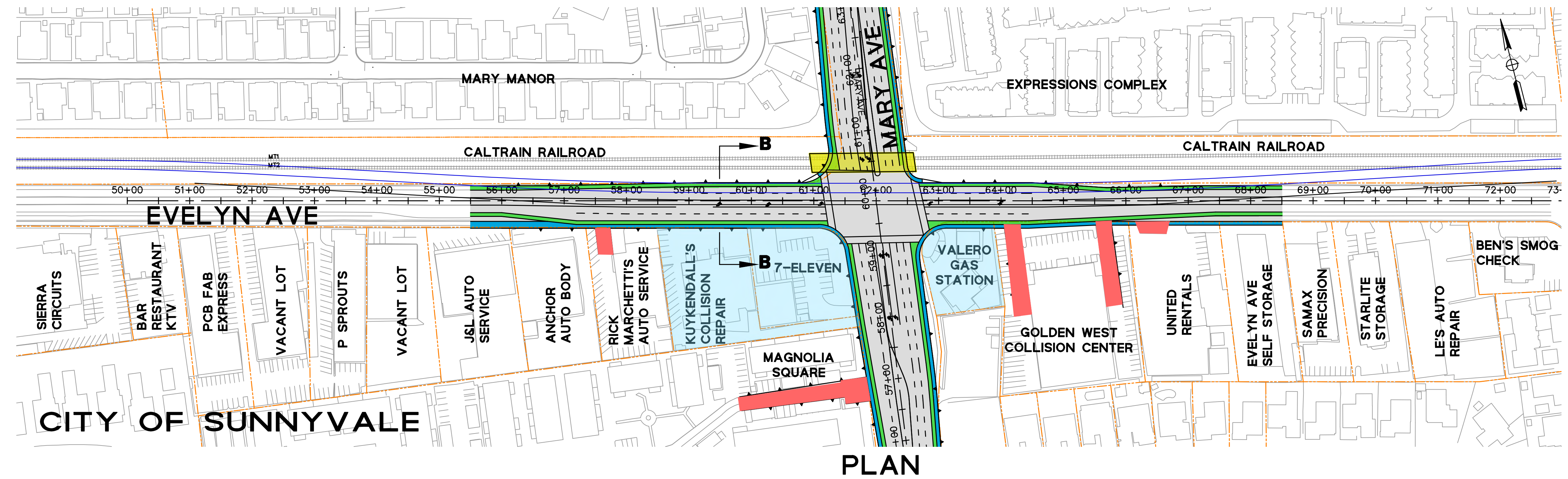
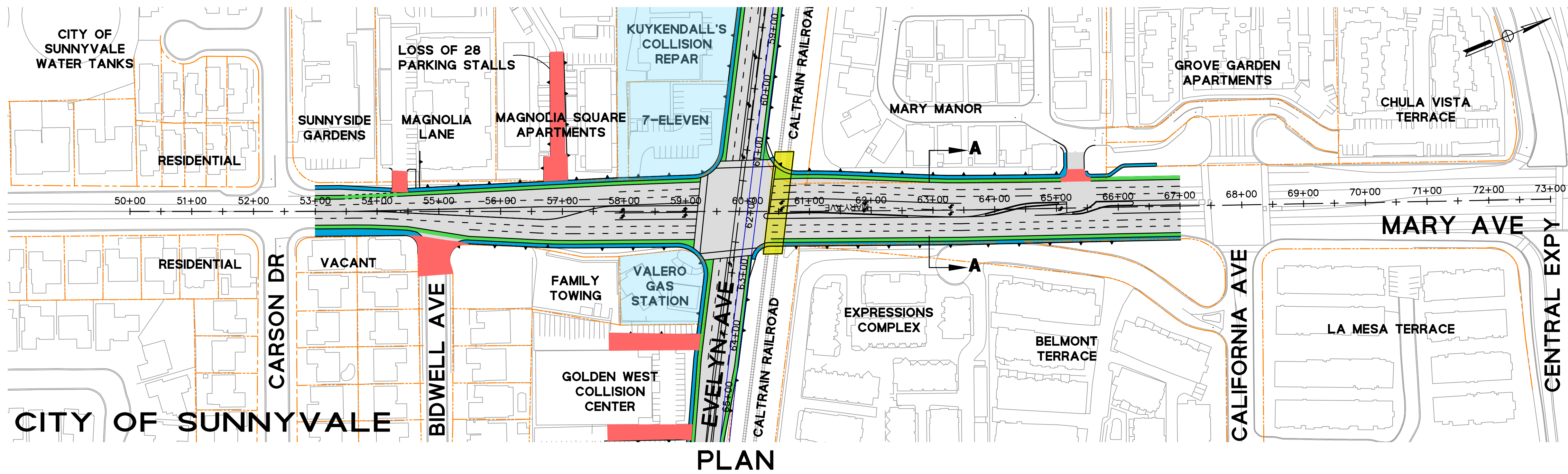
LOCATION MAP

MARY AVENUE
(PROJECT LOCATION)

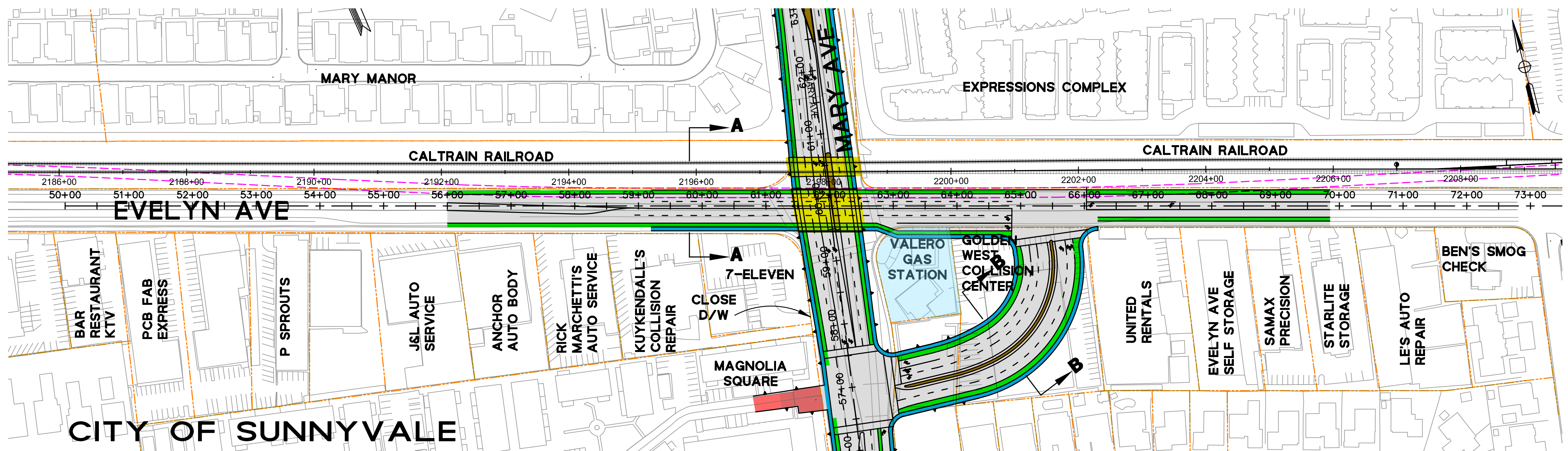


ATTACHMENT C

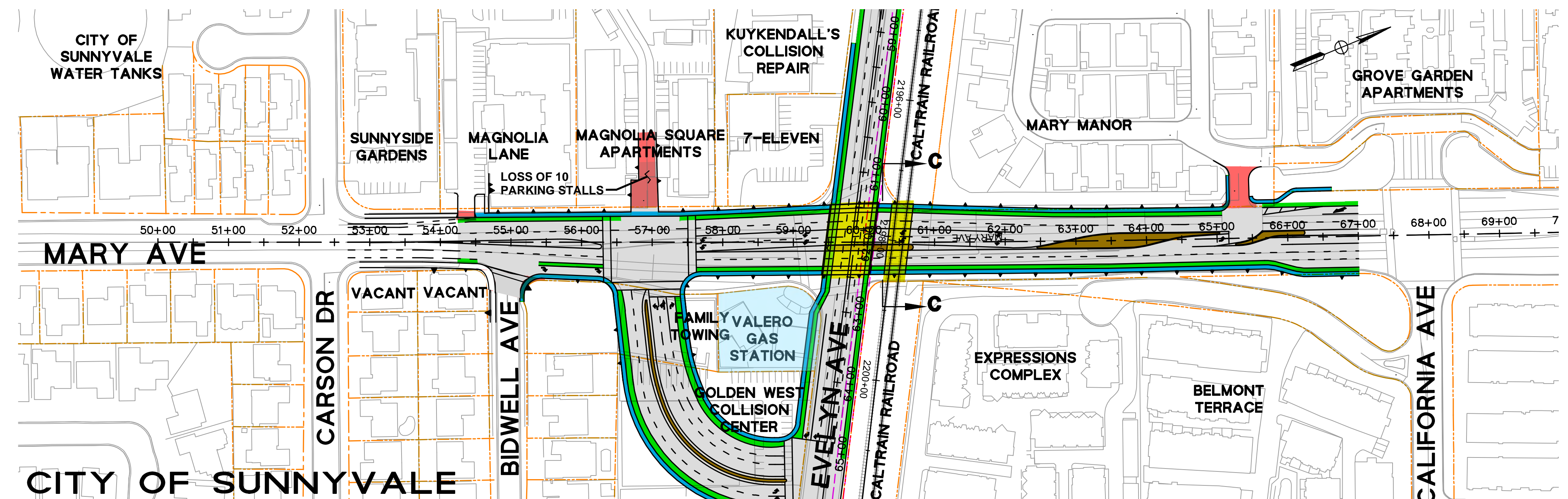
**ROADWAY PLAN AND PROFILE
SHEETS**



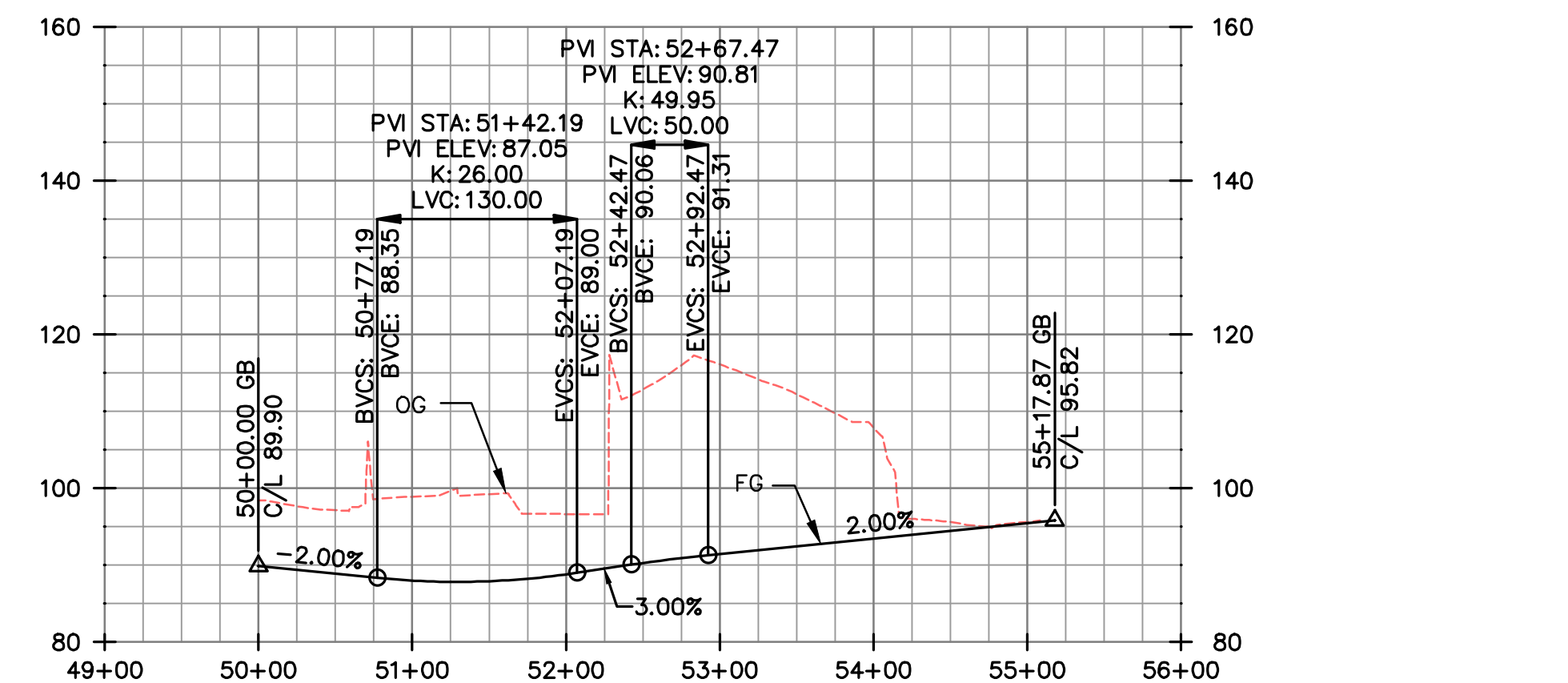
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PLAN

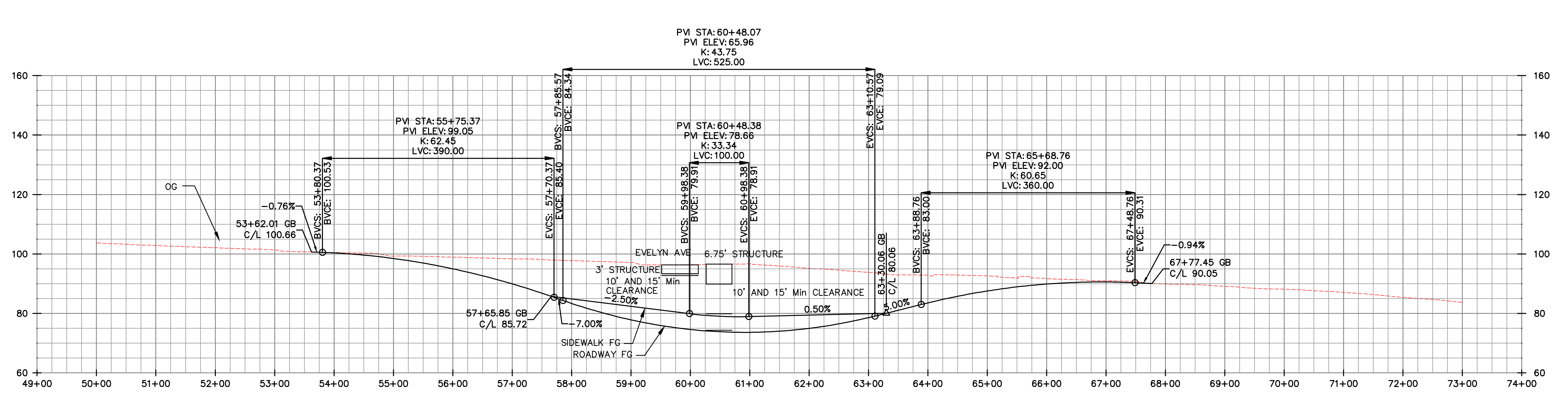


PLAN



JUG HANDLE PROFILE

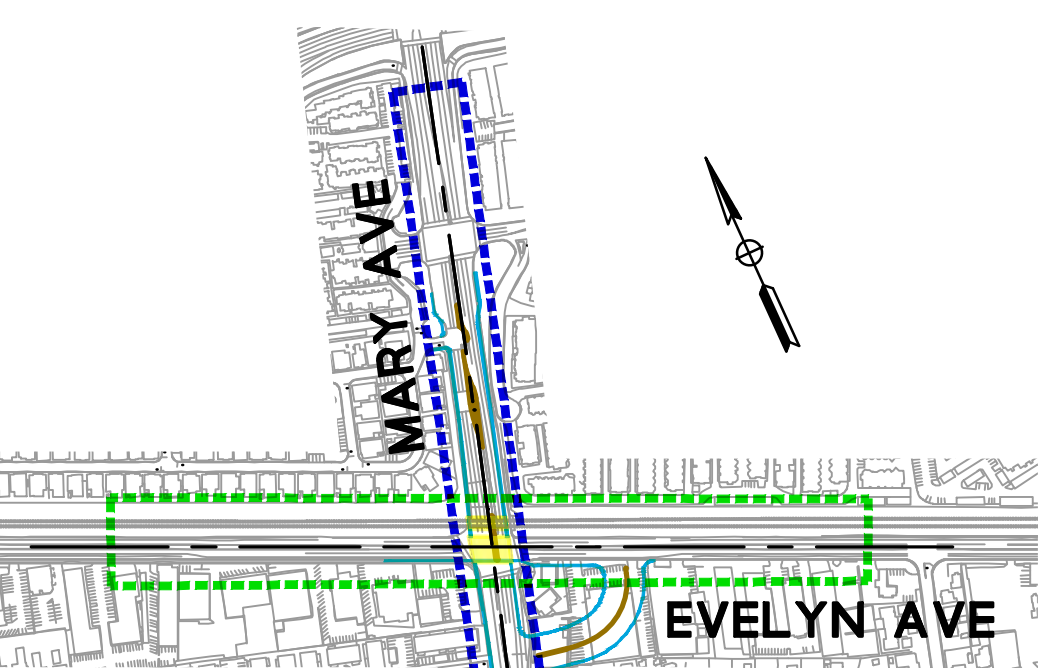
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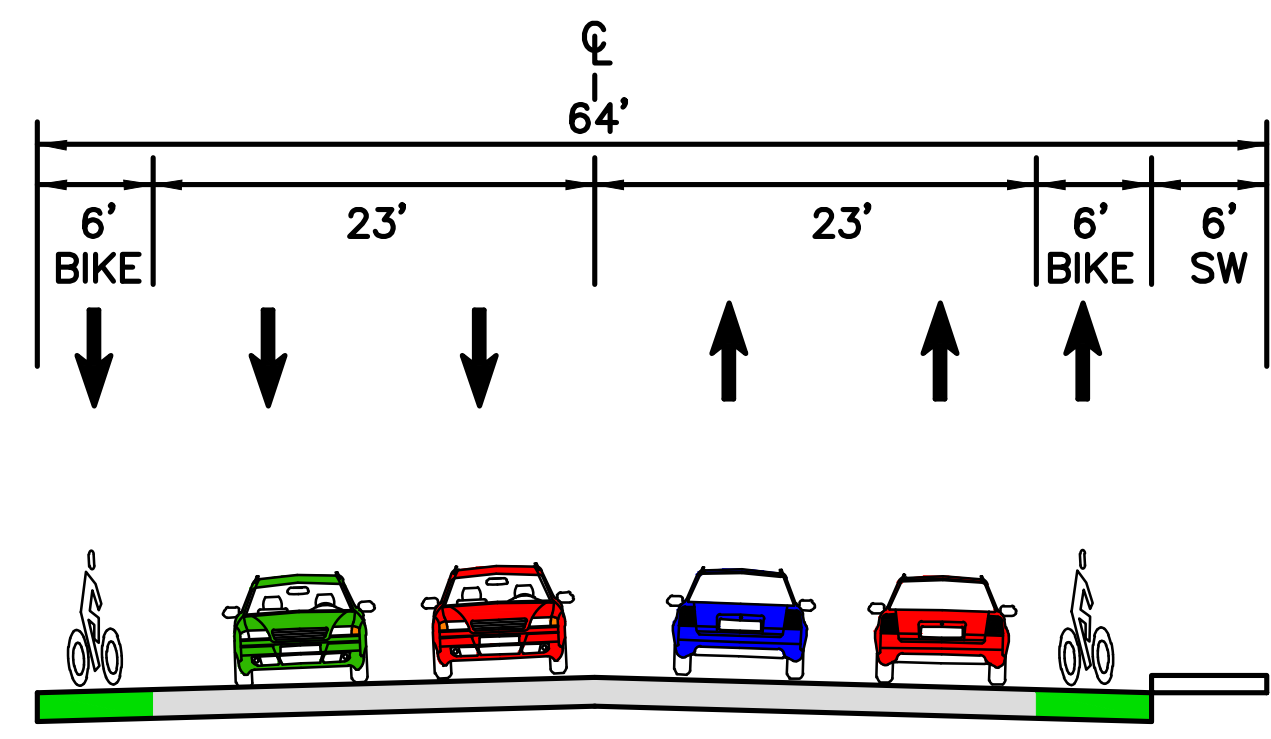
MARY AVE PROFILE

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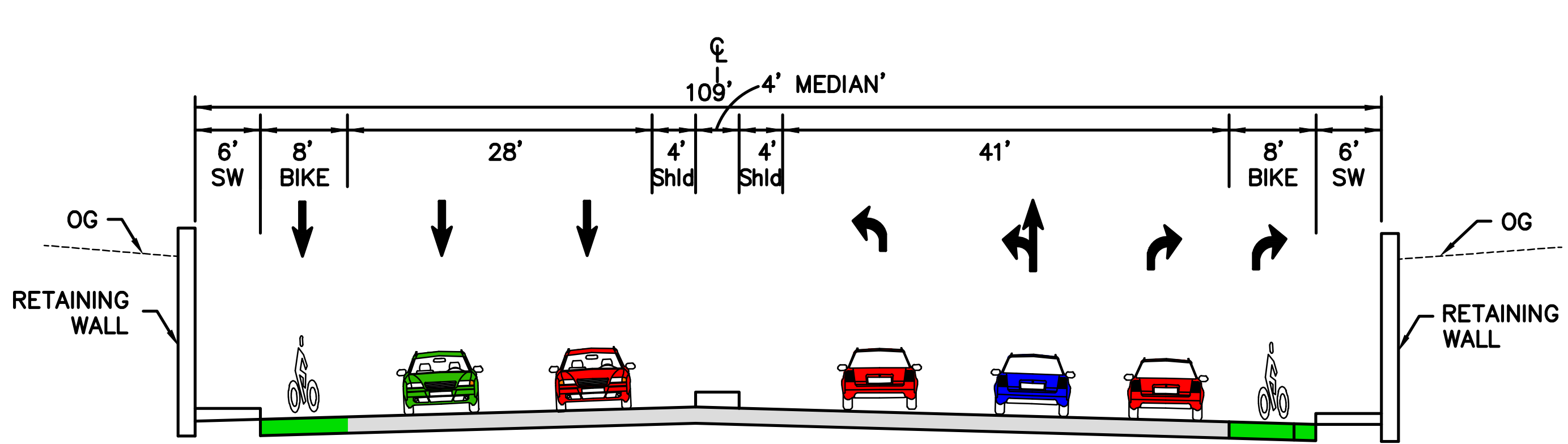
- LEGEND**
- PROPOSED ROADWAY
 - PROPOSED BIKE LANE
 - PROPOSED SIDEWALK
 - RECONSTRUCT DRIVEWAY
 - PROPOSED ACQUISITION PARCEL
 - PROPOSED BRIDGE STRUCTURE
 - EXISTING RIGHT-OF-WAY
 - PROPOSED RETAINING WALL
 - PROPOSED SHOOFLY



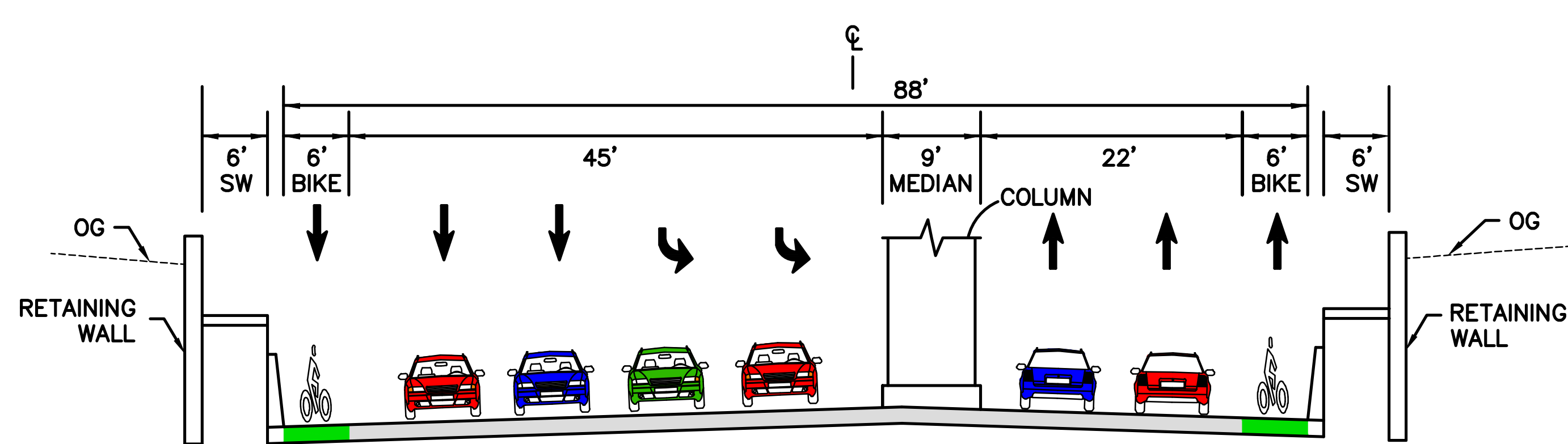
KEY MAP



SECTION A-A

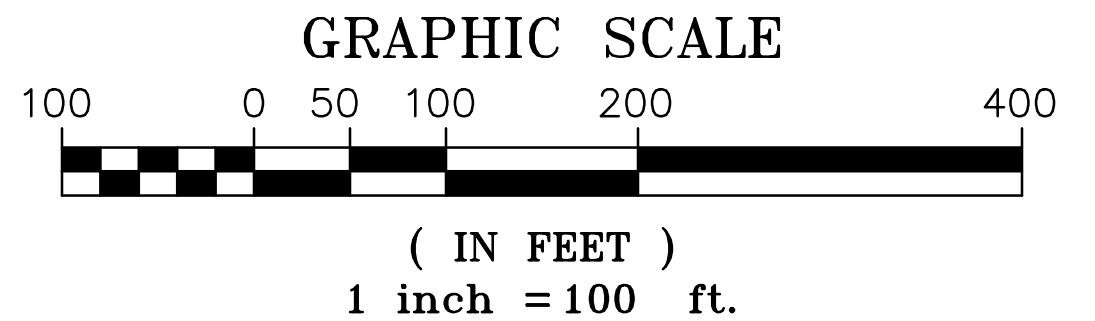


SECTION B-B



SECTION C-C

FOR PRELIMINARY REVIEW ONLY

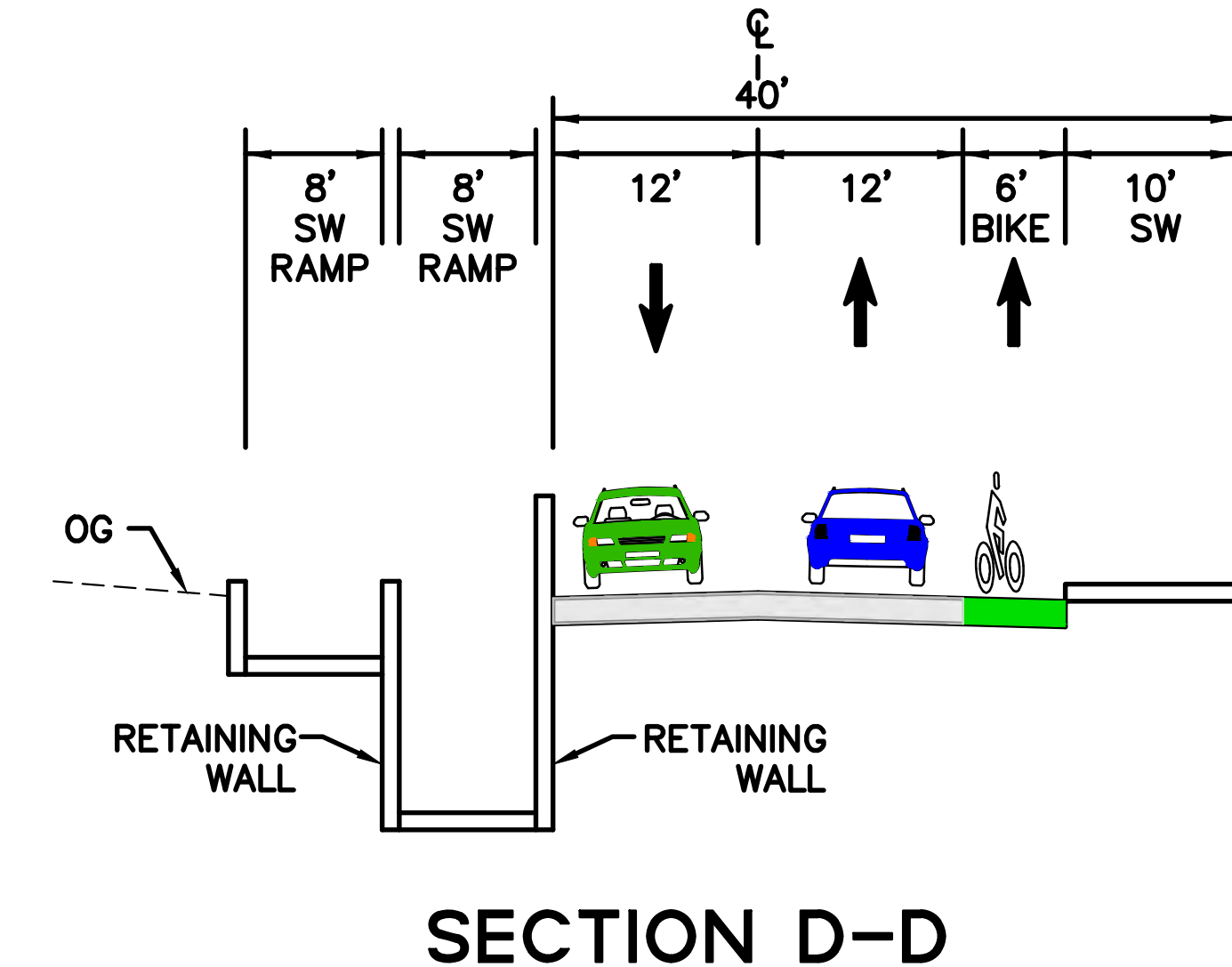
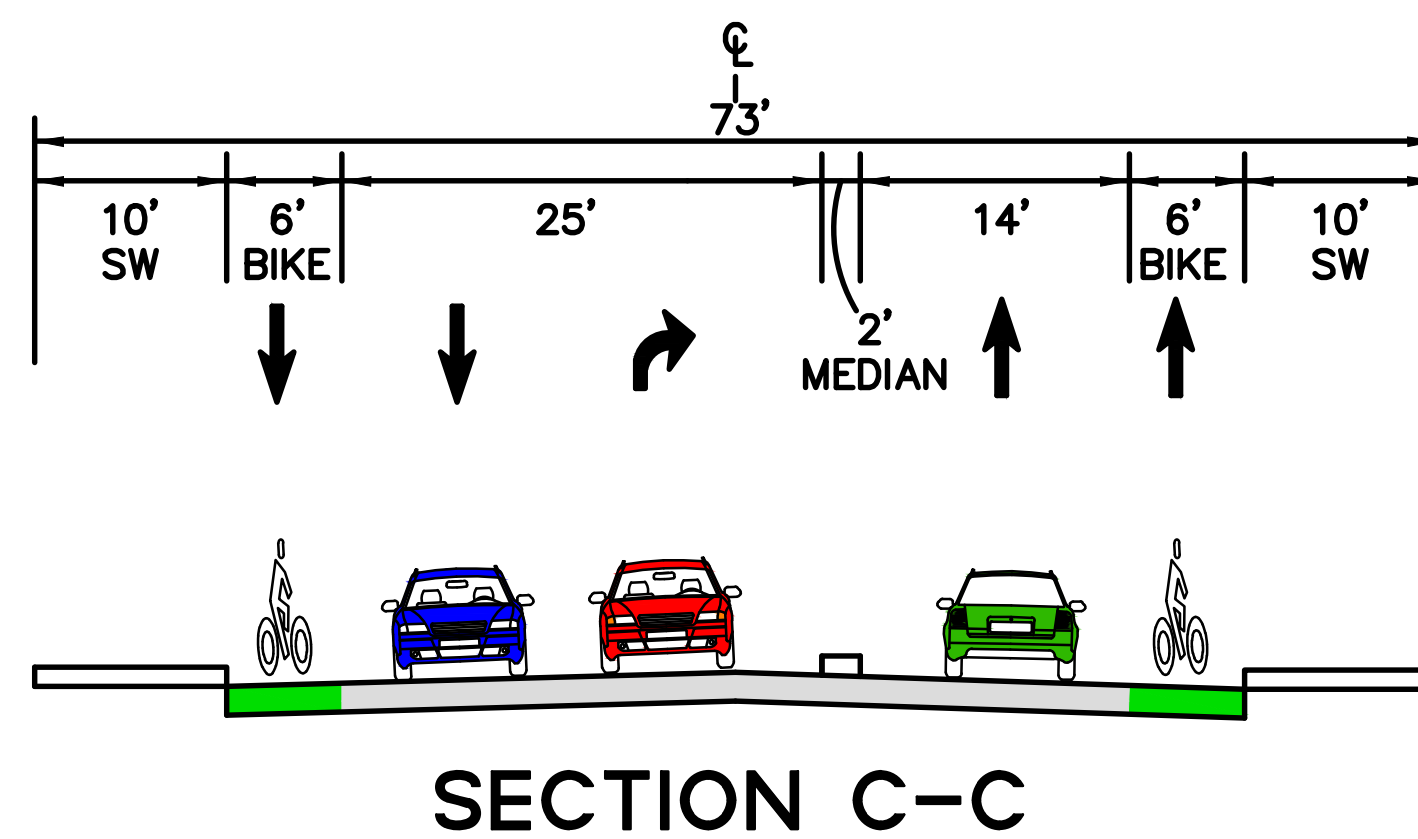
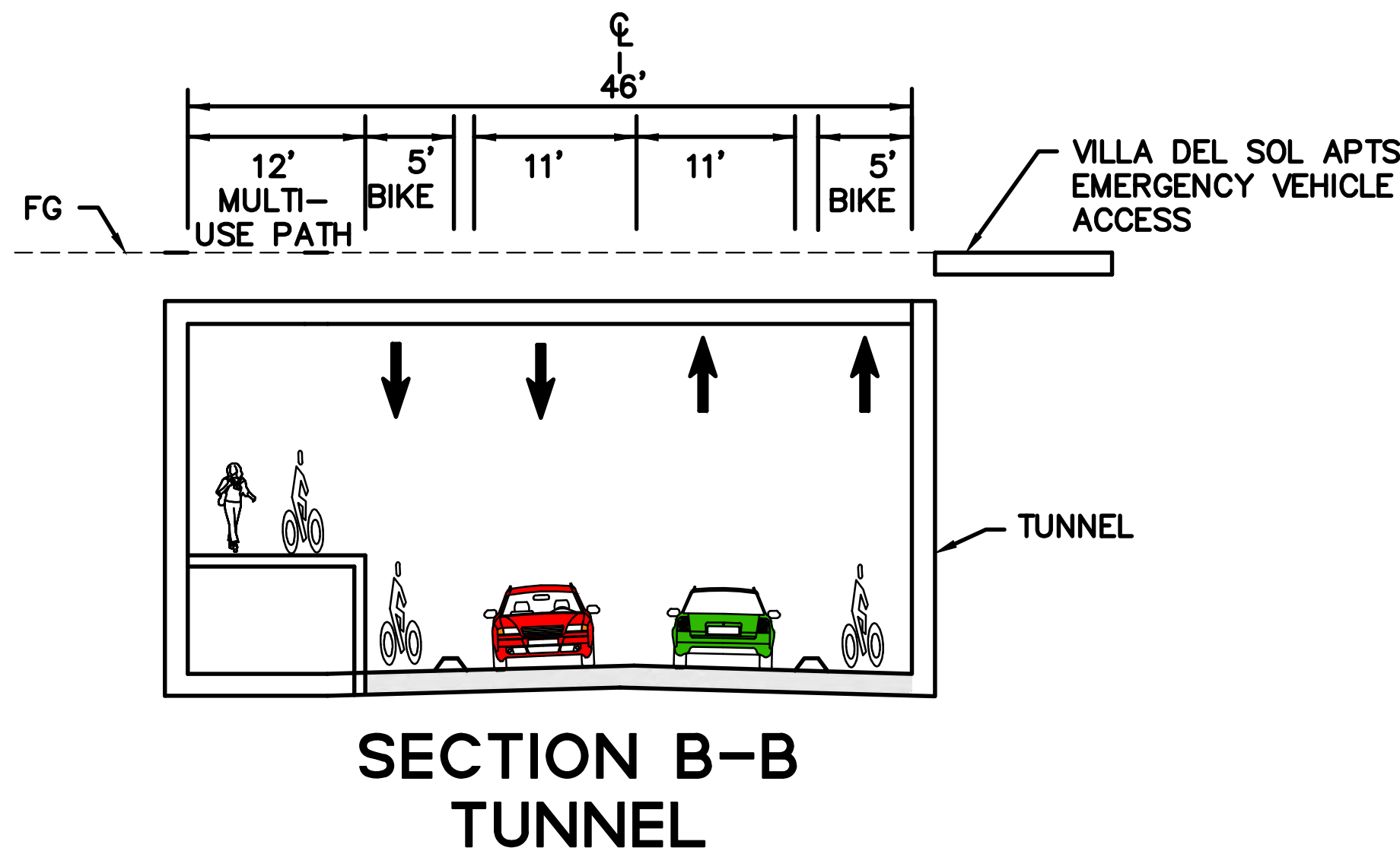
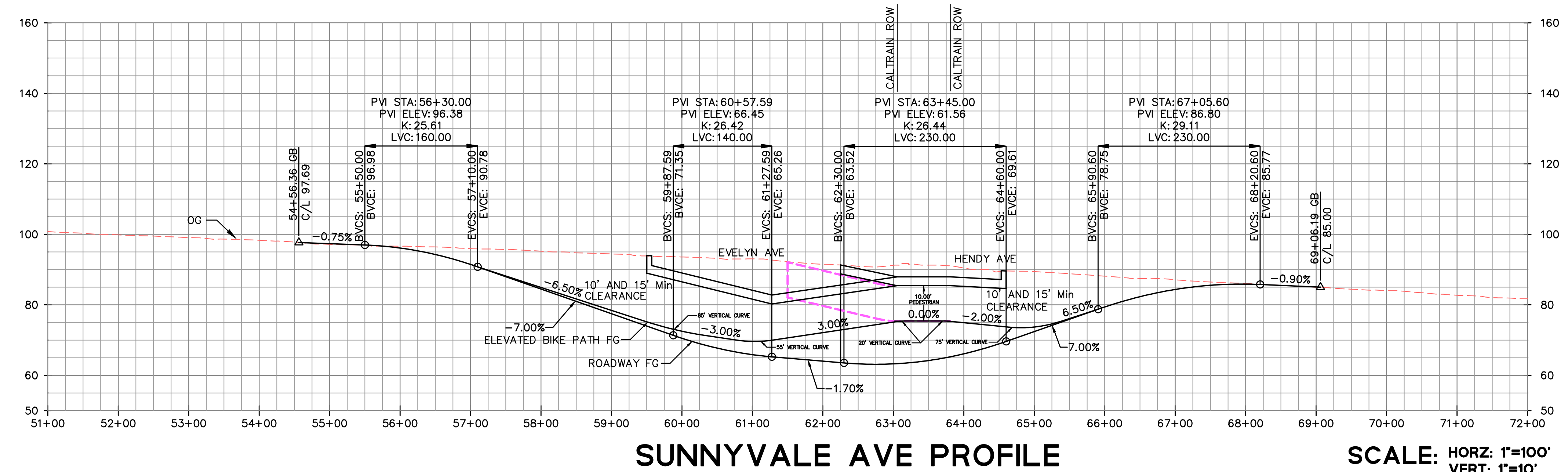
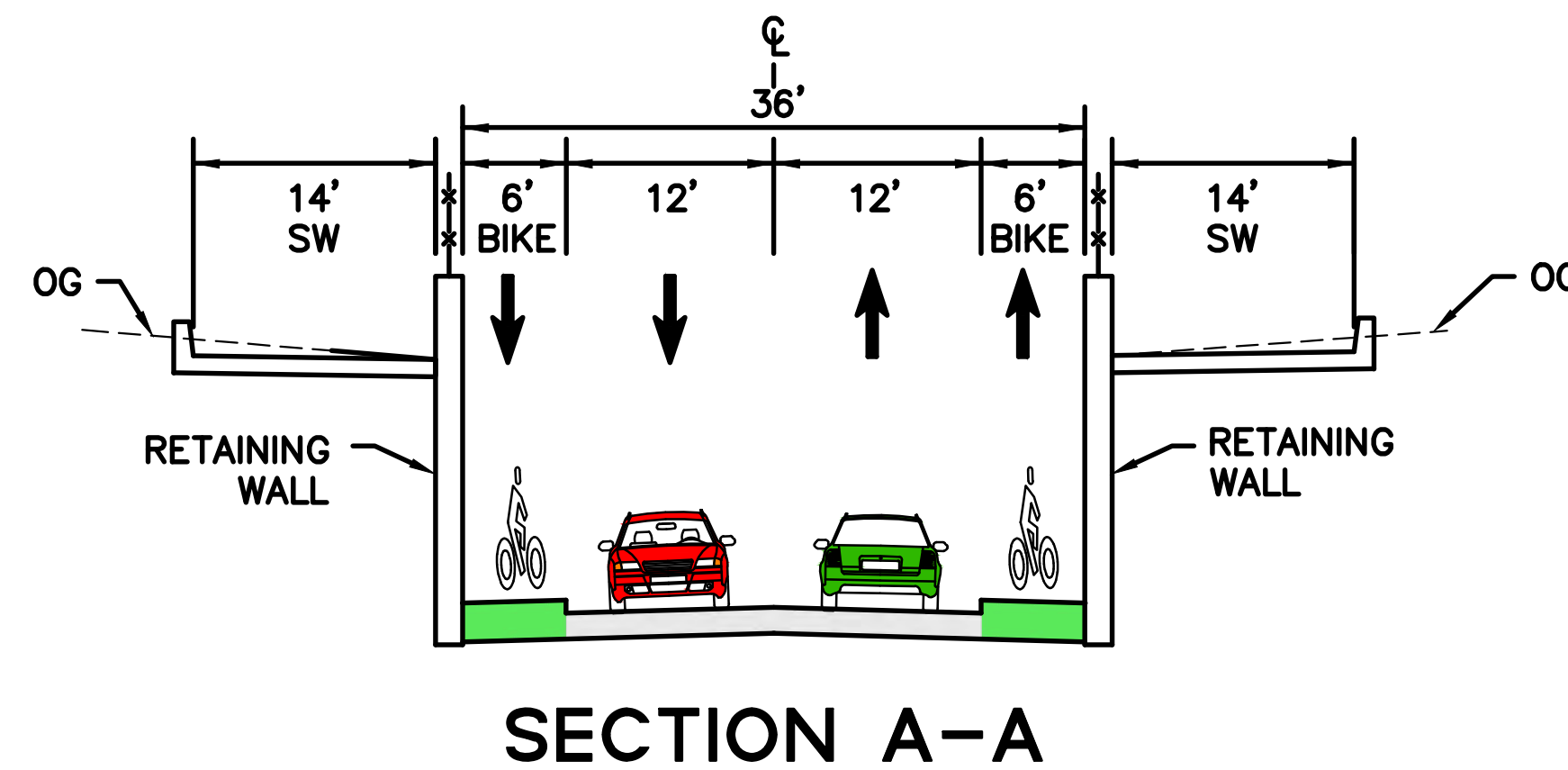
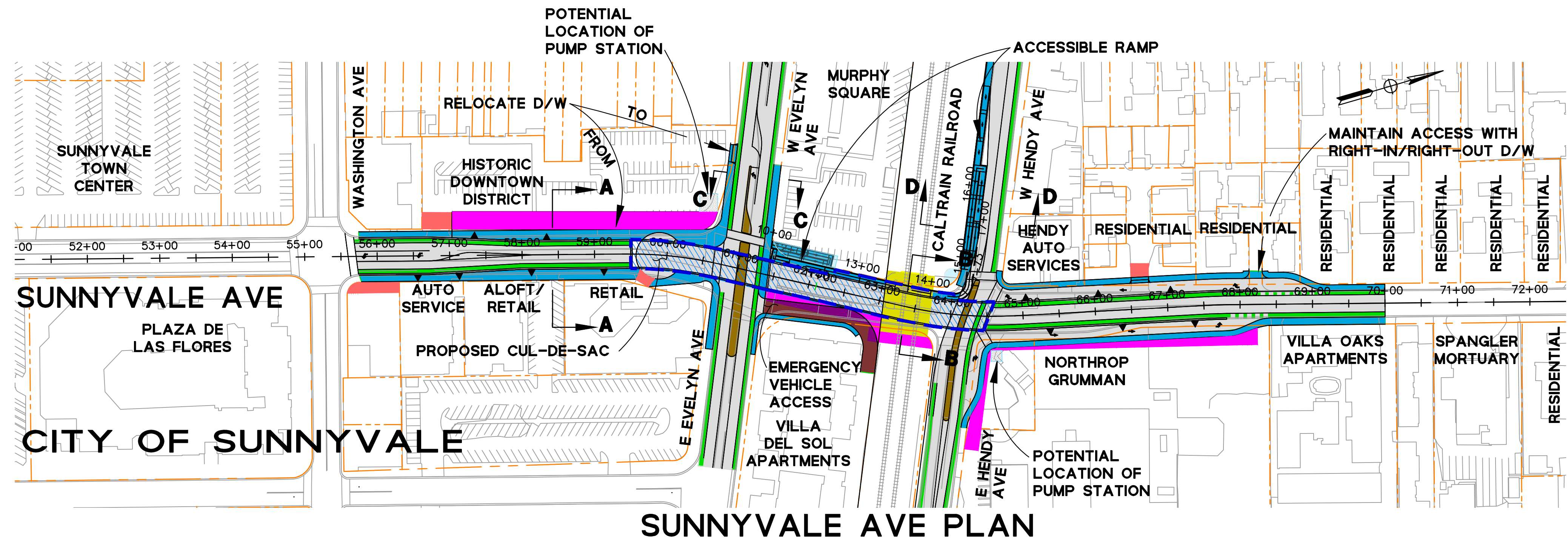
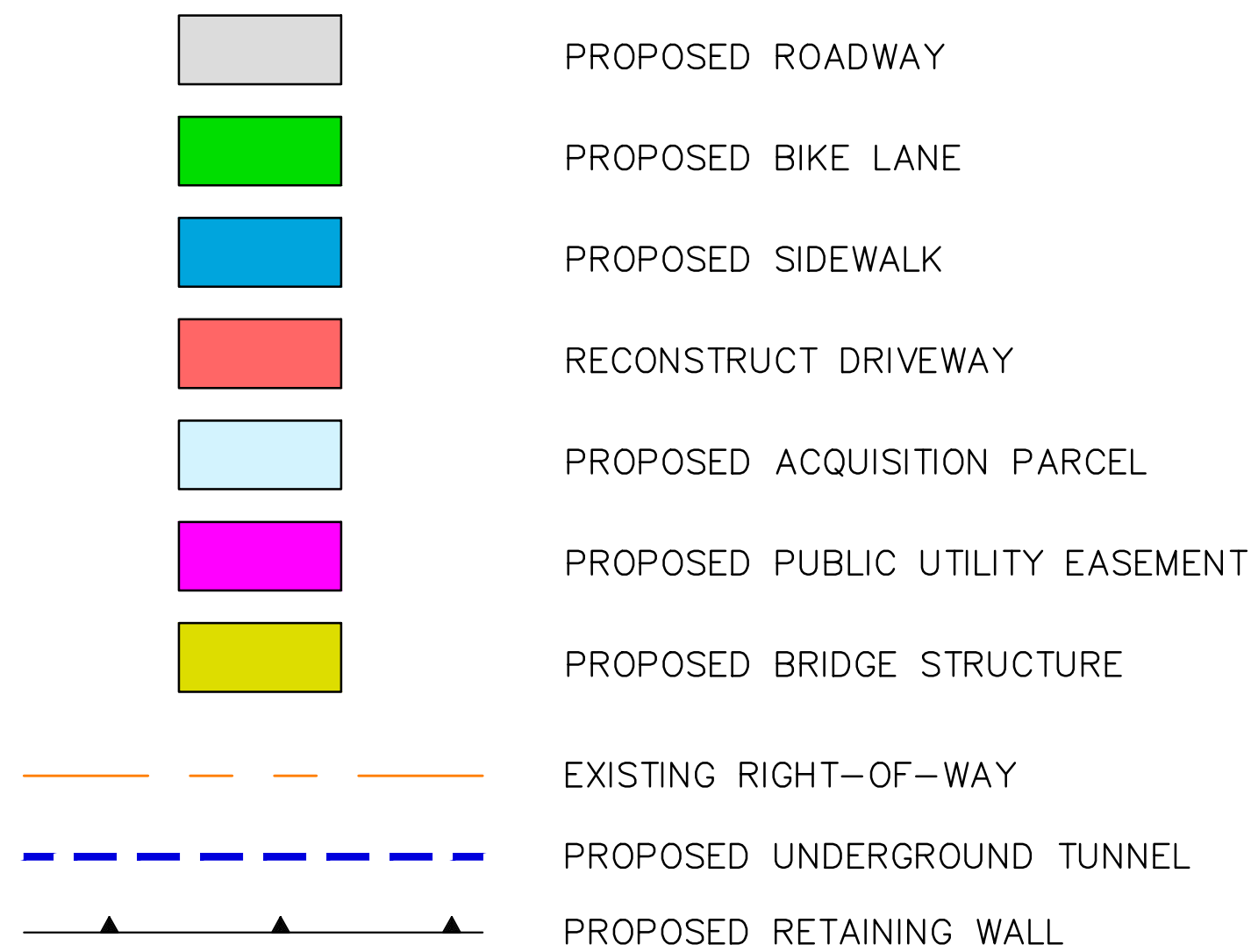


MARY AVENUE GRADE SEPARATION PROJECT
JUG HANDLE
IN SANTA CLARA COUNTY

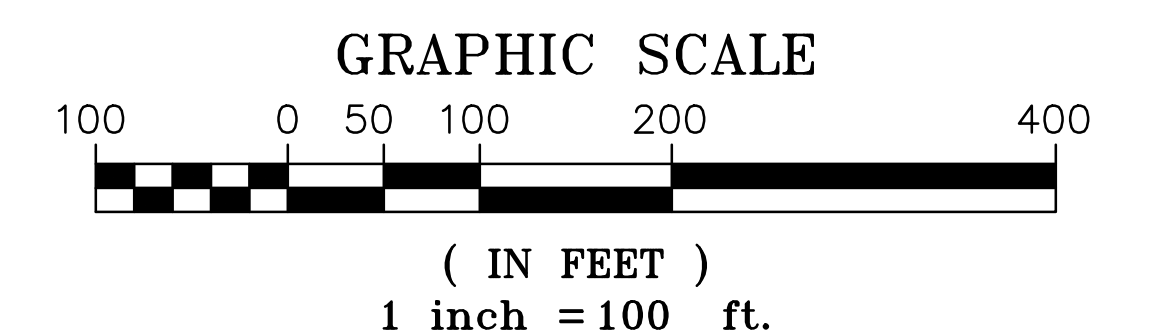


BKF ENGINEERS
1730 N. FIRST STREET
SUNNYVALE, CA 95112
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www.bkf.com

LEGEND

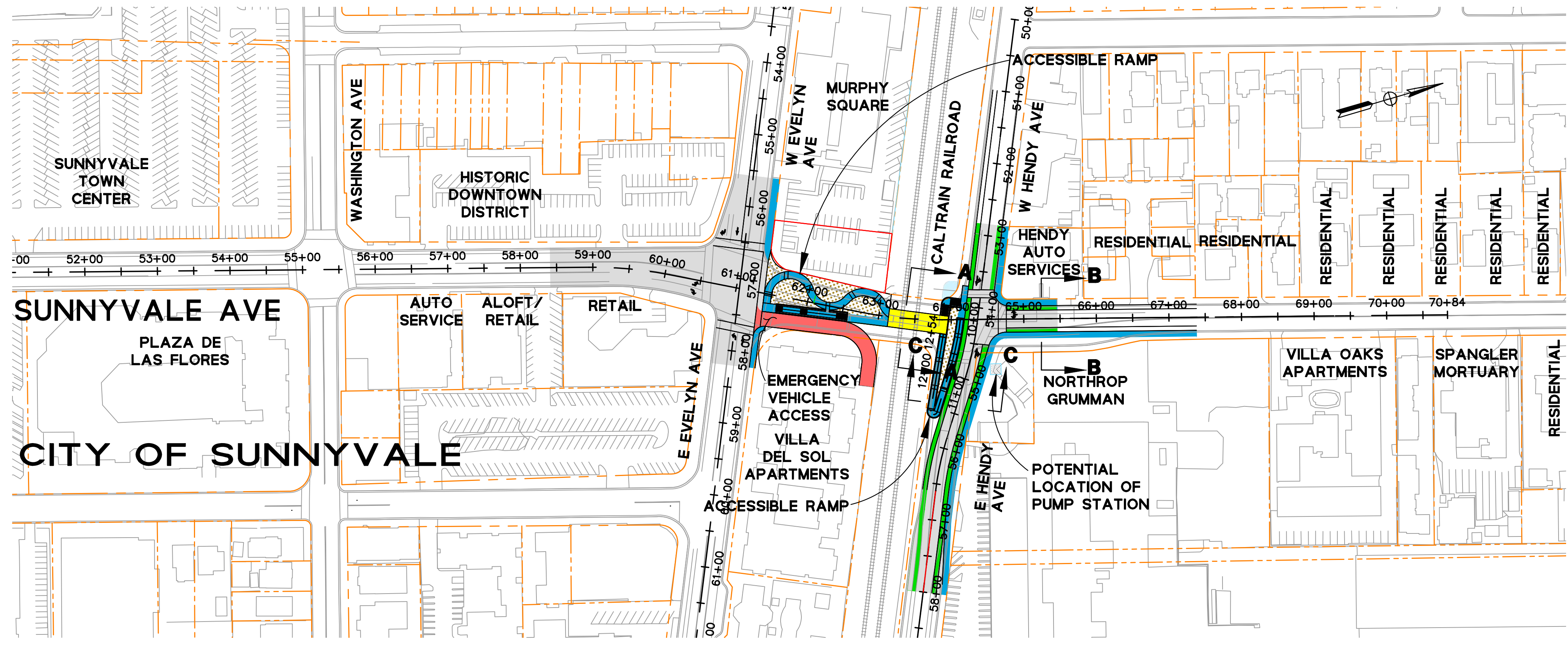


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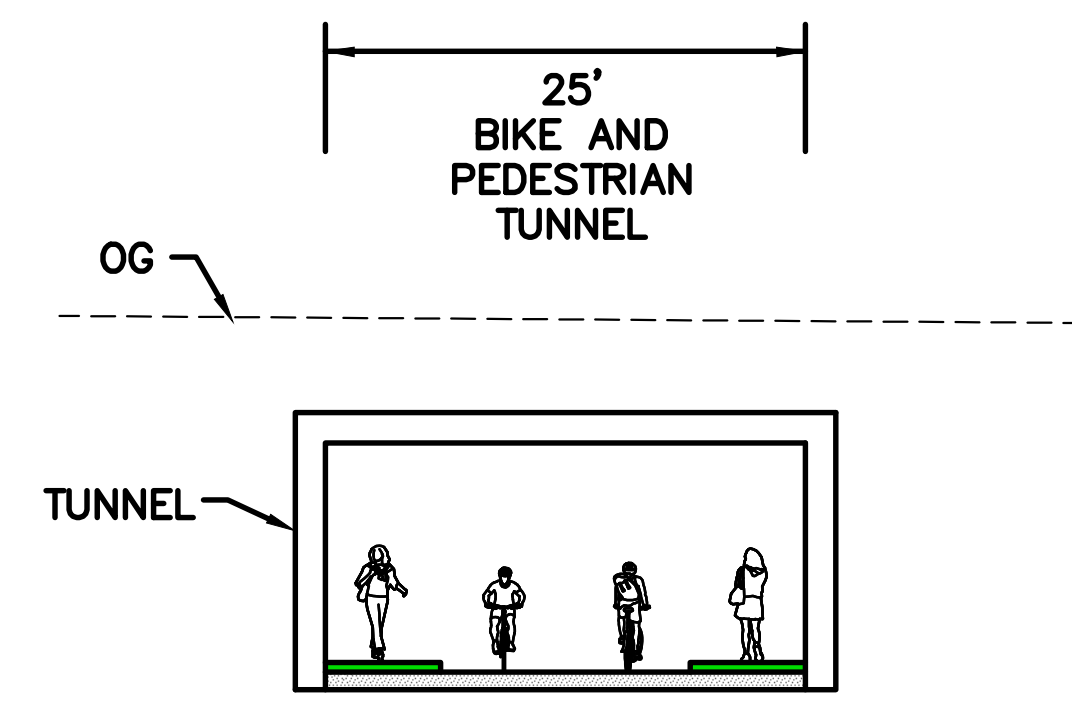


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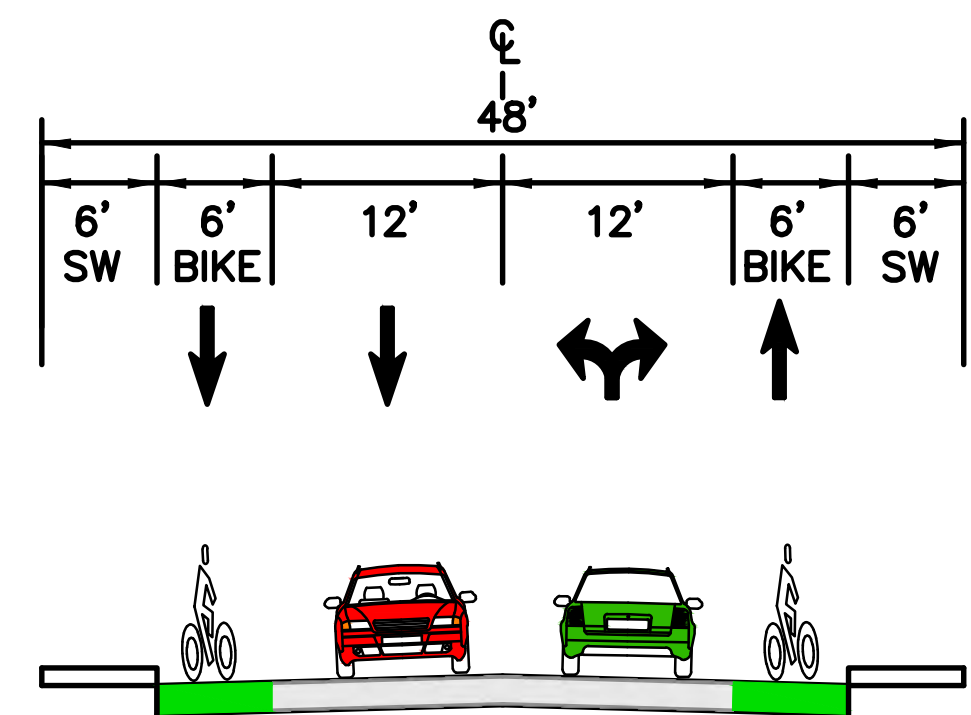
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- PROPOSED BIKE LANE
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- RECONSTRUCT DRIVEWAY
- PROPOSED ACQUISITION PARCEL
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- PROPOSED BRIDGE STRUCTURE
- EXISTING RIGHT-OF-WAY
- PROPOSED UNDERGROUND TUNNEL
- PROPOSED RETAINING WALL



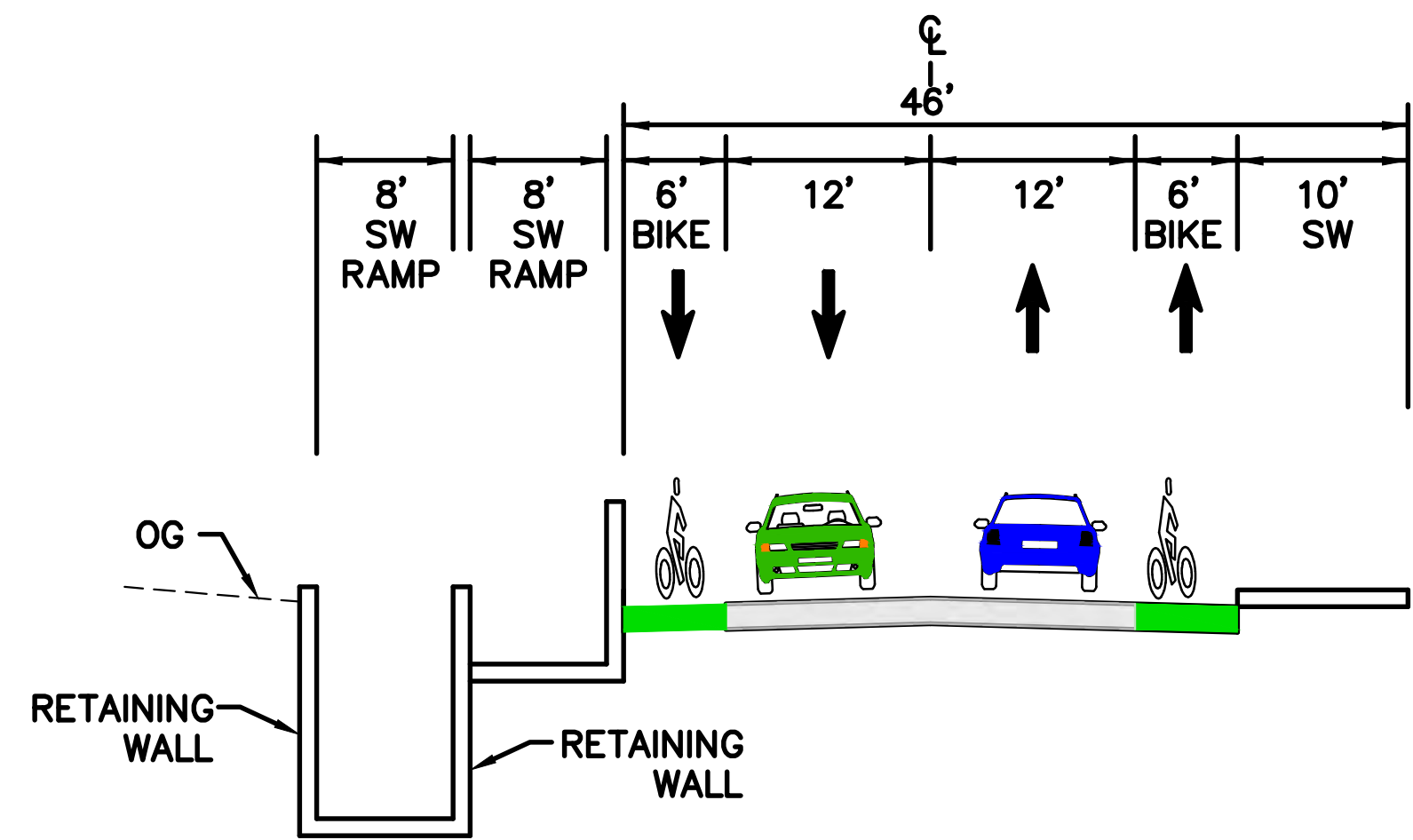
SUNNYVALE AVE PLAN



SECTION A-A TUNNEL

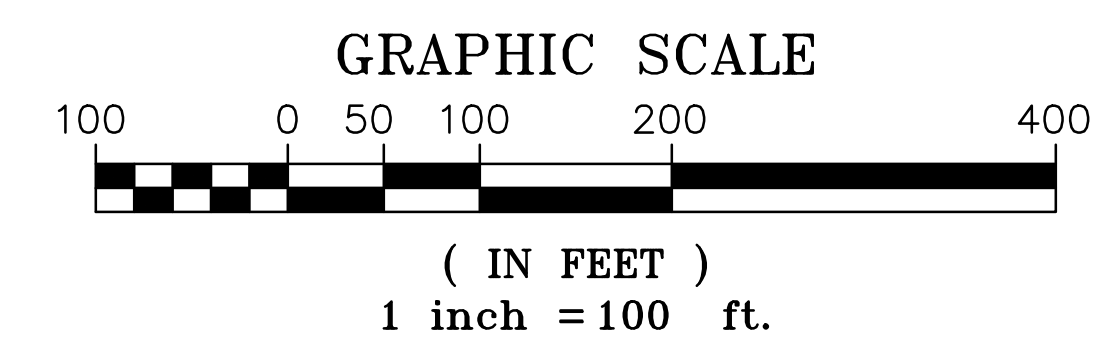


SECTION B-B



SECTION C-C

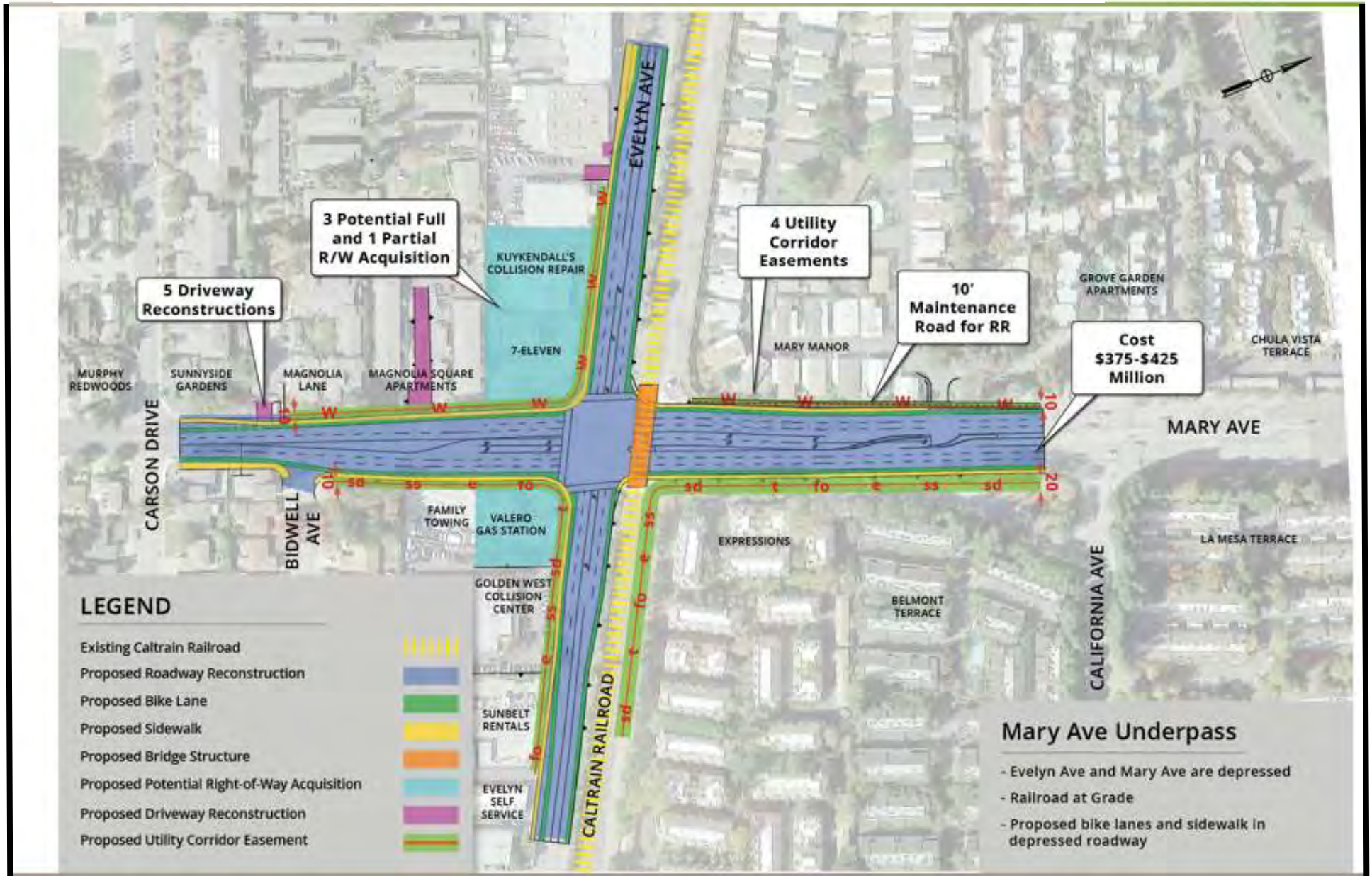
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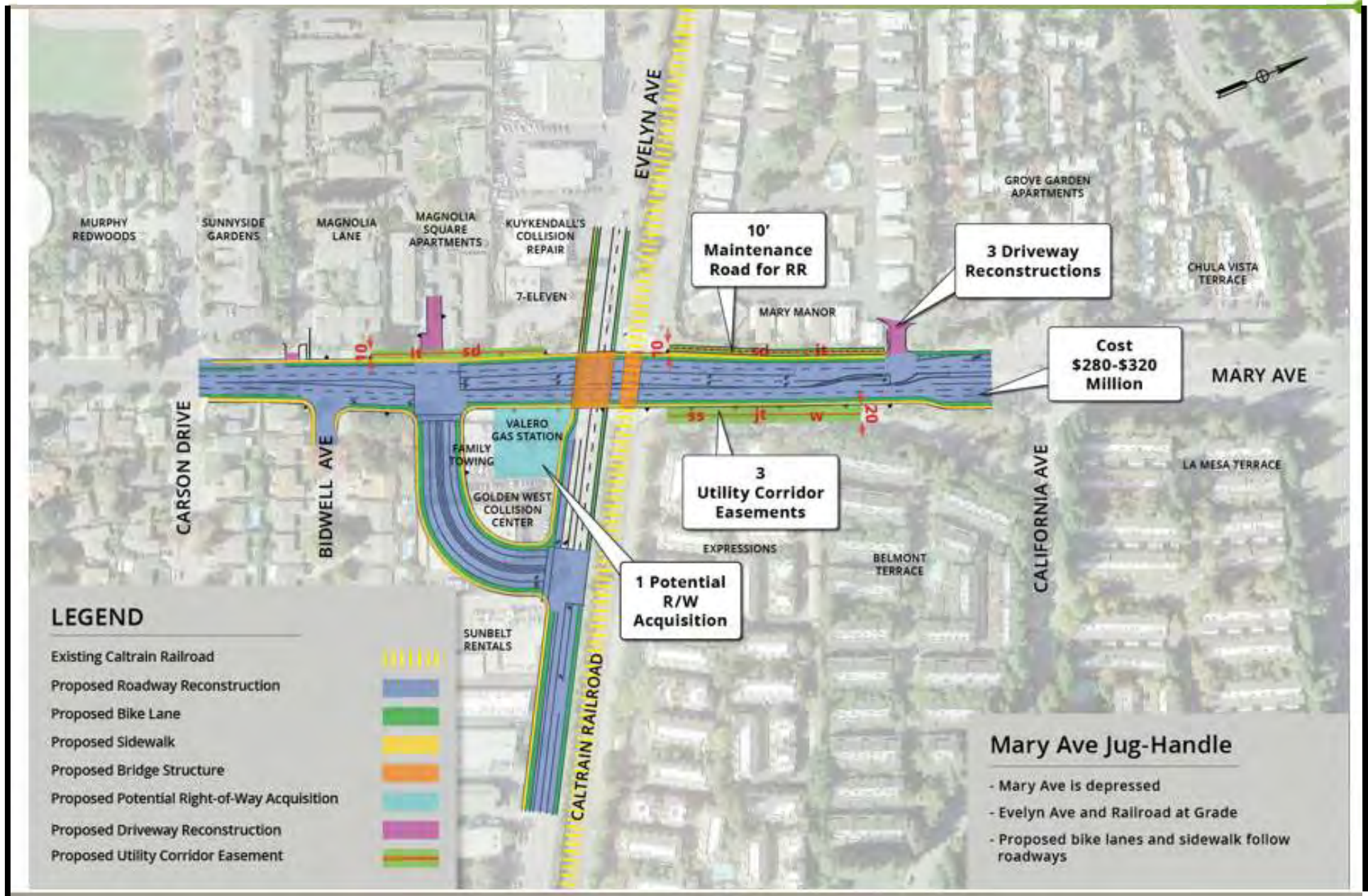
ATTACHMENT D

UTILITY EASEMENTS AND DRIVEWAY MODIFICATIONS

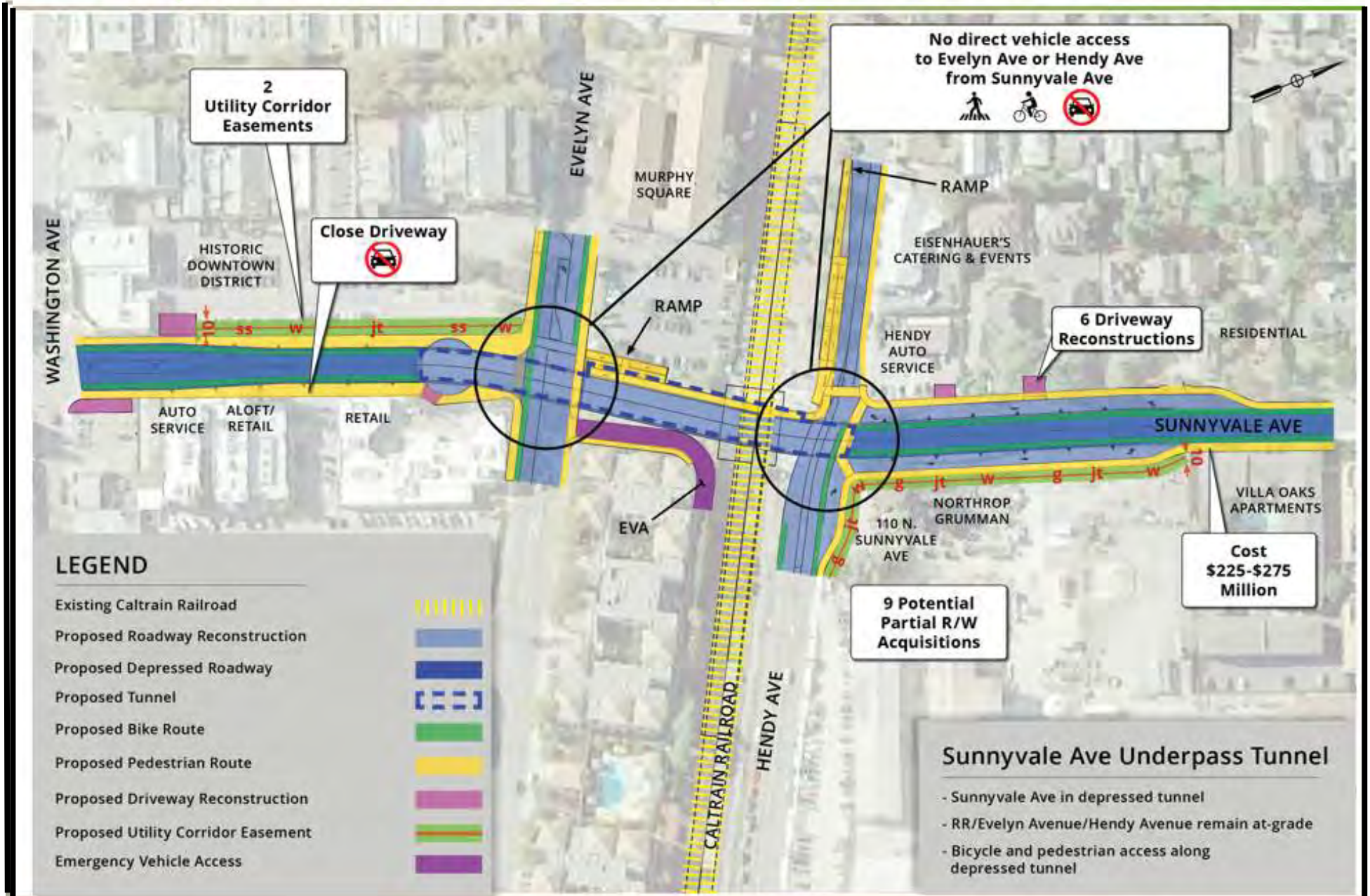
Mary Avenue Underpass Option



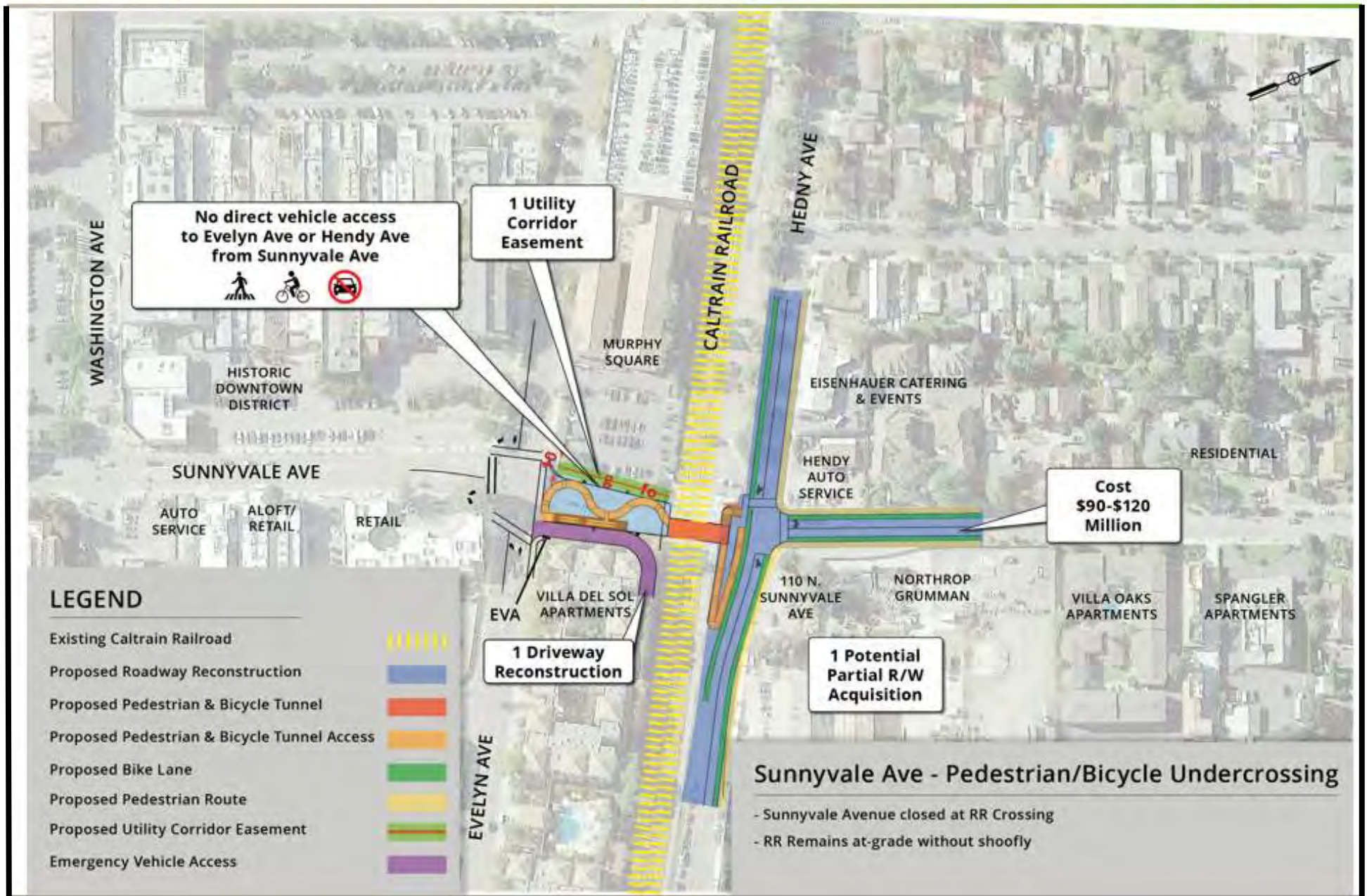
Mary Avenue Underpass with Jughandle Option



Sunnyvale Avenue Underpass Tunnel Option



Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Option



ATTACHMENT E

TRAFFIC MEMO

MEMORANDUM

To: Dat Nguyen, P.E.
BKF Engineers

From: Adam Dankberg, P.E.
Kimley-Horn & Associates

Date: July 13, 2022

Subject: Sunnyvale Grade Separations Feasibility Study – Traffic and Circulation Memorandum

INTRODUCTION AND OVERVIEW

Project Background

The City of Sunnyvale currently has two at-grade railroad crossings of the rail corridor owned by the Peninsula Corridor Joint Powers Board (PCJPB) at Mary Avenue and Sunnyvale Avenue. PCJPB operates Caltrain commuter trains along this corridor. The Sunnyvale Caltrain Station lies between the two at-grade crossings. Caltrain currently operates five trains in each direction during the peak hour. With completion of the currently under-construction electrification of the rail corridor, the number of Caltrain trains operating on the corridor will increase to six trains per hour per direction. As part of the recently completed Caltrain Business Plan, Caltrain is working towards expanding service to eight trains per hour per direction. In addition, California High-Speed Rail (CHSRA) is planned to operate an additional four trains per hour per direction on the same corridor. This will result in more than double the number of train crossings during the peak hour compared to current conditions.

Due to the proximity of adjacent intersections to both at-grade crossings, the train crossings have a substantial effect on roadway capacity, congestion levels, and overall functionality of the multimodal circulation network in Sunnyvale. The City of Sunnyvale currently experiences high levels of congestion on its north-south roadways during peak travel periods. Gate down times and associated rail pre-emption events further exacerbate congestion and safety hazards in the vicinity of the two at-grade crossings. In addition, the Sunnyvale Avenue crossing is near the Sunnyvale Caltrain Station and downtown Sunnyvale, and thereby experiences high volumes of pedestrian and bicycle activity.

Kimley-Horn, as a subconsultant to BKF Engineers, evaluated project grade separation alternatives for both at-grade rail crossings, Mary Avenue and Sunnyvale Avenue, to assess their implications on traffic operations and multimodal circulation.

Traffic Analysis Scope

The study network includes 18 study intersections, as listed below. The study intersections and the study area can be seen in **Figure 1**. The study intersections were analyzed using the VISSIM micro-simulation tool to fully reflect the intersection operations associated with the at-grade crossings and

network-wide effects of the grade separation alternatives. Three scenarios were analyzed: Existing Conditions, 2035 No-Build, and 2035 Build.

The grade separation alternatives analyzed at Mary Avenue are not anticipated to result in any substantial traffic diversion to other corridors. The grade separation alternatives analyzed at Sunnyvale Avenue are anticipated to potentially divert traffic to the Mathilda Avenue and Fair Oaks Avenue corridors. Therefore, the impacts of each of the two grade separation are mutually independent (i.e., the solutions considered at Mary Avenue do not influence the performance of the solutions considered at Sunnyvale Avenue, and vice versa). Two separate VISSIM models were constructed, one for Mary Avenue, which includes the Mary Avenue corridor (Intersections #1-4), and one for Sunnyvale Avenue, which includes the remainder of the study area (Intersections #5-18).

Mary Avenue Modeling Area

1. Mary Avenue/Central Expressway
2. Mary Avenue/California Avenue
3. Mary Avenue/Evelyn Avenue
4. Mary Avenue/Washington Avenue

Sunnyvale Avenue Modeling Area

5. Mathilda Avenue/California Avenue
6. Mathilda Avenue SB Off-Ramp/Evelyn Avenue
7. Mathilda Avenue NB Off-Ramp/Evelyn Avenue
8. Mathilda Avenue/Washington Avenue
9. Evelyn Avenue/Frances Street
10. Washington Avenue/Frances Street
11. Evelyn Avenue/Murphy Avenue
12. Sunnyvale Avenue/California Avenue
13. Sunnyvale Avenue/Hendy Avenue
14. Sunnyvale Avenue/Evelyn Avenue
15. Sunnyvale Avenue/Washington Avenue
16. Fair Oaks Avenue/California Avenue
17. Fair Oaks Avenue/Kifer Road
18. Fair Oaks Avenue/Evelyn Avenue

Figure 1: Study Area



Alternatives Overview and Description

Five grade separation project alternatives were selected for this analysis. Three alternatives proposed for the Mary Avenue grade crossing include the Mary Avenue Underpass Tunnel, the Mary Avenue Underpass Tunnel with Jughandle option, and the Mary Avenue Underpass Tunnel with Jughandle and Connector Ramps option. Two alternatives proposed for the Sunnyvale Avenue grade crossing include the Sunnyvale Avenue Underpass Tunnel option and the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing option. This section summarizes each of the individual alternatives.

Figure 2 illustrates the Mary Avenue Underpass with Jughandle Alternative. As shown, Mary Avenue would be depressed beneath the railroad tracks and Evelyn Avenue. To accommodate turning movements between Mary Avenue and Evelyn Avenue, a jughandle roadway is proposed to connect the two roadways, southeast of the current Mary Avenue/Evelyn Avenue intersection. New signalized intersections are proposed at either end of the jughandle, one on Mary Avenue opposite the existing Magnolia Square Apartments and the other on Evelyn Avenue. As shown in **Figure 2**, the jughandle was initially envisioned to consist of a four-lane cross section. However, initial performance of the traffic analysis found this cross-section deficient, and the alternative was revised to assume a five-lane cross-section, with the inclusion of an additional westbound right-turn lane approaching Mary Avenue. All results included in this memo assume the five-lane jughandle cross-section.

Figure 3 illustrates the Mary Avenue Underpass with Jughandle and Connector Ramps Alternative. As shown, the underpass and jughandle connections are the same as in the Mary Avenue Underpass with Jughandle Alternatives. This alternative also includes single-lane connector ramps to connect westbound Evelyn Avenue traffic with northbound Mary Avenue and southbound Mary Avenue traffic with westbound Evelyn Avenue. These movements were identified for the direct connector ramps as a result of their high volumes and the opportunity to reduce left-turn volumes at one or both jughandle ramp intersections. Both ramp connections are right-turn only at their connections with Mary Avenue. A half traffic signal will be installed for the westbound Evelyn Avenue to northbound Mary Avenue ramp. All other approaches at non-signalized intersections will be free flow and yield to bike lanes.

Figure 4 illustrates the Mary Avenue Underpass Tunnel Alternative. As shown, both Mary Avenue and Evelyn Avenue would be depressed, while the railroad remains at-grade. Pedestrian and bicycle access would be maintained via the depressed intersection. Under this alternative, Mary Avenue and Evelyn Avenue remain connected and the current intersection lane geometry is preserved.

Figure 5 illustrates the Sunnyvale Avenue Underpass Tunnel Alternative. As shown, Sunnyvale Avenue would be depressed beneath the railroad tracks, Hendy Avenue, and Evelyn Avenue in a tunnel. As a result, all turning movements at the Sunnyvale Avenue/Evelyn Avenue intersection would be redistributed to nearby intersections and only the westbound right-turn and southbound right-turn movements would be maintained at the Sunnyvale Avenue/Hendy Avenue intersection. Pedestrian and bicycle access would be maintained via dedicated space within the tunnel.

Figure 6 illustrates the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternative. As shown, while the road would be closed to autos, pedestrian and bicycle access would be preserved beneath

Figure 2: Mary Avenue Underpass Tunnel with Jughandle Alternative (Plan View)

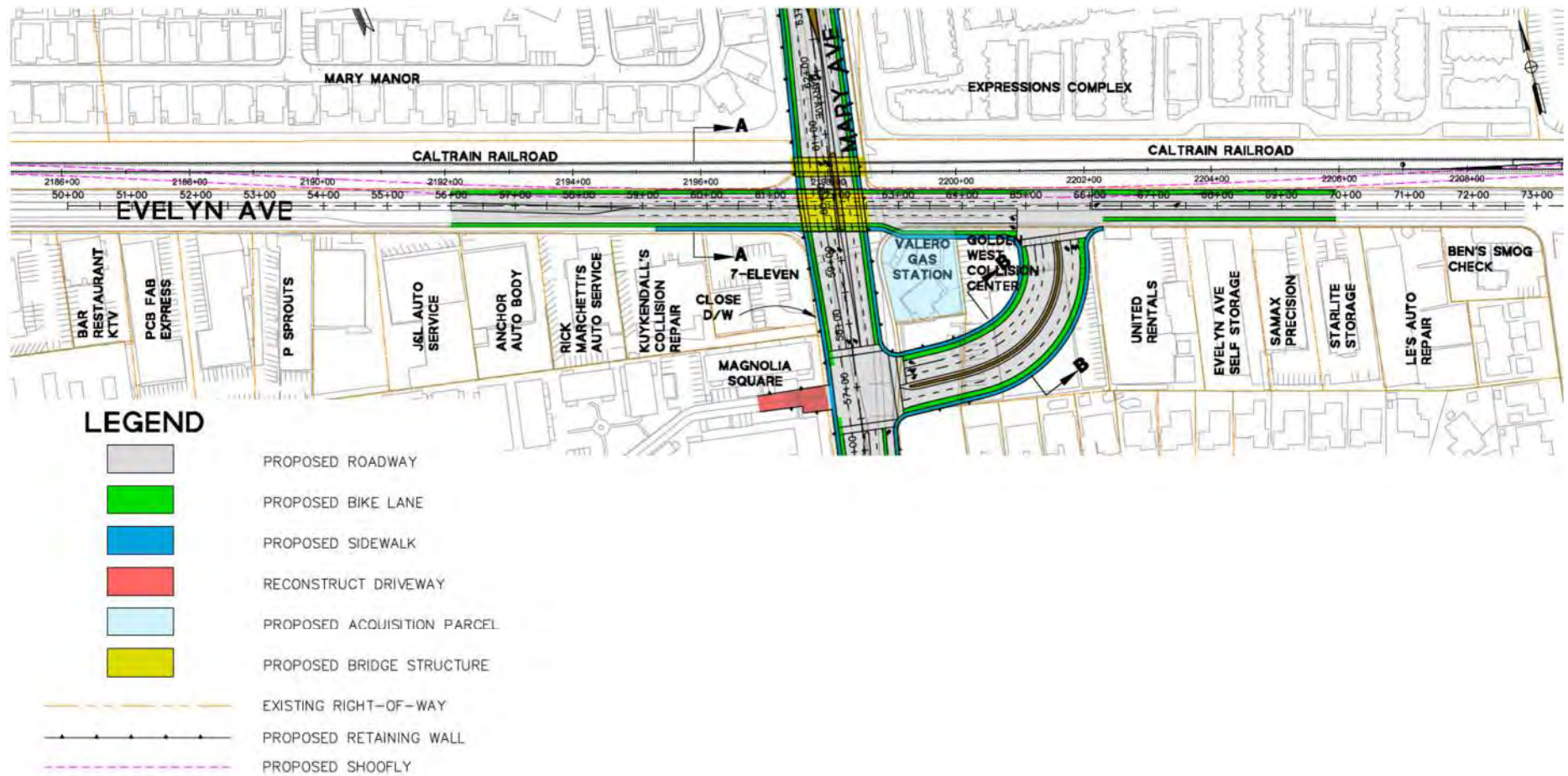
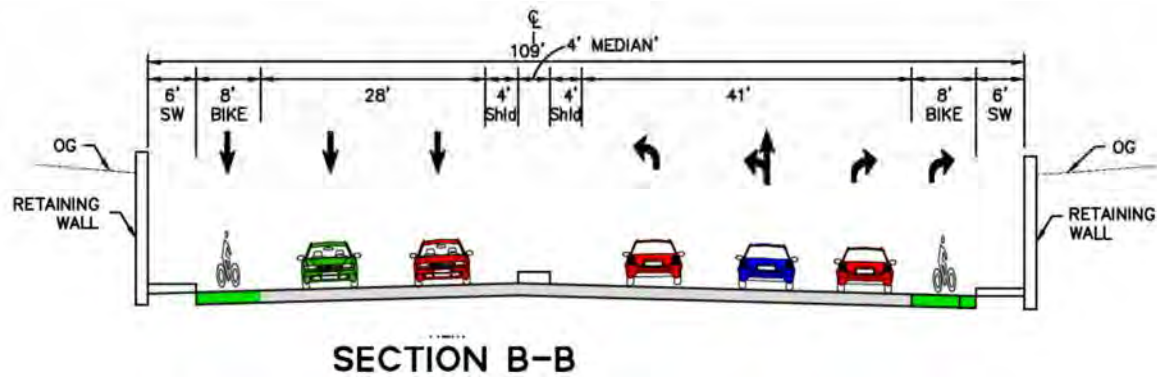
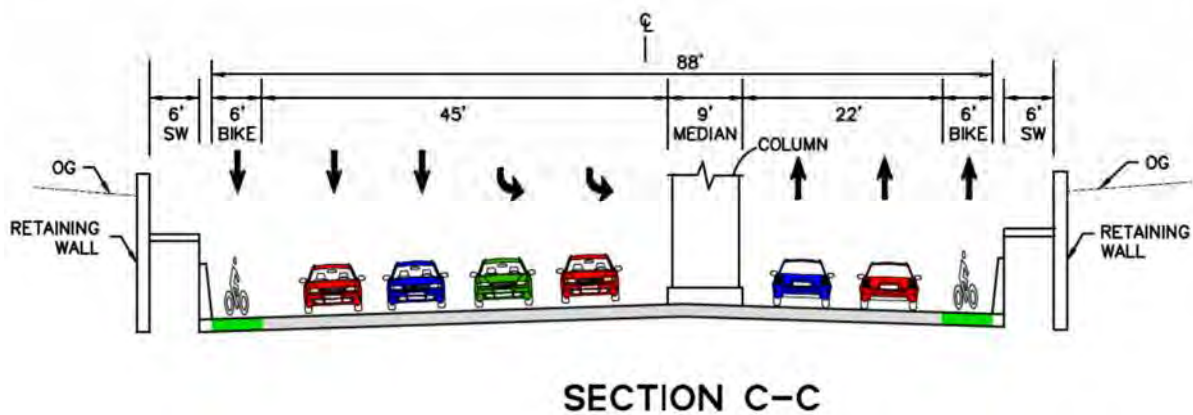


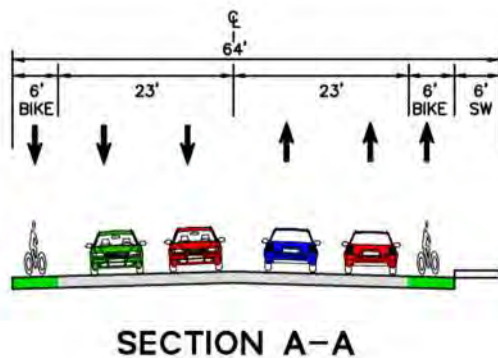
Figure 2 (cont'): Mary Avenue Underpass Tunnel with Jughandle Alternative (Cross-Sections)



Jughandle Cross Section



Mary Avenue Cross Section north of Jughandle



Evelyn Avenue Cross Section west of Mary Avenue

Source: BKF Engineers, received June 28, 2022

Figure 3: Mary Avenue Underpass with Jughandle and Connector Ramps Alternative (Plan View)

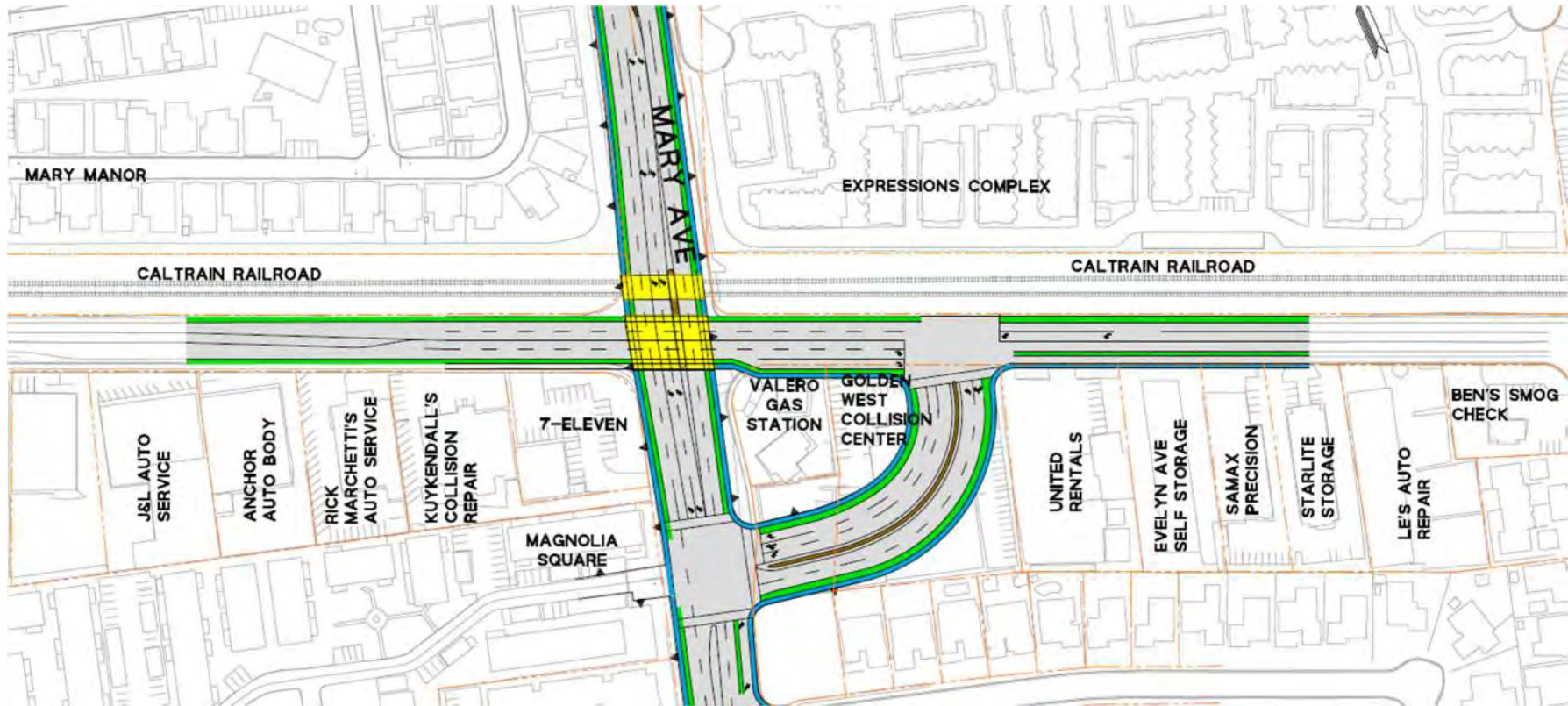
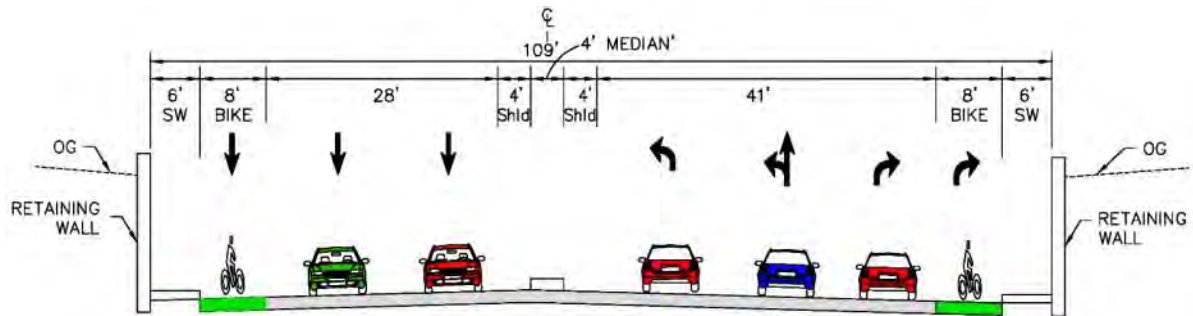
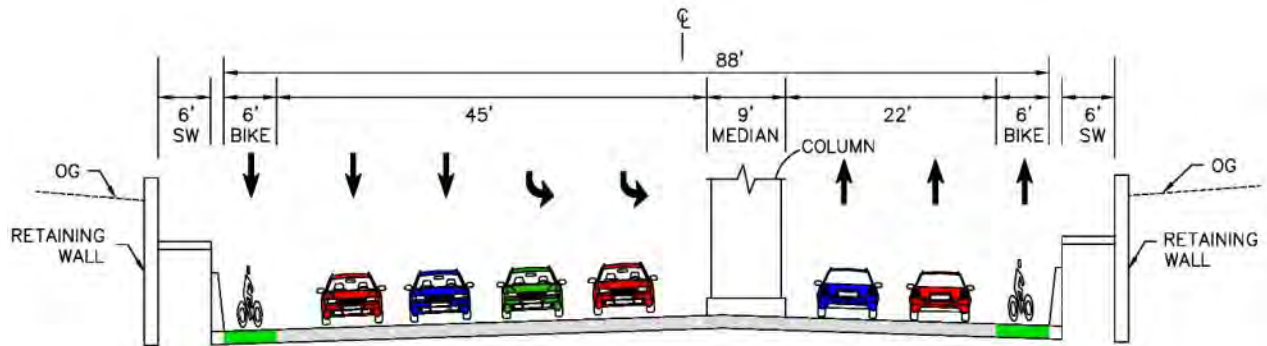


Figure 3 (cont'): Mary Avenue Underpass with Jughandle and Connector Ramps Alternative

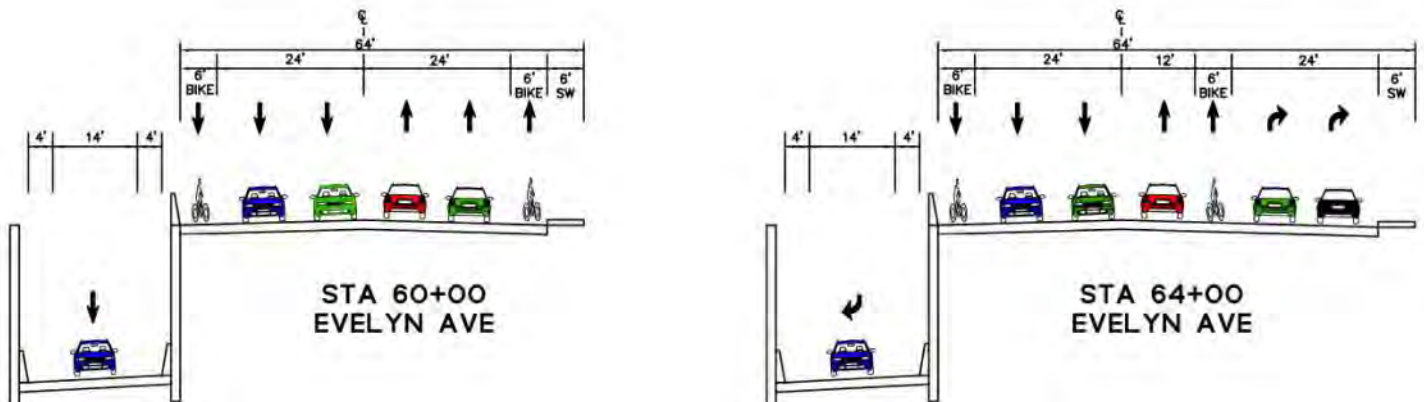
(Cross-Sections)



Jughandle Cross Section



Mary Avenue Cross Section north of Jughandle



Evelyn Avenue Cross Section east and west of Mary Avenue

Source: BKF Engineers, received January 19, 2022

Figure 4: Mary Avenue Underpass Tunnel Alternative (Plan View)

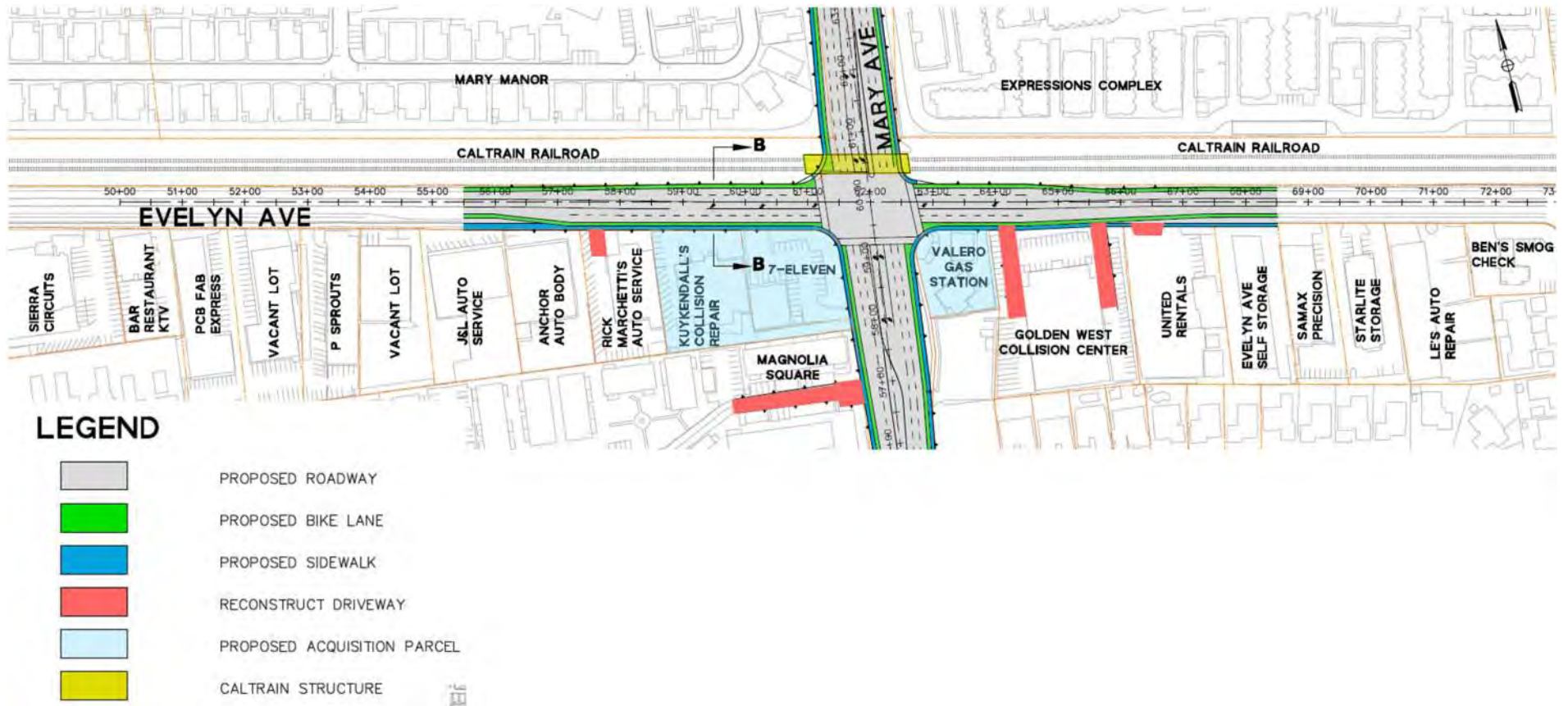
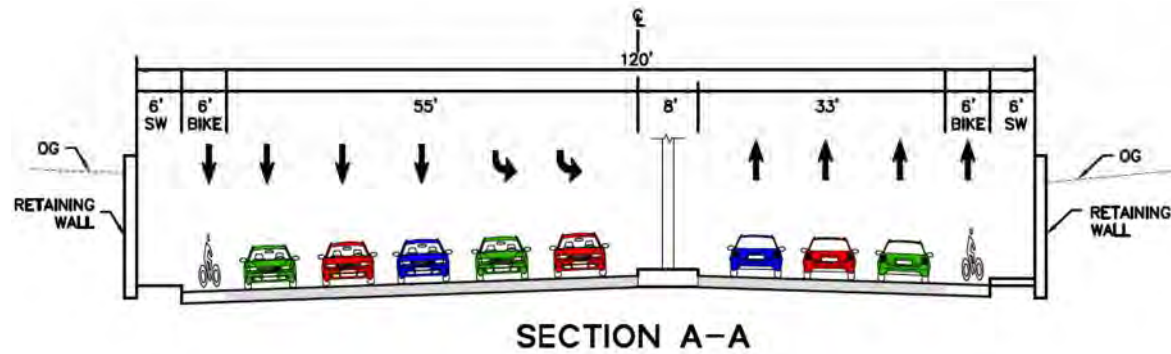
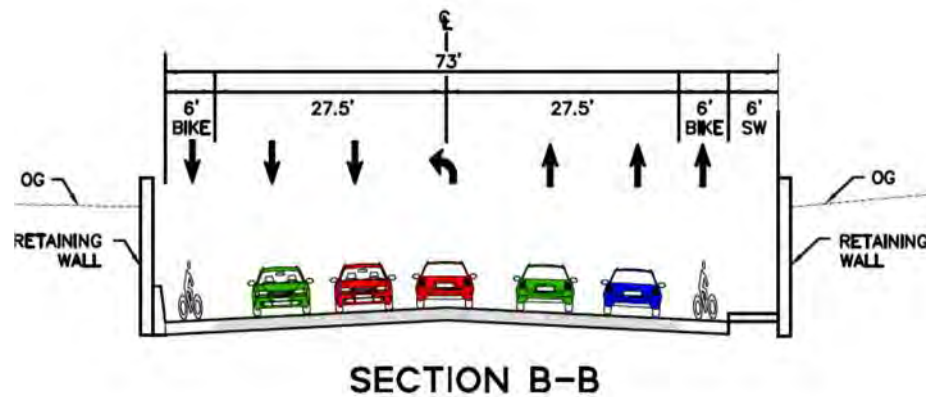


Figure 4 (cont.): Mary Avenue Underpass Tunnel Alternative (Cross-Sections)



Mary Avenue Cross Section North of Evelyn Avenue



Evelyn Avenue Cross Section east of Mary Avenue

Source: BKF Engineers, received June 28, 2022

Figure 5: Sunnyvale Avenue Underpass Tunnel Alternative (Plan View)

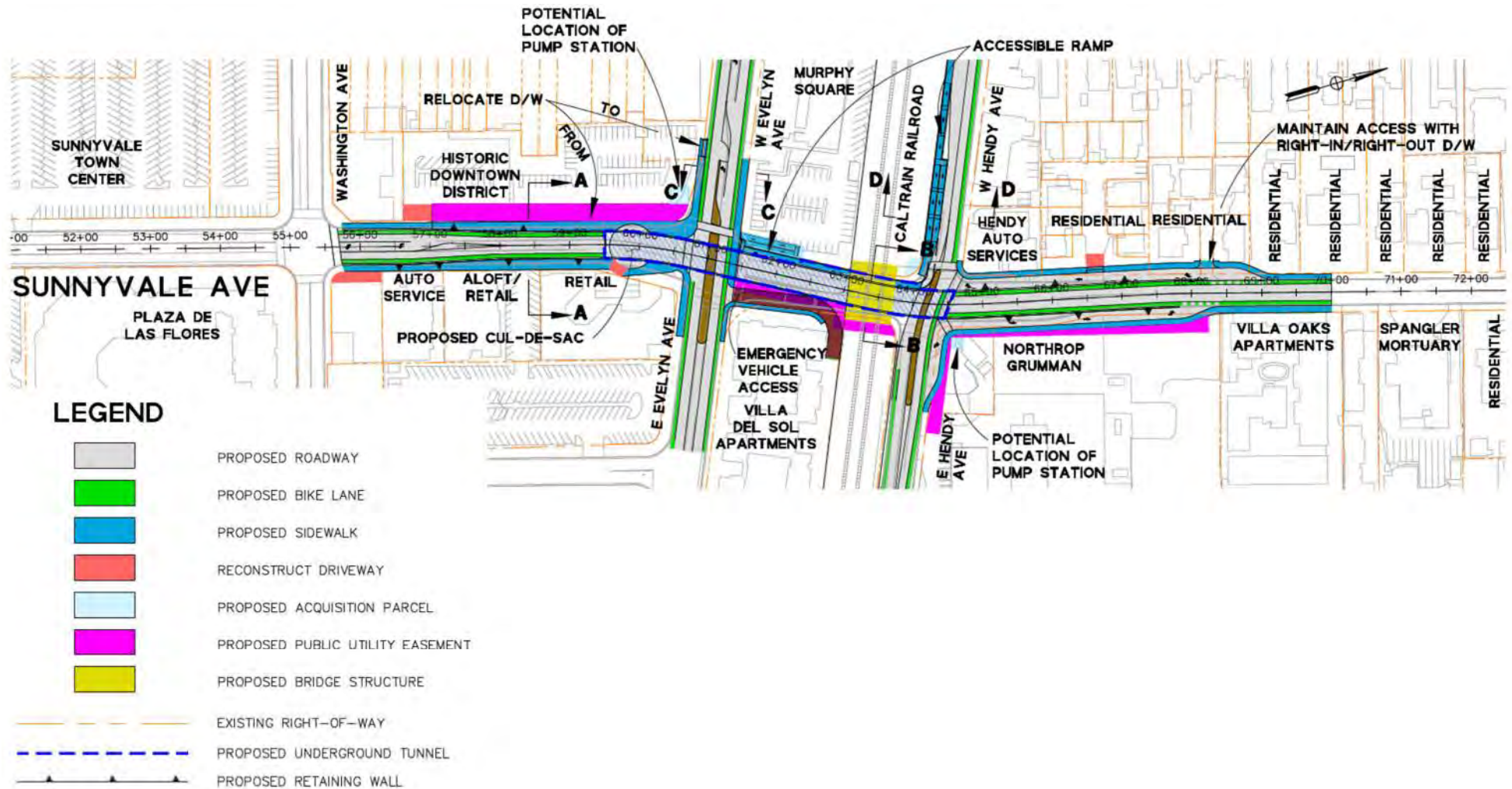
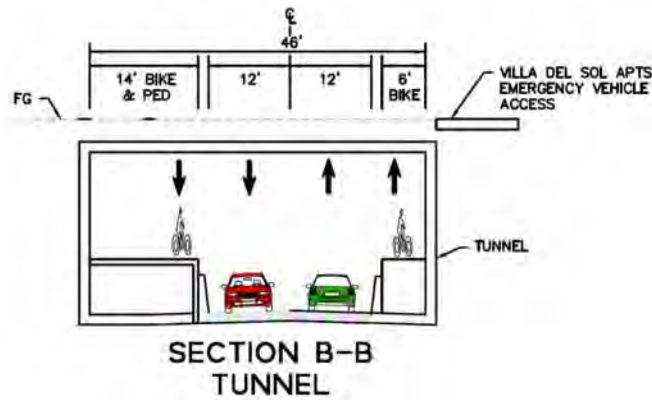
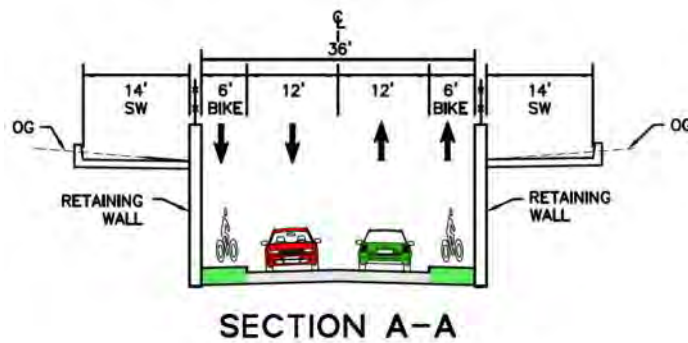


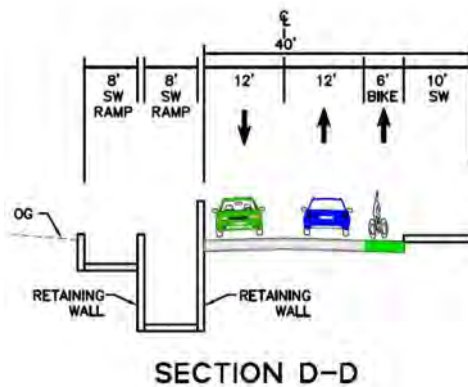
Figure 5 (cont.): Sunnyvale Avenue Underpass Tunnel Alternative (Cross-Sections)



Sunnyvale Avenue Underpass Tunnel Cross Section beneath Caltrain



Sunnyvale Avenue Cross Section south of Evelyn Avenue



Hendy Avenue Cross Section west of Sunnyvale Avenue

Source: BKF Engineers, received June 28, 2022

Figure 6: Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternative (Plan View)

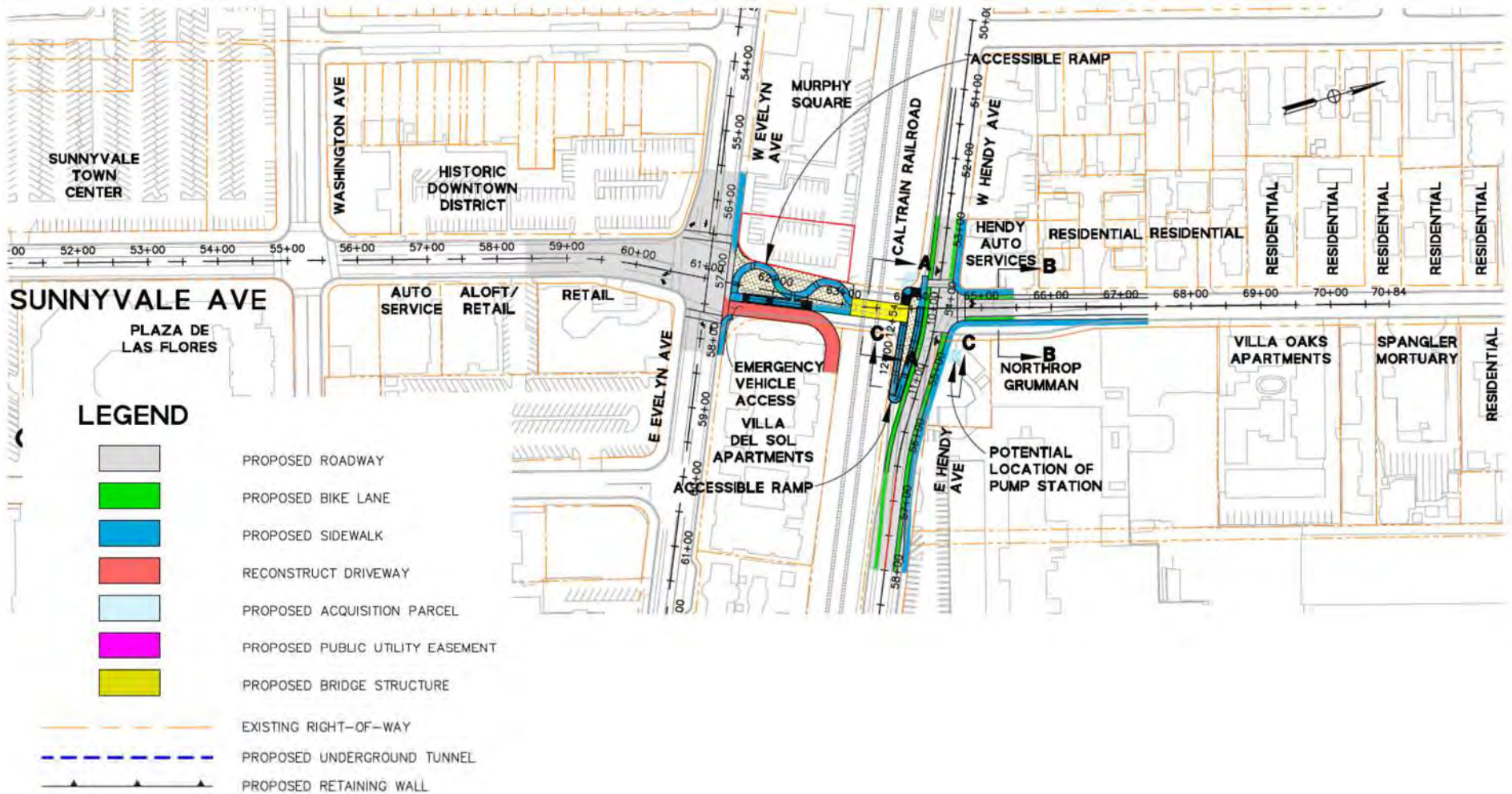
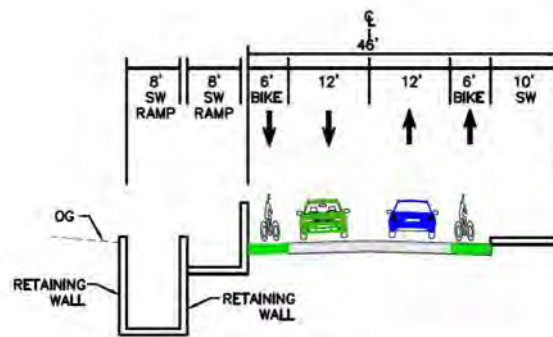
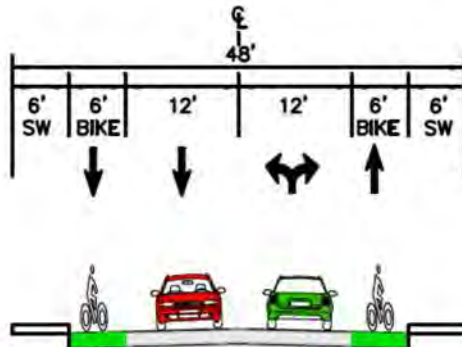


Figure 6 (cont.): Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternative (Cross-Sections)



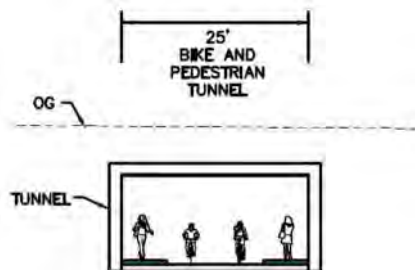
SECTION C-C

Hendy Avenue Cross Section west of Sunnyvale Avenue



SECTION B-B

Sunnyvale Avenue Cross Section north of Hendy Avenue



**SECTION A-A
TUNNEL**

Bicycle and Pedestrian Tunnel Cross Section

Source: BKF Engineers, received June 28, 2022

the tracks via a pedestrian and bicycle undercrossing. Both the Sunnyvale Avenue/Evelyn Avenue and Sunnyvale Avenue/Hendy Avenue intersections would be converted to T-intersections with this alternative.

METHODOLOGY AND APPROACH

2016-2017 Existing Traffic Counts

Existing AM and PM peak period turning movement counts were collected in March 2017, except for the three study intersections along Fair Oaks Avenue which were collected in January 2018. In addition, to maintain consistency between overlapping studies, six previously collected turning movements counts were utilized for study intersections that overlap with the Mary Avenue Overcrossing EIR Traffic Analysis. The six study intersections where Mary Avenue Overcrossing EIR Traffic Analysis counts were utilized include the four study intersections along Mary Avenue, the Mathilda Avenue/California Avenue intersection and the Mathilda Avenue/Washington Avenue intersection.

2035 No-Build Model Development

Future turning movement volumes were developed by growing existing turning movement counts based on traffic growth projected by the City of Sunnyvale travel demand model. The most recent completed Sunnyvale model was utilized in this analysis. It includes recently approved plans, such as the Downtown Specific Plan, the Lawrence Station Area Plan, and the El Camino Real Specific Plan. **Attachments A and C** illustrate the 2035 No-Build volumes at each study intersection.

2035 No-Build and Build models include City projects that have been implemented subsequent to collection of existing conditions data in 2017/2018 as well as additional approved projects that have not yet been implemented.

Caltrain schedules were updated to assume three additional trains in each direction per hour as well as the assumption that all trains would stop at the Sunnyvale Station with the implementation of electrification (no express trips skipping the station). CHSRA is assumed to operate along the corridor in the future. It was assumed that four CHSRA trains per hour would pass through the Sunnyvale study area in each direction. These trains would not stop at the Sunnyvale station and would be traveling at up to 110 mph. This rail operating scheme is consistent with the adopted Caltrain Business Plan of 8 Caltrain + 4 CHSRA trains in the Peninsula corridor.

Gate operations and signal preemption parameters were adjusted to reflect the understanding that electrification of the corridor will eliminate the “double-pump” operation of the gates which are for southbound trains stopping at the Sunnyvale Station. Currently, southbound Caltrain trainsets stopping at the Sunnyvale Station are detected two times, once on the approach to the station, and once after leaving. This forces the traffic signal to preempt and gates to be lowered twice in a short period of time. Gate down times are consistent with the Caltrain Electrification Environmental Impact Report Transportation Analysis (February 2014).

2035 Build Model Development

A select link analysis was run with the City's travel demand model to identify origin-destination patterns for traffic currently using the Sunnyvale Avenue at-grade crossing. Based on that select link output, current traffic patterns, and an understanding of the traffic network, affected traffic flows were shifted to alternate routes with each of the Sunnyvale Avenue Underpass Tunnel and Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternatives. Traffic volumes for the Mary Avenue Underpass Tunnel with Jughandle Alternative were redistributed through the new jughandle intersections. Traffic volumes for the Mary Avenue Underpass Tunnel with Jughandle and Connector Ramps included additional redistribution through the new connector ramps. Traffic volumes for the Mary Avenue Underpass Tunnel Alternative were kept the same as No-Build. The respective geometries of each grade separation alternative were incorporated into the analysis models.

Operations Analysis

All study intersections were modeled using VISSIM software. Existing Conditions models were calibrated according to guidance from the Federal Highway Administration's (FHWA's) *Traffic Analysis Toolbox, Volume III*¹. This included a calibration of field-counted traffic volumes against modeled throughputs as well as field-collected travel times against modeled travel times. Modeled throughputs and travel times were found to meet FHWA-recommended calibration criteria. It is noted that while VISSIM provides approach and intersection delay values that have been translated into a Level of Service grade in accordance with Highway Capacity Manual (HCM) delay thresholds, it is not an HCM-derived methodology and thus findings would deviate from an HCM analysis approach. VISSIM was selected as the analysis tool because of its ability to accurately model the upstream and downstream effects of at-grade rail crossings, including the effect of rail pre-emption sequences on adjacent signalized intersection phasing. As rail crossings are inherently random in their occurrence and are associated with a distinctive signal sequence at any adjacent signals, they cannot be accurately reflected in an HCM-derived analysis.

RESULTS METHODOLOGY

The following section provides a summary of results for the No-Build and Build scenarios, including the Mary Avenue Underpass with Jughandle Alternative, the Mary Avenue Underpass with Jughandle and Connector Ramps Alternative, the Mary Avenue Underpass Tunnel Alternative, the Sunnyvale Avenue Underpass Tunnel Alternative, and the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternative. For each Build alternative, the following is summarized:

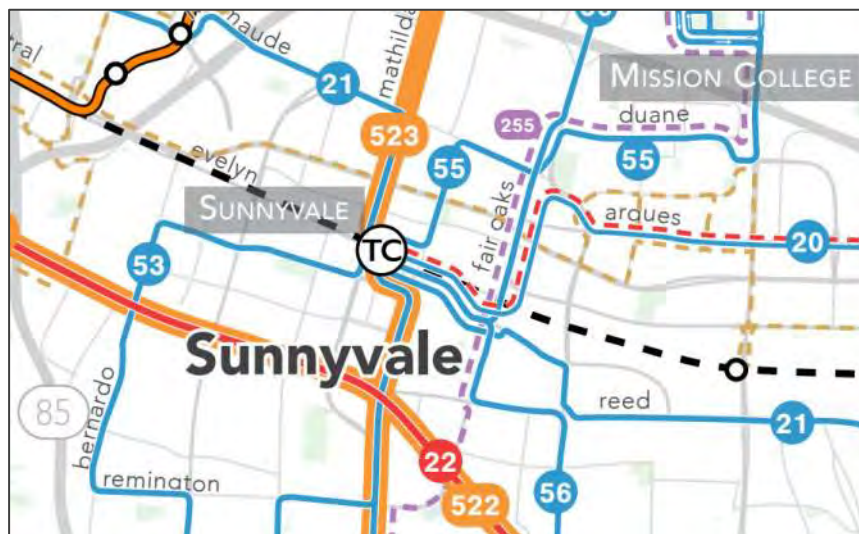
- **Volume redistribution and assignment:** Each Build alternative except for the Mary Avenue Underpass Tunnel Alternative assumes volume redistribution due to turning movement restrictions or modifications associated with the grade separation alternative.
- **Traffic measures of effectiveness:** The measures of effectiveness for the Mary Avenue grade separation alternatives include the change in delay and queue length by movement as well as the change in travel time along Mary Avenue. The measures of effectiveness for the

¹ https://ops.fhwa.dot.gov/trafficanalysisistools/tat_vol3/vol3_guidelines.pdf

Sunnyvale Avenue grade separation alternatives include change in intersection delay, corridor travel time, and network performance.

- **Multimodal impacts:** A qualitative multimodal impact analysis was conducted based on the proposed alternatives. Effects on pedestrian, bicycle, and transit circulation was evaluated, including out-of-direction travel, safety, and other circulation considerations.² The transit assessment assumes the Santa Clara Valley Transportation Authority's (VTA) FY18-19 transit service plan (i.e., Next Network), which was implemented prior to the COVID pandemic. **Figure 7** shows the Next Network service map within the City of Sunnyvale.

Figure 7: VTA Next Network Plan (Pre-Pandemic Service Pattern)



Source: <http://nextnetwork.vta.org/transit-service-maps>

Attachments B, D, E, and F illustrate the volume distribution and assignment for each alternative by study intersection, summarizing the current conditions, and conditions with the No-Build and Build scenarios. Volume distribution and assignment for the Mary Avenue Underpass Tunnel Alternative was not included as all No-Build turning movements are expected to remain the same.

² Out-of-direction travel refers to an increase in distance and associated travel time to travel from two termini. The out-of-direction travel metric is the difference between the length of the route alignment and the straight-line distance between the route's termini. This metric increases the more the route's alignment deviates from a straight-line path.

MARY AVENUE

Volume Distribution and Assignment

Underpass with Jughandle Alternative

All turning movements at the Mary Avenue/Evelyn Avenue intersection under the No-Build scenario are redistributed through the jughandle. For example, all vehicles who make a northbound left at the Mary Avenue/Evelyn Avenue intersection under the No-Build scenario will make a northbound right at the new signal at Mary Avenue/Jughandle (Int. #19) and a northbound left at the new signal at Evelyn Avenue/Jughandle (Int. #20) under this alternative. All through vehicles under the 2035 No-Build scenario are not rerouted under this alternative.

Underpass with Jughandle and Connector Ramps Alternative

Similar to the Underpass with Jughandle Alternative, most turning movements at the Mary Avenue/Evelyn Avenue intersection under the No-Build scenario are redistributed through the jughandle. However, in this alternative, traffic heading westbound on Evelyn Avenue to northbound Mary Avenue will be routed through a direct connector ramp and will make a right turn at the new half signal on Mary Avenue. Volumes travelling southbound on Mary Avenue and heading westbound on Evelyn Avenue will also be routed via a free right-turn to a connector ramp to Evelyn Avenue.

Underpass Tunnel Alternative

Since both Mary Avenue and Evelyn Avenue are depressed and remain connected, all turning movements at the intersection remain the same as represented under the No-Build scenario. No volumes under the 2035 No-Build scenario will be rerouted under this alternative.

Intersection Operations Results

Since there would be no redistribution of traffic associated with the Build Alternatives other than routing of vehicles through the jughandle and/or connector ramps, operations for other intersections along Mary Avenue do not change. See **Table 1** for a comparison of LOS and delay at the Mary Avenue/Evelyn Avenue or jughandle intersections with No-Build and Build conditions.

Table 1: Mary Avenue Jughandle Operations by Movement – 2035 No-Build and Build

Movement	2035 AM Peak Hour				2035 PM Peak Hour			
	No-Build (sec)	2035 Build (Jughandle)	2035 Build (Connector Ramps)	2035 Build (Tunnel)	No-Build (sec)	2035 Build (Jughandle)	2035 Build (Connector Ramps)	2035 Build (Tunnel)
Eastbound Evelyn Ave to Northbound Mary Ave	F (195.7)	D (48.0)	B (19.3)	E (75.6)	F (454.8)	E (56.4)	B (18.3)	F (254.2)
Eastbound Evelyn Ave	C (27.7)	E (59.1)	B (15.1)	C (28.5)	F (141.7)	D (49.0)	D (49.0)	F (128.4)
Eastbound Evelyn Ave to Southbound Mary Ave	C (23.0)	F (92.4)	E (68.9)	B (14.9)	F (139.1)	F (88.7)	F (83.0)	F (178.0)
Westbound Evelyn Ave to Southbound Mary Ave	F (297.2)	F (136.4)	F (119.7)	F (158.1)	F (291.3)	F (238.0)	F (151.2)	F (98.5)
Westbound Evelyn Ave	F (332.6)	D (37.0)	B (14.3)	F (163.8)	F (333.3)	F (122.7)	D (42.6)	F (252.3)
Westbound Evelyn Ave to Northbound Mary Ave	F (389.8)	F (92.0)	E (59.0)	F (166.7)	F (372.7)	F (205.8)	F (86.3)	F (88.0)
Northbound Mary Ave to Westbound Evelyn Ave	F (374.6)	F (189.2)	F (183.3)	F (245.2)	F (89.4)	D (40.5)	D (38.0)	E (78.3)
Northbound Mary Ave	F (333.6)	F (176.4)	F (178.8)	F (186.9)	E (78.2)	D (47.1)	D (46.2)	D (46.4)
Northbound Mary Ave to Eastbound Evelyn Ave	F (228.4)	F (183.1)	F (172.4)	F (134.3)	E (45.8)	D (37.4)	C (23.2)	C (23.4)
Southbound Mary Ave to Eastbound Evelyn Ave	E (73.5)	F (85.0)	E (71.1)	D (45.4)	F (141.1)	E (64.9)	D (49.6)	F (89.0)
Southbound Mary Ave	D (54.6)	A (8.8)	A (9.6)	C (33.9)	E (78.0)	B (18.0)	B (17.6)	E (62.0)
Southbound Mary Ave to Westbound Evelyn Ave	F (116.7)	F (91.1)	A (2.3)	F (130.0)	F (84.7)	E (67.9)	A (3.1)	E (63.8)
Overall Mary Ave/ Evelyn Ave Intersection Delay	F (230.3)	N/A	N/A	F (135.8)	F (167.8)	N/A	N/A	F (113.4)
Overall Mary Ave/ Jughandle Intersection Delay	N/A	F (99.5)	F (109.5)	N/A	N/A	C (34.4)	C (27.0)	N/A
Overall Evelyn Ave/ Jughandle Intersection Delay	N/A	D (39.5)	B (16.8)	N/A	N/A	E (65.5)	C (28.9)	N/A
Mary Avenue Half Signal	N/A	N/A	B (10.2)	N/A	N/A	N/A	B (14.5)	N/A

Note: Numbers in table reflect movement Level of Service (seconds of delay). The bolded text represents those movements that experience higher delays under the given Build scenario relative to the No-Build scenario.

Underpass with Jughandle Alternative

With the 2035 No-Build scenario, the Mary Avenue/Evelyn Avenue intersection operates at Level of Service (LOS) F in both peak periods. In the Build scenario, the Mary Avenue jughandle intersection operates at LOS F in the AM peak hour and LOS C in the PM peak hour and the Evelyn Avenue jughandle intersection operates at LOS D in the AM peak hour and LOS E in the PM peak hour.

Underpass with Jughandle and Connector Ramps Alternative

Under this alternative, the Mary Avenue jughandle intersection operates at LOS F in the AM peak hour and LOS C in the PM peak hour and the Evelyn Avenue jughandle intersection operates at LOS

B in the AM peak hour and LOS C in the PM peak hour. The westbound connector ramp half signal at Mary Avenue operates at LOS B in both peak hours.

Underpass Tunnel Alternative

Since no redistribution of traffic is proposed under this alternative, operations for other intersections along Mary Avenue do not change. With the 2035 No-Build Scenario, the Mary Avenue/Evelyn Avenue intersection operates at LOS F in both peak periods. With the Underpass Tunnel Alternative, the Mary Avenue/Evelyn Avenue intersection is no longer subject to gate closures as the railroad tracks would remain at-grade while all auto traffic is lowered. See **Table 1** for a comparison of overall intersection delay between No-Build and the Underpass Tunnel Alternative. While the Mary Avenue/Evelyn Avenue intersection would still operate at LOS F for the AM and PM peak hours with the depressed intersection, delay would be substantially reduced (50 seconds or greater) in both peak periods.

Vehicle Route Delay

Underpass with Jughandle Alternative

In the underpass with jughandle scenario, through vehicles traveling north and south on Mary Avenue will only experience delay at one intersection, similar to today. However, turning vehicles will need to pass through both jughandle intersections, thereby experiencing delay at two locations. Therefore, in order to compare delay in the No-Build condition with the Build, delay along the entire vehicle routing through the jughandle is recorded. See **Table 1** for a comparison of delay between movements through the jughandle and baseline movements at the Mary Avenue/Evelyn Avenue intersection. For example, the delay associated with the eastbound Evelyn Avenue to Northbound Mary Avenue movement in the No-Build scenario refers to the delay of the eastbound left movement at the No-Build at-grade Mary Avenue/Evelyn Avenue intersection, whereas in the Build scenario, the delay is the cumulative delay through both jughandle intersections (eastbound right at the Mary Avenue/Jughandle intersection and a westbound right at the Mary Avenue/Jughandle intersection).

As shown in the table, the delay for the majority of movements substantially decreases with the implementation of the jughandle. Based on movement delay and vehicular volume, the weighted average intersection delay is substantially lower in the underpass with jughandle scenario than in the No-Build, in both the AM and PM peak hour.

Underpass with Jughandle and Connector Ramps Alternative

In the underpass with jughandle and connector ramps scenario, through vehicles travelling south on Mary Avenue will only experience delay at the jughandle intersection. Vehicles travelling north will experience delay at two locations, one at the jughandle intersection and one north of Evelyn Avenue where a half signal is used to control traffic coming from the westbound connector ramp. Turning vehicles that need to pass through the jughandle will experience delays at both jughandle intersections. Vehicles travelling southbound on Mary Avenue and using the connector ramp to head westbound on Evelyn Avenue will experience only minimal delays associated with yielding to pedestrians and cyclists. Vehicles travelling westbound on Evelyn Avenue and using the connector ramp to head northbound on Mary Avenue will experience delay at the half signal only.

As shown in **Table 1**, nearly all movements in the AM and PM peak hours experience equal or less delays compared to the Underpass with Jughandle Alternative (without connector ramps). The only exceptions are on northbound and southbound Mary Avenue in the AM peak hour, where delay increases by up to three seconds. This additional delay is associated with the half signal (northbound direction) and nominal delay associated with queue delays for right-turning vehicles yielding to pedestrians.

Underpass Tunnel Alternative

As shown in **Table 1**, the delay for the nearly all movements decrease with the implementation of the Underpass Tunnel Alternative. The only movement with a sizeable increase in delay (> 15 seconds) is the eastbound Evelyn Avenue to southbound Mary Avenue movement. That movement receives a substantial amount of green time in the No-Build because it is not precluded by the train movement. Therefore, it would receive less green time relative to the No-Build alternative.

Vehicle Queuing

Underpass with Jughandle Alternative

Table 2 shows queue lengths by movement for the underpass with jughandle alternative for the 2035 Build scenario. The length of the proposed jughandle is approximately 400 feet.

Table 2: Average Queue Lengths at the Proposed Jughandle – 2035 No-Build and Build

Roadway ¹	Approach	Movement	Available Turn Pocket Storage Length		2035 AM Peak Hour		2035 PM Peak Hour	
			2035 No-Build Turn Pocket Storage (ft)	2035 Build Turn Pocket Storage (ft)	2035 No-Build ² Queue Length (ft)	2035 Build Queue Length (ft)	2035 No-Build ² Queue Length (ft)	2035 Build Queue Length (ft)
Mary Avenue Movements	Northbound	Left	125	-	-	-	25	25
		Through	-	-	1,350	1,050	75	75
		Right	-	200	-	750	-	25
	Southbound	Left	125	475	75	75	275	50
		Through	-	-	125	25	350	75
		Right	-	-	-	-	-	-
Evelyn Avenue Movements	Eastbound	Left	150	-	250	-	1,050	-
		Through	-	-	125	75	1,050	175
		Right	-	200	-	25	-	125
	Westbound	Left	125	150	1,650	300	1,700	775
		Through	-	-	1,725	300	1,700	775
		Right	-	-	-	-	-	-
Jughandle Movements	Westbound (at Mary Ave)	Left	N/A	370	N/A	125	N/A	225
		Through		370		-		-
		Right		370		125		225
	Northbound (at Evelyn Ave)	Left		370		75		50
		Through		-		-		-
		Right		370		100		75

¹ For the No-Build, queues reflect queues at the Mary Avenue/Evelyn Avenue intersection. For the Build, queues represent queues at the jughandle intersections with the noted streets

² Note that because the intersection location shifts from the No-Build to the Build, the queue length measurement does not start at the same point between the two scenarios.

Notes: Queue lengths in feet rounded to the nearest 25 feet. Movements shaded reflect queues that exceed the length of the storage pocket and would impede adjacent through movements and/or movements through upstream intersections. Storage lengths by definition cannot exceed distance to upstream intersection. Queue length only provided where dedicated lanes are provided. 2035 Build Queue Length Storage is based on current design assumptions.

As shown in the table, there would be minimal queue spillback within the jughandle roadway. However, the westbound left-turn movement from Evelyn Avenue to the jughandle would have an average queue length over 700 feet in the PM peak hour, exceeding any reasonable turn pocket length. Queue spillbacks and lane blockages would likely occur. In addition, the northbound right-turn movement from Mary Avenue to the jughandle would have an average queue length of 750 feet in the AM peak hour, exceeding any reasonable turn pocket length. For this movement, the long queue length is a produce of very long queues for the northbound through movement, limiting access to the right turn storage pocket. Therefore, no additional queue spillbacks and lane blockages would occur.

Underpass with Jughandle and Connector Ramps Alternative

Table 3 shows queue lengths by movement for the Underpass with Jughandle and Connector Ramps Alternative for the 2035 Build scenario. The length of the proposed jughandle is approximately 400 feet.

Table 3: Average Queue Lengths at the Proposed Jughandle – 2035 No-Build and Build

Roadway ¹	Approach	Movement	Available Turn Pocket Storage Length		2035 AM Peak Hour		2035 PM Peak Hour	
			2035 No-Build Turn Pocket Storage (ft)	2035 Build Turn Pocket Storage (ft)	2035 No-Build ² Queue Length (ft)	2035 Build Queue Length (ft)	2035 No-Build ² Queue Length (ft)	2035 Build Queue Length (ft)
Mary Avenue Movements	Northbound	Left	125	-	-	-	25	25
		Through	-	-	1,350	1,050	75	50
		Right	-	200	-	675	-	25
	Southbound	Left	125	475	75	25	275	25
		Through	-	-	125	25	350	50
		Right	-	-	-	-	-	-
Evelyn Avenue Movements	Eastbound	Left	150	-	250	-	1,050	-
		Through	-	-	125	25	1,050	150
		Right	-	200	-	25	-	25
	Westbound	Left	125	150	1,650	100	1,700	225
		Through	-	-	1,725	100	1,700	225
		Right	-	-	-	-	-	-
Jughandle Movements	Westbound (at Mary Ave)	Left	N/A	370	N/A	25	N/A	75
		Through		370		-		-
		Right		370		25		75
	Northbound (at Evelyn Ave)	Left		370		25		25
		Through		-		-		-
		Right		370		50		25

¹ For the No-Build, queues reflect queues at the Mary Avenue/Evelyn Avenue intersection. For the Build, queues represent queues at the jughandle intersections with the noted streets

² Note that because the intersection location shifts from the No-Build to the Build, the queue length measurement does not start at the same point between the two scenarios.

Notes: Queue lengths in feet rounded to the nearest 25 feet. Movements shaded reflect queues that exceed the length of the storage pocket and would impede adjacent through movements and/or movements through upstream intersections. Storage lengths by definition cannot exceed distance to upstream intersection. Queue length only provided where dedicated lanes are provided. 2035 Build Queue Length Storage is based on current design assumptions.

As shown in the table, there would be no queue spillback within the jughandle roadway during both the AM and PM peak hour. The northbound right-turn movement from Mary Avenue to the jughandle would have an average queue length of 675 feet in the AM peak hour, exceeding any reasonable turn pocket length. For this movement, the long queue length is a produce of very long queues for the

northbound through movement, limiting access to the right turn storage pocket. Therefore, no queue spillbacks and lane blockages would occur from this right-turn movement.

Underpass Tunnel Alternative

Table 4 shows queue lengths by movement for the depressed intersection for the 2035 Build scenario.

Table 4: Average Queue Lengths at the Proposed Underpass Tunnel Intersection – 2035 No-Build and Build

Approach	Movement	Available Turn Pocket Storage Length	2035 AM Peak Hour		2035 PM Peak Hour	
		2035 Turn Pocket Length Storage (ft)	2035 No-Build ² Queue Length (ft)	2035 Build Queue Length (ft)	2035 No-Build ² Queue Length (ft)	2035 Build Queue Length (ft)
Northbound	Left	125	1,350	1,250	25	25
	Through	-	1,350	1,250	75	200
	Right	-	-	-	-	-
Southbound	Left	125	75	75	275	100
	Through	-	125	75	350	250
	Right	-	-	-	-	-
Eastbound	Left	150	250	100	1,050	950
	Through	-	125	25	1,050	950
	Right	-	-	-	-	-
Westbound	Left	125	1,650	1,250	1,700	300
	Through	-	1,725	1,375	1,700	600
	Right	-	-	-	-	-

Notes: Queue lengths in feet rounded to the nearest 25 feet. Movements shaded reflect queues that exceed the length of the storage pocket and would impede adjacent through movements and/or movements through upstream intersections. Storage lengths by definition cannot exceed distance to upstream intersection. Queue length only provided where dedicated lanes are provided at the intersection of Sunnyvale Avenue and Evelyn Avenue.

As shown in the table, the queue lengths would be reduced for the majority of the movements under this alternative, although they would remain long.

Multimodal Considerations

Pedestrian

No-Build. In the No-Build scenario, there are no sidewalks on the north side of Evelyn Avenue fronting the rail tracks. Both sides of Mary Avenue have sidewalks. At the Mary Avenue/Evelyn Avenue intersection, pedestrians can cross the south, east, and west legs of the intersection. Pedestrians on Mary Avenue would continue to cross the rail tracks at-grade.

Underpass with Jughandle. The grade separation of Mary Avenue has substantial safety benefits for pedestrians as pedestrians would no longer be exposed to conflicts with trains. All conflicts between rail and pedestrians would be grade-separated.

Grade changes are introduced in the Build alternative with the depression of Mary Avenue. Pedestrians will experience up to a 3 percent grade as they travel along the jughandle and up to 2.5 percent along Mary Avenue. Currently, no pedestrian or bicycle facilities are provided on the north side of Evelyn Avenue adjacent to the Caltrain corridor. Provision of pedestrian facilities in that location are not a part of this project. However, the City is currently developing a plan to build a multi-use trail on the north side of Evelyn Avenue between Bernardo Avenue and Mathilda Place. Such an improvement would not be precluded by this alternative and no new conflicts would be introduced. Through pedestrian movements on the south side of Evelyn Avenue and on Mary Avenue would be maintained, with the only impact being the additional grade for pedestrians on Mary Avenue. However, due to the grade separation, most pedestrian movements originating on Mary Avenue and destined for Evelyn Avenue, and vice versa, would experience out-of-direction travel along the jughandle. Out-of-direction travel would be longest for pedestrians traveling between Mary Avenue north of the intersection and Evelyn Avenue west of the intersection amounting to an additional walk distance of approximately 650 feet. The intersection crossings would be similar to current conditions given the large number of turning lanes at each of the jughandle intersections.

Underpass with Jughandle and Connector Ramps. This alternative is expected to maintain the same pedestrian movements as the previous alternative, as no pedestrian facilities will be added to the connector ramps. As there are currently no pedestrian facilities on the north side of Evelyn Avenue, no new conflicts will be added on that roadway as a result of the connector ramps. If the City implements a multi-use trail on the north side of Evelyn Avenue in the future, it should be configured to remain at the same elevation as Evelyn Avenue alongside the Caltrain tracks to avoid a conflict with the connector ramp. The connector ramps will pose additional conflict points on Mary Avenue as pedestrians cross where the connector ramps meet Mary Avenue. The westbound to northbound connector ramp will be signalized at Mary Avenue, providing a protected crossing for pedestrians. The current concept does not have any traffic control at the southbound to westbound connector ramp, although it is a tight turn radius that will require vehicles to complete the turn at lower speed.

Underpass Tunnel. The grade separation of Mary Avenue has substantial safety benefits for pedestrians as pedestrians would no longer be exposed to conflicts with trains. All conflicts between rail and pedestrians would be grade-separated.

Grade changes are introduced in the Build alternative with the depression of Mary Avenue and Evelyn Ave. Pedestrians will experience up to 2.5 percent along Mary Avenue and Evelyn Avenue will be similarly depressed to connect with Mary Avenue. Similarly to the No-Build scenario, no sidewalks are provided on the north side of Evelyn Avenue under the Build scenario. The intersection crossings would be similar to current conditions.

Bicycle

No Build. In the No-Build scenario, Class II bike lanes are provided on both Mary Avenue and along eastbound Evelyn Avenue. Westbound Evelyn Avenue has sharrows through the Mary Avenue intersection in order to provide a second westbound through lane at the intersection. Bicyclists on Mary Avenue would continue to cross the tracks at-grade.

Underpass with Jughandle. The grade separation of Mary Avenue has substantial safety benefits for cyclists as they would no longer be exposed to conflicts with trains. In addition, the crossing of the rails themselves represents a hazardous condition, as bicycle tires can get stuck in the tracks, which would be removed with the project. With the jughandle, six-foot wide Class II bike lanes are currently planned along all roadways, including Mary Avenue, Evelyn Avenue, and the proposed jughandle, closing a current gap in the bicycle network along Evelyn Avenue. The City is in planning stages of a multi-use trail on the north side of Evelyn Avenue, which would be provided in lieu of dedicated bike lanes on both sides of Evelyn Avenue. This alternative would work well with such a plan, as no conflicts would occur along the multi-use trail in the vicinity of Mary Avenue.

Grade changes are introduced in the Build alternative with the depression of Mary Avenue. Cyclists will experience up to a 3 percent grade as they travel along the jughandle and up to 7 percent along Mary Avenue. Similar to pedestrians, cyclists would be routed through the jughandle to make any turning movements at the Mary Avenue/Evelyn Avenue intersection. With the provision of multiple vehicle turn lanes, two-stage turn boxes and demarcated bike stencils across intersections should be considered in future project phases at both intersections of the jughandle with Evelyn Avenue and Mary Avenue to provide a safe way for cyclists to make turning movements. This is particularly critical for the westbound left-turn bicycle movement from Evelyn Avenue to the jughandle, the westbound left-turn bicycle movement from the jughandle to Mary Avenue, the southbound left-turn bicycle movement from Mary Avenue to the jughandle, and the northbound left-turn bicycle movement from the jughandle to Evelyn Avenue. These treatments would avoid the need for a challenging auto-bicycle weave movement along the short length of the jughandle. Appropriate yield and caution signs should be installed at the intersections to make motorists aware of bicycles.

Underpass with Jughandle and Connector Ramps. The concepts included in this memo do not include any bicycle facilities on the connector ramps. The provision of exclusive bicycle lanes on the ramps should be evaluated in future project phases should this alternative advance. That would allow for convenient connections between bicycle facilities on Evelyn Avenue and Mary Avenue without having to navigate the jughandle intersections. The connector ramps add conflicts for bicyclists traveling through on both Mary Avenue and Evelyn Avenue. As currently shown in the concept, on Evelyn Avenue, vehicles accessing or merging from the connector ramps will be required to weave across the westbound bike lanes. With the City's plan for a multi-use trail on the north side of Evelyn Avenue, that conflict could be removed if the multi-use trail stays at the same elevation at Evelyn Avenue alongside the Caltrain tracks, avoiding the need to cross either connector ramp. On Mary Avenue, the connector ramps will add an additional conflict for through cyclists. The westbound to northbound connector ramp will be signalized at Mary Avenue, providing for a protected crossing for

Mary Avenue cyclists. The southbound to westbound connector ramp will not be signalized and thus would introduce a new uncontrolled conflict point for through cyclists.

Underpass Tunnel. The grade separation of Mary Avenue has substantial safety benefits for cyclists as they would no longer be exposed to conflicts with trains. In addition, the crossing of the rails themselves represents a hazardous condition, as bicycle tires can get stuck in the tracks, which would be removed with the project. With the provision of multiple vehicle turn lanes, two-stage turn boxes and demarcated bike stencils across intersections should be considered in future project phases to provide a safe way for cyclists to make turning movements. The Underpass Tunnel Alternative design allows for the City's planned multi-use trail on the north side of Evelyn Avenue.

Grade changes are introduced in the Build alternative with the depression of Mary Avenue and Evelyn Ave. Cyclists will experience up to 7 percent along Mary Avenue and Evelyn Avenue will be similarly sloped to connect with Mary Avenue. The grade changes can act as a deterrent for those unaccustomed to biking at steep slopes. In addition, a downhill slope of 7 percent can cause bicyclists to speed down towards the Mary Avenue/Evelyn Avenue intersection, which poses risks for potential bicycle-pedestrian or bicycle-vehicle conflicts, particularly if other negative variables, such as low visibility or bad weather, are present.

Transit

There are no transit routes on Mary Avenue or Evelyn Avenue; as such, there are no impacts to transit routing.

Corridor Travel Time

The VISSIM model was utilized to calculate the change in travel time on Mary Avenue between the 2035 No-Build and the two Build alternatives. Travel times were assessed for movements along Mary Avenue between Washington Avenue and California Avenue. This is summarized in **Table 5**.

Table 5: Mary Avenue - Corridor Travel Time

Segment	Dir	AM Peak Hour				PM Peak Hour			
		2035 No-Build	2035 Build (Jughandle)	2035 Build (Ramps)	2035 Build (Tunnel)	2035 No-Build	2035 Build (Jughandle)	2035 Build (Ramps)	2035 Build (Tunnel)
Washington to Evelyn	NB	562 sec.	331 sec.	332 sec.	336 sec.	149 sec.	118 sec.	116 sec.	115 sec.
California to Evelyn	SB	104	45	45	80	171	82	81	130

Note: Travel times in the peak direction of travel for each peak period are shaded

Mary Avenue is forecast to experience saturated conditions in the peak direction in each peak period in 2035 No-Build and Build scenarios. For southbound movements, Central Expressway and California Avenue both serve as meters on the amount of traffic that can approach Evelyn Avenue and the grade crossing. While Washington Avenue similarly meters northbound traffic, it has less conflicting east-west movement and therefore allows for higher throughput on Mary Avenue, and thus

a larger component of the northbound traffic demand than the southbound traffic demand reaches the Evelyn Avenue intersection and the grade crossing. As a result, northbound travel times and congestion is more readily apparent in the travel time results even though both directions have similar levels of underlying demand.

As shown in the table, travel times along Mary Avenue are substantially higher under the 2035 No-Build scenario than each of the build scenarios in the peak directions of travel in both peak periods. Travel time reductions in the northbound direction in the AM peak hour exceed three minutes with all alternatives and in the southbound direction in the PM peak hour exceed 40 seconds under the Underpass Tunnel Alternative and nearly 90 seconds with the two other build alternatives. The elimination of the at-grade crossing under all Build alternatives is observed to substantially reduce travel time.

Travel times are lowest under the Underpass with Jughandle and Underpass with Jughandle and Connector Ramp Alternatives, except for travel times in the northbound direction are slightly lower for the Underpass Tunnel Alternative during the PM peak hour. This is as expected, as the jughandle reduces the overall number of conflicts at the Mary Avenue/Jughandle intersection, relative to either the No-Build or Underpass Tunnel Alternative. The connector ramps and the additional northbound Mary Avenue half-signal have negligible effect on travel times on Mary Avenue.

SUNNYVALE AVENUE

Volume Distribution and Assignment

Attachment D depicts the redistribution of 2035 volumes with the Sunnyvale Avenue Underpass Tunnel Alternative. As shown, turning movements at the Sunnyvale Avenue/Evelyn Avenue intersection are redistributed to streets including Fair Oaks Avenue, Mathilda Avenue, and Washington Avenue. Through movements on Sunnyvale Avenue are maintained. Turning movements at the Sunnyvale Avenue/Hendy Avenue intersection are primarily redistributed to Fair Oaks Avenue via the Fair Oaks Avenue/Kifer Road intersection.

Attachment E shows the redistribution of 2035 volumes with the Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternative. Volumes along Sunnyvale Avenue at the grade-crossing are redistributed to Mathilda Avenue and Fair Oaks Avenue.

Intersection Operations Results

Attachment F summarizes the No-Build and Build intersection operation results for all study intersections. The following highlights the intersections that degrade to a deficient LOS and those that are already deficient by four or more seconds in delay, per VTA traffic analysis standards.

- Sunnyvale Underpass Tunnel and Bicycle/Pedestrian Undercrossing Alternatives
 - No-Build scenario deficient, Build scenario increases delay
 - Sunnyvale Avenue/Washington Avenue (AM Peak Hour)
 - Fair Oaks Avenue/Kifer Road (PM Peak Hour)
 - Fair Oaks Avenue/Evelyn Avenue (AM and PM Peak Hours)

- Sunnyvale Avenue Underpass Tunnel Alternative
 - Build scenario renders intersection deficient
 - Sunnyvale Avenue/California Avenue (AM Peak Hour)
 - No-Build scenario deficient, Build scenario increases delay
 - Sunnyvale Ave/California Avenue (PM Peak Hour)
 - Sunnyvale Avenue/Washington Avenue (PM Peak Hour)
 - Washington Avenue/Frances Street (PM Peak Hour)
- Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternatives
 - Build scenario renders intersection deficient
 - Fair Oaks Avenue/California Avenue (AM Peak Hour)
 - Fair Oaks Avenue/Kifer Rd (AM Peak Hour)
 - No-Build scenario deficient, Build scenario increases delay
 - Sunnyvale Avenue/Evelyn Avenue (AM Peak hour)
 - Fair Oaks Avenue/California Avenue (PM Peak Hour)

Both grade separation alternatives typically result in delay reductions at two intersections adjacent to the grade-crossing: Sunnyvale Avenue/Hendy Avenue and Sunnyvale Avenue/Evelyn Avenue. The lone exception is at Sunnyvale Avenue/Evelyn Avenue in the AM Peak Hour with the Bicycle/Pedestrian Undercrossing Alternative due to an increase in turning movements from Sunnyvale Avenue to Evelyn Avenue. The intersection operations analysis found that both Sunnyvale Avenue alternatives increase traffic volumes and congestion primarily at study intersections along Fair Oaks Avenue and Sunnyvale Avenue. Intersection operations on Mathilda Avenue generally are shown to improve, particularly in the AM Peak Hour, as a result of the removal of forecast backups along Evelyn Avenue caused by very high left turn volumes from Evelyn Avenue to Sunnyvale Avenue.

Corridor Travel Time

The Synchro model was used to calculate corridor travel times along the three north-south corridors in the study area: Mathilda Avenue, Sunnyvale Avenue, and Fair Oaks Avenue.

Table 6 shows travel times in each direction along each of the major north-south roadways within the project limits in the model (Mathilda Avenue, Sunnyvale Avenue, and Fair Oaks Avenue) for each scenario.

Table 6: Sunnyvale Avenue - Corridor Travel Time

Corridor	Segment	Direction	AM Peak Hour			PM Peak Hour		
			2035 No-Build	2035 Build (Tunnel)	2035 Build (Bicycle/Ped UC)	2035 No-Build	2035 Build (Tunnel)	2035 Build (Bicycle/Ped UC)
Mathilda	Indio to Washington	SB	181 sec.	178 sec.	174 sec.	565 sec.	582 sec.	622 sec.
	McKinley to California	NB	367	374	389	161	162	175
Fair Oaks	Arques to Evelyn	SB	160	126	291	466	428	660
	McKinley to California	NB	389	431	624	213	329	362
Sunnyvale	Arques to McKinley	SB	325	186	-	775	409	-
	McKinley to Arques	NB	306	88	-	335	121	-

Note: Travel times in the peak direction of travel for each peak period are shaded

The following section provides a brief summary and explanation of these results.

- AM Travel Time Results
 - The shift of traffic from Sunnyvale Avenue to Mathilda Avenue and Fair Oaks Avenue results in increased delays for the two parallel roadways. Along Mathilda Avenue and Fair Oaks Avenue, travel times are generally highest under the Bicycle/Pedestrian Undercrossing Alternative because the volume shift to Mathilda and Fair Oaks Avenue is less with the Underpass Tunnel than the Bicycle/Pedestrian Undercrossing option. The finding from the VISSIM model of improved operations along Mathilda Avenue with the Build alternatives is not evident in the Synchro travel time results as Synchro does not consider downstream queue spillbacks when determining delay.
 - Along Sunnyvale Avenue, travel times are substantially lower under the Underpass Tunnel Alternative than the No-Build. The elimination of the at-grade crossing results in substantial reductions in travel time. No similar measurement of travel time along Sunnyvale Avenue is possible with the Bicycle/Pedestrian Undercrossing Alternative since the roadway would be closed for vehicles at the tracks.
- PM Travel Time results
 - The shift of traffic from Sunnyvale Avenue to Mathilda Avenue and Fair Oaks Avenue results in increased delays for the two parallel roadways. Along Mathilda Avenue and Fair Oaks Avenue, travel times are highest under the Bicycle/Pedestrian Undercrossing Alternative because the volume shift to Mathilda and Fair Oaks Avenue is much less with the Underpass Tunnel than the Bicycle/Pedestrian Undercrossing Alternative.

- Along Sunnyvale Avenue, a substantial drop in travel times is observed in the Underpass Tunnel Alternative in the northbound direction. The elimination of the at-grade crossing results in substantial reductions in travel time. No similar measurement of travel time along Sunnyvale Avenue is possible with the Bicycle/Pedestrian Undercrossing Alternative since the roadway would be closed at the tracks.

Network Performance

The VISSIM model allows for analysis of overall network performance under each of the alternatives. While alternatives may affect individual movements in different and often complex ways, a comparison of network performance accounts for how the overall change in geometrics and volumes affects network level congestion and throughput. Two network-wide metrics were analyzed: average vehicular delay for the entire vehicular path through the network and unserved demand, which reflects the traffic volume that was stuck in congestion and not able to traverse through the network.

Table 7: Sunnyvale Avenue – Network Performance Metrics

Performance Metrics	AM Peak Hour			PM Peak Hour		
	2035 No-Build	2035 Build (Tunnel)	2035 Build (Bicycle/Ped UC)	2035 No-Build	2035 Build (Tunnel)	2035 Build (Bicycle/Ped UC)
Average Vehicle Delay (sec.)	252	163	184	259	238	240
Unserved Demand	22%	19%	22%	31%	37%	39%

As shown in **Table 7**, both Build alternatives result in a measurable reduction in average vehicle delay in both peak periods of at least seven percent. The Sunnyvale Underpass Tunnel Alternative results in a slightly greater delay reduction than the Bicycle/Pedestrian Undercrossing Alternative, particularly in the AM Peak Hour. The unserved demand calculation finds that the amount of traffic stuck in congestion through the peak hour is pretty similar between the No-Build and the Build in the AM Peak Hour but is somewhat higher with both Build Alternatives in the PM Peak Hour. This is likely associated with increased traffic on already over-saturated corridors.

Multimodal Considerations

The proposed alternatives at Sunnyvale Avenue have the following considerations for multimodal operations:

Pedestrian

No-Build. Sidewalks are present on both sides of all approaches at both the Sunnyvale Avenue/Evelyn Avenue and Sunnyvale Avenue/Hendy Avenue intersections, except on the south

side of Hendy Avenue. Due to the adjacency of the railroad tracks, no crosswalk is present on the south leg of the Sunnyvale Avenue/Hendy Avenue intersection.

Underpass Tunnel Alternative. The grade separation of Sunnyvale Avenue has substantial safety benefits for pedestrians since they would no longer be exposed to conflicts with trains.

Grade changes are introduced in the Build alternative with the depression of the pedestrian walkway along Sunnyvale Avenue. In the Build scenario, an 8-foot pedestrian walkway with 10 feet of vertical clearance is provided on the west side of the proposed tunnel on Sunnyvale Avenue. The pedestrian walkway is separated and elevated above the bicycles and vehicles by a column wall and can be accessed through pedestrian ramps. The pedestrian ramps are located on northwest corner of the Sunnyvale Avenue/Evelyn Avenue intersection and the southwest corner of the Sunnyvale Avenue/Hendy Avenue intersection. The location of the access ramps causes out-of-direction travel for pedestrians that do not originate west of Sunnyvale Avenue on both Evelyn Avenue and Hendy Avenue. The switchback ramps will also lengthen the pedestrian path of travel for users of the undercrossing. Pedestrians on Evelyn Avenue will have reduced vehicle conflicts, as pedestrians on the north sidewalk of Evelyn Avenue will not have to cross Sunnyvale Avenue, and pedestrians on the south sidewalk would only have to cross a cul-de-sac with little traffic. It is recommended to provide a new sidewalk on the south side of Hendy Avenue, between Sunnyvale Avenue and the north entrance to Caltrain Station at North Frances Street, to connect the Caltrain Station to the at-grade Sunnyvale Avenue/Hendy Avenue intersection.

Bicycle/Pedestrian Undercrossing Alternative. Similar to the Underpass Tunnel alternative, a pedestrian undercrossing will be constructed to remove the conflict between pedestrians and trains, which would provide substantial safety benefits. A sidewalk would be constructed on the south side of Hendy Avenue, which is recommended to connect to the Sunnyvale Caltrain Station. Pedestrians will continue to have access along Sunnyvale Avenue between Evelyn Avenue and Hendy Avenue via the proposed pedestrian/bike undercrossing. Access to the undercrossing would be along a pathway with a maximum slope of 5 percent from both Evelyn Avenue and Hendy Avenue. Access from Hendy Avenue would be from a switchback ramp or stairs at the Sunnyvale Avenue/Hendy Avenue intersection. Access from Evelyn Avenue would be via a curved ramp or stairs at the Sunnyvale Avenue/Evelyn Avenue intersection. Pedestrians at both Sunnyvale Avenue/Evelyn Avenue and Sunnyvale Avenue/Hendy Avenue intersections would experience fewer conflicts with vehicles since one leg would be closed at each intersection and much of the traffic would be detoured to other routes.

Bicycle

No-Build. In the No-Build, Sunnyvale Avenue has a Class II bike facility south of Evelyn Avenue and a Class III bike facility north of Evelyn Avenue. A project was recently approved to add Class II buffered bike lanes on Sunnyvale Avenue between just north of Hendy Avenue and Maude Avenue. Evelyn Avenue has Class II bike lanes in each direction on both sides of Sunnyvale Avenue and Hendy Avenue has Class II bike lanes east of Sunnyvale Avenue only.

Underpass Tunnel Alternative. The tunnel crossing for bicyclists on Sunnyvale Avenue would remove conflicts with the train which is a major safety improvement. In addition, cyclists would no longer be exposed to the physical hazard of crossing the rails. The Sunnyvale Avenue tunnel would include 6-foot Class II bike lanes. A 6-foot Class II bike lane would also be provided on Hendy Avenue west of Sunnyvale Avenue in the westbound direction only. Sufficient space is not available for a Class II bike lane in the eastbound direction on Hendy Avenue due to the placement of the pedestrian ramps. Therefore, a Class III bike route would be designated for eastbound Hendy Avenue. Northbound cyclists on Sunnyvale Avenue accessing Hendy Avenue would need to use the 8-foot sidewalk on the west side of the tunnel similar to pedestrians and use the provided switchback ramp. The narrow nature of the pedestrian area and the ramps could create a conflict between cyclists and pedestrians.

Cyclists on Evelyn Avenue destined northbound on Sunnyvale Avenue would need to use the pedestrian ramps on the northwest side of the Sunnyvale Avenue/Evelyn Avenue intersection and travel along the pedestrian route through the tunnel. Similarly, cyclists traveling on Hendy Avenue destined southbound along Sunnyvale Avenue would need to use the pedestrian ramps on the southwest corner of the Sunnyvale Avenue/Hendy Avenue intersection. On the west side of the tunnel, a multi-use facility would serve cyclists traveling southbound on Sunnyvale Avenue and on the east side of the tunnel, a dedicated bicycle facility would serve cyclists traveling northbound on Sunnyvale Avenue. Through the tunnel, cyclists would experience up to 6.5 percent grades (within the tunnel grades would be limited to 3 percent, but grades on the roadway approach would be greater). The proposed multi-use path on the west side of the tunnel would be 14 feet wide and the bicycle-only facility on the east side would be 6 feet wide. Both facilities would be placed at an elevation above vehicles for vertical separation. Cyclists could alternatively elect to share the lane with auto and use the tunnel roadway. A detailed wayfinding plan for cyclists should be implemented to ensure cyclists know which facility to use depending on their final destination.

Bicycle/Pedestrian Undercrossing Alternative. The proposed undercrossing will remove conflicts between cyclists and trains thereby substantially improving safety. In addition, cyclists would no longer be exposed to the physical hazard of crossing the rails. In the Bicycle/Pedestrian Undercrossing Alternative, Evelyn Avenue would continue to have a Class II bike facility. Cyclists traveling northbound or southbound on Sunnyvale Avenue would have continued access through the proposed pedestrian/bike path and undercrossing. North of Hendy Avenue, a Class II bike facility will be provided that will connect to the buffered Class II bike lanes on Sunnyvale Avenue recently approved by the City. A 6-foot bike lane would also be developed in both directions on Hendy Avenue west of Sunnyvale Avenue, although the limits of that improvement are not yet defined.

Transit.

No-Build. VTA Route 55 operates across the Caltrain alignment along Sunnyvale Avenue. It departs the Sunnyvale Caltrain Station on Evelyn Avenue and then turns onto Sunnyvale Avenue. It currently operates on 16-minute frequencies during peak service periods. It is planned to continue operating along this route with the VTA Next Network Plan, but at 30-minute all-day frequency.

Underpass Tunnel Alternative. Route 55 would need to be re-routed since it would no longer be able to make turns at the Sunnyvale Avenue/Evelyn Avenue intersection. The bus route would need to be rerouted to the Caltrain Station via Washington Avenue instead of Evelyn Avenue. No other bus routes included in the Next Network plan would be affected by the Underpass Tunnel Alternative.

Bicycle/Pedestrian Undercrossing Alternative. Route 55 would need to be re-routed with the vehicular closure of Sunnyvale Avenue. The route would need to be shifted to Mathilda Avenue or Fair Oaks Avenue; thereby requiring a longer route to access the Sunnyvale Station and no longer serving Sunnyvale Avenue between California Avenue and Evelyn Avenue. As both Mathilda Avenue and Fair Oaks Avenue are more congested roadways, travel time on Route 55 may increase as well. No other bus routes included in the Next Network plan would be affected by the vehicular closure of Sunnyvale Avenue.

Summary

Both the Bicycle/Pedestrian Undercrossing and Underpass Tunnel Alternatives will provide substantial safety improvements to pedestrians as pedestrian-train conflicts will be removed. The path of travel for pedestrians traveling on Sunnyvale Avenue is slightly longer in the Underpass Tunnel Alternative due to the switchback ramping on both sides of the rail tracks that is lessened on the Evelyn Avenue side in the Bicycle/Pedestrian Undercrossing Alternative. Cyclists in both alternatives will also benefit from having grade separated crossings from the rail tracks. The Underpass Tunnel Alternative will require cyclists to use pedestrian ramps based on their destinations whereas they will have access to both Hendy and Evelyn Avenue via the pedestrian/bike path in the Bicycle/Pedestrian Undercrossing Alternative. Both alternatives will impact VTA transit Route 55 and require it to be rerouted to continue serving the Sunnyvale Station; however, the detour associated with the Bicycle/Pedestrian Undercrossing Alternative is longer.

SUMMARY AND FINDINGS

This section provides findings based on the analysis summarized herein for all of the grade separation alternatives considered.

Mary Avenue

Three alternatives were evaluated for the grade separation at Mary Avenue.

The Underpass Tunnel Alternative proposed depressing both Mary Avenue and Evelyn Avenue beneath the tracks, replicating the existing intersection at a lower grade, eliminating the rail conflict.

The Underpass Tunnel with Jughandle Alternative proposes the depression of Mary Avenue under Evelyn Avenue and the railroad tracks, eliminating the rail conflict and existing connection with Evelyn Avenue. To accommodate existing turning movements at the Mary Avenue/Evelyn Avenue intersection, a jughandle is proposed on the southeast side of the existing intersection. The initially-proposed four-lane jughandle was not sufficient to handle projected traffic volumes. Therefore, a modified 5-lane jughandle was analyzed and documented in this report.

The Underpass Tunnel with Jughandle and Connector Ramps Alternative proposes the depression of Mary Avenue under Evelyn Avenue and the railroad tracks, a jughandle on the southeast side of the existing intersection, and connector ramps for the westbound to northbound and southbound to westbound movements between Mary Avenue and Evelyn Avenue. The rail conflict is still eliminated, as is the connection with eastbound Evelyn Avenue.

Mary Avenue is heavily saturated with traffic in the No-Build scenario. While the three Build alternatives eliminate the rail crossing conflict, as they are focused on the Mary Avenue/Evelyn Avenue intersection, they do not address overall capacity constraints on the corridor. Therefore, while the Build alternatives substantially reduce delay for most movements through the Mary Avenue/Evelyn Avenue area, movements with deficient levels of delay still persist.

The analysis finds that all three Build alternatives provide substantial delay and queuing benefits to traffic movements on Evelyn Avenue and Mary Avenue relative to No-Build conditions. By distributing vehicle conflicts amongst two intersections and providing direct ramps for two movements, the Underpass Tunnel with Jughandle and Connector Ramps Alternative achieves the greatest reduction in the amount of delay along both the Mary Avenue and Evelyn Avenue corridors, improving overall traffic flow and reducing travel time on both streets relative to the No-Build and the Underpass Tunnel Alternative. The Underpass Tunnel with Jughandle and Connector Ramps Alternative provides the greatest delay reduction for most intersection movements. All of the Build alternatives provide substantial queuing benefits relative to the No-Build, with the Underpass Tunnel with Jughandle and Connector Ramps Alternative achieving the greatest queue length reductions for most movements.

All grade-separation alternatives of the Mary Avenue at-grade crossing substantially improve safety for pedestrians and bicyclists by eliminating conflicts with trains and the tripping/falling hazard of crossing the rail tracks themselves. With the two Underpass Tunnel with Jughandle Alternatives, most pedestrians and bicyclists through the intersection would experience some out-of-direction travel and would be required to ascend/descend moderate grades. Most pedestrian and bicycle movements would see shorter crossings. With the Underpass with Jughandle and Connector Ramps Alternative, the number of conflict points would increase for several bicycle and pedestrian movements. Most notably would be the additional conflicts across the westbound bicycle lane on Evelyn Avenue for vehicles accessing and merging from the connector ramps. However, that additional conflict would be eliminated if the City's current planning efforts for a multi-use path along the north side of Evelyn Avenue comes to fruition. In addition, with the Underpass Tunnel with Jughandle and Connector Ramps Alternative, one new uncontrolled vehicle conflict with bicycles and pedestrian arises where the southbound to westbound connector ramp is accessed from Mary Avenue. With the Underpass Tunnel Alternative, all pedestrians and bicyclists would have to ascend/descend moderate grades but would not be subject to out-of-direction travel. There would be no reduction in the number of conflicts or the length of crossings in the Underpass Tunnel Alternative relative to the No-Build.

A modified configuration of the Mary Avenue Underpass Tunnel with Jughandle and Connector Ramps Alternative was developed that leverages the additional connector ramps to reduce turn lane and roadway geometrics for movements that would see reduced traffic volumes as a result of the connector ramps. That configuration is shown in Attachment G. Modifications include: converting the

jughandle northbound shared left/right-turn lane to a right-turn only lane, allowing for a reduction of westbound Evelyn Avenue from two lanes to one lane over Mary Avenue; reducing the southbound left-turn from Mary Avenue to the jughandle from two lanes to one; and reducing the overall width of the jughandle from five lanes to four. This geometry was not modeled for the traffic analysis and no quantitative information is available on how it would perform. Qualitatively, it is expected that this alternative will still provide significant benefits to the No-Build condition, in a manner similar to the Underpass Tunnel with Jughandle and Connector Ramps Alternative described in more detail in this document. Should the reduced right-of-way impacts of this modified alternative warrant further consideration of the Underpass Tunnel with Jughandle and Connector Ramps Alternative, then it is recommended to model this reduced geometry option.

Sunnyvale Avenue

Two alternatives were evaluated for the grade separation at Sunnyvale Avenue. Due to the preservation of through movements on Sunnyvale Avenue with the Underpass Tunnel Alternative, it requires less detour traffic to Mathilda Avenue and Fair Oaks Avenue and thus performs generally better than the Bicycle/Pedestrian Undercrossing Alternative in terms of vehicular corridor travel time on study area roadways and overall network delay. The Underpass Tunnel Alternative results in a large decrease in corridor travel time on Sunnyvale Avenue relative to No-Build.

The Underpass Tunnel Alternative results in less vehicular detour and thus relatively better performance along Mathilda Avenue and Fair Oaks Avenue than the Bicycle/Pedestrian Undercrossing Alternatives but does increase turning activity at a number of intersections in the immediate vicinity of the grade crossing, resulting in a number of intersections experiencing increased delay. However, of the two Build alternatives, the Bicycle/Pedestrian Undercrossing Alternative detours a greater volume of vehicles to Mathilda Avenue and Fair Oaks Avenue, resulting in less delay at the intersections immediately around the existing grade crossing, but three intersections along Fair Oaks Avenue become deficient or are already deficient and experience greater delay. In addition, the peak direction travel time along those detour roadways more substantially increases with the Bicycle/Pedestrian Undercrossing Alternative. Considered together, the metrics indicate that the congestion effects associated with the Bicycle/Pedestrian Undercrossing Alternative are moderately greater than with the Underpass Tunnel Alternative.

Both alternatives provide accommodations for pedestrians and bicyclists, although the Bicycle/Pedestrian Undercrossing Alternative provides a much higher-quality facility across the rail tracks since it would be a dedicated bicycle/pedestrian undercrossing. It also results in less out-of-direction travel for both cyclists and pedestrians by allowing for more direct ramping. However, the Bicycle/Pedestrian Undercrossing Alternative would require a much longer detour for VTA Route 55 than the Underpass Tunnel Alternative due to the vehicular closure of Sunnyvale Avenue. Therefore, while the Underpass Tunnel Alternative is generally superior from a traffic circulation and transit routing standpoint, it does have trade-offs for cyclists and pedestrians.

Attachments:

Attachment A: Mary Avenue Grade Separation 2035 No-Build Intersection Volumes

Attachment B: Mary Avenue Underpass Tunnel with Jughandle Alternative and Mary Avenue Underpass Tunnel with Jughandle and Connector Ramps Alternative 2035 Build Intersection Volumes

Attachment C: Sunnyvale Avenue Grade Separation 2035 No-Build Intersection Volumes

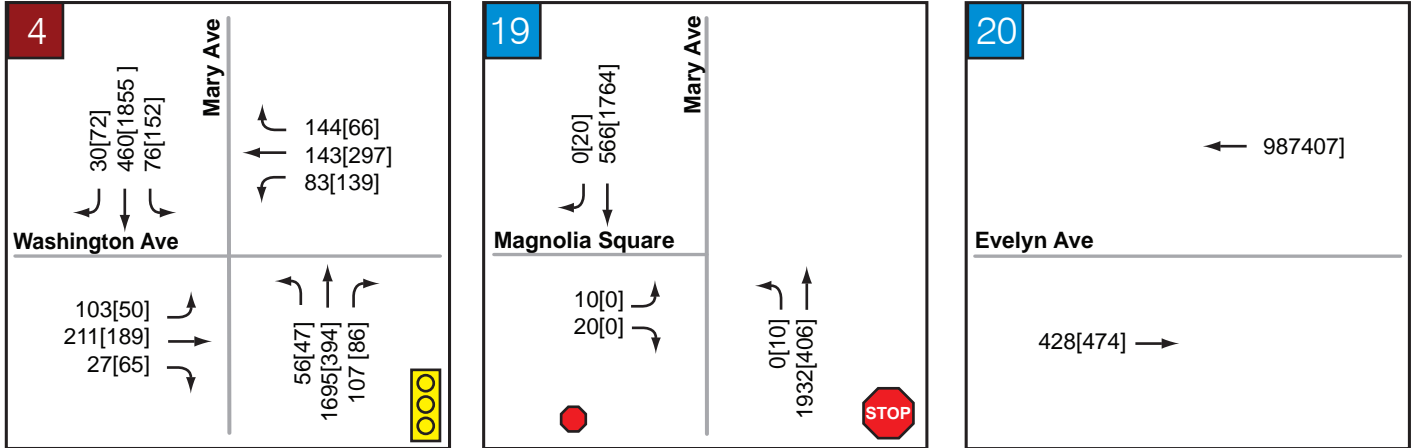
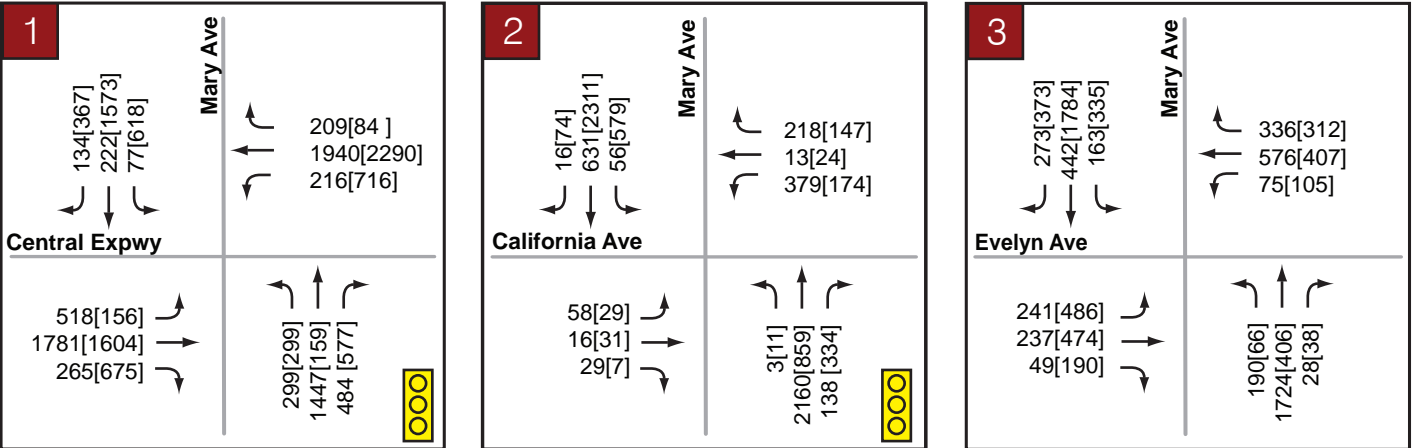
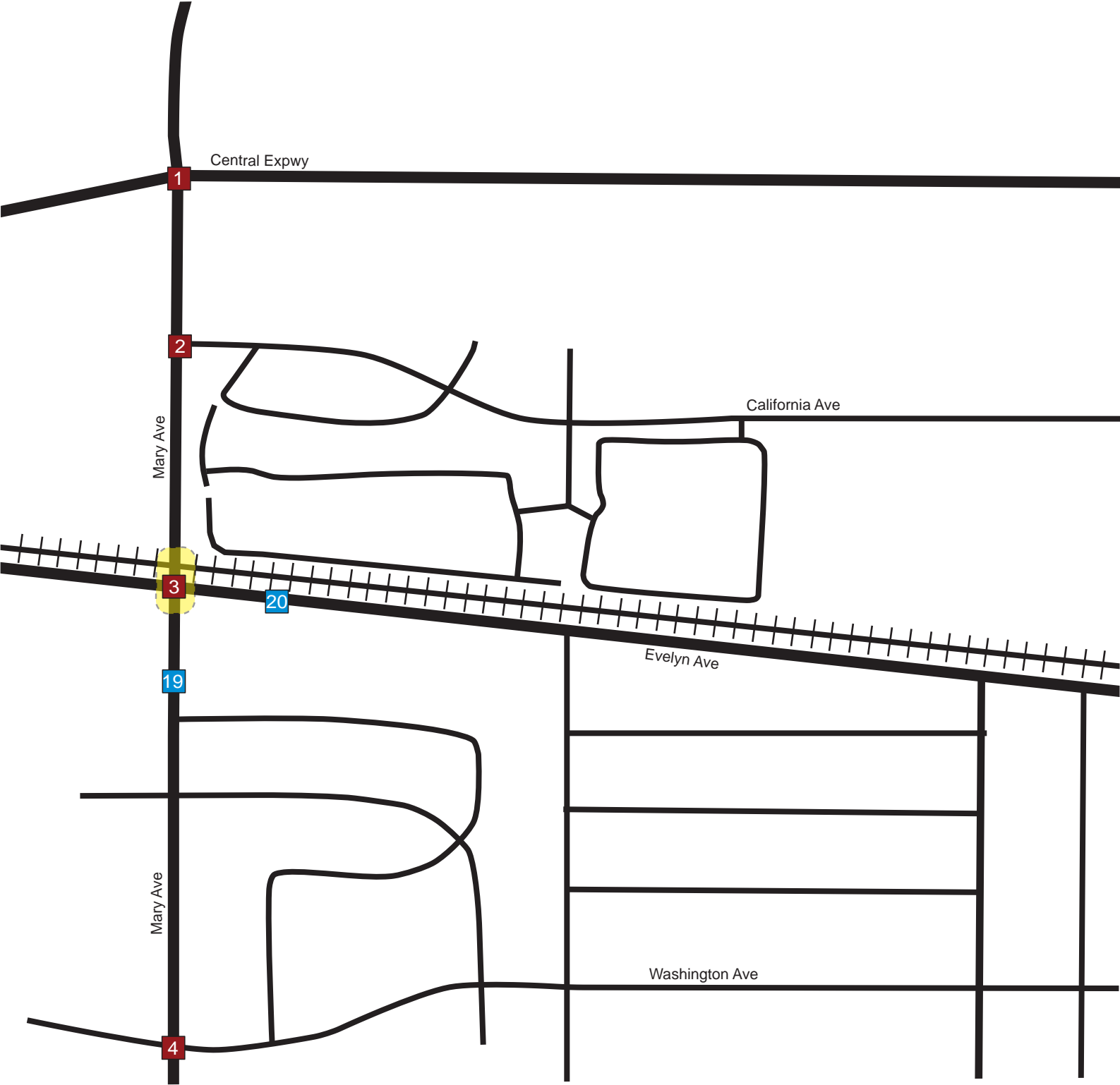
Attachment D: Sunnyvale Avenue Underpass Tunnel Alternative Change in Volumes and Build Intersection Volumes

Attachment E: Sunnyvale Avenue Bicycle/Pedestrian Undercrossing Alternative Change in Volumes and Build Intersection Volumes

Attachment F: Sunnyvale Avenue 2035 No-Build and Build Intersection Operations Results

Attachment G: Modified Mary Avenue Underpass Tunnel with Jughandle and Connector Ramps – Reduced Geometry Option

Sunnyvale Caltrain Grade Separations Feasibility Study



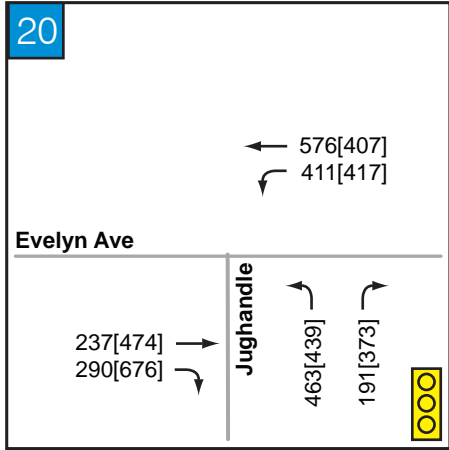
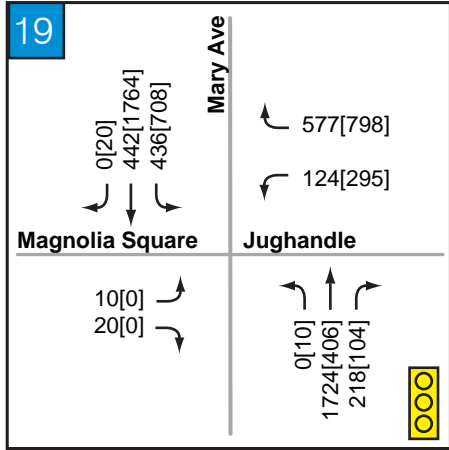
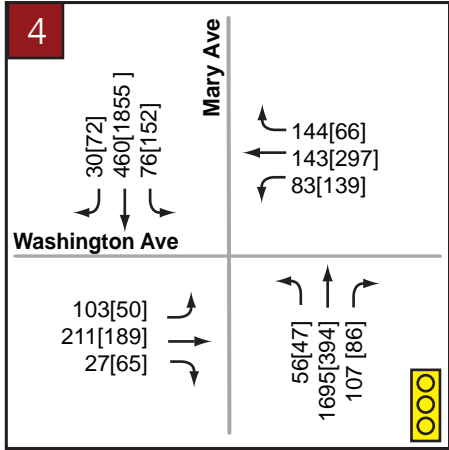
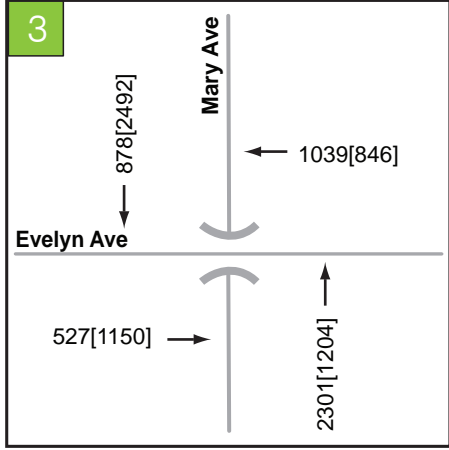
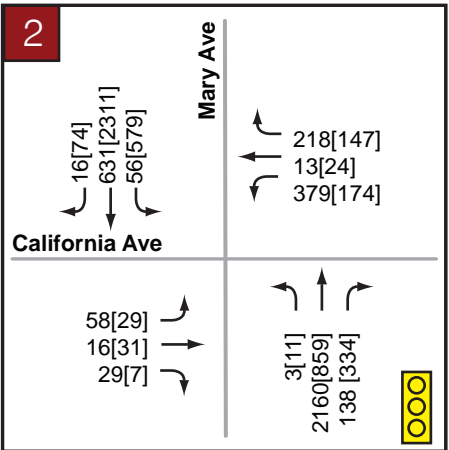
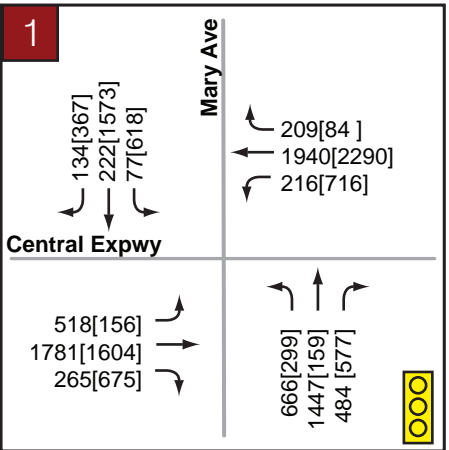
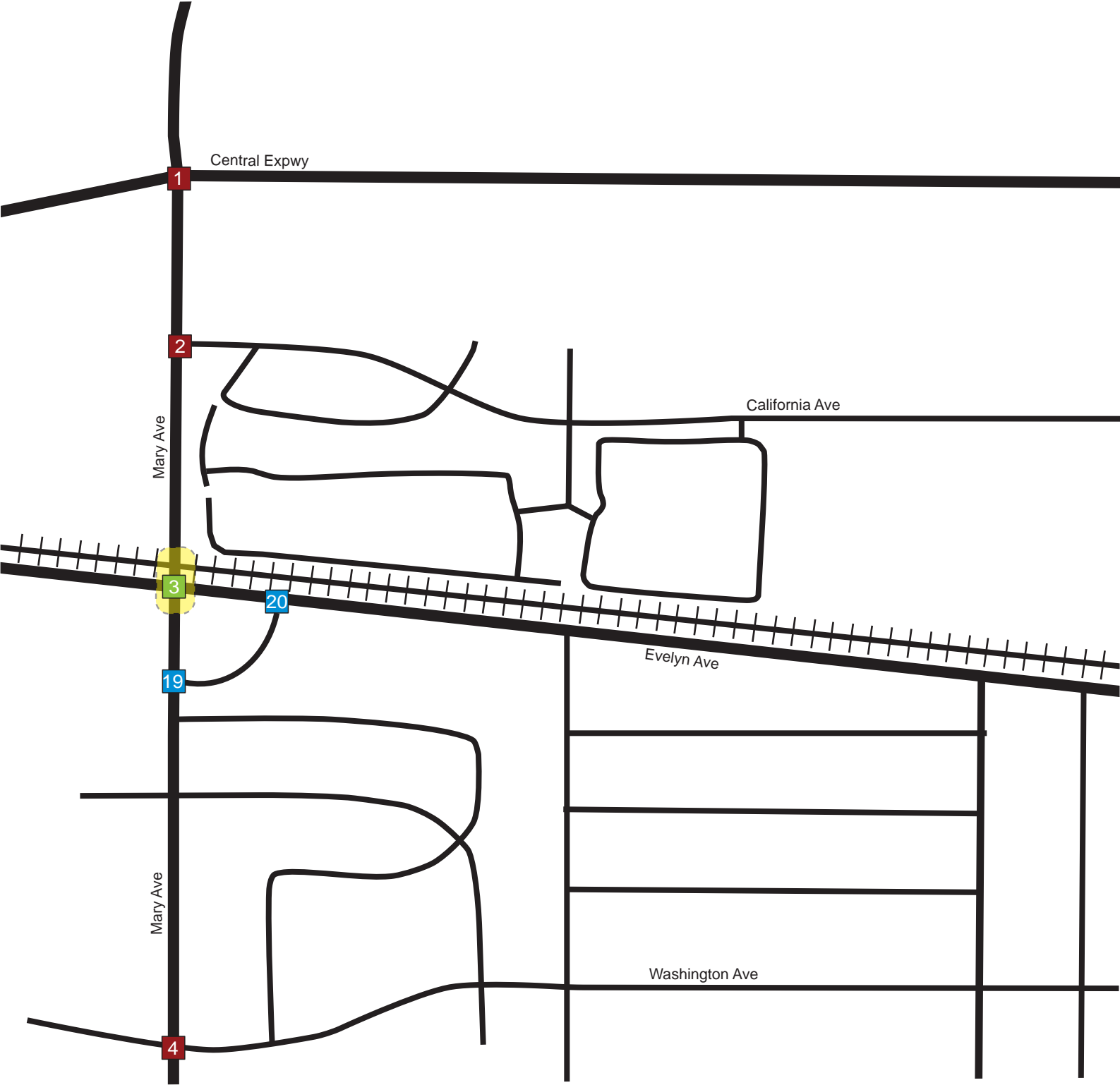
LEGEND

- # Study Intersection
- # Added Study Intersection
- xx[zz] AM[PM] Volume Redistribution
- STOP Stop Controlled Intersection
- Signalized Intersection
- Existing At-Grade Rail Crossing
- ++ Rail Alignment



Volumes into and out of Magnolia Square are estimated.

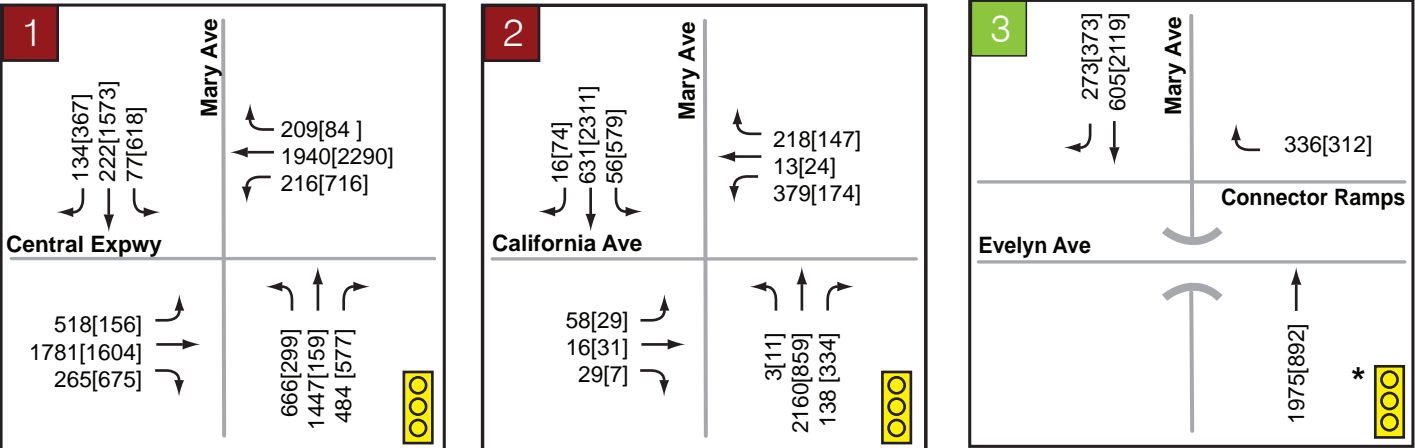
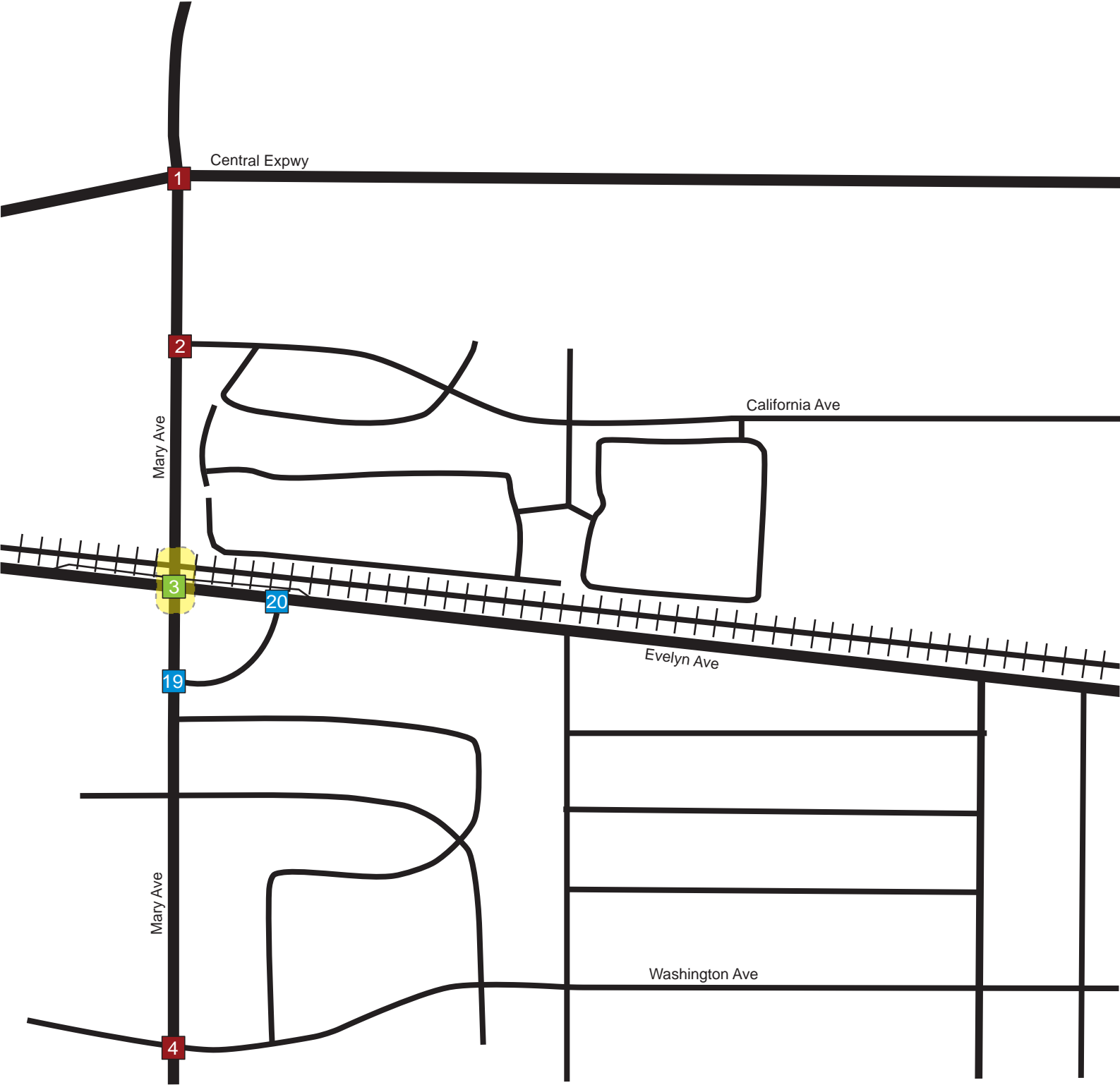
Sunnyvale Caltrain Grade Separations Feasibility Study



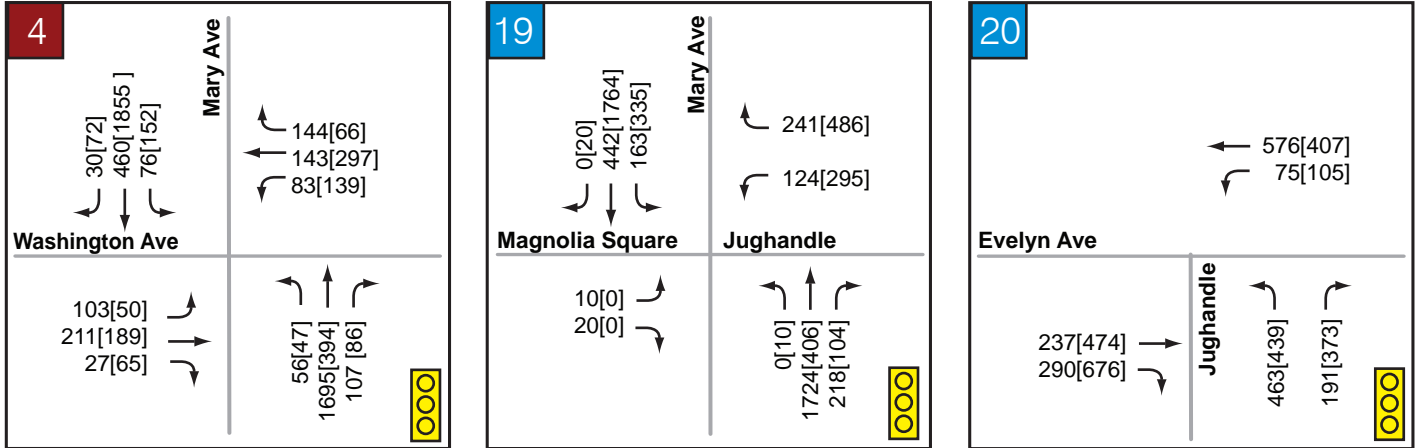
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- # Study Intersection
- # Added Study Intersection
- # Modified Study Intersection
- xx[zz] AM[PM] Volume Redistribution
- Signalized Intersection
- Existing At-Grade Rail Crossing
- Rail Alignment

Sunnyvale Caltrain Grade Separations Feasibility Study

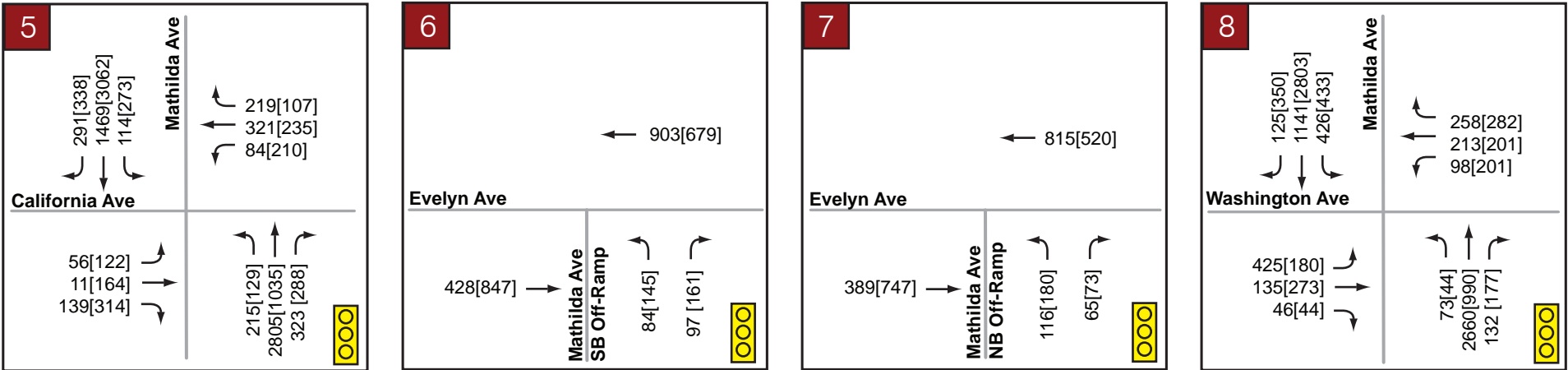


* Only NB Mary Ave and WB Connector Ramp movements are signalized



LEGEND

- # Study Intersection
- # Added Study Intersection
- # Modified Study Intersection
- xx[zz] AM[PM] Volume Redistribution
- Signalized Intersection
- Existing At-Grade Rail Crossing
- Rail Alignment



LEGEND

#

Study Intersection

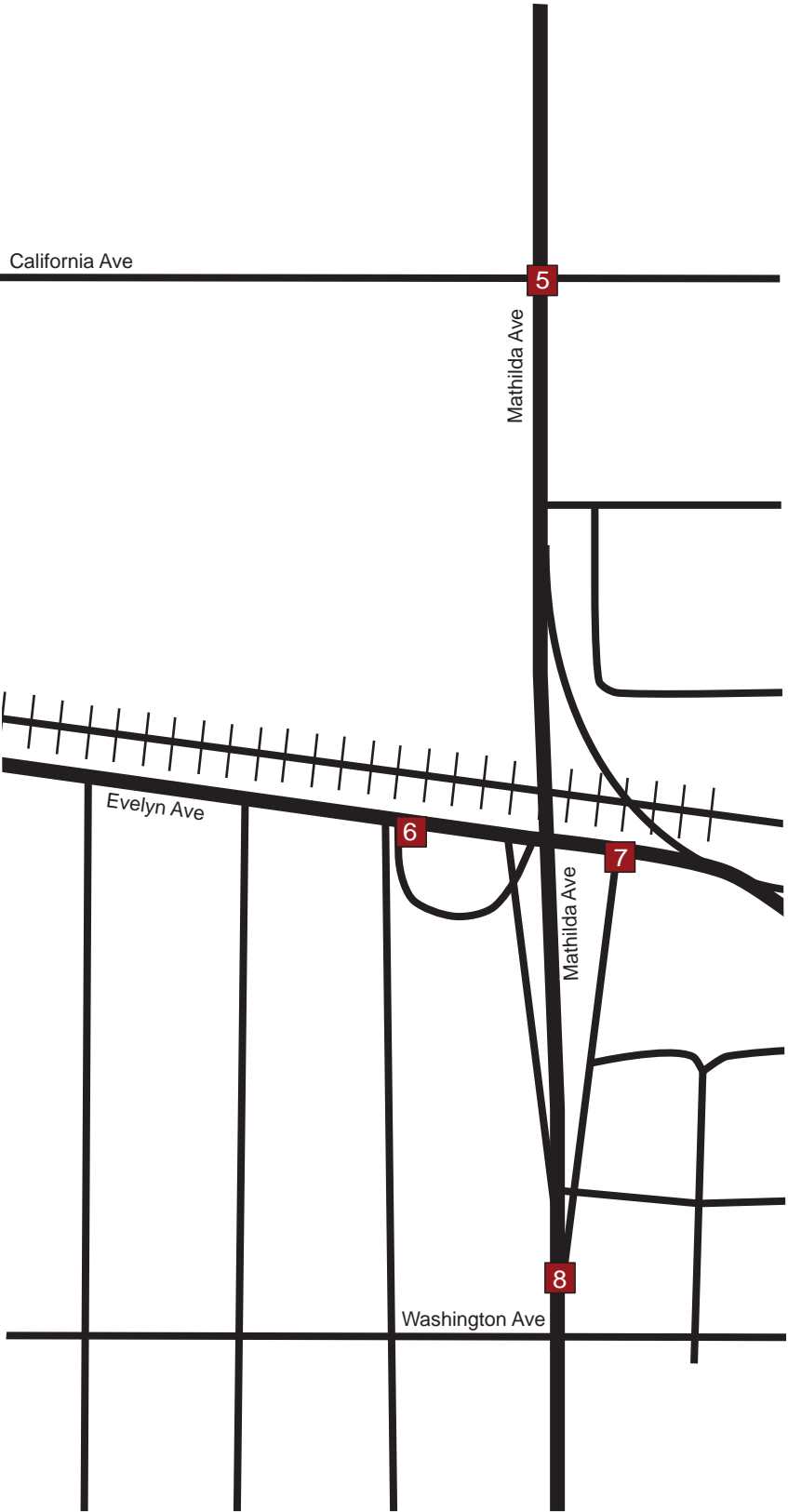
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AM[PM] Volume Redistribution

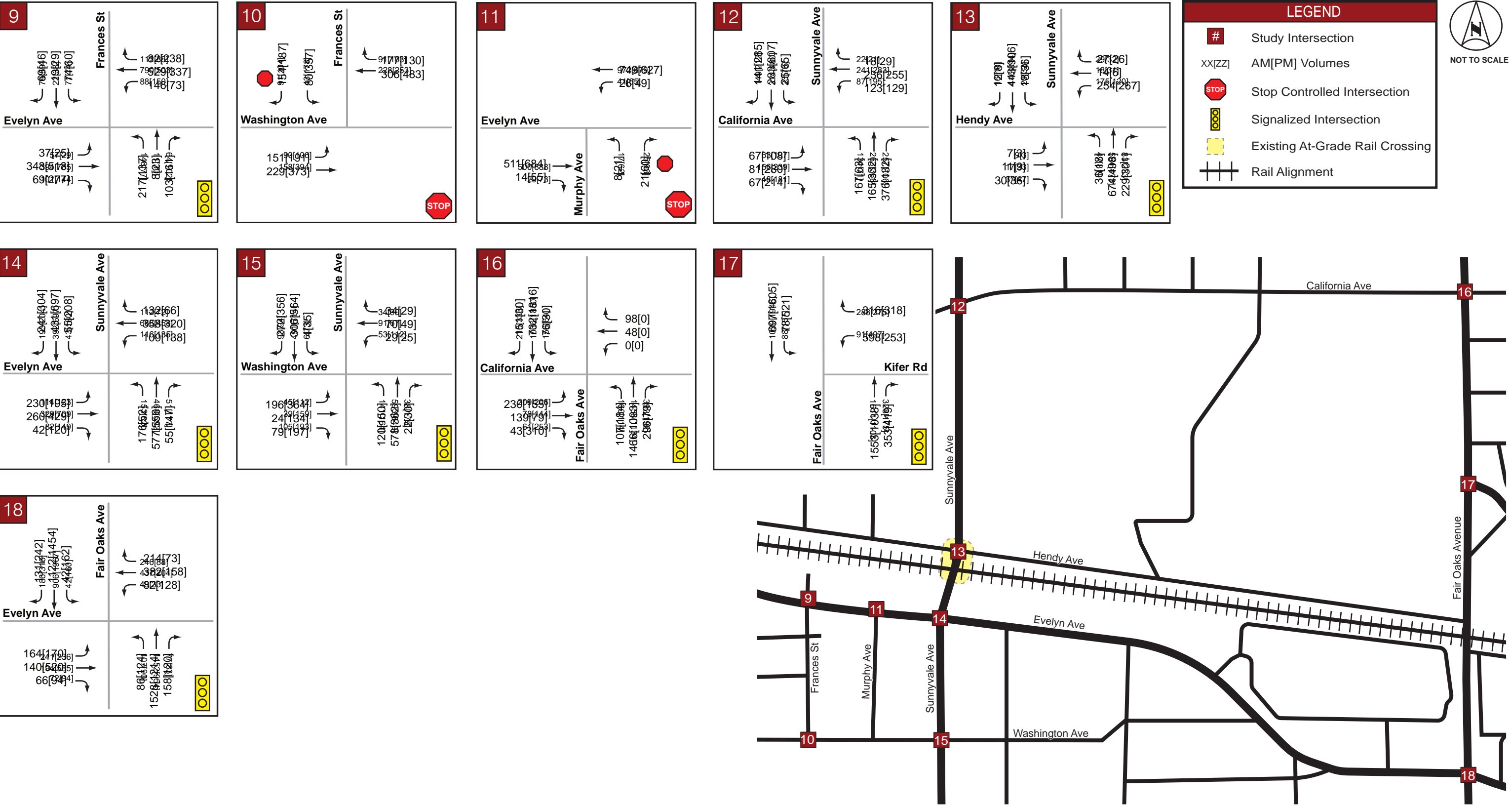
Signalized Intersection

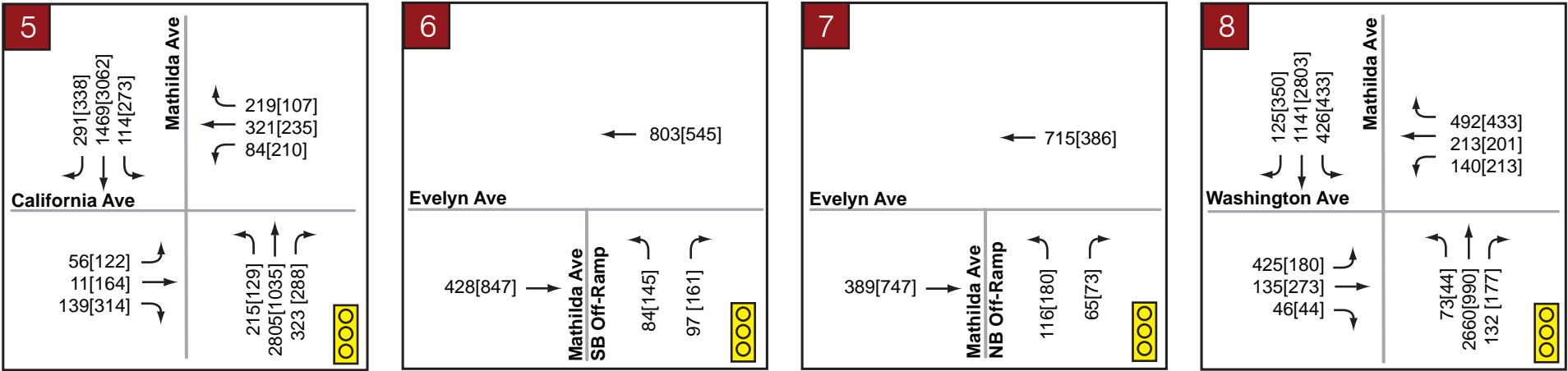
Existing At-Grade
Rail Crossing

Rail Alignment



Sunnyvale Caltrain Grade Separations Feasibility Study





LEGEND

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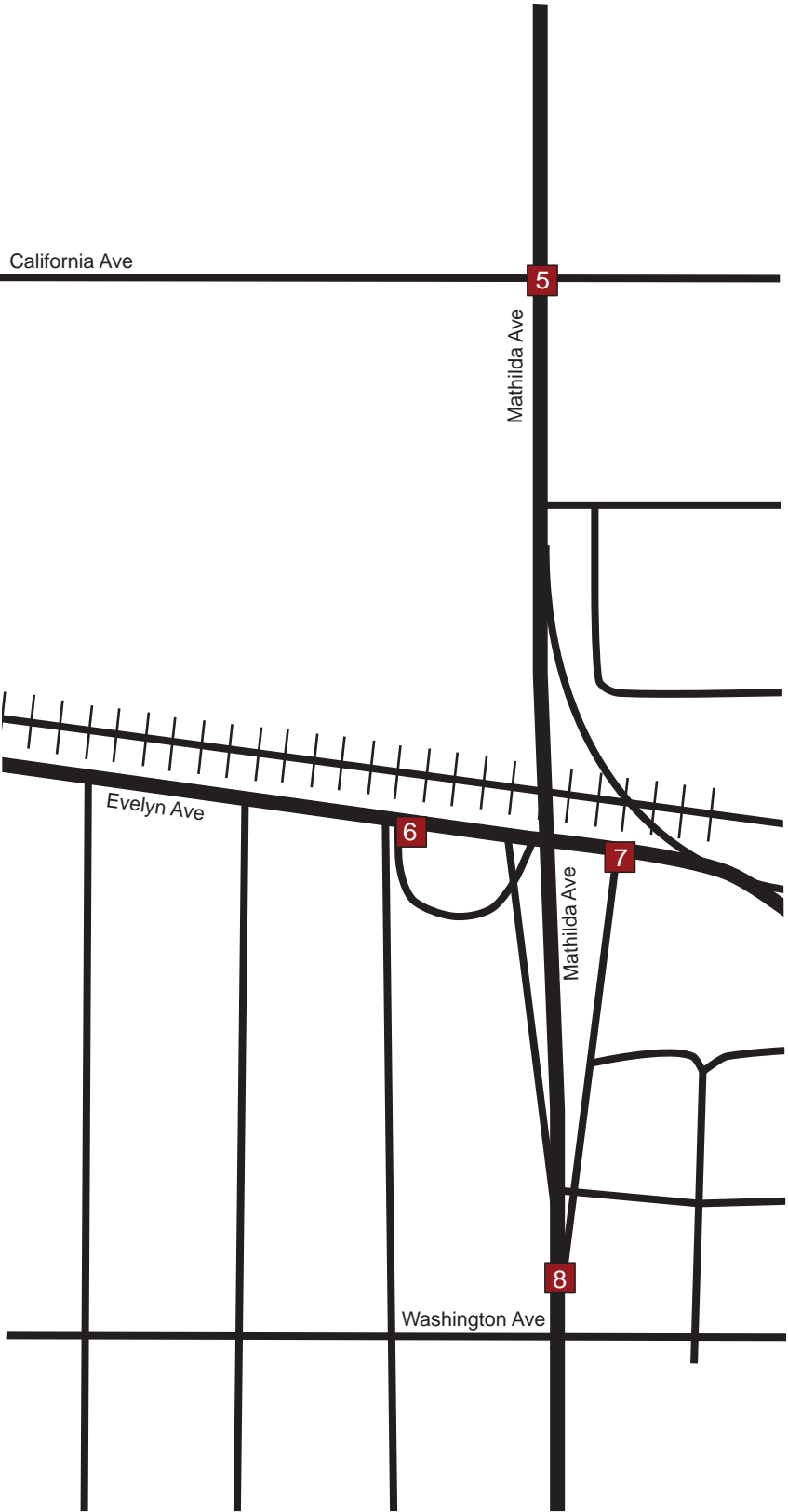
 Study Intersection

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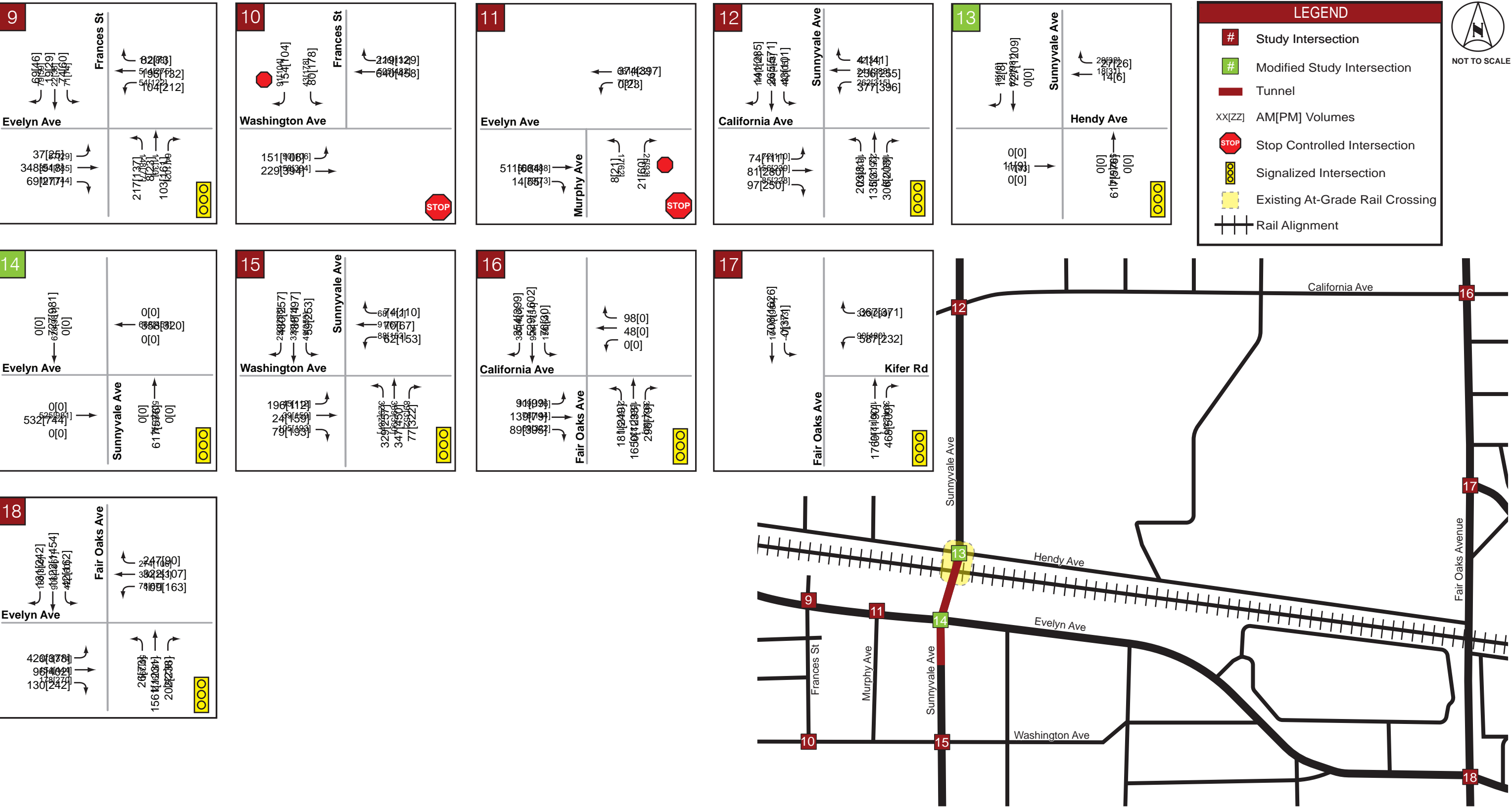
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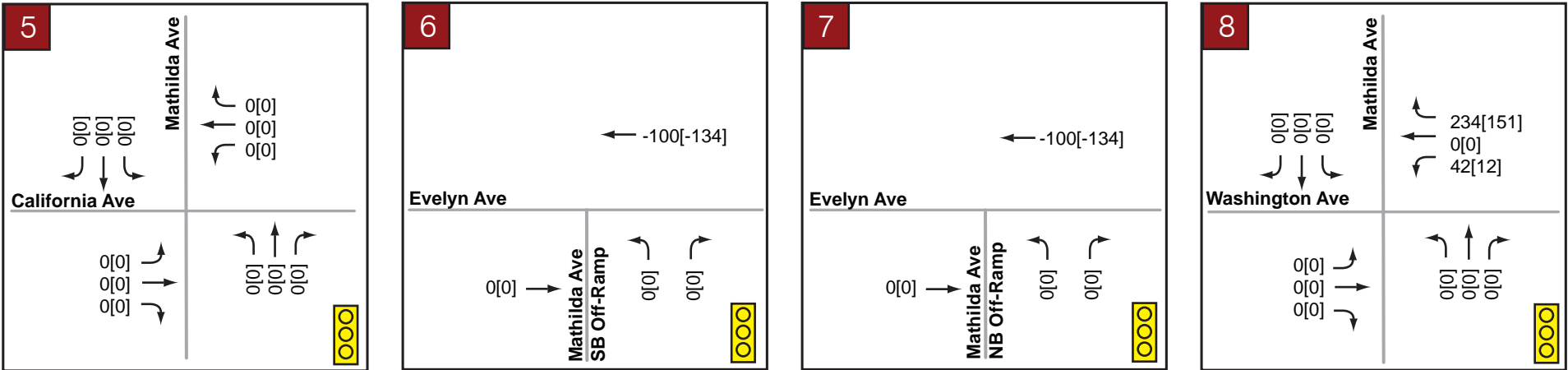
Rail Alignment

NOT TO SCALE



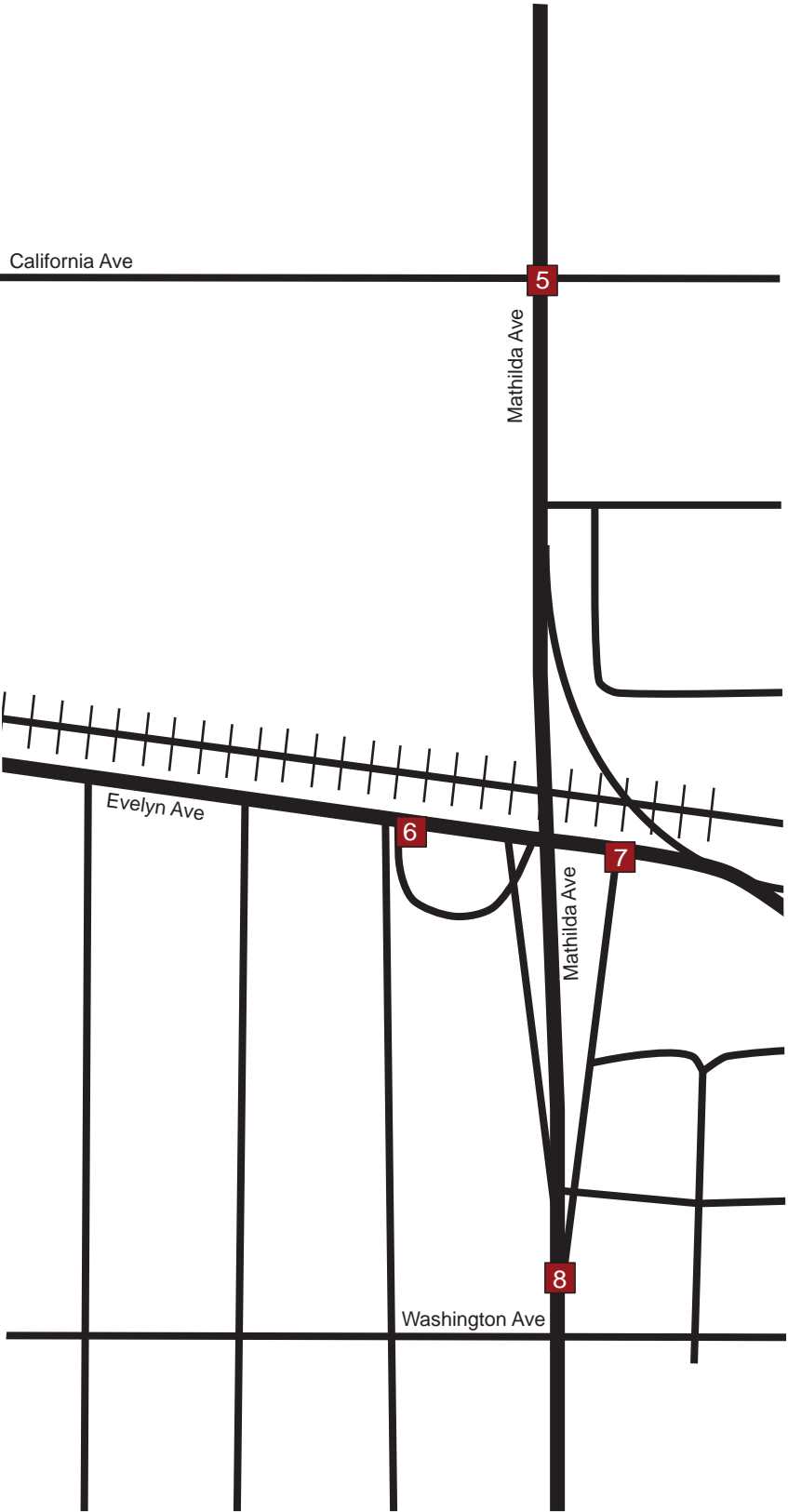
Sunnyvale Caltrain Grade Separations Feasibility Study



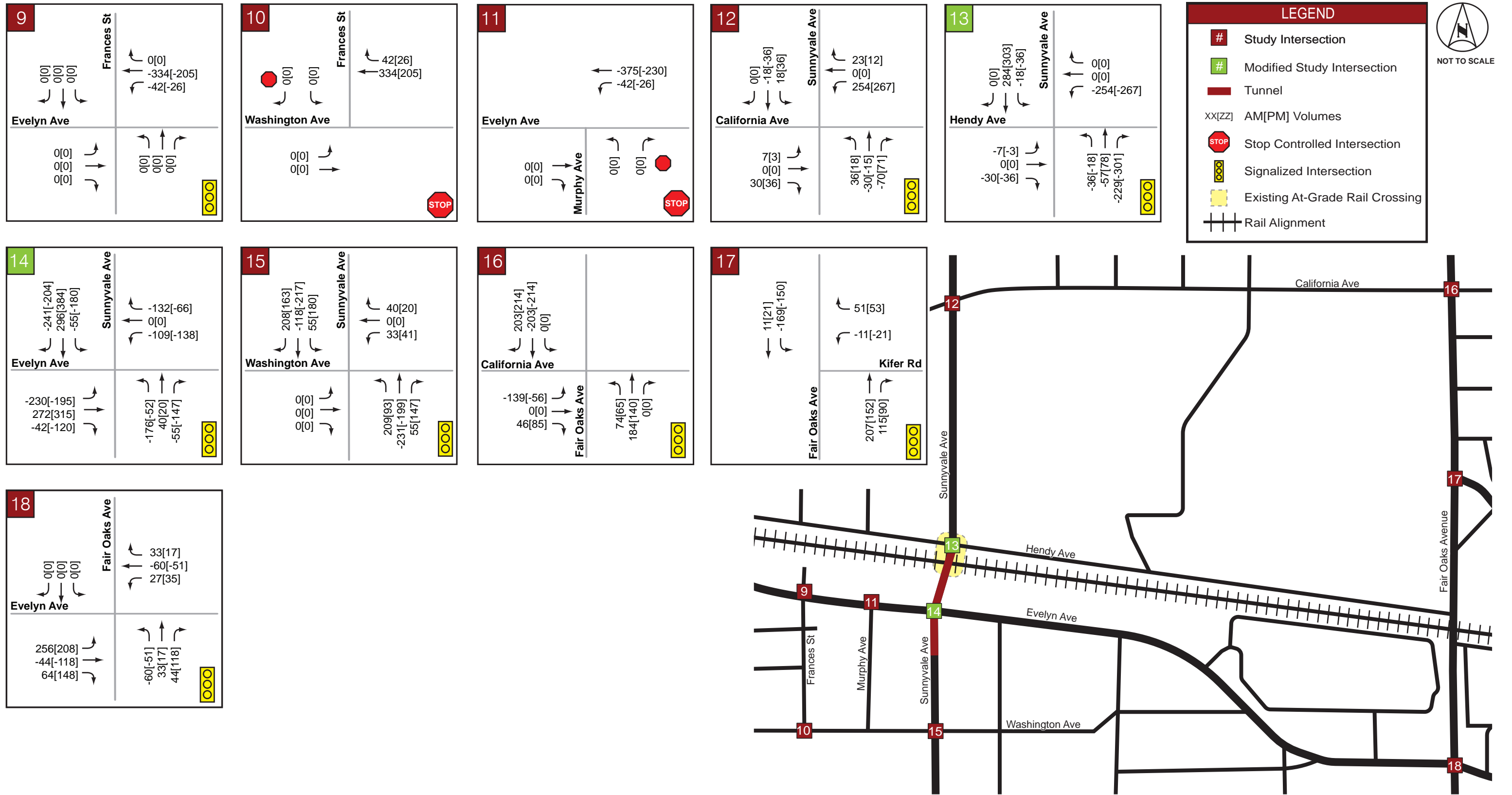


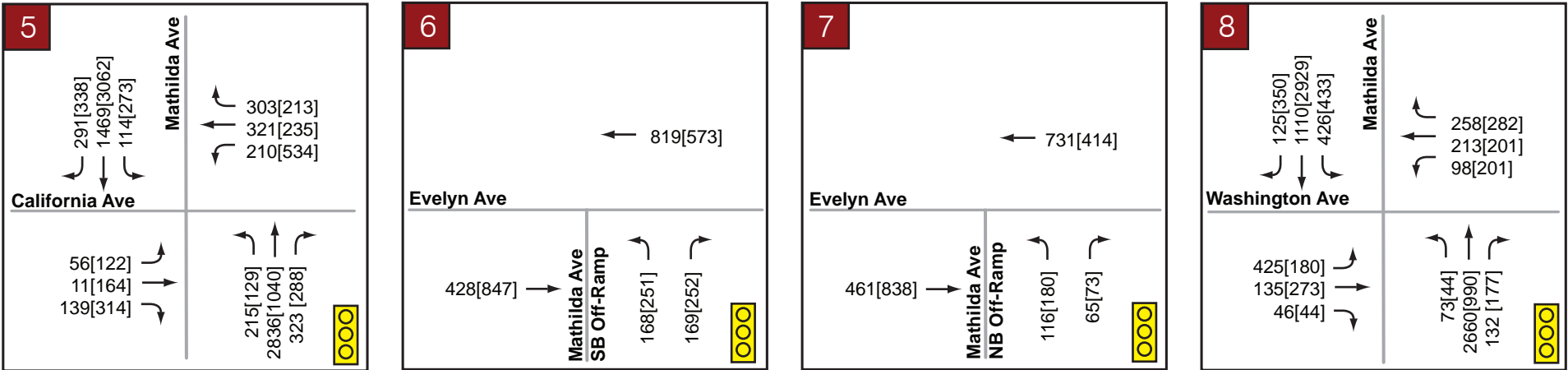
LEGEND

- # Study Intersection
- xx[zz] AM[PM] Volume Redistribution
- Signalized Intersection
- Rail Alignment



Sunnyvale Caltrain Grade Separations Feasibility Study





LEGEND

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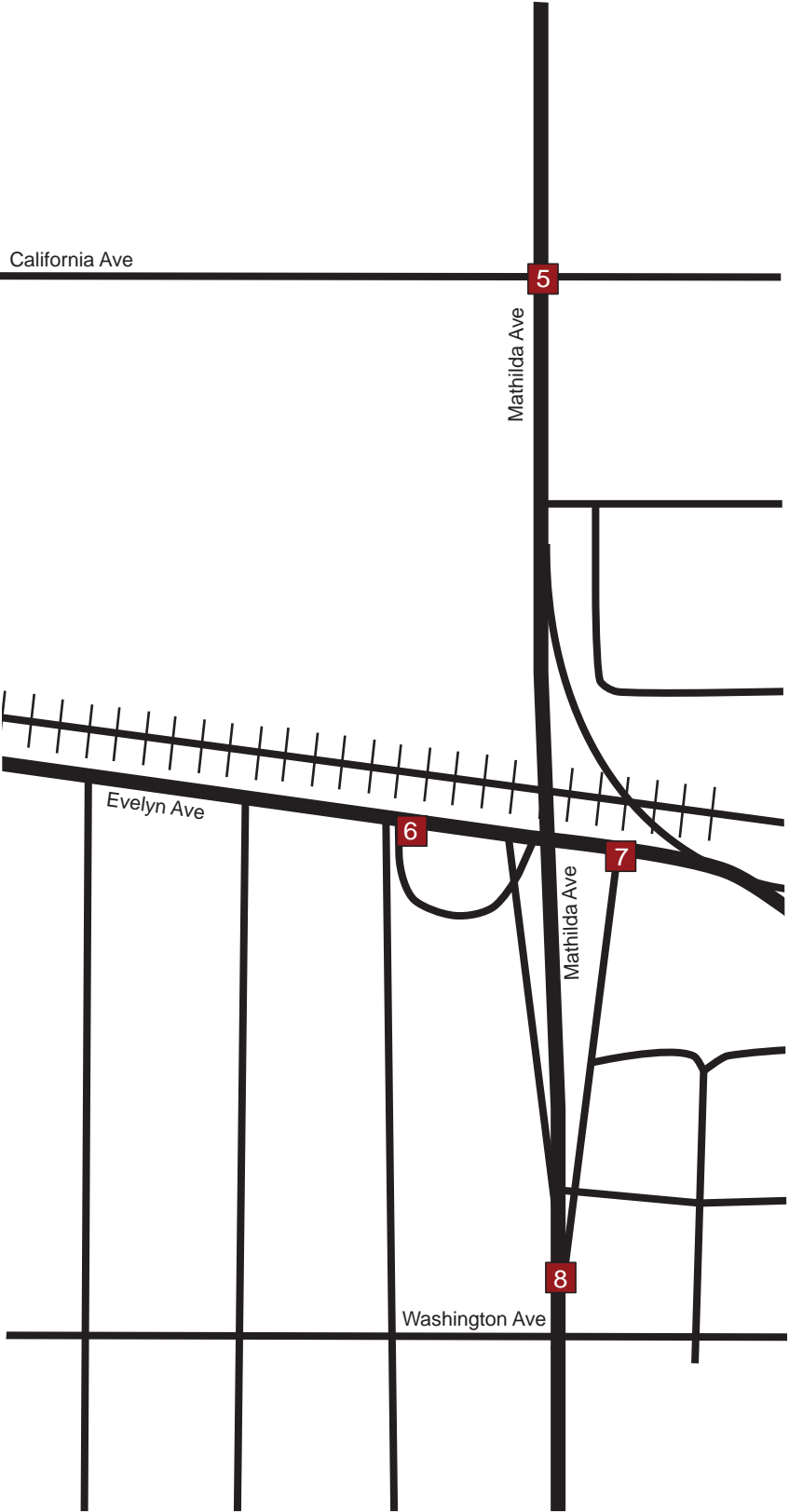
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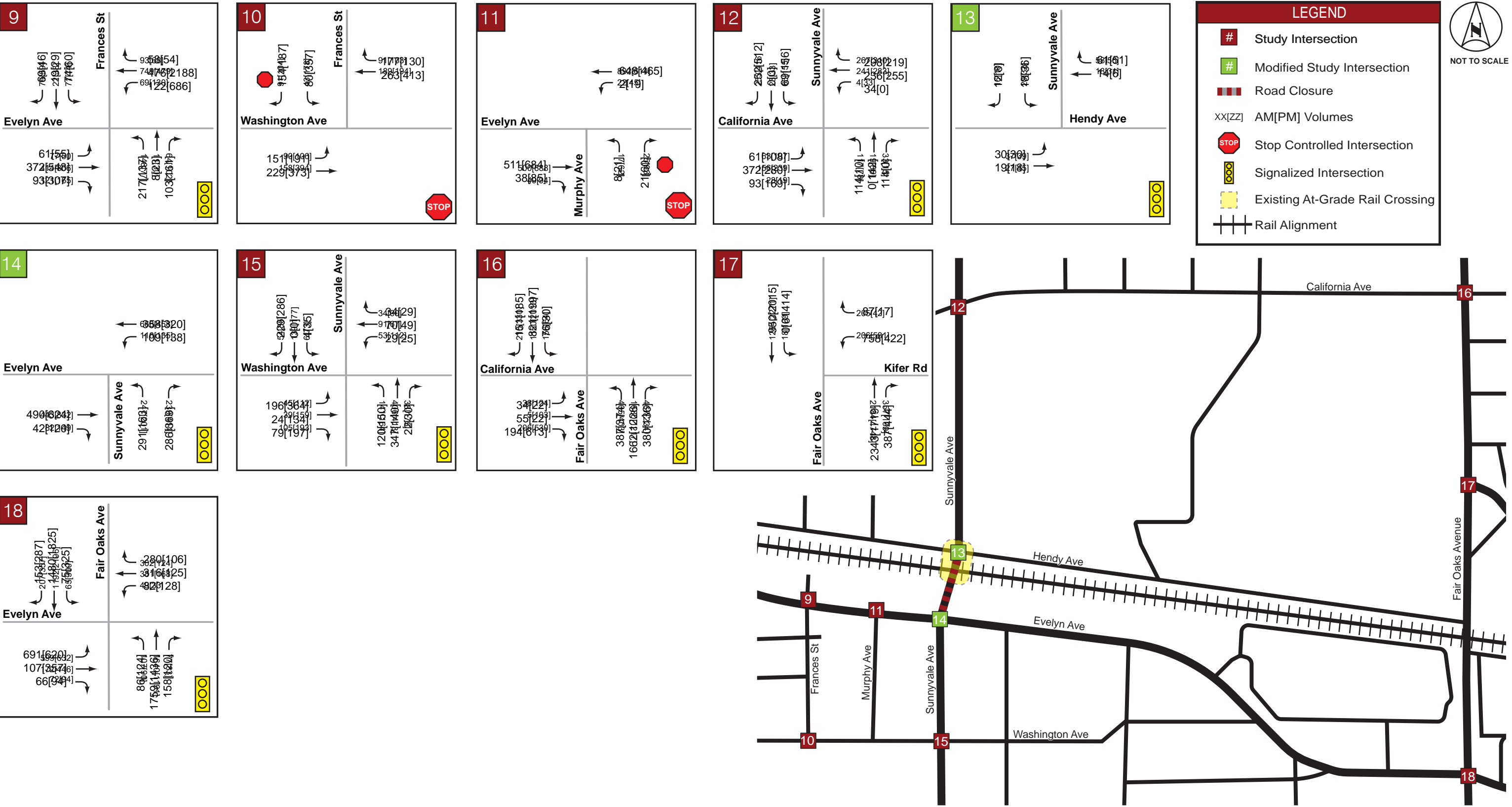
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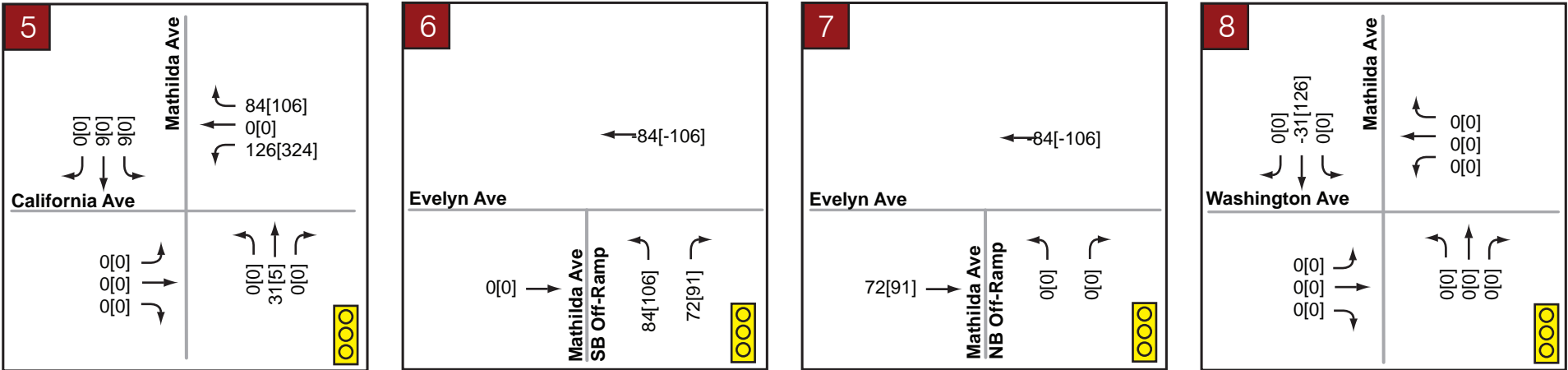
Rail Alignment

NOT TO SCALE



Sunnyvale Caltrain Grade Separations Feasibility Study





LEGEND

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Study Intersection

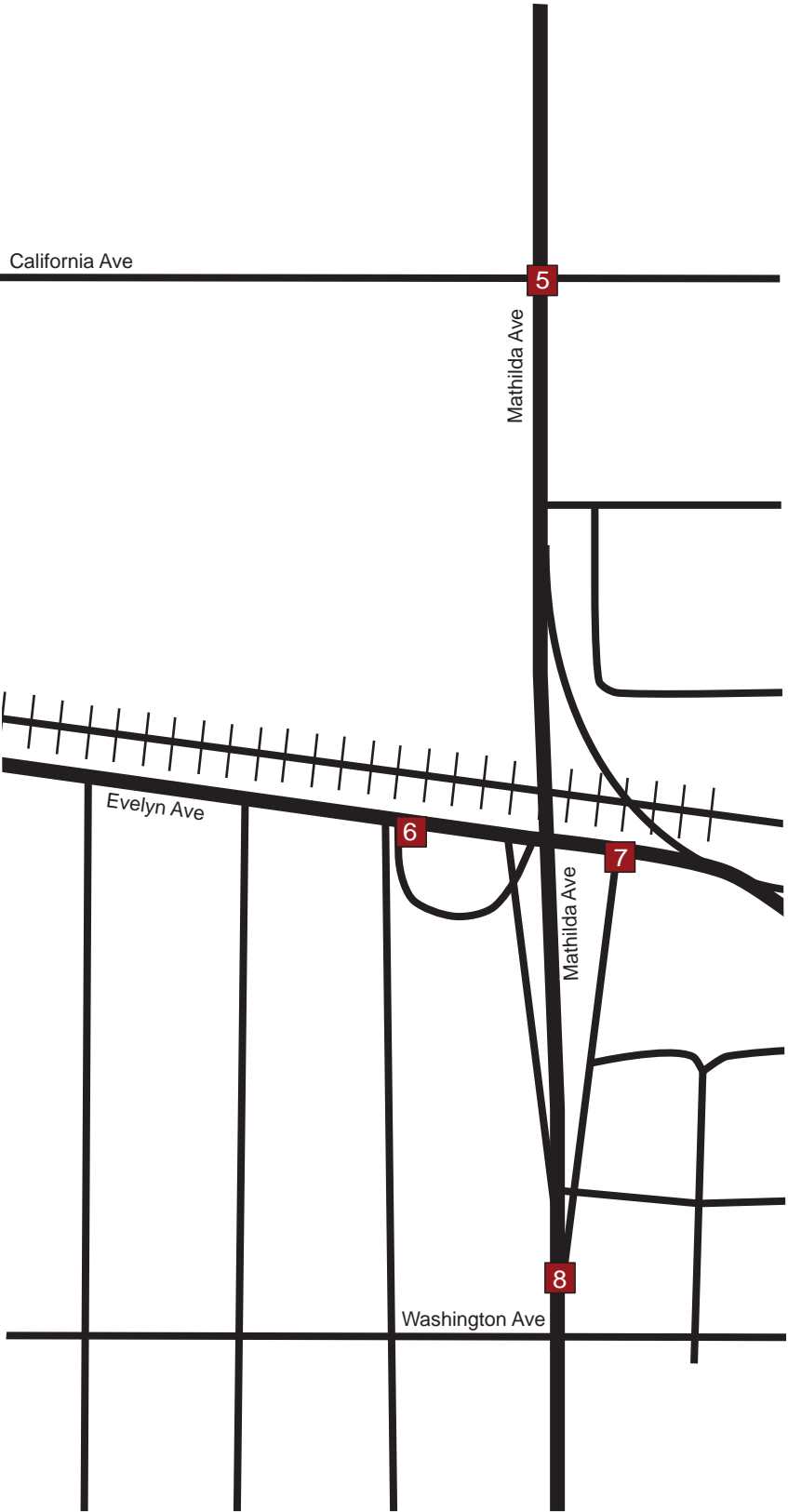
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AM[PM] Volume Redistribution

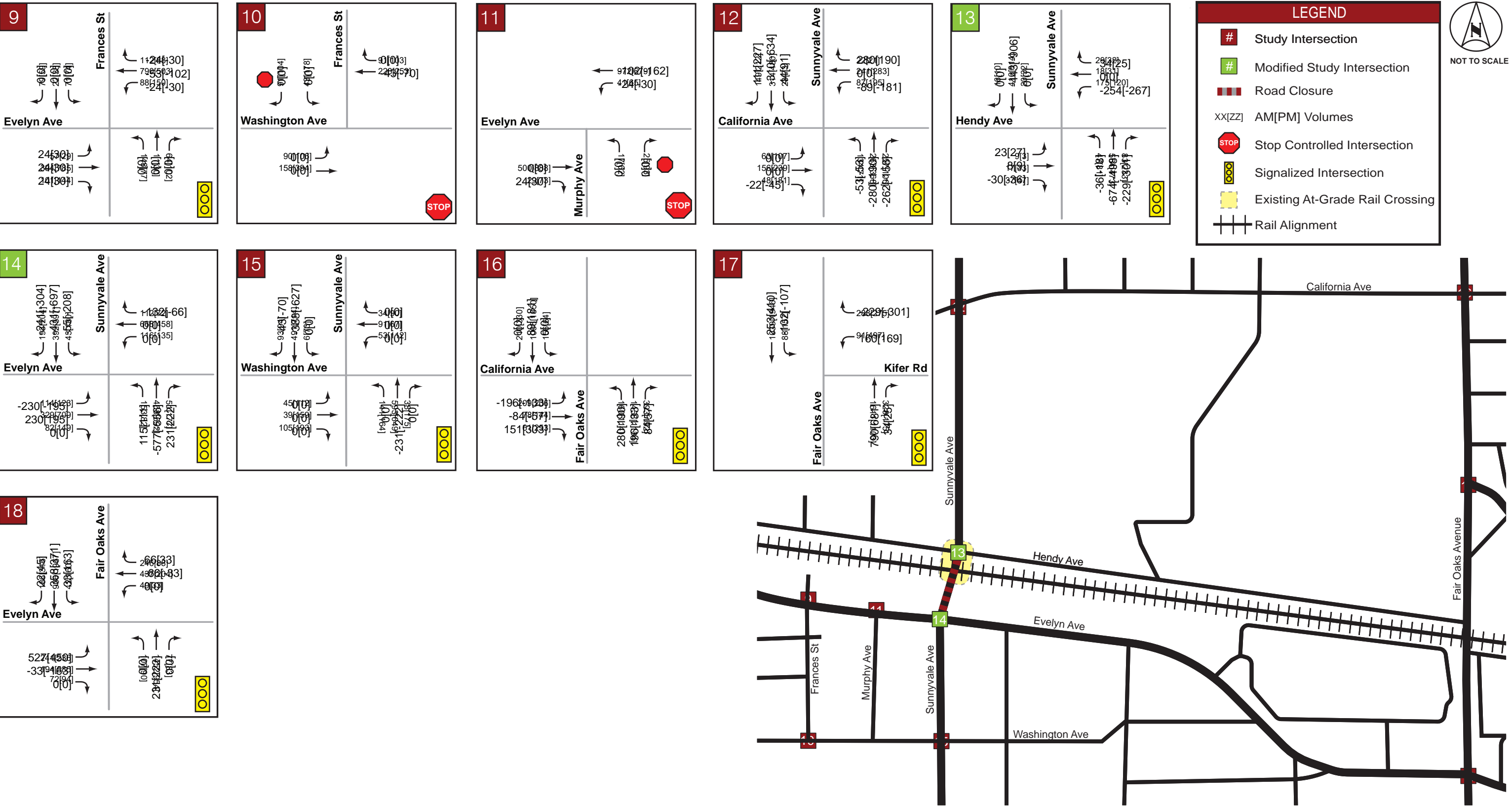
Signalized Intersection

Rail Alignment

NOT TO SCALE



Sunnyvale Caltrain Grade Separations Feasibility Study



Mathilda Ave / California Ave					
5	Scenarios	AM Peak		PM Peak	
		LOS	Delay (sec)	LOS	Delay (sec)
	No-Build	F	201.3	F	271.8
	Tunnel	F	99.8	F	263.1
	Bike/Ped UC	F	123.8	F	273.0

Mathilda Ave SB Off Ramp / Evelyn Ave					
6	Scenarios	AM Peak		PM Peak	
		LOS	Delay (sec)	LOS	Delay (sec)
	No-Build	F	446.2	F	158.2
	Tunnel	B	14.1	B	14.5
	Bike/Ped UC	C	33.5	C	25.8

Mathilda Ave NB Off Ramp / Evelyn Ave					
7	Scenarios	AM Peak		PM Peak	
		LOS	Delay (sec)	LOS	Delay (sec)
	No-Build	F	270.9	F	119.9
	Tunnel	B	11.6	C	26.4
	Bike/Ped UC	B	12.8	D	39.8

Mathilda Ave / Washington Ave					
8	Scenarios	AM Peak		PM Peak	
		LOS	Delay (sec)	LOS	Delay (sec)
	No-Build	F	270.2	E	71.4
	Tunnel	F	159.0	E	72.0
	Bike/Ped UC	F	135.9	E	63.3

LEGEND

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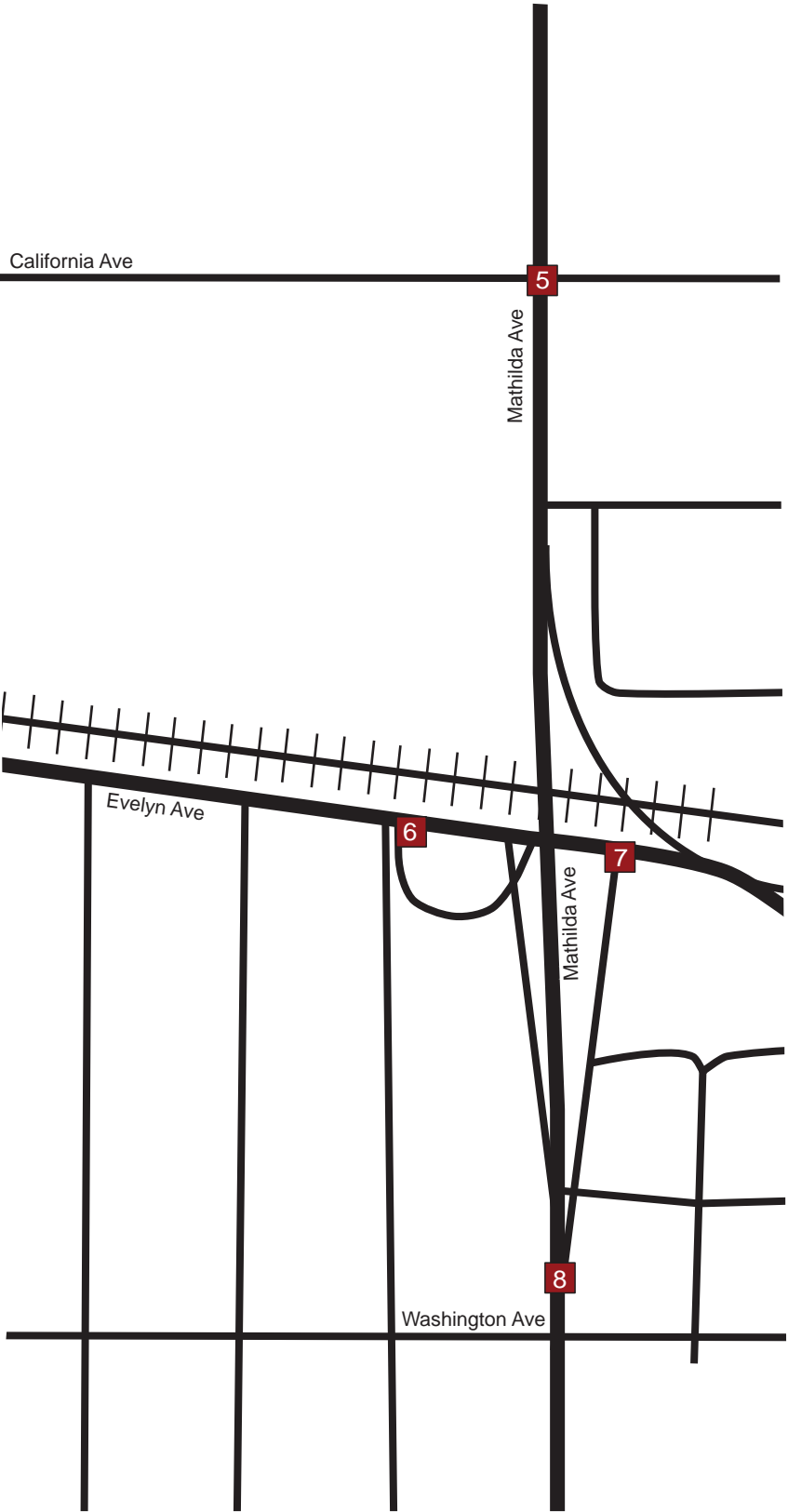
 Study Intersection

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 Rail Alignment



NOT TO SCALE



Sunnyvale Caltrain Grade Separations Feasibility Study

Frances St - Sunnyvale
Station Access / Evelyn Ave

9	AM Peak		PM Peak	
	Scenarios	LOS	Delay (sec)	LOS
No-Build	F	192.8	F	138.4
Tunnel	C	23.3	E	55.3
Bike/Ped UC	E	65.0	C	29.7

Washington Ave / Frances St

10

Scenarios	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	F	72.1	F	60.7
Tunnel	A	5.9	F	141.7
Bike/Ped UC	A	6.3	A	5.2

Murphy Ave / Evelyn Ave

11

Scenarios	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	F	51.6	E	46.4
Tunnel	C	18.0	B	10.1
Bike/Ped UC	E	37.2	B	12.3

Sunnyvale Ave / California Ave

12	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	D	46.7	F	155.9
Tunnel	F	124.6	F	182.4
Bike/Ped UC	C	34.0	F	97.4

Sunnyvale Ave / Hendy Ave

13	AM Peak		PM Peak	
	Scenarios	LOS	Delay (sec)	LOS
No-Build	F	174.1	F	234.4
Tunnel	-	-	-	-
Bike/Ped UC	A	8.9	C	29.7

LEGEND

#

Study Intersection

#

Modified Study Intersection

Roadway Modification (Sunnyvale Tunnel or Closure)

Existing At-Grade Rail Crossing

Rail Alignment



14

Sunnyvale Ave / Evelyn Ave				
Scenarios	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	F	165.5	F	110.3
Tunnel	-	-	-	-
Bike/Ped UC	F	216.2	C	23.3

Sunnyvale Ave / Washington Ave

15				
Scenarios	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	F	150.7	F	111.0
Tunnel	F	400.1	F	375.5
Bike/Ped UC	F	245.9	D	47.6

Fair Oaks Ave / California Ave

16				
Scenarios	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	D	50.0	F	129.2
Tunnel	D	35.6	F	115.7
Bike/Ped UC	E	63.0	F	220.7

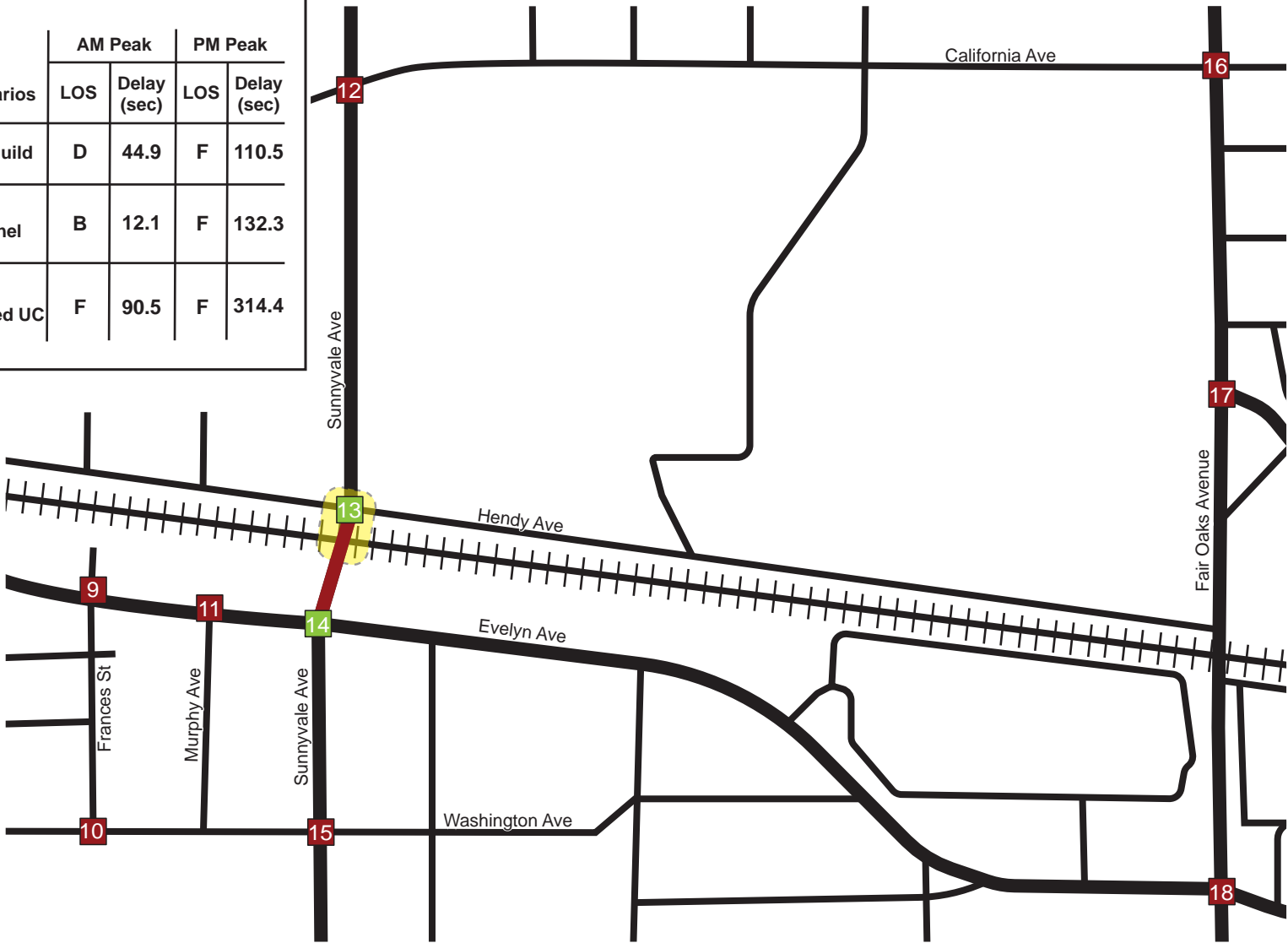
Fair Oaks Ave / Kifer Rd

17				
Scenarios	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	D	44.9	F	110.5
Tunnel	B	12.1	F	132.3
Bike/Ped UC	F	90.5	F	314.4

Fair Oaks Ave / Evelyn Ave

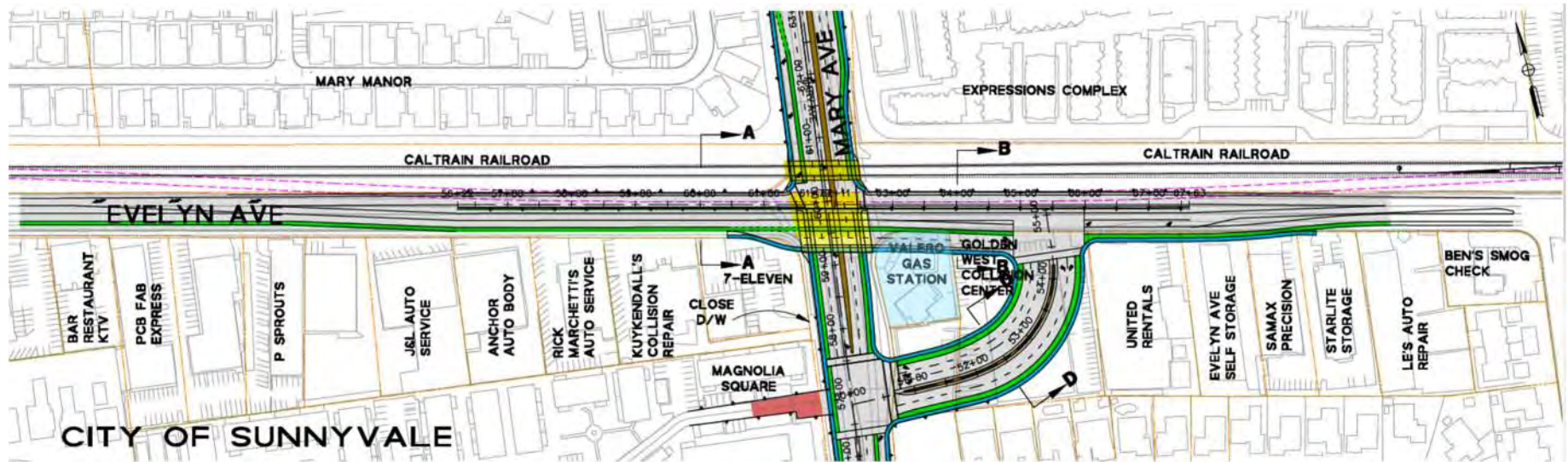
18

Scenarios	AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)
No-Build	E	74.8	F	82.5
Tunnel	F	95.6	F	110.7
Bike/Ped UC	F	139.9	F	231.4



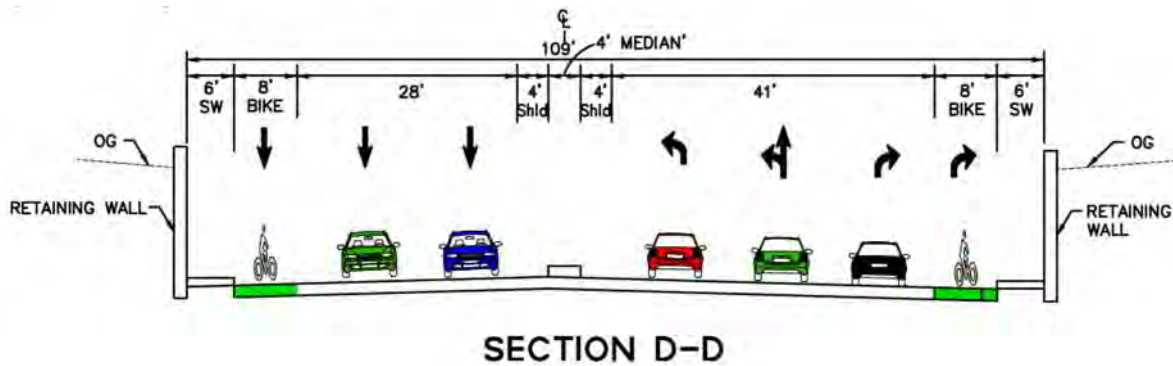
Attachment G

Mary Avenue Underpass with Jughandle and Connector Ramps Alternative – Reduced Geometry Option (Plan View)

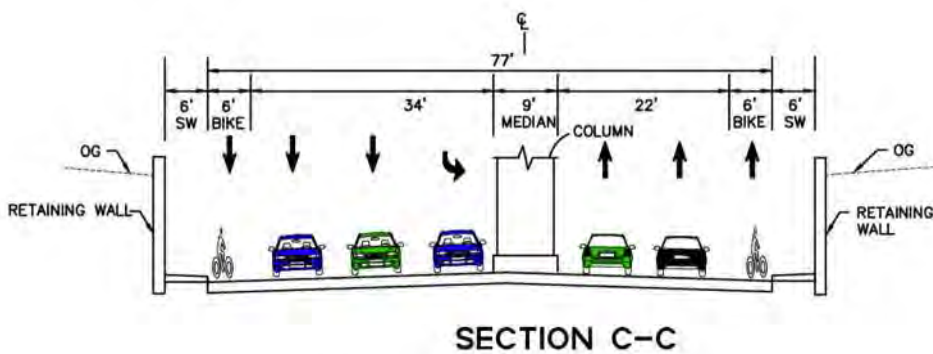


Mary Avenue Underpass with Jughandle and Connector Ramps Alternative Reduced Geometry Option

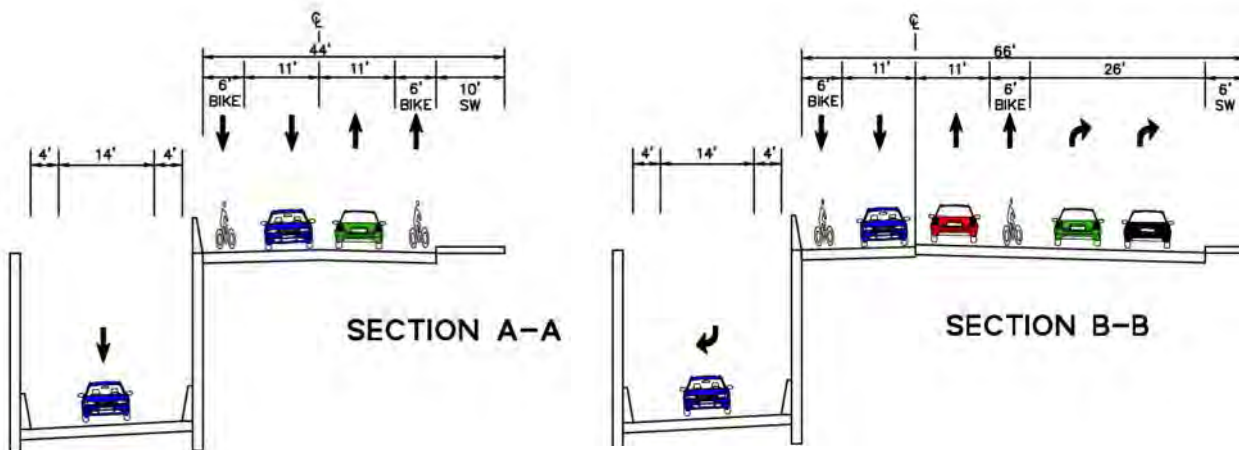
(Cross-Sections)



Jughandle Cross Section



Mary Avenue Cross Section north of Jughandle



Evelyn Avenue Cross Section east and west of Mary Avenue

Source: BKF Engineers, received June 28, 2022

ATTACHMENT F

APRIL 5, 2022 - CITY COUNCIL MEETING MINUTES



City of Sunnyvale

Meeting Minutes City Council

Tuesday, April 5, 2022

5:30 PM

Telepresence Meeting: City Web Stream |
Comcast Channel 15 | AT&T Channel 99

**Special Meeting: Closed Session - 5:30 PM | Special Meeting: Study Session - 6 PM |
Regular Meeting - 7 PM | Regular Sunnyvale Financing Authority Meeting - 7 PM (or soon
thereafter)**

5:30 P.M. SPECIAL COUNCIL MEETING (Closed Session)

Call to Order

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on March 22, 2022.

Vice Mayor Cisneros called the meeting to order at 5:30 p.m. via teleconference.

Roll Call

Present: 6 - Mayor Larry Klein
Vice Mayor Alysa Cisneros
Councilmember Glenn Hendricks
Councilmember Russ Melton
Councilmember Omar Din
Councilmember Anthony (Tony) Spitaleri
Absent: 1 - Councilmember Gustav Larsson

Mayor Klein, Vice Mayor Cisneros and Councilmembers Hendricks, Melton, Din and Spitaleri attended via teleconference.

Public Comment

Public Comment opened at 5:33 p.m.

No Speakers.

Public Comment closed at 5:33 p.m.

Convene to Closed Session

- A** [22-0456](#) Closed Session Held Pursuant to California Government Code Section 54957.6:
CONFERENCE WITH LABOR NEGOTIATORS
Agency designated representatives: Tina Murphy, Director of Human Resources
Employee organization: Public Safety Managers Association (PSMA)

Adjourn Special Meeting

Vice Mayor Cisneros adjourned the meeting at 5:59 p.m.

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

Call to Order

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on March 22, 2022.

Vice Mayor Cisneros called the meeting to order at 6:02 p.m. via teleconference.

Roll Call

Present: 6 - Mayor Larry Klein
Vice Mayor Alysa Cisneros
Councilmember Glenn Hendricks
Councilmember Russ Melton
Councilmember Omar Din
Councilmember Anthony (Tony) Spitaleri
Absent: 1 - Councilmember Gustav Larsson

Mayor Klein, Vice Mayor Cisneros and Councilmembers Hendricks, Melton, Din and Spitaleri attended via teleconference.

Study Session

- B** [22-0030](#) Caltrain Grade Separation

Principle Transportation Engineer Angela Obeso provided the staff report and presentation.

Public Comment opened at 6:55 p.m.

Richard Mehlinger voiced support for the project, specifically with a focus on safety and bicycle access to new roads.

Ari Feinsmith communicated the need of adequate bicycle access on proposed crossings.

Murali Srinivasan shared concerns about project costs and how it will be completed.

Mark voiced concerns about the Mary Avenue project and the potential of increased traffic.

Mike Johnson, Executive Director, Sunnyvale Downtown Association voiced support for bicycle and pedestrian access at the Sunnyvale Avenue crossing.

Public Comment closed at 7:01 p.m.

Adjourn Special Meeting

Vice Mayor Cisneros adjourned the meeting at 7:03 p.m.

7 P.M. COUNCIL MEETING

CALL TO ORDER

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on March 22, 2022.

Mayor Klein called the meeting to order at 7:03 p.m. via teleconference.

ROLL CALL

Present: 6 - Mayor Larry Klein
Vice Mayor Alysa Cisneros
Councilmember Glenn Hendricks
Councilmember Russ Melton
Councilmember Omar Din
Councilmember Anthony (Tony) Spitaleri

Absent: 1 - Councilmember Gustav Larsson

Mayor Klein, Vice Mayor Cisneros and Councilmembers Hendricks, Melton, Din and Spitaleri attended via teleconference.

Councilmember Larsson joined the meeting at 9:00 p.m.

CLOSED SESSION REPORT

Vice Mayor Cisneros reported that Council met in Closed Session CONFERENCE WITH LABOR NEGOTIATORS Agency designated representatives: Tina Murphy, Director of Human Resources Employee organization: Public Safety Managers Association (PSMA); nothing to report.

SPECIAL ORDER OF THE DAY

C [22-0431](#) Fair Housing Month

Mayor Klein read a proclamation in honor of Fair Housing Month.

Carol Conn, Executive Director, Project Sentinel spoke to the proclamation.

D [22-0432](#) Library Week

Mayor Klein read a proclamation in honor of Library Week.

E [22-0433](#) Earth Month

Mayor Klein read a proclamation in honor of Earth Month.

ORAL COMMUNICATIONS

Councilmember Hendricks announced details for the current recruitment for various Boards and Commissions.

Laura Tiscareno, Sunnyvale Urban Forestry Advocates (SUFA) promoted the planting of trees to grow the tree canopy of the city and announced details of an upcoming SUFA tree walk event.

Linda Ellis, Captain, Sunnyvale Women's Golf Club requested increased maintenance at the municipal golf course and to fill the vacant restaurant on the golf course property.

Arjun Chopra spoke towards fire policy and shared fire prevention measures administered by other agencies in the Bay Area, including suggestions on how Sunnyvale can improve its Fire Code.

CONSENT CALENDAR

MOTION: Vice Mayor Cisneros moved and Councilmember Melton seconded the motion to approve agenda items 1.A through 1.G.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Larsson

1.A [22-0080](#) Approve City Council Meeting Minutes of March 1, 2022

Approve the City Council Meeting Minutes of March 1, 2022 as submitted.

1.B [22-0316](#) Approve City Council Meeting Minutes of March 7, 2022
(Moffett Park Specific Plan - Open Space Workshop)

Approve the City Council Meeting Minutes of March 7, 2022 as submitted.

1.C [22-0347](#) Approve City Council Meeting Minutes of March 22, 2022

Approve the City Council Meeting Minutes of March 22, 2022 as submitted.

1.D [22-0039](#) Authorize City Manager to Execute Two Easement Deeds Granting Easements to Pacific Gas and Electric Company (PG&E) over Two City Owned Parcels, known as the Community Center (APN 211-24-042) and the Downtown Parking Lot at S. Frances Street and W. Evelyn Avenue (APN 209-06-073) for the Installation of Four Electric Vehicle Fast-Charging Stations

Authorize the City Manager to execute two Easement Deeds granting easements to Pacific Gas and Electric Company (PG&E), in substantially the same form as Attachments 1 and 2 to the report, over two City owned parcels, known as the Community Center (APN 211-24-042) and the Downtown Parking Lot at S. Frances Street and W. Evelyn Avenue (APN 209-06-073) for the installation of four electric

vehicle fast-charging stations.

- 1.E** [22-0297](#) Approve the Downtown Sunnyvale Business Improvement District (BID) Annual Report for Fiscal Year 2021/22 and Adopt Resolution of Intention to Levy and Collect an Annual Assessment To Reauthorize the BID for Fiscal Year 2022/23

Approve the Fiscal Year 2021/22 BID Annual Report, adopt the Resolution of Intention to Levy and Collect an Assessment and Reauthorize the Business Improvement District for Fiscal Year 2022/23, and schedule the public hearing for May 3, 2022.

- 1.F** [22-0317](#) Approve Budget Modification No. 17 to Appropriate \$1,900,000 of Coronavirus Response and Relief Supplemental Appropriations Act of 2021 Funds to Fund Sunnyvale Quick Build Bicycle, Pedestrian and Safe Routes to School Safety Improvements, and Find That the Action is Exempt From CEQA

Approve Budget Modification No. 17 to appropriate \$1,900,000 of Coronavirus Response and Relief Supplemental Appropriations Act of 2021 funds to fund Sunnyvale quick build bicycle, pedestrian and Safe Routes to School safety improvements, and find that the action is exempt from California Environmental Quality Act Guidelines Section 15301.

- 1.G** [22-0345](#) Reconsider and Affirm Resolution No. 1089-21; and Make Findings Pursuant to Government Code Section 54953(e) (AB 361) to Continue Virtual Public Meetings for the City Council and Boards, Commissions and Council Subcommittees During the COVID-19 State of Emergency

Affirm Resolution 1089-21; and make findings pursuant to Government Code Section 54953(e) (AB 361) to continue virtual public meetings for the City Council and Boards, Commissions and Council Subcommittees during the COVID-19 State of Emergency:

1. The City Council hereby finds that the state of emergency conditions related to COVID-19, as set forth in Resolution No. 1110-22 adopted on March 22, 2022 and incorporated herein by reference, are on-going;
2. The City Council finds that there is a need to continue teleconferencing for public meetings without posting the teleconferencing locations on the agenda and without requiring the teleconference locations to be accessible to the public during the current Governor-proclaimed COVID-19 state of emergency; and
3. The City Council finds that the state of emergency continues to directly impact

the ability of members of the City Council, Council Standing Committees, and City Boards and Commissions to meet safely in person.

ADJOURNMENT TO REGULAR MEETING OF THE SUNNYVALE FINANCING AUTHORITY

Mayor Klein adjourned the Council meeting to the Sunnyvale Financing Authority meeting at 7:31 p.m.

Call to Order

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the Financing Authority made the necessary findings by adopting Resolution No. 1105-22FA, reaffirmed on March 22, 2022.

Authority Chair Klein called the Sunnyvale Financing Authority meeting to order at 7:31 p.m. via teleconference.

Roll Call

Present: 6 - Authority Chair Larry Klein
Authority Vice Chair Alysa Cisneros
Authority Member Glenn Hendricks
Authority Member Russ Melton
Authority Member Omar Din
Authority Member Anthony "Tony" Spitaleri

Absent: 1 - Authority Member Gustav Larsson

Authority Chair Klein, Authority Vice Chair Cisneros and Authority Members Hendricks, Melton, Din, Spitaleri attended via teleconference.

CONSENT CALENDAR

MOTION: Authority Member Melton moved and Authority Vice Chair Cisneros seconded the motion to approve items 2.A. through 2.B.

The motion carried with the following vote:

Yes: 6 - Authority Chair Klein
Authority Vice Chair Cisneros
Authority Member Hendricks
Authority Member Melton
Authority Member Din

Authority Member Spitaleri

No: 0

Absent: 1 - Authority Member Larsson

- 2.A** [22-0362](#) Approve Sunnyvale Financing Authority Meeting Minutes of March 22, 2022

Approve Sunnyvale Financing Authority Meeting Minutes of March 22, 2022 as submitted.

- 2.B** [22-0346](#) Reconsider and Affirm Resolution No. 1105-22FA; and Make Findings Pursuant to Government Code Section 54953(e) (AB 361) to Continue Virtual Public Meetings for the Sunnyvale Financing Authority During the COVID-19 State of Emergency

Affirm Resolution 1105-22FA; and make findings pursuant to Government Code Section 54953(e) (AB 361) to continue virtual public meetings for the Financing Authority during the COVID-19 State of Emergency:

1. The Sunnyvale City Council has found and determined that the state of emergency conditions related to COVID-19, as set forth in City of Sunnyvale Resolution No. 1110-22 adopted on March 22, 2022, and incorporated herein by reference, are on-going;
2. The Financing Authority finds that there is a need to continue teleconferencing for public meetings without posting the teleconferencing locations on the agenda and without requiring the teleconference locations to be accessible to the public during the current Governor-proclaimed COVID-19 state of emergency; and
3. The Financing Authority finds that the state of emergency continues to directly impact the ability of members of the Financing Authority to meet safely in person.

ADJOURN SUNNYVALE FINANCING AUTHORITY MEETING

Authority Chair Klein adjourned the Sunnyvale Financing Authority meeting at 7:34 p.m.

RECONVENE TO CITY COUNCIL MEETING

Mayor Klein reconvened the City Council Meeting at 7:34 p.m.

PUBLIC HEARINGS/GENERAL BUSINESS

- 3** [22-0134](#) Consideration of Improving Traffic Operations at

Fremont/Bernardo/Hwy 85 (Study Issue)

Transportation and Traffic Manager Dennis Ng provided the staff report and presentation.

Public Hearing opened at 8:11 p.m.

Stephen Meier shared his safety concerns as a bicyclist specifically at the Fremont/Bernardo/Hwy 85 intersection. He voiced support for “no right on red” signs, double right-turn lanes, and increased police presence at the intersection.

Bryce Beagle voiced opposition to adding extra turn lanes in either direction and support for improved bicycle and pedestrian infrastructure that aligns with Vision Zero goals.

Leia Mehlman communicated support for “no right on red” signs and for safety to be considered for any additional study issues.

Public Hearing closed at 8:15 p.m.

MOTION: Councilmember Melton moved and Vice Mayor Cisneros seconded the motion to approve Alternative 1: Direct Staff to not proceed with requesting delegation of operations and maintenance from Caltrans for the traffic signals along Fremont Avenue corridor between Bernardo Avenue and Belleville Way and to work with Caltrans to periodically optimize traffic signal timing and implementation.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Larsson

4 [22-0109](#) Consideration of Acquiring Control of Caltrans Traffic Signals on El Camino Real (Study Issue)

Transportation and Traffic Manager Denis Ng provided the staff report and

presentation.

Public Hearing opened at 8:50 p.m.

Stephen Meier voiced support for the staff recommendation, but requests safety be emphasized for pedestrians and bicyclists.

Public Hearing closed at 8:53 p.m.

MOTION: Councilmember Melton moved and Councilmember Din seconded the motion to approve Alternative 1: Direct Staff to not proceed with requesting delegation of operations and maintenance from Caltrans for the fourteen traffic signals along El Camino Real between Bernardo Avenue and Helen Avenue and to periodically request and work with Caltrans to retune the traffic signals along El Camino Real.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Larsson

- 5 [22-0354](#) Introduce an Ordinance Approving and Adopting a Public Safety Military Equipment Use Policy Pursuant to California Assembly Bill No. 481

Councilmember Larsson joined the meeting at 9:00 p.m.

Public Safety Captain, Hank Syu provided the staff report and presentation.

Public Hearing opened at 9:31 p.m.

No speakers.

Public Hearing closed at 9:31 p.m.

MOTION: Councilmember Spitaleri moved and Councilmember Din seconded the

motion to approve Alternative 1: Introduce an Ordinance approving and adopting a Public Safety Military Equipment Use Policy for the Department of Public Safety pursuant to California Assembly Bill No. 481 and find that the action is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15061(b)(3).

City Clerk David Carnahan read the Ordinance title for the record.

The motion carried with the following vote:

Yes: 7 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

COUNCILMEMBERS REPORTS ON ACTIVITIES FROM INTERGOVERNMENTAL COMMITTEE ASSIGNMENTS

None.

NON-AGENDA ITEMS & COMMENTS

-Council

Councilmember Melton sponsored a study issue to analyze the addition of a second southbound right turn lane at Bernardo Avenue and Fremont Avenue.
Councilmember Spitaleri co-sponsored the study issue.

Councilmember Melton clarified his previous request regarding the Civic Center Modernization Project Construction Contingency; he is seeking information regarding the funds already spent and remaining balance. In addition, he voiced requested upcoming board and commission meetings include agenda items regarding the El Camino Real Specific Plan.

City Manager, Kent Steffens stated an update on the Civic Center Modernization Project Construction Contingency budget will be provided. He also confirmed the El Camino Real Specific Plan will be discussed at upcoming boards and commission meetings .

MOTION: Councilmember Din moved and Mayor Klein seconded the motion to add an information only report to the April 26th or May 3rd City Council agenda identifying what resources are needed, including a monetary figure, to conduct Study Issue CDD-22-07 Evaluate a Pilot Program for Universal Basic Income Including Potential Funding Sources. The motion carried by the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 1 - Councilmember Hendricks

-City Manager

City Manager, Kent Steffens reported the donation of surplus public safety equipment to Ukraine, in collaboration with the California League of Cities.

INFORMATION ONLY REPORTS/ITEMS

<u>22-0348</u>	Tentative Council Meeting Agenda Calendar
<u>22-0349</u>	Board/Commission Meeting Minutes
<u>22-0350</u>	Information/Action Items
<u>22-0447</u>	Board/Commission Resignation (Information Only)
<u>22-0451</u>	Notice of Public Works Director's Decision on Final Maps (Information Only)

ADJOURNMENT

Mayor Klein adjourned the meeting at 9:52 p.m.

ATTACHMENT G

**JULY 21, 2022 - BPAC MEETING
MINUTES**



City of Sunnyvale

Meeting Minutes - Final Bicycle and Pedestrian Advisory Commission

Thursday, July 21, 2022

6:30 PM

Telepresence Meeting: City Web Stream

CALL TO ORDER

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on July 12, 2022.

Chair Mehlinger called the meeting to order at 6:40 p.m. via teleconference.

ROLL CALL

Present 6 - Commissioner Richard Mehlinger
Chair Leia Mehlman
Vice Chair Bryce Beagle
Commissioner Arwen Davé
Commissioner Dan Hafeman
Commissioner Timothy Oey
Absent 1 - Commissioner Alex Bonne

Dennis Ng, Principal Transportation and Traffic Manager, Lillian Tsang, Principal Transportation Engineer, Angela Obeso, Principal Transportation Engineer and Thinh Le, Transportation Engineer attended via teleconference.

Commissioner Bonne (excused absence)
Council Liaison Din (present)

Chair Mehlinger introduced Commissioner Beagle as a new member of the BPAC.

PRESENTATION

A [22-0776](#) Vision Zero Plan Progress Update

Lillian Tsang, Principal Transportation Engineer, gave a presentation on the Vision Zero Plan Progress Update. Highlighting the following:

- Vision Zero Plan Background
- What is Vision Zero
- Vision Zero Goal Statement
- Collision Trends
- Collision Trends - Fatal and Serious Injury
- Complete Projects
- Pedestrian/Bicycle Improvements on Homestead Road at Homestead High School
- Accessible Pedestrian Signal System with Touchless Push Button
- In Progress
- Safe Routes to School - Mathilda Avenue and Maude Avenue
- SNAIL and Braly corner neighborhood
- Bicycle and Pedestrian Improvements - Willow Avenue and Reed Avenue
- Signal/Crossing Improvements - Rectangular Rapid Flashing Beacon
- Department of Public Safety
- SRTS Education Program - Bicycle and Pedestrian Rodeos
- Future Projects
- SRTS Improvements
- Land Use Development Improvements
- Signal Improvements
- Outreach Plan for Vision Zero Campaign

Vice Chair Mehlman commented on the following:

- Clarify the goal of Vision Zero to have "Zero" Bicycle and Pedestrian associated fatalities resulting in collisions
- Greatest decrease in incidence when there was substantially less vehicular traffic

Commissioner Hafeman asked about the following:

- Reason for number of serious injuries going down in 2021 while fatalities went up

Ms. Tsang addressed the question.

Commissioner Beagle asked about the following:

- Preliminary numbers of collision for 2022
- Reports on incidences of using Touchless Push Button to help with Vision Zero Plan
- Continuous sidewalks
- Enforcement for pedestrian and bicycle

Ms. Tsang addressed the questions.

Public Comment opened at 7:05 p.m.

Shibah, member of the public commented on the following:

- Dangerous crossing at Mary Avenue and Carson Avenue
- The intersection at Sunset Avenue and Washington Avenue should have a RFB light

Public Comment closed at 7:09 p.m.

Commissioner Oey commented on the following:

- Thanked staff for providing presentation. Look forward to the root cause analysis along with the Vision Zero information in future meetings

Chair Mehlinger asked and commented on the following:

- Very important to include in future reports the analysis on fatalities as part of Vision Zero
- Report of Vision Zero to City Council
- Breakdown of fatalities of drivers, pedestrians and cyclists

Commissioner Hafeman commented on the following:

- Important to consolidate driveways
- Traffic speed causing more fatalities
- Have quarterly collision reports to understand the trends

Commissioner Beagle commented on the following:

- Example of a continuous sidewalk

Chair Mehlinger commented on the following:

- Difference between serious injury and fatalities is often speed
- Helpful to have reports on causes of serious injuries/fatalities
- Number of total collisions in January and February 2022

Vice Chair Mehlman commented on the following:

- Add a slide breaking down the types of users for collision trends in each category

ORAL COMMUNICATIONS

Public Comment opened at 7:20 p.m.

No speakers.

Public Comment closed at 7:20 p.m.

CONSENT CALENDAR

- 1.A** [22-0761](#) Approve the Bicycle and Pedestrian Commission Meeting Minutes of June 16, 2022.

Approve the Bicycle and Pedestrian Commission Meeting Minutes of June 16, 2022 as submitted.

Vice Chair Mehlman moved and Commissioner Hafeman seconded the motion to approve item 1.A.

The motion carried by the following vote:

Yes 5 - Commissioner Mehlinger
 Chair Mehlman
 Commissioner Davé
 Commissioner Hafeman
 Commissioner Oey

No 0

Absent 1 - Commissioner Bonne

Abstain 1 - Vice Chair Beagle

PUBLIC HEARINGS/GENERAL BUSINESS

- 2** [22-0628](#) Recommend to City Council the Selection of the Mary Avenue Underpass with Jughandle Option and the Sunnyvale Avenue Underpass Tunnel Option to be Defined as the Proposed Projects for the Grade Separation of Crossings of the Caltrain Railroad Tracks for the Environmental Review

Alternative 1: Recommend to City Council the selection of the Mary Avenue Underpass with Jughandle option and the Sunnyvale Avenue Underpass Tunnel option to be defined as the Proposed Project for the grade separation of crossings of the Caltrain railroad tracks for the Environmental Review under the California Environmental Quality Act.

RTC 22-0628 was segmented into two separate items: Mary Avenue location and Sunnyvale Avenue location. BPAC did not hear the Mary Avenue location due to a

lack of quorum with one absence (Commissioner Bonne) and three recusals (Chair Mehlinger, Commissioner Davé and Commissioner Hafeman).

Commissioner Beagle stated he lives within 1000 feet of the Sunnyvale Avenue project, recused himself from discussion on the Sunnyvale Avenue location.

Angela Obeso, Principal Transportation Engineer, gave a presentation on the Sunnyvale Avenue location. Highlighting the following:

- Project Background
- Project Locations
- Project Purpose
- Why Grade Separation is needed
- Next steps
- Current Alternatives Sunnyvale Avenue
- Sunnyvale Avenue Underpass Tunnel
- Sunnyvale Avenue Underpass Tunnel Traffic Study Summary
- Sunnyvale Avenue Underpass Tunnel Bicycle Circulation
- Sunnyvale Avenue Underpass Tunnel Parking and Loading Opportunities
- Bicycle and Pedestrian only Undercrossing
- Local examples of Bicycle and Pedestrian Undercrossings
- Sunnyvale Avenue Alternative Comparison
- Staff Recommendation - Alternative 3: Recommend to City Council the selection of the Sunnyvale Avenue Underpass Tunnel option to be defined as the Proposed Project for the grade separation of the Sunnyvale Avenue crossing of the Caltrain railroad tracks for the Environmental Review

Vice Chair Mehlerman asked about the following:

- Could the multi-use path be widened to have separation between bikes and pedestrians?
- Any plans when coming off of Hendy Avenue another undercrossing that would permit vehicles to access the parking garage for the Caltrain Station by going under the tracks directly into the parking garage.
- Why isn't the space that is over the tunnel used as a small open space?
- Alternative design if open space is available for additional bike parking/storage spaces/lockers and infrastructure to support bicycle parking?

Ms. Obeso addressed the questions.

Commissioner Davé asked about the following:

- Emergency Vehicle Access
- Is there only one side of the road that has access for a bicyclists/pedestrian or do you have to cross twice to get to the opposite direction?

Ms. Obeso addressed the questions.

Commissioner Oey asked about the following:

- How wide are the bike/ped ramps in the bike/ped underpass option?
- How much longer would the VTA bus 55 re-route be in the bike/ped section?
- What was the vision for the treatment on the S curve on the bike/ped option?
- Was it considered to have a straight through approach for the Bike/ped only underpass?
- Will the pedestrian crossings in the Sunnyvale Station stay the same so pedestrians can walk through the station?

Ms. Obeso addressed the questions.

Commissioner Hafeman asked what is the opinion of the Downtown Association?

Ms. Obeso addressed the question

Public Comment opened at 8:22 p.m.

Nick, member of the public, commented on the following:

- Bike & Ped Only Option is the best
- Best for businesses, bicyclists, pedestrians, costs, climate and City goals
- Concerns with Vehicle Underpass Option
- Sunnyvale Tunnel - Indirect/Dangerous for Cyclists

Lori, member of the public, commented on the following:

- Sunnyvale Tunnel - Negatively affecting pedestrians
- Sunnyvale Tunnel - Tunnels with cars are unpleasant
- Sunnyvale Tunnel - Impacts to nearby businesses
- Sunnyvale Tunnel - Car traffic would be worse

Ari Feinsmith, member of the public, commented on the following:

- Sunnyvale Tunnel - Increased costs/footprint
- Spending hundreds of millions of dollars to accommodate vehicle travel times is a

waste of money

- Bike/Ped Only Option benefits downtown
- Sunnyvale Downtown Association supports the Bike/Ped Only Option
- Nearby residents will still have access to downtown
- Thanked City Staff for accepting feedback

Mike, member of the public, commented on the following:

- Flooding issues
- Supports the Bike/Ped Only Option
- Addressing the constant use of it as a public toilet and homeless habitat if Bike/Ped Only Option is picked

Gary Gold, Chair of the Sunnyvale Downtown Association, commented on the following:

- Sunnyvale Tunnel would impact service vehicles from accessing the Murphy parking lot from Sunnyvale Ave. which would affect getting supplies for local businesses
- Sunnyvale Downtown Association does not support the Sunnyvale UnderpassTunnel
- Supports Bike/Ped Only Option

Sharlene Liu, member of the public, commented on the following:

- Highlighted what City policy states about transportation projects relevant to the Sunnyvale Avenue Undercrossing
- Bike/Ped Only Option is safer for cyclists because of fewer bicycle vehicle conflict points compared to vehicle tunnel option
- Supports Bike/Ped Only Option
- Policy LT3.22 - guides you to prioritize bike and pedestrian safety over capacity of vehicles
- Policy LT3.6 - promote modes of travel and actions that provide safe access to City streets and reduce single occupant vehicle trips
- Tunnel Underpass Option not safe for bicyclists or convenient for pedestrians
- Bike/Ped Only Option very safe for cyclist and more inviting for pedestrians

Public Comment closed at 8:41 p.m.

Commissioner Oey asked about the following:

- Has City staff done analysis of VMT(vehicle miles traveled) impacts which would include decreasing/increasing VMT?

- Has there been any analysis on the climate impacts?

Ms. Obeso addressed the questions.

Chair Mehlinger asked about the following:

- Was a CEQA analysis done?
- Have you consulted with VTA?
- Are there ridership numbers for the effective bus routes that would be severed for doing the bike/ped underpass option?
- Are tech shuttle buses currently using Sunnyvale Avenue corridor? If so, how many and which companies?
- Is it possible in the car underpass option to physically protect the bike lanes going into the tunnel with concrete?
- Strongly recommends vertical concrete barriers with car underpass
- Which option is safer, more convenient and more pleasant for bicyclists and pedestrians?

Ms. Obeso addressed the questions.

Commissioner Oey asked did Sunnyvale staff do a comparison with this project to the Mountain View Castro Street Project?

Ms. Obeso addressed the question.

Chair Mehlinger asked about the following:

- Was there any outreach to residents along Sunnyvale Avenue up to Maude Avenue?
- What was the preference of the options from the residents who have been involved with the outreach?

Ms. Obeso addressed the questions.

MOTION: Vice Chair Mehlman moved and Commissioner Oey seconded to recommend Alternative 4: Bicycle and Pedestrian Only Option.

Vice Chair Mehlman stated there are fewer opportunities for vehicular conflict between cyclists and pedestrians. There is less impact to existing physical infrastructure with respect to the businesses on Sunnyvale Road on the other side of Evelyn Avenue. Re-routing most of the vehicular traffic is a good thing. Project

costs are half of Sunnyvale Avenue Tunnel Option and better buy in from the merchants. Finally, less of an environmental impact overall.

Commissioner Oey stated he is very much in favor of saving money, resources, reducing VMT, prioritizing bike/ped travel over car travel and improve safety. This option would provide support for north/south travel for bikes/peds. There is a lot of support from the community.

FRIENDLY AMENDMENT: Chair Mehlinger stated should City Council choose the Sunnyvale Avenue Underpass Option, it is the BPAC's strong recommendation that any bicycle facilities on the underpass be physically separated and protected by concrete. Vice Chair Mehman and Commissioner Oey accept the friendly amendment.

Commissioner Hafeman commented on the following:

- Supports the Bike/Ped Only Option
- A lot of kids take bus 55 to school
- Not in favor of spending an extra \$100 million on a two lane underpass

Chair Mehlinger commented on the following:

- Concerns about the bus service
- Guided by City Policy LT3.6
- Safety first approach to roadways
- Cost difference \$100 million
- Reduction in VMT per capita over the next 10 years
- Underpass Option would cause substantial disruption to the street grid south of the tracks
- Downtown Sunnyvale Association concerns should be validated
- Underpass Option would increase VMT which would be bad for the environment
- Proposal to widen North Sunnyvale Avenue would be less safe for cyclists
- Underpass Option worse according to City policy and twice as expensive

MOTION: Support Alternative 4: Bicycle and Pedestrian Only Underpass Option. Recommend to City Council if they choose Alternative 3: Underpass Option that any bicycle facilities on the underpass should be physically separated and protected by concrete.

The motion carried with the following vote:

Yes 5 - Commissioner Mehlinger
Chair Mehلمان
Commissioner Davé
Commissioner Hafeman
Commissioner Oey

No 0

Absent 1 - Commissioner Bonne

Recused 1 - Vice Chair Beagle

- 3** [22-0777](#) Report and Discussion of Recent Santa Clara Valley
Transportation Authority (VTA) Bicycle and Pedestrian
Advisory Committee (BPAC) Meeting

Chair Mehlinger called for a recess at 9:06 p.m. Chair Mehlinger reconvened the meeting at 9:16 p.m.

Commissioner Oey, VTA BPAC Sunnyvale Representative, gave the meeting summary report regarding the following topics:

- VTA BPAC reviewed and provided feedback for the Complete Streets Checklists for One Bay Area Grant Cycle 3 applicants
- VTA BPAC noted that the part time bike lanes on Homestead Road are a significant impediment and hope these will be made into full time bike lanes
- Lawrence Expressway project is from Homestead to Doyle so just outside of Sunnyvale, but several bike and pedestrian improvements will be implemented on this stretch
- VTA MultiModal monitoring software project should provide better modeling of bike, ped, and motor vehicle impacts resulting from future road and intersection projects
- MTC Regional Transportation Network
- VTA and Silicon Valley Bicycle Coalition continue to have many Smart Cycling adult education courses available see <https://BikeSiliconValley.org/ed>
- Sunnyvale and Cupertino have middle school classes available this summer see <https://wheelkids.com/msbs-sunnyvale> and <https://wheelkids.com/msbs-cupertino>
- August 18 - Silicon Valley Bike Summit, Silicon Valley's largest gathering of active transportation leaders and organizers in Milbrae. For more information see <https://bikesiliconvalley.org/events/summit>
- 2nd annual Sunnyvale-Santa Clara El Camino ride is on Saturday, July 16

Public Comment opened at 9:22 p.m.

No Speakers

Public Comment closed at 9:22 p.m.

4 [22-0778](#) Selection of Chair and Vice Chair for FY22/23

Lillian Tsang, Principal Transportation Engineer explained the roles of the Chair and Vice Chair for the Bicycle and Pedestrian Advisory Commission, FY 2022/2023.

Commissioner Davé nominated Commissioner Hafeman as Chair or Vice Chair.
Commissioner Hafeman declines the nomination.

Vice Chair Mehlman nominated Vice Chair Mehlman as Chair. Vice Chair Mehlman accepts the nomination.

There was no other nominations for the Chair position.

The motion carried the following vote:

Yes 6 - Commissioner Mehlinger
Chair Mehlman
Vice Chair Beagle
Commissioner Davé
Commissioner Hafeman
Commissioner Oey

No 0

Absent 1 - Commissioner Bonne

Vice Chair Mehlman nominated Commissioner Davé as Vice Chair. Commissioner Davé declines the nomination.

Commissioner Beagle nominated Commissioner Beagle as Vice Chair.
Commissioner Beagle accepts the nomination.

Commissioner Hafeman nominates Commissioner Oey as Vice Chair. Commissioner Oey declines the nomination.

There was no other nominations for the Vice Chair position.

Ms. Tsang stated the Chair and Vice Chair training will be held on Thursday, July 28 at 5:30 p.m. via Zoom.

The motion carried the following vote:

Yes 6 - Commissioner Mehlinger
Chair Mehلمان
Vice Chair Beagle
Commissioner Davé
Commissioner Hafeman
Commissioner Oey

No 0

Absent 1 - Commissioner Bonne

STANDING ITEM: CONSIDERATION OF POTENTIAL STUDY ISSUES

NON-AGENDA ITEMS & COMMENTS

5 [22-0779](#) Develop Bicycle Wayfinding Signage Plan (Potential Study Issue)

Chair Mehlinger and Commissioner Davé gave a presentation on the Bicycle Wayfinding Signage Plan Potential Study Issue and highlighted the following:

- Examples of Wayfinding signage in other City's on major bicycle routes
- Wayfinding signs help with where you are and where you are going
- Active Transportation Plan (ATP) says wayfinding signage is needed
- Examples of where wayfinding signage is needed in Sunnyvale
- Recommendation - vote in favor of the motion and vote to put the study issue on the list

Vice Chair Mehلمان commented and asked about the following:

- Why does this need to be a study issue if it is required to have wayfinding signage in the ATP? Chair Mehlinger stated the study issue would make the wayfinding signs happen sooner rather than later.
- Supports the potential study issue - wayfinding signs are necessary
- A way to utilize Sunnyvale's bicycle infrastructure most efficiently

Commissioner Oey commented and asked about the following:

- Strongly supports the study issue
- Long overdue to get better wayfinding signs in Sunnyvale like our peer City's near Sunnyvale
- Will this study issue fix any wayfinding signs currently in use in Sunnyvale?
- VTA technical guideline on how wayfinding signs should work

Ms. Tsang addressed the question.

Commissioner Beagle asked when voting on the study issue will the BPAC get any notification on how much time and effort City staff devotes to the study itself? Ms. Tsang explained the study issue process.

MOTION: Chair Mehlinger moved and Commissioner Davé seconded to accept the potential study issue for consideration at the September/October BPAC meeting.

Commissioner Davé stated there will be two kinds of signs. One sign would be a decision sign and the other would be confirming how far it is to a destination.

FRIENDLY AMENDMENT: Commissioner Oey would like to include re-examining existing wayfinding signs and consider them as part of the overall plan. Commissioner Davé and Chair Mehlinger accepts the friendly amendment.

FRIENDLY AMENDMENT: Vice Chair Mehلمان would like to add to Commissioner Oey's amendment and propose to upgrade existing signage to conform to the new plan and agreed upon standards. Commissioner Oey and Commissioner Davé accepts the friendly amendment.

MOTION: Accept the potential study issue for consideration at the September/October BPAC meeting. Re-examine existing wayfinding signs and propose to upgrade existing signage to conform to the new plan and agreed upon standards. Finally, this issue would examine the existing numbered routes and consider them for alteration to meet the new standards.

The motion carried with the following vote:

Yes 6 - Commissioner Mehlinger
Chair Mehلمان
Vice Chair Beagle
Commissioner Davé
Commissioner Hafeman
Commissioner Oey

No 0

Absent 1 - Commissioner Bonne

-Commissioner Comments

Commissioner Oey commented on the following:

- August 18 - Silicon Valley Bicycle Summit

Chair Mehlinger commented on the following:

- Honored to have been the Chair for BPAC for the last 3 years
- Thanked everyone

Commissioner Oey, Vice Chair Mehلمان, Commissioner Hafeman and Council member Din thanked Chair Mehlinger for his time as Chair and the excellent job he did.

-Staff Comments

Lillian Tsang, Principal Transportation Engineer, commented on the following:

- Thursday, July 28 at 3:00 p.m. - Public Outreach Meeting to obtain input for the Perry Park Area Transportation Improvement Project. More information on the City webpage on the events calendar

- Homestead Road Bike Lane Study public outreach meeting in August. More information on the City webpage, search for Transportation projects and on the Transportation projects page there is a subscribe button to get on the email list

- The following items will be brought to City Council for consideration on Tuesday, July 26:

Appointment of the VTA/BPAC representative - Appointing Commissioner Bonne
Award for construction contract for the Lawrence Station Area Sidewalk and Bicycle Facility Project

- Tuesday, August 9, City Council meeting - award for the construction contract for Java Drive Road Diet Project and for the award for the construction contract for the Fremont/Bobwhite/Manet Project and accepting the funding for the East Channel

Trail Study

- Sunnyvale Bike Lane Project will advertise for construction in August

INFORMATION ONLY REPORTS/ITEMS

[22-0780](#) BPAC 2022 Annual Work Plan

[22-0781](#) Active Items List 2022

[22-0782](#) 2022 Deferred Study Issues

ADJOURNMENT

Chair Mehlinger adjourned the meeting at 10:10 p.m.

ATTACHMENT H

**AUGUST 1, 2022 - BPAC MEETING
MINUTES**



City of Sunnyvale

Meeting Minutes - Final Bicycle and Pedestrian Advisory Commission

Monday, August 1, 2022

6:00 PM

Telepresence Meeting: City Web Stream

6 P.M. SPECIAL BICYCLE AND PEDESTRIAN ADVISORY COMMISSION MEETING

CALL TO ORDER

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on July 12, 2022.

Chair Mehlinger called the meeting to order at 6:02 p.m. via teleconference.

ROLL CALL

Present 6 - Commissioner Richard Mehlinger
Chair Leia Mehlman
Vice Chair Bryce Beagle
Commissioner Alex Bonne
Commissioner Dan Hafeman
Commissioner Timothy Oey
Absent 1 - Commissioner Arwen Davé

Lillian Tsang, Principal Transportation Engineer, Angela Obeso, Principal Transportation Engineer and Thinh Le, Transportation Engineer attended via teleconference.

Commissioner Davé (absent)
Council Liaison Din (present)

PUBLIC HEARINGS/GENERAL BUSINESS

- 1 [22-0791](#) Recommend to City Council the Selection of the Mary Avenue Underpass with Jughandle Option to be Defined as the Proposed Project for the Grade Separation of Crossing of the Caltrain Railroad Tracks for the Environmental Review

Chair Mehlinger stated he has a conflict of interest where he owns real property within 1000 feet of the Mary Avenue Underpass, recused himself from the agenda item, and left the teleconference meeting at 6:05 p.m. Vice Chair Mehلمان took over as Chair to run the meeting.

Commissioner Hafeman stated he owns real property within 1000 feet of the Mary Avenue Underpass, recused himself from the agenda item, and left the teleconference meeting at 6:06 p.m.

Angela Obeso, Principal Transportation Engineer, gave a presentation on the Caltrain Grade Separation Feasibility Study - Mary Avenue Underpass. Highlighting the following:

- Project Background
- Project Locations
- Project Purpose - Safety
- Why Grade Separation is needed
- Next Steps - Preferred Option Selection - August 30th City Council
- First option - Mary Avenue Underpass Tunnel
- Mary Avenue Underpass Traffic Study Summary
- Examples of local underpass projects
- Second option - Mary Avenue Underpass Tunnel with Jughandle
- Mary Avenue Underpass with Jughandle Traffic Study Summary
- Mary Avenue Alternative Comparison
- Staff Recommendation

Commissioner Bonne commented and asked about the following:

- Data on frequency of collisions between trains, vehicles, pedestrians and bicyclists
- How the underpass would address collisions
- How realistic are the Caltrain predictions on their growth and time frame
- Mary Avenue Underpass would not be safe
- Mary Avenue Underpass Jughandle focuses too much on cars not enough for bicyclists and pedestrians

Ms. Obeso addressed the questions.

Commissioner Oey asked about the following:

- Where the money is coming from to cover the construction
- What are the most common routes people are taking for vehicles, pedestrians and

bicyclists

- Bikeway along Evelyn Avenue
- Conflict points on Evelyn Avenue
- Results of survey

Ms. Obeso addressed the questions.

Commissioner Beagle asked about the following:

- Cost difference between the Underpass and the Jughandle
- Crosswalk on the eastern side of the Jughandle connection to Evelyn but not on the western side
- Did the study look into closing the Bidwell Avenue connection at Mary Avenue entirely
- What is preventing the westbound traffic on Evelyn Avenue on the Jughandle option to continue uninterrupted without having to stop at the stoplight
- Updating classification of bike lanes on Mary Avenue
- Is there a requirement that the turn lanes need to sit at the right of the bike lanes?

Ms. Obeso addressed the questions.

Acting Chair Melhman commented and asked about the following:

- Are the proposed level of bike lanes class II bike lanes just conceptual? Are they the floor of the ATP bike lane design?
- Why hasn't the conceptual design incorporated 2 stage bike turn queues to reduce the number of conflict points?
- If the properties are purchased what other uses can they be used besides the Jughandle? Could there be a park installation?
- Should have higher standards in the proposed designs for bike lanes

Ms. Obeso addressed the questions.

Commissioner Bonne asked about the following:

- What would be the budget and the space impact if there is a concrete barrier separating the bicycles from the vehicles?
- What is the minimum vehicle lane width that could be implemented? Can one vehicle lane be narrower than the other?
- Did you consider breaking the vehicle connection between Evelyn Avenue and Mary Avenue and eliminating the Jughandle?

Ms. Obeso addressed the questions.

Public Comment opened at 7:02 p.m.

Ari Feinsmith, member of the public, commented on the following:

- Thanked Ms. Obeso and City staff for reaching out to the Bike Sunnyvale SVBC
- Neither intersection design stand out as significantly more bike/pedestrian friendly
- Conflict point is about the same for both designs for bicycles and pedestrians
- Depressed Intersection Suggestion: Upgrade to protected intersection
- Jughandle suggestion - make both intersections protected
- Mary Avenue - depending on which bicycle enhancements are included, the options can look better or worse

Dan Hafeman, member of the public, commented on the following:

- In support of the Jughandle, less expensive and slightly better for bicyclists/pedestrians
- Not in favor of option 2: auto ramps on the train track side on the roadway
- Does not like submerged intersection because 7-11 a local store for the neighborhood would have to go away
- Not in favor of do nothing option, the project is not just for cars, but also for Caltrain and keeping people off tracks

Public Comment closed at 7:08 p.m.

Commissioner Oey commented on the following:

- Would like to see project come back to BPAC for feedback in the final design phase
- Supports Jughandle Option because it reduces conflict points
- Lower cost and fewer environmental impacts

Commissioner Beagle commented on the following:

- Bidwell Avenue should be closed to vehicle traffic at Mary Avenue to benefit bike/ped

Acting Chair Mehlman commented on the following:

- Supports Jughandle Option
- Would like to see the final proposal brought back to the BPAC
- Standards for the final proposal for the ATP be brought up to more than the minimum standards

MOTION: Commissioner Oey moved and Acting Chair Mehlman seconded to Alternative 2 with Modifications: Recommend to City Council the Selection of the Mary Avenue Underpass with Jughandle Option to be Defined as the Proposed Project for the Grade Separation of Crossing of the Caltrain Railroad Tracks for the Environmental Review and the final design be brought before Bicycle and Pedestrian Advisory Commission for approval before City Council vote.

Acting Chair Mehlman commented on the following:

- Seeing the draft proposal does not constitute BPAC's endorsement of the actual infrastructure
- Would like to see the final proposal and provide feedback

Commissioner Oey commented on the following:

- Likes Jughandle Option because it minimizes the impacts to area, construction and climate change
- More favorable option for bicyclists and pedestrians through the intersection than there would be for a fully depressed intersection
- Important to give feedback on the final design

FRIENDLY AMENDMENT: Acting Chair Mehlman would like the final design meet more than the minimum ATP standards for bicycle and pedestrian infrastructure. Commissioner Oey accepts the friendly amendment. Commissioner Beagle accepts the friendly amendment.

Acting Chair Mehlman commented on the following:

- Standards for the final proposal for the ATP should be brought up to more than the minimum standards

FRIENDLY AMENDMENT: Commissioner Beagle would like to add that City Council modify the plan to close the Bidwell Avenue intersection at Mary Avenue to vehicular traffic while keeping it open to pedestrians and bicyclists thereby removing a dangerous conflict point. Commissioner Oey seconded the friendly amendment. Acting Chair Mehlman rejects the friendly amendment.

Acting Chair Mehlman commented on the following:

- Bidwell Avenue should remain open for safety vehicle access
- Diverting fire and ambulance to a longer route
- Diverting more traffic through residential neighborhood

- Impacts to the residents of the neighborhood with increase vehicular traffic would be detrimental

Commissioner Oey commented on the following:

- Commissioner Beagle's friendly amendment should be looked at and evaluated
- Would like to see it investigated, likes the idea

FRIENDLY AMENDMENT: Commissioner Beagle would like to add that City Council modify the plan to investigate closing the Bidwell Avenue intersection at Mary Avenue to vehicular traffic while keeping it open to pedestrians and bicyclists thereby removing a dangerous conflict point. Commissioner Oey and Acting Chair Mehlman accepts the friendly amendment.

MOTION: Commissioner Oey moved and Acting Chair Mehlman seconded to Alternative 2 with Modifications: Recommend to City Council the Selection of the Mary Avenue Underpass with Jughandle Option to be Defined as the Proposed Project for the Grade Separation of Crossing of the Caltrain Railroad Tracks for the Environmental Review and the final design be brought before Bicycle and Pedestrian Advisory Commission for approval before City Council votes. The final design standards meet more than the minimum ATP standards for bicycle and pedestrian infrastructure. City Council modify the plan to investigate closing the Bidwell Avenue intersection at Mary Avenue to vehicular traffic while keeping it open to pedestrians and bicyclists thereby removing a dangerous conflict point.

The motion carried with the following vote:

The motion carried with the following vote:

Yes: 4 - Acting Chair Mehlman
Commissioner Bonne
Commissioner Beagle
Commissioner Oey

No: 0

Absent 1 - Commissioner Davé

Recused 2 - Commissioner Mehlinger
Commissioner Hafeman

Adjourn Special Meeting

Acting Chair Mehlman adjourned the meeting at 7:34 p.m.

ATTACHMENT I

AUGUST 30, 2022 - CITY COUNCIL MEETING MINUTES



City of Sunnyvale

Meeting Minutes - Final City Council

Tuesday, August 30, 2022

5:00 PM

Telepresence Meeting: City Web Stream |
Comcast Channel 15 | AT&T Channel 99

**Special Meeting: Closed Session - 5 PM | Special Meeting: Study Session - 5:30 PM |
Regular Meeting - 7 PM | Regular Meeting: Sunnyvale Financing Authority - 7 PM (or
soon thereafter)**

5 P.M. SPECIAL COUNCIL MEETING (Closed Session)

Call to Order

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on August 9, 2022.

Vice Mayor Cisneros called the meeting to order at 5:01 p.m. via teleconference.

Roll Call

Present: 6 - Mayor Larry Klein
Vice Mayor Alysa Cisneros
Councilmember Gustav Larsson
Councilmember Glenn Hendricks
Councilmember Russ Melton
Councilmember Anthony (Tony) Spitaleri
Absent: 1 - Councilmember Omar Din

Mayor Klein, Vice Mayor Cisneros and Councilmembers Larsson, Hendricks, Melton and Spitaleri attended via teleconference.

Public Comment

Public Comment opened at 5:04 p.m.

Richard Leshar indicated a desire to speak on the gun safety measures study session.

Public Comment closed at 5:06 p.m.

Convene to Closed Session

- A** [22-0752](#) Closed Session Held Pursuant to California Government Code Section 54957.6:
CONFERENCE WITH LABOR NEGOTIATORS
Agency designated representatives: Tina Murphy, Director of Human Resources
Employee organization: Service Employees International Union (SEIU)

Adjourn Special Meeting

Vice Mayor Cisneros adjourned the meeting at 5:21 p.m.

5:30 P.M. SPECIAL COUNCIL MEETING (Study Session)**Call to Order**

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on August 9, 2022.

Vice Mayor Cisneros called the meeting to order at 5:37 p.m. via teleconference.

Roll Call

- Present:** 6 - Mayor Larry Klein
Vice Mayor Alysia Cisneros
Councilmember Gustav Larsson
Councilmember Glenn Hendricks
Councilmember Russ Melton
Councilmember Anthony (Tony) Spitaleri
- Absent:** 1 - Councilmember Omar Din

Mayor Klein, Vice Mayor Cisneros and Councilmembers Larsson, Hendricks, Melton and Spitaleri attended via teleconference.

Study Session

- B** [22-0114](#) Discussion Regarding Potential Gun Safety Measures in Sunnyvale

City Attorney John Nagel and Assistant City Attorney Rebecca Moon provided the staff report and presentation.

Public Comment opened at 6:14 p.m.

Guadalupe Rosas indicated a desire to speak during Oral Communications at the Regular Council meeting.

Rich P. spoke in favor of City Council adopting the proposed gun safety measures and suggested adding a liability insurance requirement.

Richard Leshner voiced opposition to unenforceable gun safety measures.

Carol Weiss communicated support for prohibiting possession of assault weapons in Sunnyvale and adding libraries, playgrounds, theatres, etc. to the list of sensitive places.

Mike Serrone shared support for additional gun safety measures including outreach encouraging securing firearms.

Julia Liu spoke in support of additional gun safety measures in Sunnyvale.

Mariya Hodge voiced support for new gun safety measures.

Geoff Ainscow communicated support for the City Council passing the proposed gun safety measures and an insurance requirement for gun owners.

Agnes Veith shared support for additional gun safety measures and requiring insurance for gun owners.

Hardy Kim, Pastor/Head of Staff, Sunnyvale Presbyterian Church voiced support for the proposed gun safety measures and for resources to assist organizations in communicating when guns are not allowed on private property.

Public Comment closed at 6:31 p.m.

Adjourn Special Meeting

Vice Mayor Cisneros adjourned the meeting at 7:21 p.m.

7 P.M. COUNCIL MEETING**CALL TO ORDER**

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on August 9, 2022.

Mayor Klein called the meeting to order at 7:25 p.m. via teleconference.

ROLL CALL

Present: 5 - Mayor Larry Klein
Vice Mayor Alysa Cisneros
Councilmember Gustav Larsson
Councilmember Glenn Hendricks
Councilmember Russ Melton
Absent: 2 - Councilmember Omar Din
Councilmember Anthony (Tony) Spitaleri

Mayor Klein, Vice Mayor Cisneros and Councilmembers Larsson, Hendricks and Melton attended via teleconference.

Councilmember Spitaleri joined the meeting at 7:27 p.m.

CLOSED SESSION REPORT

Vice Mayor Cisneros reported that Council met in Closed Session Conference with Labor Negotiators Agency designated representatives: Tina Murphy, Director of Human Resources Employee organization: Service Employees International Union (SEIU); nothing to report.

SPECIAL ORDER OF THE DAY

C [22-0815](#) Hispanic Heritage Month

Mariant Salas, MGA Consulting Services spoke to Hispanic Heritage Month.

Mayor Klein read a proclamation in honor of Hispanic Heritage Month.

D [22-0906](#) National Library Card Sign-Up Month

Mayor Klein read a proclamation in honor of National Library Card Sign-Up Month.

Library and Recreation Services Director Michelle Perera spoke to the proclamation.

ORAL COMMUNICATIONS

Councilmember Melton announced the Community Events and Neighborhood Grants application deadline.

Guadalupe Rosas shared details of Service Employees International Union (SEIU) City employees and support for a memorandum of understanding that matches the salary increases provided to Sunnyvale Employee Association (SEA) employees.

Steve Scandalis indicated a desire to pull two agenda items from the Consent Calendar.

Betty King voiced support for SEIU employees receiving the same benefits as SEA employees.

Ilkay indicated a desire to speak on the grade crossings agenda item.

Cassandra Espinosa communicated support for SEIU employees receiving the same benefits as SEA employees.

Stephen Meier spoke to Hispanic Heritage month and requested a status update on Study Issue DPW 18-11 Analysis of Sunnyvale Golf Program.

CONSENT CALENDAR

Public Comment opened at 7:51 p.m.

Steve Scandalis requested agenda items 1.C and 1.I be pulled from the Consent Calendar.

Public Comment closed at 7:52 p.m.

MOTION: Councilmember Melton moved and Councilmember Spitaleri seconded the motion to approve agenda items 1.A, 1.B through 1.H, and 1.J.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Din

1.A [22-0112](#) Approve City Council Meeting Minutes of August 9, 2022

Approve the City Council Meeting Minutes of August 9, 2022 as submitted.

1.B [22-0574](#) Approve City Council Meeting Minutes of August 16, 2022
(Board and Commission Interviews | Consider Development
Agreement and Special Development Permit)

Approve the City Council Meeting Minutes of August 16, 2022 as submitted.

1.C [22-0158](#) Approve City Council Meeting Minutes of August 22, 2022
(Consider Canceling Council District 1 Election)

Public Hearing opened at 7:53 p.m.

Steve Scandalis requested the City include summaries of written public comments in meeting minutes and attach written public comments to the related agenda item.

Public Hearing closed at 7:56 p.m.

MOTION: Councilmember Hendricks moved and Councilmember Melton seconded the motion to approve City Council Meeting Minutes of August 22, 2022 as submitted.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Din

- 1.D** [22-0185](#) Approve the List(s) of Claims and Bills Approved for Payment by the City Manager

Approve the list(s) of claims and bills.

- 1.E** [22-0681](#) Receive and File the City of Sunnyvale Investment Report - Second Quarter 2022

Receive and file the City of Sunnyvale Investment Report Second Quarter.

- 1.F** [22-0719](#) Adopt a Resolution to Summarily Vacate Slope Easement at 1100 North Mathilda Avenue

Adopt a Resolution to summarily vacate the 15-foot-wide slope easement at 1100 North Mathilda Avenue; and authorize and direct the City Clerk to record a certified copy of the Resolution, attested by the City Clerk under seal, with the Santa Clara County Recorder's Office.

- 1.G** [22-0577](#) Designate a Voting Delegate and Alternate for the 2022 League of California Cities Annual Conference

Approve the Mayor's nomination of himself as the Voting Delegate and Councilmember Russ Melton as Alternate.

- 1.H** [22-0813](#) Appoint Jean Cohen, Brian Murphy, Mrinalini Vittal and Theresa Woo to the NOVA Workforce Board

Appoint Jean Cohen, Brian Murphy, Mrinalini Vittal and Theresa Woo to the NOVA Workforce Board.

- 1.I** [22-0839](#) Reconsider and Affirm Resolution No. 1089-21; and Make Findings Pursuant to Government Code Section 54953(e) (AB 361) to Continue Virtual Public Meetings for the City Council and Boards, Commissions and Council Subcommittees During the COVID-19 State of Emergency

Public Hearing opened at 7:59 p.m.

Steve Scandalis spoke in support of the City transitioning to hybrid in-person/virtual public meetings.

Public Hearing closed at 8:02 p.m.

MOTION: Councilmember Melton moved and Councilmember Larsson seconded the motion to affirm Resolution 1089-21; and make findings pursuant to Government Code Section 54953(e) (AB 361) to continue virtual public meetings for the City Council and Boards, Commissions and Council Subcommittees during the COVID19 State of Emergency:

1. The City Council hereby finds that the state of emergency conditions related to COVID-19, as set forth in Resolution No. 1139-22 adopted on August 9, 2022 and incorporated herein by reference, are ongoing;
2. The City Council finds that there is a need to continue teleconferencing for public meetings without posting the teleconferencing locations on the agenda and without requiring the teleconference locations to be accessible to the public during the current Governor proclaimed COVID-19 state of emergency; and
3. The City Council finds that the state of emergency continues to directly impact the ability of members of the City Council, Council Standing Committees, and City Boards and Commissions to meet safely in person.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Din

- 1.J** [22-0884](#) Adopt Ordinance No. 3197-22 to Approve and Adopt a Development Agreement between the City of Sunnyvale and Gary Thon-Lon Hon and Nichole Ying Lin Hon, as trustees of the Hon Family Trust and Edward H. Leone Jr. LLC, and the City of Sunnyvale for the development of property identified by assessor's parcel numbers 209-28-008 and 209-28-052 and commonly known as 355 W. Olive Avenue and 480 S. Mathilda Avenue.

Adopt Ordinance No. 3197-22 to approve and adopt a Development Agreement

between Gary Thon Lon Hon/Nicole Yin Hon and Edward H. Leone Jr., LLC, and the City of Sunnyvale for the development of property identified by assessor's parcel numbers 209-28-008 and 209-28-052 and respectively known as 355 W. Olive Avenue and 480 S. Mathilda Avenue.

ADJOURNMENT TO REGULAR MEETING OF THE SUNNYVALE FINANCING AUTHORITY

Mayor Klein adjourned the Council meeting to the Sunnyvale Financing Authority at 8:07 p.m.

7 P.M. (OR SOON THEREAFTER) REGULAR MEETING OF THE SUNNYVALE FINANCING AUTHORITY

Call to Order

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the Financing Authority made the necessary findings by adopting Resolution No. 1105-22FA, reaffirmed on August 9, 2022.

Authority Chair Klein called the Sunnyvale Financing Authority meeting to order at 8:07 p.m. via teleconference.

Roll Call

Present: 6 - Authority Chair Larry Klein
Authority Vice Chair Alysa Cisneros
Authority Member Gustav Larsson
Authority Member Glenn Hendricks
Authority Member Russ Melton
Authority Member Anthony (Tony) Spitaleri

Absent: 1 - Authority Member Omar Din

Authority Chair Klein, Authority Vice Chair Cisneros and Authority Members Larsson, Hendricks, Melton and Spitaleri attended via teleconference.

Oral Communications

No speakers.

Consent Calendar

Public Comment opened at 8:09 p.m.

No speakers.

Public Comment closed at 8:09 p.m.

MOTION: Authority Vice Chair Cisneros moved and Authority Member Melton seconded the motion to approve agenda items 2.A through 2.B.

The motion carried with the following vote:

Yes: 6 - Authority Chair Klein
Authority Vice Chair Cisneros
Authority Member Larsson
Authority Member Hendricks
Authority Member Melton
Authority Member Spitaleri

Absent: 1 - Authority Member Din

2.A [22-0840](#) Approve Sunnyvale Financing Authority Meeting Minutes of August 9, 2022

Approve the Sunnyvale Financing Authority Meeting Minutes of August 9, 2022 as submitted.

2.B [22-0841](#) Reconsider and Affirm Resolution No. 1105-22FA; and Make Findings Pursuant to Government Code Section 54953(e) (AB 361) to Continue Virtual Public Meetings for the Sunnyvale Financing Authority During the COVID-19 State of Emergency

Affirm Resolution 1105-22FA; and make findings pursuant to Government Code Section 54953(e) (AB 361) to continue virtual public meetings for the Financing Authority during the COVID-19 State of Emergency:

1. The Financing Authority Board has found and determined that the state of emergency conditions related to COVID-19, as set forth in City of Sunnyvale Resolution No. 1139-22 adopted on August 9, 2022, and incorporated herein by reference, are ongoing;
2. The Financing Authority Board finds that there is a need to continue teleconferencing for public meetings without posting the teleconferencing locations on the agenda and without requiring the teleconference locations to be accessible to the public during the current Governor proclaimed COVID-19 state of emergency; and
3. The Financing Authority Board finds that the state of emergency continues to directly impact the ability of members of the Financing Authority to meet safely in

person.

ADJOURN SUNNYVALE FINANCING AUTHORITY MEETING

Authority Chair Klein adjourned the Sunnyvale Financing Authority meeting at 8:10 p.m.

RECONVENE TO CITY COUNCIL MEETING

Mayor Klein reconvened the City Council Meeting at 8:10 p.m.

PUBLIC HEARINGS/GENERAL BUSINESS

- 3 [22-0041](#) Selection of the Mary Avenue Underpass with Jughandle Option and the Sunnyvale Avenue Underpass Tunnel Option to be Defined as the Proposed Projects for the Grade Separation of Crossings of the Caltrain Railroad Tracks for the Environmental Review

Vice Mayor Cisneros stated she rents an apartment in a complex located within 1,000 feet of the Sunnyvale Avenue Grade Separation and is awaiting an advice letter from the Fair Political Practices Commission determining if it would be appropriate for her to participate in that portion of the agenda item and left the meeting at 8:18 p.m.

MOTION: Mayor Klein moved and Councilmember Melton seconded the motion to continue the Sunnyvale Avenue Grade Separation portion of the agenda item to the September 27, 2022 Council meeting.

Public Hearing opened at 8:28 p.m.

Bryce Beagle communicated support for continuing the Sunnyvale Avenue Grade Separation portion of the agenda item until the all Councilmembers are able to attend.

John Schmidt spoke in support of continuing the Sunnyvale Avenue Grade Separation portion of the agenda item.

Stephen Meier shared concerns about Councilmembers recusing themselves from the grade separation decisions.

Richard Mehlinger spoke in support of continuing this portion of the agenda item to

a date where all of Council can attend.

Jason Feinsmith voiced support for continuing the Sunnyvale Avenue Grade Separation portion of the agenda item.

Daniel Howard spoke to separating the grade crossing into two agenda items and continue the Sunnyvale Avenue Grade Separation portion of the agenda item.

Mike Johnson, Executive Director, Sunnyvale Downtown Association shared the importance of the decision and support for continuing the Sunnyvale Avenue Grade Separation portion of the agenda item.

Ari Feinsmith communicated support for continuing the Sunnyvale Avenue Grade Separation portion of the agenda item.

Public Hearing closed at 8:36 p.m.

The motion carried with the following vote:

Yes: 5 - Mayor Klein
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Din

Recused: 1 - Vice Mayor Cisneros

Vice Mayor Cisneros returned to the meeting at 8:52 p.m.

Principal Transportation Engineer/Planner Angela Obeso provided the staff report and presentation.

Public Hearing opened at 9:43 p.m.

Sharlene Liu, Bike Sunnyvale, provided a presentation addressing the Mary Avenue Grade Separation.

Kelly Carpenter, Bike Sunnyvale, provided a presentation addressing the Mary Avenue Grade Separation.

Bryce Beagle provided a presentation on the Mary Avenue Grade Separation.

Joe McKenna, President, Golden West Collision Center, communicated concerns regarding the impact of the project on his business.

Adina Levin, Friends of Caltrain spoke on the project and shared support for Bike Sunnyvale's recommendations for the Mary Avenue Grade Separation.

Ari Feinsmith, Bike Sunnyvale, spoke in support of bicycle infrastructure, pedestrian crosswalks and the jughandle option.

Ellory Liu voiced support for keeping pedestrian and bicycle safety in mind.

Nick Brosnahan requested the project include more safety infrastructure for bicyclists and pedestrians.

Richard Mehlinger communicated support for additional safety infrastructure for the bicyclist and pedestrian experience.

Jen shared support for Alternative 2; the Mary Avenue Underpass with Jughandle option.

Public Hearing closed at 10:09 p.m.

MOTION: Councilmember Hendricks moved and Councilmember Melton seconded the motion to approve Alternative 2: Selection of the Mary Avenue Underpass with Jughandle option to be defined as the Proposed Project for the grade separation of the Mary Avenue crossing of the Caltrain railroad tracks for the Environmental Review.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Din

- 4 [22-0043](#) Appoint Applicants to the Arts Commission, Board of Building Code Appeals and Heritage Preservation Commission

City Clerk David Carnahan provided the staff report.

Public Hearing opened at 10:31 p.m.

No speakers.

Public Hearing closed at 10:32 p.m.

MOTION: Councilmember Hendricks moved and Councilmember Melton seconded the motion to approve Alternative 2: Postpone appointments to the Board of Building Code Appeals until the City Council considers the Council Subcommittee on Boards and Commission's recommendation to disband the Board of Building Code Appeals and appoint qualified applicants to the remaining boards and commissions as determined by the Council.

The motion carried with the following vote:

Yes: 6 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Spitaleri

No: 0

Absent: 1 - Councilmember Din

City Clerk David Carnahan conducted random order roll call votes, tallied the votes and reported the results as follows:

Arts Commission (1 vacancy)

Divya Gundurao (only preference)

Vote: 1-0-5 (Abstentions by Mayor Klein, Vice Mayor Cisneros, Councilmembers Larsson, Hendricks and Spitaleri; Councilmember Din absent)

Edna Aphek (1st preference)

Vote: 1-0-5 (Abstentions by Vice Mayor Cisneros, Councilmembers Larsson, Hendricks, Melton and Spitaleri; Councilmember Din absent)

Molly Kauffman (only preference)

Vote: 5-0-1 (Abstention by Councilmember Hendricks; Councilmember Din absent)

Richard Walrod (only preference)

Vote: 1-0-5 (Abstentions by Mayor Klein, Councilmembers Larsson, Hendricks, Melton and Spitaleri; Councilmember Din absent)

Molly Kauffman was appointed to the Arts Commission to serve the term expiring 6/30/2026.

Heritage Preservation Commission (2 Vacancies)

Edna Apek (2nd preference)

Vote: 3-0-3 (Abstentions by Vice Mayor Cisneros, Councilmembers Larsson and Hendricks; Councilmember Din absent)

Sue-Ellen Johnson (only preference)

Vote: 3-0-3 (Abstentions by Vice Mayor Cisneros, Councilmembers Hendricks and Spitaleri; Councilmember Din absent)

No appointments were made to the Heritage Preservation Commission.

Council took a recess at 10:39 p.m. and reconvened at 10:42 p.m. with all Councilmembers present via teleconference.

COUNCILMEMBERS REPORTS ON ACTIVITIES FROM INTERGOVERNMENTAL COMMITTEE ASSIGNMENTS

None.

NON-AGENDA ITEMS & COMMENTS

-Council

Councilmember Melton addressed earlier public comments related to Study Issue DPW 18-11 Analysis of Sunnyvale Golf Program.

-City Manager

City Manager Kent Steffens announced the Silicon Valley Business Journal selected the Sunnyvale Civic Center for the Project of the Year award.

INFORMATION ONLY REPORTS/ITEMS

- [22-0747](#) Tentative Council Meeting Agenda Calendar
- [22-0748](#) Board/Commission Meeting Minutes
- [22-0792](#) Information/Action Items
- [22-0809](#) Boards and Commissions Semi-Annual Attendance Report,
January to June 2022 (Information Only)

ADJOURNMENT

Mayor Klein adjourned the meeting at 10:49 p.m.

ATTACHMENT J

**SEPTEMBER 27, 2022 - CITY COUNCIL
MEETING MINUTES**



City of Sunnyvale

Meeting Minutes City Council

Tuesday, September 27, 2022

5:30 PM

Telepresence Meeting: City Web Stream |
Comcast Channel 15 | AT&T Channel 99

**Special Meeting: Closed Session - 5:30 p.m. | Regular Meeting - 7 PM | Regular Meeting:
Sunnyvale Financing Authority - 7 PM (or soon thereafter)**

5:30 P.M. SPECIAL COUNCIL MEETING (Closed Session)

Call to Order

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on August 30, 2022.

Vice Mayor Cisneros called the meeting to order at 5:31 p.m. via teleconference.

Roll Call

Present: 7 - Mayor Larry Klein
Vice Mayor Alysa Cisneros
Councilmember Gustav Larsson
Councilmember Glenn Hendricks
Councilmember Russ Melton
Councilmember Omar Din
Councilmember Anthony (Tony) Spitaleri

Mayor Klein, Vice Mayor Cisneros and all Councilmembers attended via teleconference.

Public Comment

Public Comment opened at 5:33 p.m.
No speakers.
Public Comment closed at 5:33 p.m.

Convene to Closed Session

A [22-0889](#) Closed Session Held Pursuant to California Government Code
Section 54957.6:

CONFERENCE WITH LABOR NEGOTIATORS

Agency designated representatives: Tina Murphy, Director of Human Resources

Employee organization: Service Employees International Union (SEIU)

B [22-0890](#)**CONFERENCE WITH LEGAL COUNSEL-PENDING**

LITIGATION Closed Session held pursuant to California Government Code Section 54956.9(d)(1). Name of case: Jane Doe v. The City of Sunnyvale, The City of Sunnyvale Department of Public Safety, Joel Lockwood, Santa Clara County Superior Court, Case No. 22CV399041

Adjourn Special Meeting

Vice Mayor Cisneros adjourned the meeting at 6:59 p.m.

7 P.M. COUNCIL MEETING**CALL TO ORDER**

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted telephonically; pursuant to state law, the City Council made the necessary findings by adopting Resolution No. 1089-21, reaffirmed on August 30, 2022.

Mayor Klein called the meeting to order at 7:00 p.m. via teleconference.

ROLL CALL

Present: 7 - Mayor Larry Klein
Vice Mayor Alysa Cisneros
Councilmember Gustav Larsson
Councilmember Glenn Hendricks
Councilmember Russ Melton
Councilmember Omar Din
Councilmember Anthony (Tony) Spitaleri

Mayor Klein, Vice Mayor Cisneros and all Councilmembers attended via teleconference.

CLOSED SESSION REPORT

Vice Mayor Cisneros reported that Council met in Closed Session Conference with

Labor Negotiators Agency designated representatives: Tina Murphy, Director of Human Resources Employee organization: Service Employees International Union (SEIU); nothing to report.

Vice Mayor Cisneros reported that Council met in Closed Session Conference with Legal Counsel Pending Litigation Closed Session held pursuant to California Government Code Section 54956.9(d)(1). Name of case: Jane Doe v. The City of Sunnyvale, The City of Sunnyvale Department of Public Safety, Joel Lockwood, Santa Clara County Superior Court, Case No. 22CV399041; nothing to report.

SPECIAL ORDER OF THE DAY

C [22-0939](#) Active Aging Week and Arts and Humanities Month

Mayor Klein read a proclamation in honor of Active Aging Week and Arts and Humanities Month.

D [22-0967](#) Breast Cancer Awareness Month

Mayor Klein read a proclamation in honor of Breast Cancer Awareness Month.

Bobbe Smirni, New Frontiers in Prevention of Breast Cancer spoke to Breast Cancer Awareness Month.

ORAL COMMUNICATIONS

Councilmember Din announced details of the current recruitment for various Boards and Commissions.

Galen Kim Davis shared their concerns with the recent automobile collisions that have resulted in deaths in Sunnyvale.

Richard Mehlinger spoke to the recent automobile collisions that resulted in deaths at the intersection of Wolf Road and Inverness Way.

CONSENT CALENDAR

Mayor Klein pulled agenda item 1.L for separate consideration.

Public Comment opened at 7:20 p.m.

No speakers.

Public Comment closed at 7:20 p.m.

MOTION: Vice Mayor Cisneros moved and Councilmember Melton seconded the motion to approve agenda items 1.A through 1.K and 1.M through 1.N.

The motion carried with the following vote:

Yes: 7 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

1.A [22-0709](#) Approve City Council Meeting Minutes of September 13, 2022
Approve the City Council Meeting Minutes of September 13, 2022 as submitted.

1.B [22-0888](#) Approve City Council Meeting Minutes of September 20, 2022
(Moffett Park Specific Plan Mobility)
Approve the City Council Meeting Minutes of September 20, 2022 as submitted.

1.C [22-0186](#) Approve the List(s) of Claims and Bills Approved for Payment
by the City Manager
Approve the list(s) of claims and bills.

1.D [22-0575](#) Approve Budget Modification No. 4 in the amount of \$5,040
from the Council Service Level Set-Aside for the Addition of an
Automatic Dependent Surveillance Broadcast or ADSB
Exchange Subscription to the Airplane Noise Monitoring
System to Provide Complete Information of All Aircraft
Equipped with the Proper Transponder not Already Captured
by the Currently Available Systems

Approve Budget Modification No. 4 in the amount of \$5,040 from the Council
Service Level Set-Aside for the addition of an Automatic Dependent Surveillance
Broadcast or ADSB Exchange Subscription to the Airplane Noise Monitoring System
to provide complete information of all aircraft equipped with the proper transponder
not already captured by the currently available systems.

1.E [22-0816](#) Adopt the City's Investment Policy for Fiscal Year 2022/23 and

Receive Annual Performance Report for Fiscal Year 2021/22

Adopt the City's Investment Policy for Fiscal Year 2022/23 (Council Policy 7.1.2) and receive the Annual Performance Report for Fiscal Year 2021/22.

- 1.F** [22-0938](#) Receive a Report of an Emergency Procurement to Provide Polymer to Meet Compliance Requirements at the Water Pollution Control Plant and Find that the Project is Urgent for the Preservation of Life, Health, or Property (F23-032)

Receive the Report of an Emergency Procurement to provide polymer to meet compliance requirements at the Water Pollution Control Plant and find that the project is urgent for the preservation of life, health, or property.

- 1.G** [22-0852](#) Award of Contract to Tennyson Electric, Inc. for Street Lights Conduit Replacement 2022 and Finding of California Environmental Quality Act (CEQA) Categorical Exemption (PW23-07)

Take the following actions:

- Award a contract in substantially the same form as Attachment 2 to the report in the amount of \$388,611.50 to Tennyson Electric, Inc. of Livermore;
- Make a finding of categorical exemption from the California Environmental Quality Act pursuant to California Environmental Quality Act Guidelines Section 15302(c);
- Authorize the City Manager to execute the contract when all necessary conditions have been met; and
- Approve a 10% contingency in the amount of \$38,861.

- 1.H** [22-0951](#) Authorize the City Manager to Execute an Agreement with the California Department of Technology for the Purchase of Microsoft Online Subscription Services (F23-025)

Authorize the City Manager to execute an Agreement with the California Department of Technology for Microsoft online subscription services in a not-to-exceed contract amount of \$2,034,910 and for a term of three-years and four-months and approve a 9.8% contingency in the amount of \$200,000.

- 1.I** [22-0544](#) Adopt a Resolution Acknowledging Receipt of a Report from the Department of Public Safety Regarding Annual Fire and Life Safety Inspections Pursuant to Sections 13146.2 Through 13146.4 of the California Health and Safety Code

Adopt a Resolution acknowledging receipt of a report from the Department of Public

Safety regarding annual Fire and Life Safety Inspections pursuant to Sections 13146.2 through 13146.4 of the California Health and Safety Code.

- 1.J** [22-0590](#) Adopt a Resolution Amending the City of Sunnyvale Local Conflict of Interest Code

Adopt a Resolution amending the City of Sunnyvale Local Conflict of Interest Code.

- 1.K** [22-0838](#) Adopt a Resolution Extending the City's Declaration of Local Emergency for COVID-19

Adopt a Resolution extending the City Manager/Director of Emergency Services' Proclamation of Existence of a Local Emergency (COVID 19).

- 1.L** [22-0913](#) Reconsider and Affirm Resolution No. 1089-21; and Make Findings Pursuant to Government Code Section 54953(e) (AB 361) to Continue Virtual Public Meetings for the City Council and Boards, Commissions and Council Subcommittees During the COVID-19 State of Emergency

Public Hearing opened at 7:32 p.m.

Mark spoke to potential concerns for Council or Board and Commission Members when meeting in-person.

Public Hearing closed at 7:34 p.m.

MOTION: Councilmember Melton moved and Councilmember Larsson seconded the motion to affirm Resolution 1089-21; and make findings pursuant to Government Code Section 54953(e) (AB 361) to continue virtual public meetings for the City Council and Boards, Commissions and Council Subcommittees during the COVID-19 State of Emergency:

1. The City Council hereby finds that the state of emergency conditions related to COVID19, as set forth in Resolution No. 1139-22 adopted on August 9, 2022 and incorporated herein by reference, are ongoing;
2. The City Council finds that there is a need to continue teleconferencing for public meetings without posting the teleconferencing locations on the agenda and without requiring the teleconference locations to be accessible to the public during the current Governor proclaimed COVID-19 state of emergency; and
3. The City Council finds that the state of emergency continues to directly impact the ability of members of the City Council, Council Standing Committees, and City Boards and Commissions to meet safely in person.

The motion carried with the following vote:

Yes: 7 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

1.M [22-0954](#) Adopt Ordinance No. 3198-22 to Amend Chapter 2.30
(Appointment Process to Fill Vacancies on the City Council) of
the Sunnyvale Municipal Code

Adopt Ordinance No. 3198-22 to amend Chapter 2.30 (Appointment Process to Fill
Vacancies on the City Council) of the Sunnyvale Municipal Code.

1.N [22-0955](#) Adopt Ordinance No. 3199-22 to Amend Section 2.29.010
(Electronic Filing of Campaign Statements and Statements of
Economic Interests) of the Sunnyvale Municipal Code Relating
to Electronic Filing of Campaign Statements and Statements of
Economic Interests to Correct a Typographical Error

Adopt Ordinance No. 3199-22 to amend Section 2.29.010 (Electronic Filing of
Campaign Statements and Statements of Economic Interests) of the Sunnyvale
Municipal Code relating to electronic filing of campaign statements and statements
of economic interests to correct a typographical error.

**ADJOURNMENT TO REGULAR MEETING OF THE SUNNYVALE FINANCING
AUTHORITY**

Mayor Klein adjourned the Council meeting to the Sunnyvale Financing Authority at
7:35 p.m.

**7 P.M. (OR SOON THEREAFTER) REGULAR MEETING OF THE SUNNYVALE
FINANCING AUTHORITY**

Call to Order

Pursuant to Government Code Subdivision 54953(e), the meeting was conducted
telephonically; pursuant to state law, the Financing Authority made the necessary
findings by adopting Resolution No. 1105-22FA, reaffirmed on August 30, 2022.

Authority Chair Klein called the Sunnyvale Financing Authority meeting to order at 7:35 p.m. via teleconference.

Roll Call

Present: 7 - Authority Chair / Mayor Larry Klein
Authority Vice Chair / Vice Mayor Alysa Cisneros
Authority Member / Councilmember Gustav Larsson
Authority Member / Councilmember Glenn Hendricks
Authority Member / Councilmember Russ Melton
Authority Member / Councilmember Omar Din
Authority Member / Councilmember Anthony (Tony) Spitaleri

Absent: 0

Authority Chair / Mayor Klein, Authority Vice Chair / Vice Mayor Cisneros and all Authority Members / Councilmembers attended via teleconference.

Oral Communications

None.

Consent Calendar

Public Comment opened at 7:37 p.m.

No speakers.

Public Comment closed at 7:37 p.m.

MOTION: Authority Vice Chair Cisneros moved and Authority Member Melton seconded the motion to approve agenda items 2.A through 2.B.

The motion carried with the following vote:

Yes: 7 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

2.A [22-0914](#) Approve Sunnyvale Financing Authority Meeting Minutes of

August 30, 2022

Approve the Sunnyvale Financing Authority Meeting Minutes of August 30, 2022 as submitted.

- 2.B** [22-0915](#) Reconsider and Affirm Resolution No. 1105-22FA; and Make Findings Pursuant to Government Code Section 54953(e) (AB 361) to Continue Virtual Public Meetings for the Sunnyvale Financing Authority During the COVID-19 State of Emergency

Affirm Resolution 1105-22FA; and make findings pursuant to Government Code Section 54953(e) (AB 361) to continue virtual public meetings for the Financing Authority during the COVID-19 State of Emergency:

1. The Financing Authority Board has found and determined that the state of emergency conditions related to COVID19, as set forth in City of Sunnyvale Resolution No. 1139-22 adopted on August 9, 2022, and incorporated herein by reference, are ongoing;
2. The Financing Authority Board finds that there is a need to continue teleconferencing for public meetings without posting the teleconferencing locations on the agenda and without requiring the teleconference locations to be accessible to the public during the current Governor proclaimed COVID-19 state of emergency; and
3. The Financing Authority Board finds that the state of emergency continues to directly impact the ability of members of the Financing Authority to meet safely in person.

ADJOURN SUNNYVALE FINANCING AUTHORITY MEETING

Authority Chair Klein adjourned the Sunnyvale Financing Authority meeting at 7:38 p.m.

RECONVENE TO CITY COUNCIL MEETING

Mayor Klein reconvened the City Council Meeting at 7:38 p.m.

PUBLIC HEARINGS/GENERAL BUSINESS

- 3** [22-0907](#) REQUEST FOR CONTINUANCE TO A DATE UNCERTAIN
Consider a Tenant Protection and Right to Lease Ordinance
(Study Issue)

Community Development Director Trudi Ryan provided the staff report.

Public Hearing opened at 7:42 p.m.

Peter spoke to the importance of this public hearing item and urged Council and staff to reschedule to a date in the near future.

Public Hearing closed at 7:44 p.m.

MOTION: Councilmember Melton moved and Councilmember Din seconded the motion to continue the City Council hearing a date uncertain.

The motion carried with the following vote:

Yes: 7 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

- 4 [22-0911](#) CONTINUED FROM AUGUST 30, 2022
Selection of the Sunnyvale Avenue Underpass Tunnel Option
to be Defined as the Proposed Project for the Grade
Separation of Crossing of the Caltrain Railroad Tracks for the
Environmental Review

Vice Mayor Cisneros reported the Fair Political Practices Commission advised she is able to participate in this agenda item.

Principal Transportation Engineer Angela Obeso provided the staff report and presentation.

Public Hearing opened at 9:05 p.m.

Paul Besser shared opposition to Alternative 1 (Underpass Tunnel) and support for Alternative 2 (Bicycle and Pedestrian Only Underpass Tunnel).

Kylee Burgess communicated opposition to the Underpass Tunnel option and support for the Bicycle and Pedestrian Only Underpass Tunnel option.

Bryce Beagle provided a presentation supporting the Bicycle and Pedestrian Only

Underpass Tunnel option.

Kelly Carpenter, Bike Sunnyvale shared a presentation supporting the Bicycle and Pedestrian Only Underpass Tunnel option.

Nick Brosnahan, Bike Sunnyvale continued the presentation.

Ellory Liu, Bike Sunnyvale continued the presentation.

Sharlene Liu, Bike Sunnyvale continued the presentation.

Tim Oey spoke in support of the Bicycle and Pedestrian Only Underpass Tunnel option and support for bicycle and pedestrian infrastructure in general.

Mark voiced support for the Bicycle and Pedestrian Only Underpass Tunnel option and maintaining an at-grade crossing for bicyclists.

Leia Mehlman shared support for the Bicycle and Pedestrian Only Underpass Tunnel option.

Gunhan Gulsoy communicated how the Underpass Tunnel option would affect his property and support for the Bicycle and Pedestrian Only Underpass Tunnel option.

Mike Serrone offered a suggestion of an at-grade crossing for pedestrians and bicycles in addition to Bicycle and Pedestrian Only Underpass Tunnel option.

Jason Roberts voiced support for the Bicycle and Pedestrian Only Underpass Tunnel option and shared thoughts regarding the impacted Valley Transportation Authority (VTA) routes.

Tom Kilsdonk spoke in support of the Bicycle and Pedestrian Only Underpass Tunnel option and support for bicycle and pedestrian infrastructure in general.

Dipesh Gupta, Owner, Aloft Hotel spoke against passing the Underpass Tunnel option.

Jason Feinsmith communicated support for the Bicycle and Pedestrian Only Underpass Tunnel option.

Richard Mehlinger voiced support for Alternative 2, the Bicycle and Pedestrian Only Underpass Tunnel option and identified City policy documents supportive of this option.

Andy Dunn shared support for the Bicycle and Pedestrian Only Underpass Tunnel option.

Andy Yang communicated support for the Bicycle and Pedestrian Only Underpass Tunnel option and the benefits of bicycle and pedestrian infrastructure for people with disabilities.

Galen Kim Davis shared their disagreement with the staff recommendation of passing the Underpass Tunnel option and a belief that VTA will be able to adjust bus routes following the change.

Daniel Howard spoke in support of the Bicycle and Pedestrian Only Underpass Tunnel option.

Kristel Wickham voiced support for the Bicycle and Pedestrian Only Underpass Tunnel option and identified related climate benefits.

Gary Gold, Dr. Gary Gold & Associates Optometry communicated how the Underpass Tunnel option would negatively affect his business operations and support for the Bicycle and Pedestrian Only Underpass Tunnel option.

Ari Feinsmith communicated support for the Bicycle and Pedestrian Only Underpass Tunnel option as a safer option.

Dan Hafeman shared support for the Bicycle and Pedestrian Only Underpass Tunnel option and offered a suggest for how to re-route VTA Bus Route 55.

Josh Rupert, City Line Sunnyvale voiced support for the Underpass Tunnel and shared how the Bicycle and Pedestrian Only Underpass Tunnel option could hurt retail business in downtown Sunnyvale.

Mike Johnson, Executive Director, Sunnyvale Downtown Association shared the Association's support for the Bicycle and Pedestrian Only Underpass Tunnel option and detailed the estimated higher costs for the Underpass Tunnel option.

Stephen Meier detailed City policies that support the Bicycle and Pedestrian Only Underpass Tunnel option.

Linda Sell communicated support for the Bicycle and Pedestrian Only Underpass Tunnel option as a less expensive and safer option.

Public Hearing closed at 10:19 p.m.

MOTION: Vice Mayor Cisneros moved and Councilmember Din seconded the motion to approve Alternative 2: Selection of the Sunnyvale Avenue Bicycle and Pedestrian Only Underpass Tunnel option to be defined as the Proposed Project for the grade separation of the Sunnyvale Avenue crossing of the Caltrain railroad tracks for the Environmental Review.

The motion carried with the following vote:

Yes: 7 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

- 5 [22-0832](#) Authorize the City Manager to Execute an Operating Agreement with Bird Rides, Inc. for a One-year Pilot Operation of a Stand-up Electric Scooter Sharing Program

Transportation Traffic Manager Dennis Ng provided the staff report and presentation.

Public Hearing opened at 11:22 p.m.

Robert Singleton, Government Partnership Manager, Bird spoke to Bird's scooter offerings and how they can work with the City to best support the community's needs.

Leia Mehlman shared concerns with the limited of opportunities to ride the scooters in North Sunnyvale.

Bryce Beagle communicated support for the one-year pilot and integrating payments with the Clipper Card program.

Dawn Maher, Executive Director, Sunnyvale Chamber of Commerce spoke in support of the one-year pilot program and adding another short-distance transit option in Sunnyvale.

Mike Johnson, Executive Director, Sunnyvale Downtown Association voiced support for the one-year pilot program and requested information regarding how the scooters will integrate with Downtown pedestrian and bicycle facilities.

Public Hearing closed at 11:38 p.m.

MOTION: Councilmember Spitaleri moved and Councilmember Hendricks seconded the motion to approve Alternative 1: Authorize the City Manager to execute an Operating Agreement with Bird Rides, Inc. for a one-year pilot operation of a StandUp Electric Scooter Sharing Program with the modification of banning scooters on the 100 Block of Murphy Avenue.

FORMAL AMENDMENT: Councilmember Melton moved and Councilmember Din seconded the motion to remove the banning of the scooters on Murphy Ave and to direct staff to monitor the area and delegate the decision to ban scooters on Murphy Avenue to the City Manager.

The motion to amend carried with the following vote:

Yes: 4 - Mayor Klein
Vice Mayor Cisneros
Councilmember Melton
Councilmember Din

No: 3 - Councilmember Larsson
Councilmember Hendricks
Councilmember Spitaleri

The motion as amended carried with the following vote:

Yes: 7 - Mayor Klein
Vice Mayor Cisneros
Councilmember Larsson
Councilmember Hendricks
Councilmember Melton
Councilmember Din
Councilmember Spitaleri

No: 0

MOTION: Vice Mayor Cisneros moved to continue agenda item 6-Introduce an Ordinance Amending Section 9.62.090 of Chapter 9.62 (Public Parks)... to a date uncertain. Motion failed for lack of a second.

6 [22-0831](#) Introduce an Ordinance Amending Section 9.62.090 of Chapter 9.62 (Public Parks) of the Sunnyvale Municipal Code

Agenda item not heard by Council.

COUNCILMEMBERS REPORTS ON ACTIVITIES FROM INTERGOVERNMENTAL COMMITTEE ASSIGNMENTS

Agenda item not heard by Council.

NON-AGENDA ITEMS & COMMENTS

-Council

Agenda item not heard by Council.

-City Manager

Agenda item not heard by Council.

INFORMATION ONLY REPORTS/ITEMS

[22-0885](#) Tentative Council Meeting Agenda Calendar

[22-0886](#) Board/Commission Meeting Minutes

[22-0887](#) Information/Action Items

[22-0961](#) Board/Commission Resignation (Information Only)

ADJOURNMENT

Mayor Klein adjourned the meeting at 12:07 a.m.