

# South Linden Avenue & Scott Street Grade Separation Planning Study

Community Meeting No. 2

August 28, 2019



# Agenda

- Welcome & Introduction
- Project Background & Purpose
- Project Overview
- Q & A
- Stations
- Next Steps

South Linden Avenue and Scott Street Grade Separation Planning Study





# Meet the City Representatives

## ■ City of San Bruno

- Hae Won Ritchie and Michael Kato
- Department of Public Works
- [ps@sanbruno.ca.gov](mailto:ps@sanbruno.ca.gov)
- (650) 616-7065

## ■ City of South San Francisco

- Bianca Liu
- Department of Public Works
- [engineering@ssf.net](mailto:engineering@ssf.net)
- (650) 829-6652



South Linden Avenue – City of South San Francisco

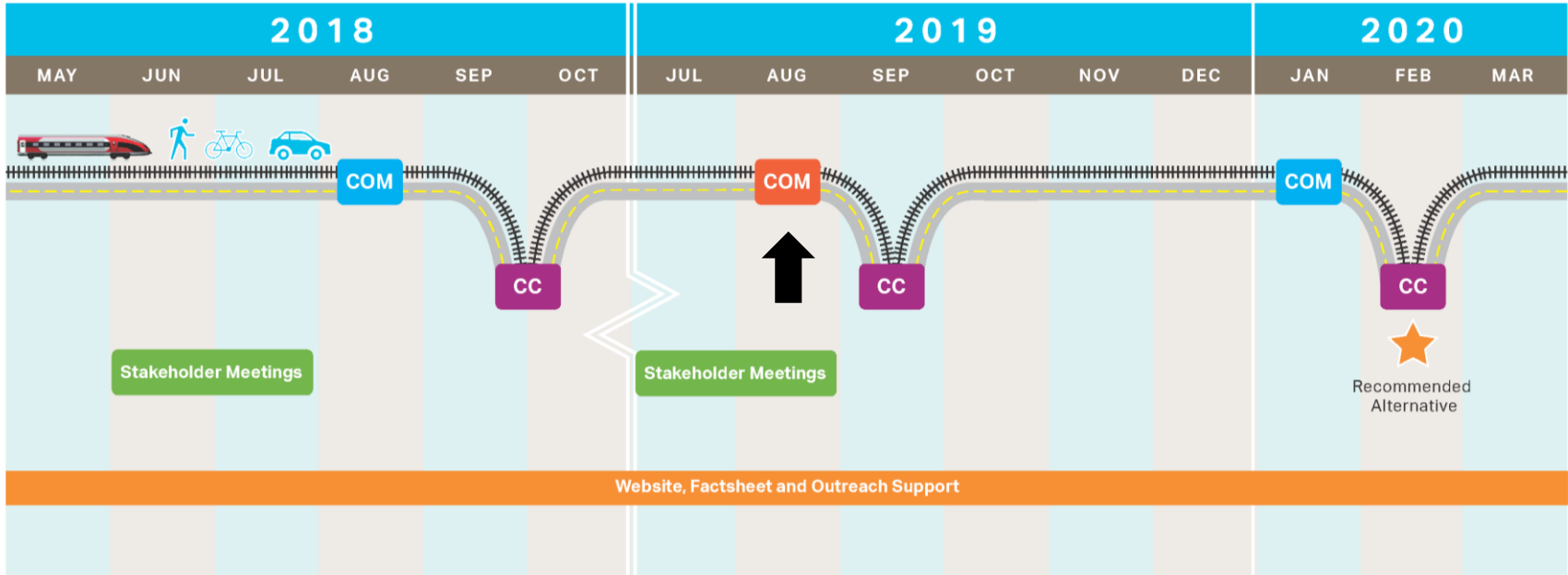







Scott Street – City of San Bruno

South Linden Avenue and Scott Street Grade Separation Planning Study



# Community Engagement Schedule



-  Combined City Community Meeting
-  City Council Meeting (3 each per city)
-  Single City Community Meeting
-  Recommended Alternative—Advance to Environmental Clearance
-  Today's Meeting

## South Linden Avenue and Scott Street Grade Separation Planning Study



# Goals for Tonight's Meeting

- Educate the public about the project
- Identify existing project features and constraints
- Answer questions
- Obtain your input about the options



South Linden Avenue and Scott Street Grade Separation Planning Study





# What is an "at-grade crossing"?

A location where a roadway crosses the railroad tracks at the same level (elevation).



Linden Avenue



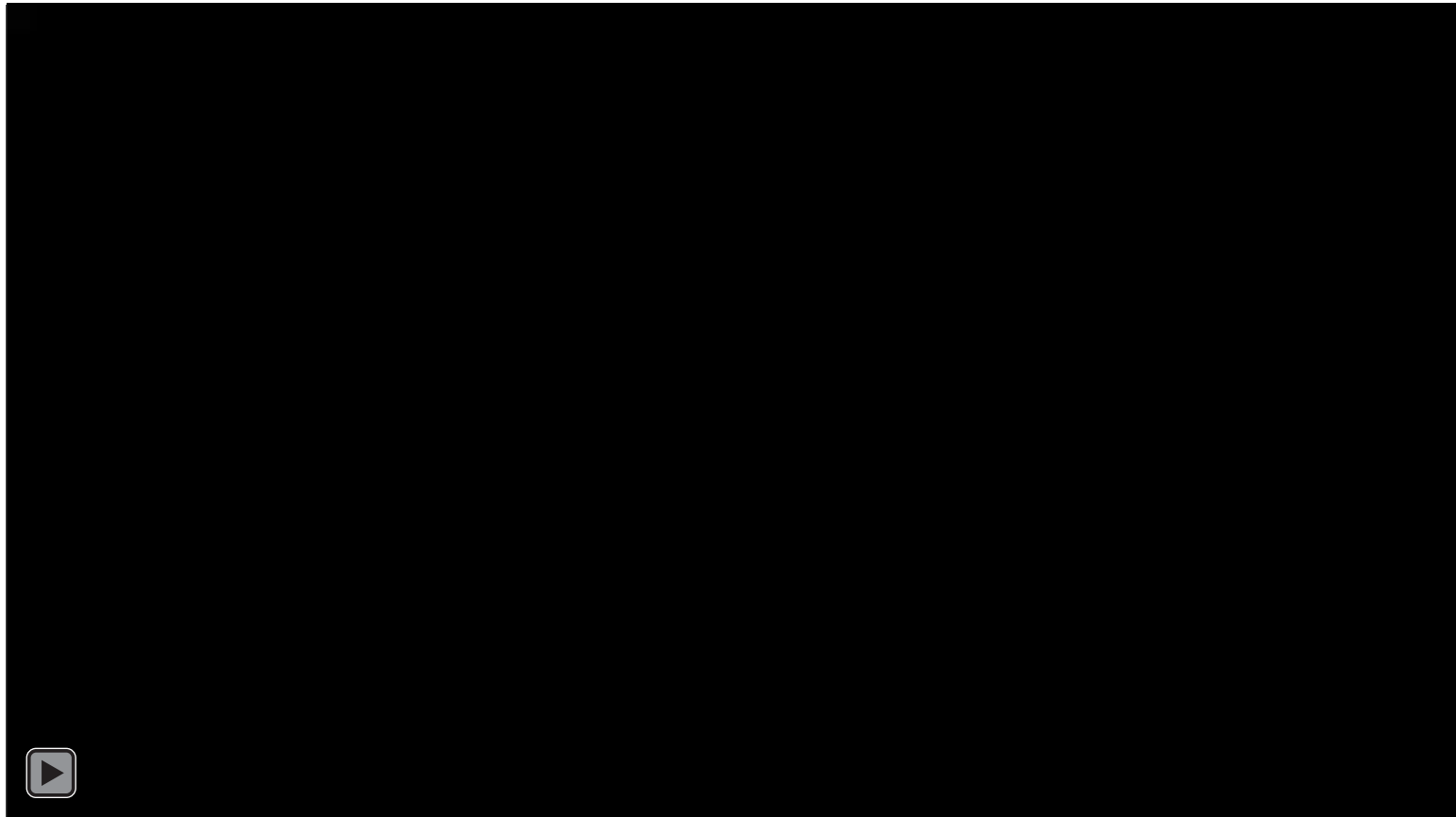
Scott Street

South Linden Avenue and Scott Street Grade Separation Planning Study



# Video at South Linden Avenue

*Click box below for video*

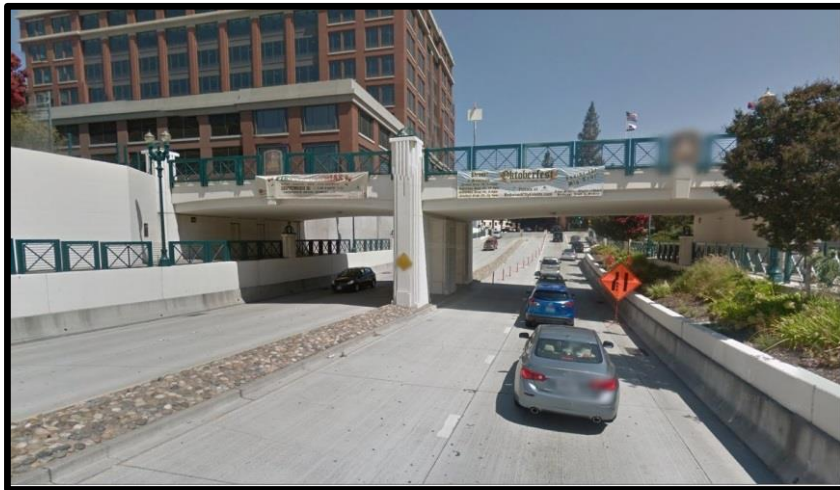


South Linden Avenue and Scott Street Grade Separation Planning Study

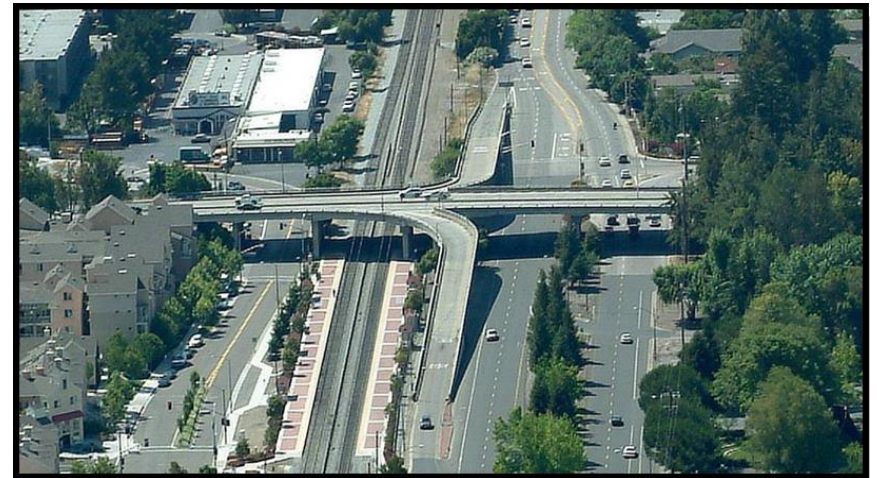


# What is a "grade separation"?

A bridge that allows the public to travel under (or over) the railroad.



Jefferson Avenue  
(Redwood City)



San Antonio Road  
(Mountain View)

South Linden Avenue and Scott Street Grade Separation Planning Study





# Lessons Learned from San Bruno Ave Grade Separation

- Early coordination with utility companies
- Open communication with residents and stakeholders
- Timeliness and responsiveness to inquiries during construction
- Community meetings in advance of major milestones



South Linden Avenue and Scott Street Grade Separation Planning Study



# Why is the Project Needed?

- Increase Public Safety (vehicular, bicyclist, and pedestrian)
  - Eliminates pedestrian, bicyclist and motor vehicle conflicts with the railroad... this eliminates the potential for accidents
  - Improve pedestrian and bicycle access
- Improve Traffic Circulation/Mobility
  - Reduce traffic delays caused by gate down times
  - Improve traffic flow across railroad crossing

**Safer Facility + Less Congestion = *Higher Quality of Life***

South Linden Avenue and Scott Street Grade Separation Planning Study



# Weekday Train Traffic

## Total Number of Trains (per Weekday)

|  | Northbound (NB)  | Southbound (SB)                      | Total                                |
|--|--|--------------------------------------|--------------------------------------|
| Caltrain<br>(2018)                     | AM: 20<br>PM: 26<br><b>Total: 46</b>   | AM: 20<br>PM: 26<br><b>Total: 46</b> | AM: 40<br>PM: 52<br><b>Total: 92</b> |
| Caltrain<br>(2022 Projection #)        | <b>57</b>  | <b>57</b>                            | <b>114</b>                           |
| High Speed Rail<br>(2029 Projection +) | 128 trains per day to/from San Francisco with an additional 24 trains starting at San Jose |                                      |                                      |
| Union Pacific                          | 3  | 3                                    | 6                                    |

# 2022 Projected Values based on Completion of the Peninsula Corridor Electrification Project (from FEIR, December 2014) (Prototypical Schedule)

+ 2029 Projected Values based on Blended Service and Completion of the High Speed Rail Project and 2014 CHSRA Business Plan

### South Linden Avenue and Scott Street Grade Separation Planning Study





# Peak Hour Gate Down Times at Scott St

| Scenario                          | Gate Down Time<br>(in min./peak hour) | Gate Down Events<br>(in no./peak hour) | Avg. Gate Down Time per Train<br>(in sec) |
|-----------------------------------|---------------------------------------|--|---|
| Existing                          | 10                                    | 10*                                    | 60  |
| Future (Moderate Growth Scenario) | 20<br>(+91%)                          | 24**<br>(+140%)                        | 50<br>(-17%)                              |

\*2 Bullet / 3 Limited Trains per Hour per Direction

\*\*4 HSR / 4 Express / 4 Local Trains per Hour per Direction

South Linden Avenue and Scott Street Grade Separation Planning Study



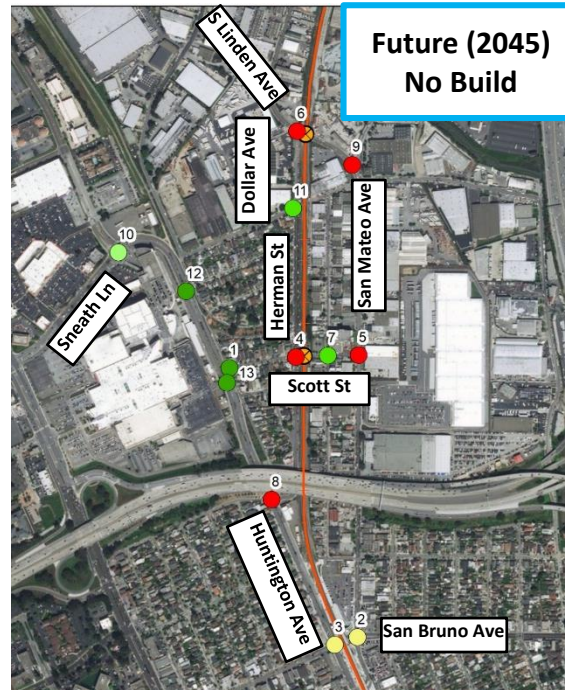
# Intersection Levels of Service (LOS)

| Level of Service | General Description                              |
|------------------|--|
| A                | Free Flow  |
| B                | Stable Flow (slight delay)                       |
| C                | Stable Flow (acceptable delay)                   |
| D                | Approaching unstable flow (tolerable delay)      |
| E                | Unstable flow (intolerable delay)                |
| F                | Forced flow (congested and queues fail to clear) |

South Linden Avenue and Scott Street Grade Separation Planning Study



# Traffic conditions in 2045 with no improvements (No Build)



## LOS at Study Intersections

- LOS A
  - LOS B
  - LOS C
  - LOS D
  - LOS E
  - LOS F
- Less Congestion
- ↕
- More Congestion

**Most Delay Peak Hour Period (AM/PM) Shown in the Map**

**Red Line = Caltrain**

Source: Google Earth; Consultant Team's Synchro/SimTraffic Analysis.

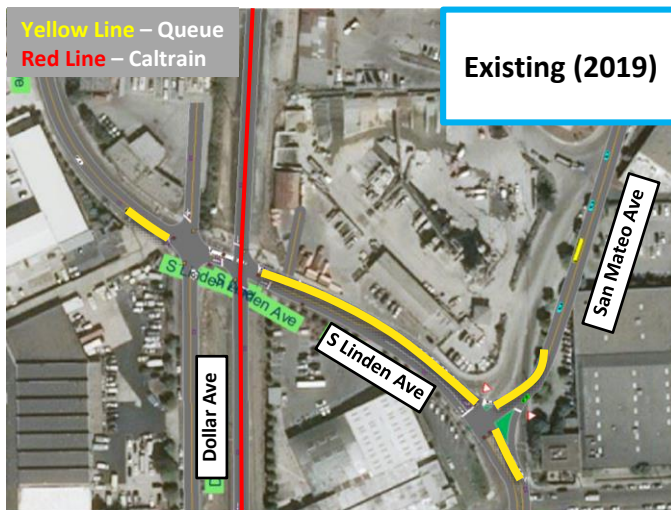
## South Linden Avenue and Scott Street Grade Separation Planning Study



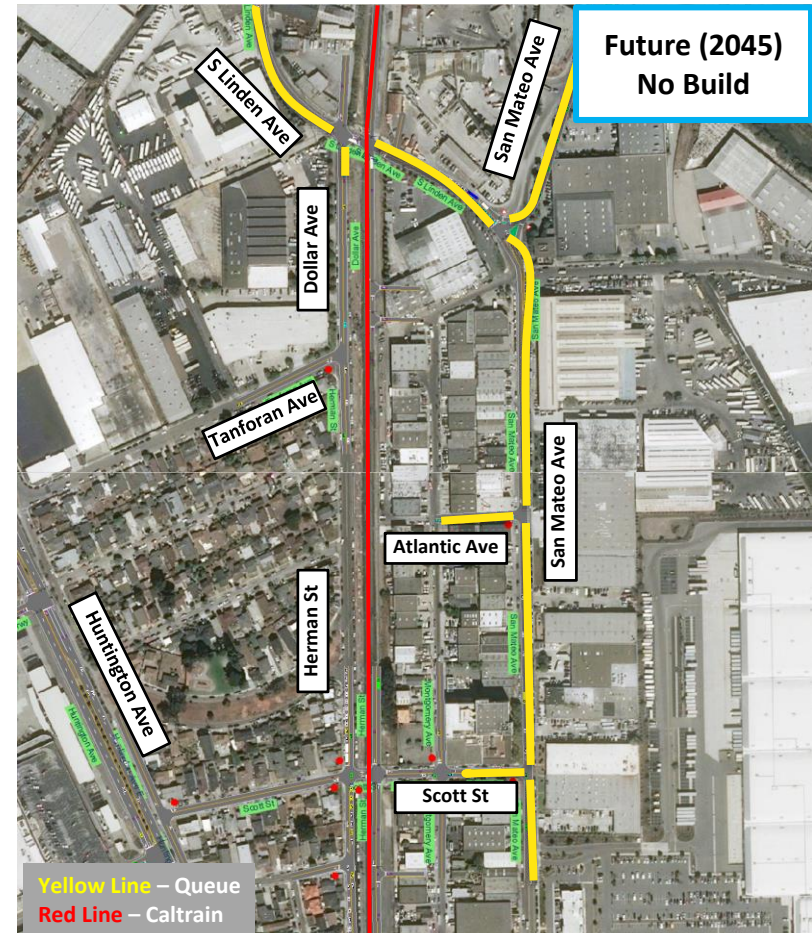


# Queues near S. Linden Ave in 2045 with no improvements (No Build)

- Minor spillover queue under Existing (2019)
- Excessive spillover queues and intersection blockages under Future (2045) No Build



Source: Google Earth; Consultant Team's SimTraffic Analysis.



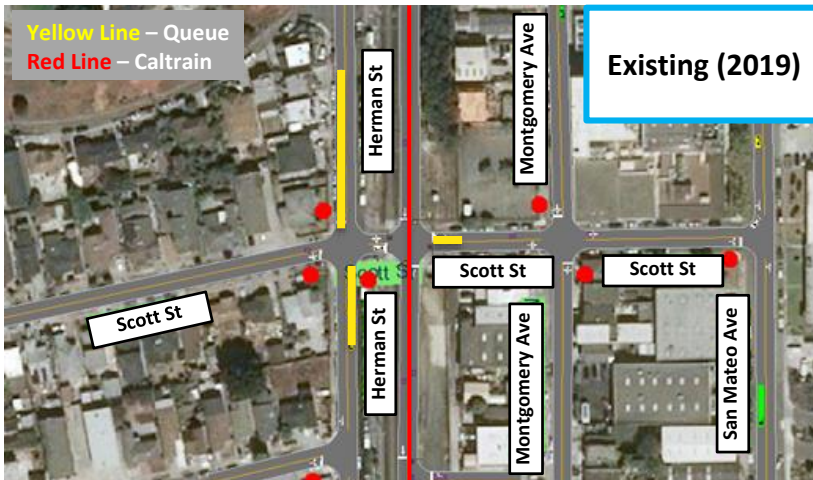
Source: Google Earth; Consultant Team's SimTraffic Analysis.

## South Linden Avenue and Scott Street Grade Separation Planning Study

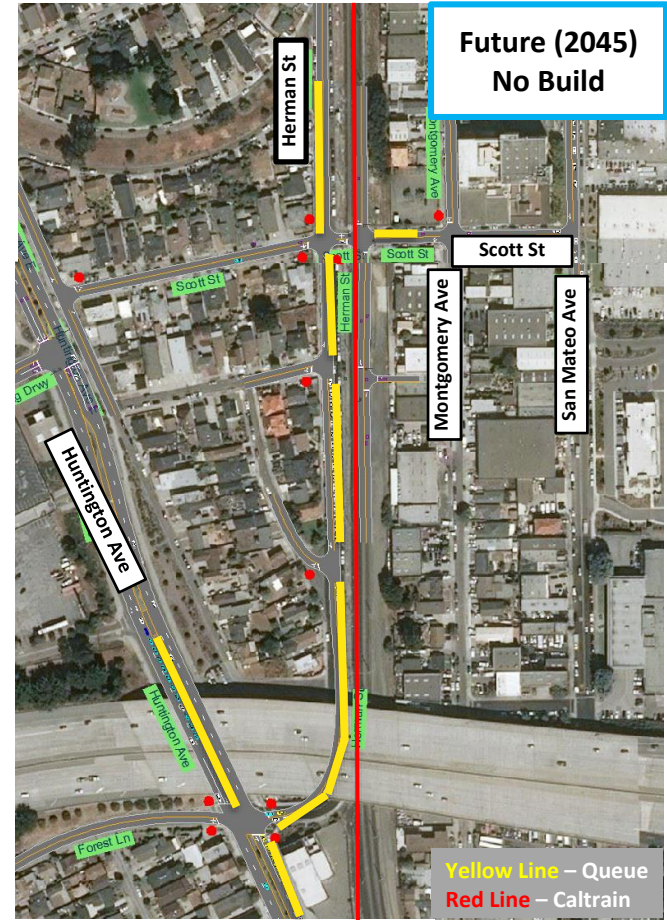


# Queues near Scott St in 2045 with no improvements (No Build)

- Minor queues under Existing (2019)
- Excessive spillover queues and intersection blockages under Future (2045) No Build



Source: Google Earth; Consultant Team's SimTraffic Analysis.



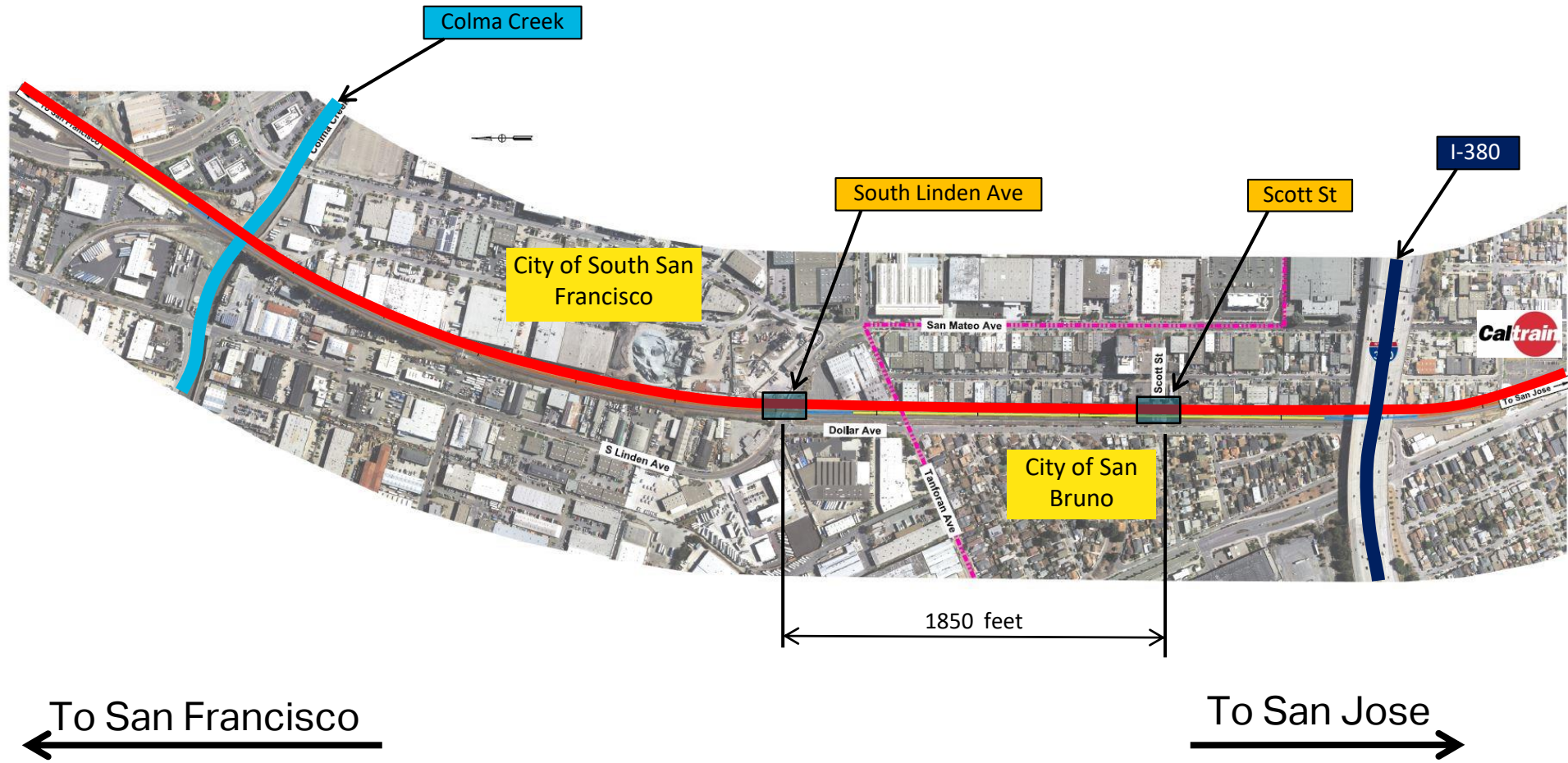
Source: Google Earth; Consultant Team's SimTraffic Analysis.

## South Linden Avenue and Scott Street Grade Separation Planning Study





# Project Location Map



## South Linden Avenue and Scott Street Grade Separation Planning Study



# Options to consider at Scott Street

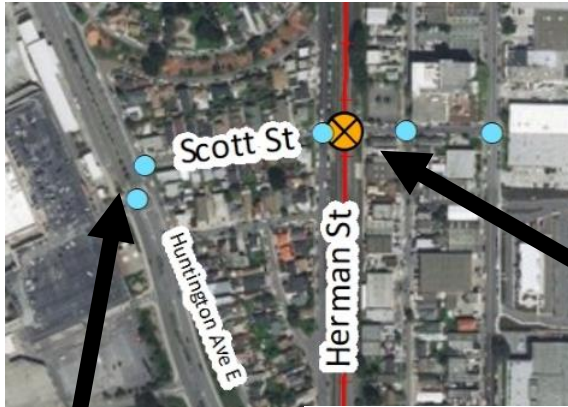
- Option A
  - **Scott St remains an at-grade crossing**
  - S. Linden Ave grade separated
- Option B
  - **Scott St closed to vehicles and grade separated for pedestrians and bicycles**
  - Possible new connection added between Scott St and Huntington Ave
  - S. Linden Ave grade separated
- Option C (previously eliminated due to property impacts)
  - **Scott St grade separated for vehicles, pedestrians, and bicycles**
  - S. Linden Ave grade separated

South Linden Avenue and Scott Street Grade Separation Planning Study





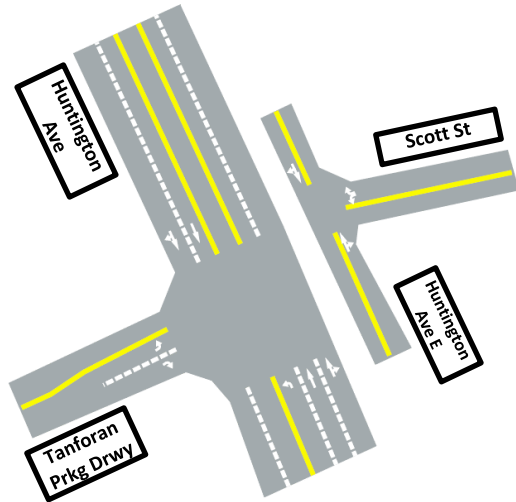
# Option A: Scott St. Remains An At-Grade Crossing



Source: Google Earth; Consultant Team.

- Study Intersection
- ⊗ RR Crossing
- +— CalTrain RR Track

Scott Street and Huntington Ave East remain as is



Scott Street remains as at-grade crossing



South Linden Avenue and Scott Street Grade Separation Planning Study

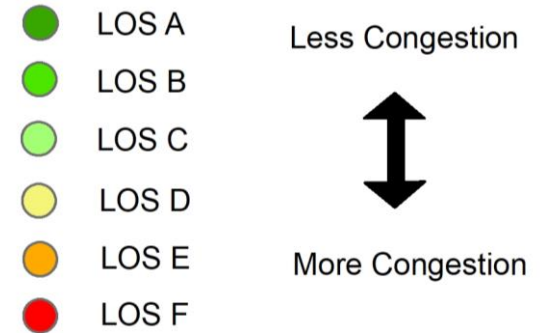


# Traffic conditions in 2045 with no improvements (No Build) vs Option A

- Scott St remains an at-grade crossing



## • LOS at Study Intersections



**Most Delay Peak Hour Period (AM/PM) Shown in the Map**

**Red Line = Caltrain**

Source: Google Earth; Consultant Team's Synchro/SimTraffic Analysis.

## South Linden Avenue and Scott Street Grade Separation Planning Study



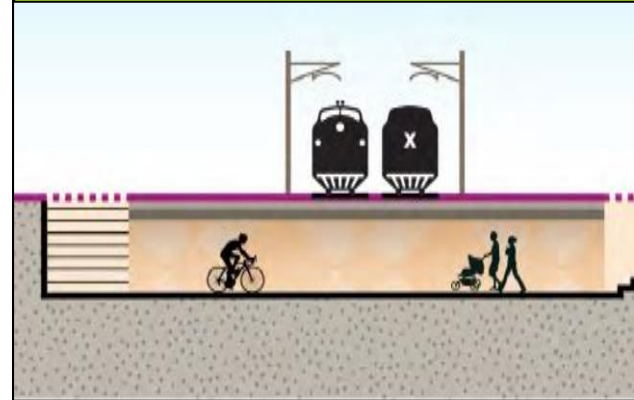
# Option B: Scott St Closed to Vehicles with Bike/Ped Crossing



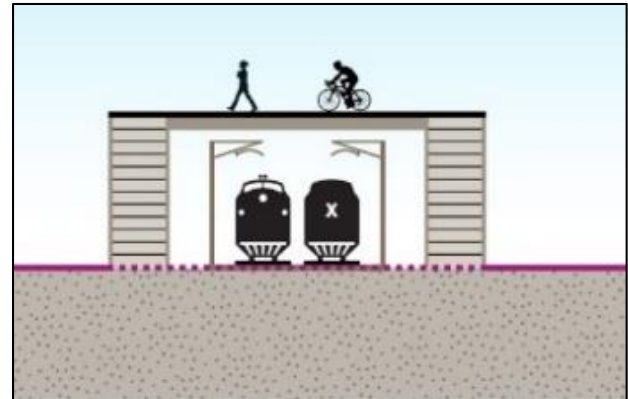
Source: Google Earth; Consultant Team.

- Study Intersection
- ⊗ RR Crossing
- +— CalTrain RR Track

Scott Street closed to vehicles and grade separated for pedestrians and bicycles

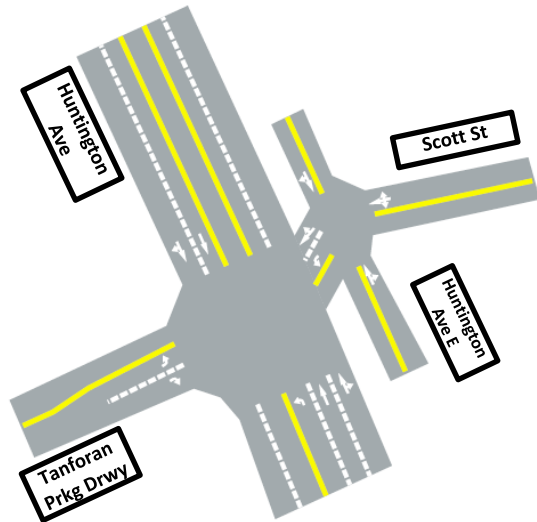


Pedestrian/Bike Undercrossing



Pedestrian/Bike Overcrossing

Possible New Connection between Scott Street and Huntington Ave

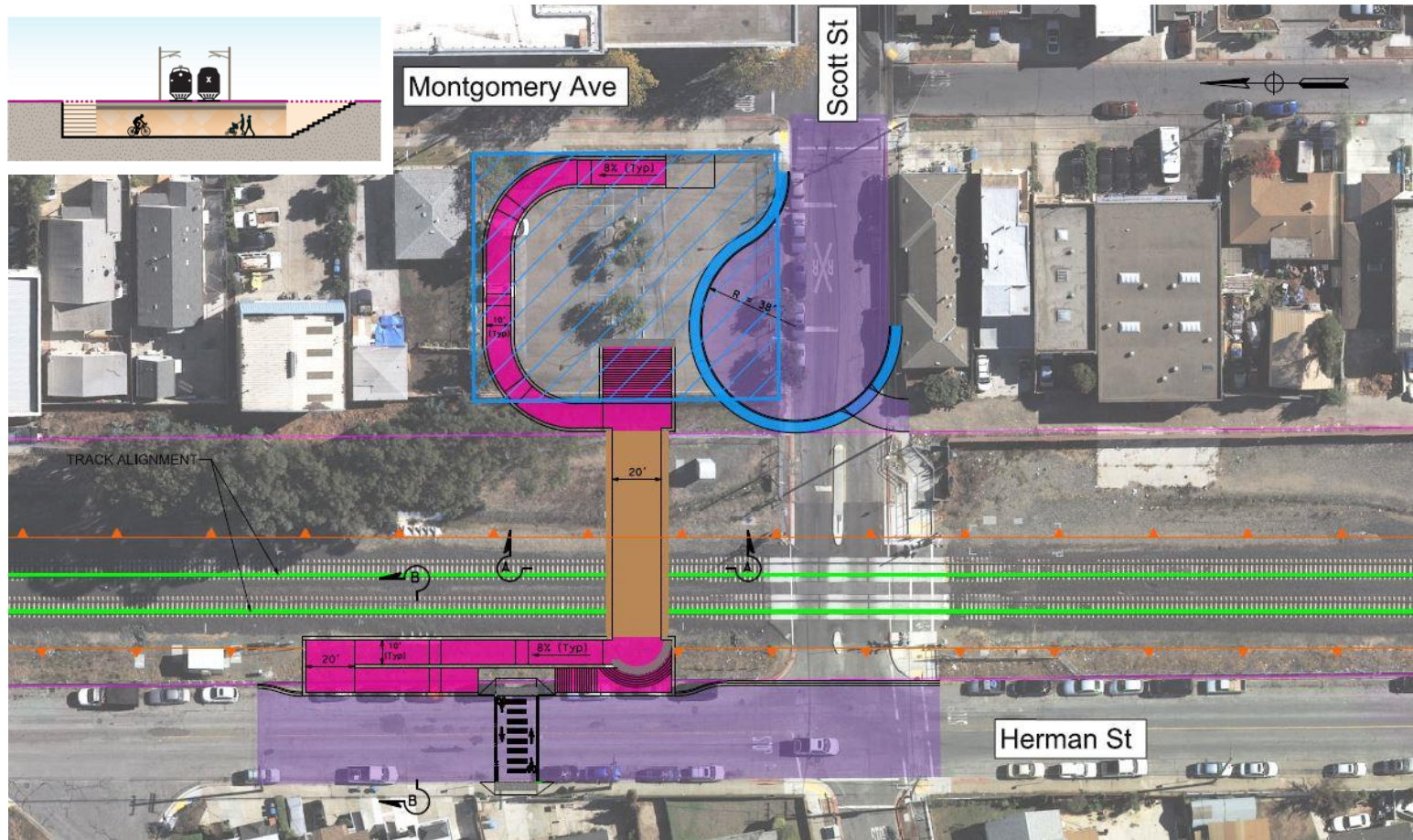


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# Option B: Scott St Closed to Vehicles with Bike/Ped Crossing



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# Pedestrian Undercrossings & Overcrossings Examples

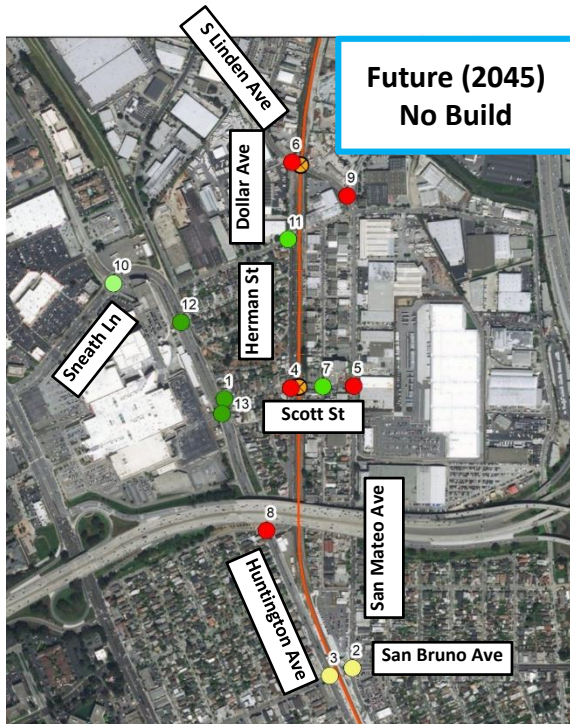


South Linden Avenue and Scott Street Grade Separation Planning Study

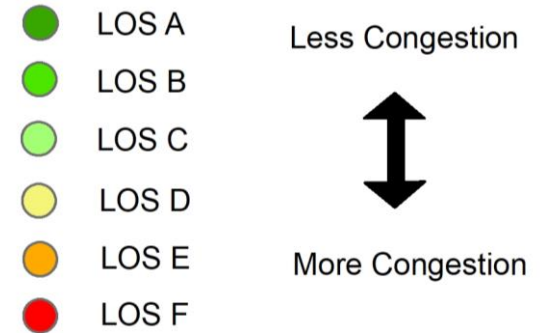


# Traffic conditions in 2045 with no improvements (No Build) vs Option B

- Scott St closed to vehicles and grade separated for pedestrians and bicyclists



## LOS at Study Intersections



Most Delay Peak Hour Period (AM/PM) Shown in the Map

Red Line = Caltrain

Source: Google Earth; Consultant Team's Synchro/SimTraffic Analysis.

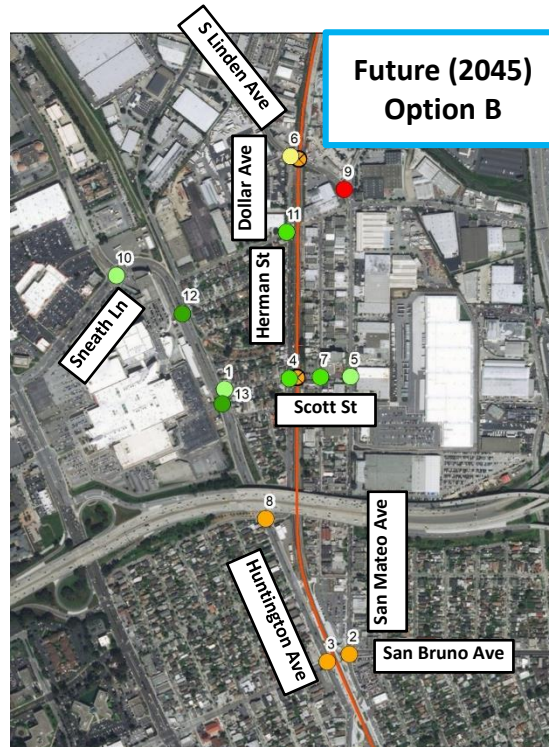
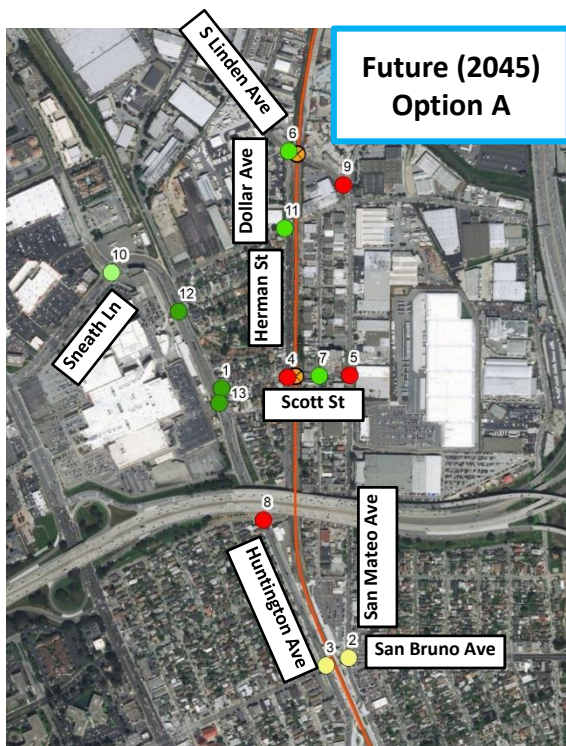
## South Linden Avenue and Scott Street Grade Separation Planning Study



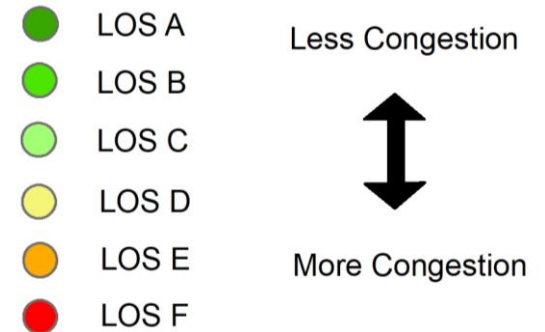


# Traffic conditions in 2045 Option A vs Option B

- Scott St remains an at-grade crossing
- Scott St closed to vehicles and grade separated for pedestrians and bicyclists



## • LOS at Study Intersections



**Most Delay Peak Hour Period (AM/PM) Shown in the Map**

**Red Line** = Caltrain

Source: Google Earth; Consultant Team's Synchro/SimTraffic Analysis.

## South Linden Avenue and Scott Street Grade Separation Planning Study



# Intersection Delay and LOS Summary

| Int. # | Intersection                             | Existing (2019)<br>Most Delay Peak Hour |     | Future (2045) No Build<br>Most Delay Peak Hour |     | Future (2045) Option A<br>Most Delay Peak Hour |     | Future (2045) Option B<br>Most Delay Peak Hour |     |
|--------|--|---|-----|--|-----|--|-----|--|-----|
|        |  | Delay per Vehicle (s)                   | LOS | Delay per Vehicle (s)                          | LOS | Delay per Vehicle (s)                          | LOS | Delay per Vehicle (s)                          | LOS |
| 1      | Huntington Ave E & Scott St              | 9.0                                     | A   | 9.3  | A   | 9.3  | A   | 16.7   | C   |
| 2      | San Mateo Ave & San Bruno Ave            | 40.6                                    | D   | 54.6   | D   | 54.6   | D   | 61.6   | E   |
| 3      | Huntington Ave & San Bruno Ave           | 32.9                                    | C   | 53.6   | D   | 53.6   | D   | 62.6   | E   |
| 4      | Herman St & Scott St*                    | 10.7                                    | A   | 58.6   | F   | 55.6   | F   | 12.4   | B   |
| 5      | San Mateo Ave & Scott St                 | 16.1                                    | C   | 58.0   | F   | 58.0   | F   | 18.1   | C   |
| 6      | Dollar Ave & S Linden Ave*               | 34.3                                    | C   | 220.2  | F   | 11.8   | B   | 38.3   | D   |
| 7      | Montgomery Ave & Scott St                | 11.3                                    | B   | 14.0   | B   | 14.0   | B   | 10.6   | B   |
| 8      | Huntington Ave & Forest Ln/Herman St     | 19.3                                    | C   | 96.2   | F   | 96.2   | F   | 36.7   | E   |
| 9      | S Linden Ave & San Mateo Ave             | 29.3                                    | C   | 110.6  | F   | 110.6  | F   | 122.8  | F   |
| 10     | Huntington Ave & Sneath Ln               | 24.7                                    | C   | 32.9   | C   | 32.9   | C   | 32.9   | C   |
| 11     | Dollar Ave/Herman St & Tanforan Ave      | 11.2                                    | B   | 14.6   | B   | 14.6   | B   | 15.0   | B   |
| 12     | Huntington Ave & BART Parking Drwy       | 3.1                                     | A   | 3.9  | A   | 3.9  | A   | 3.9  | A   |
| 13     | Huntington Ave & Tanforan Parking Drwy** | 5.4                                     | A   | 7.4  | A   | 7.4  | A   | 8.5  | A   |

Source: Consultant Team's Synchro/SimTraffic Analysis.

\*Intersections are located near Study Grade Crossings.

\*\*Intersection would be modified from existing 3-legged configuration to a 4-legged configuration by addition of a new connection between Scott St and Huntington Ave under Option B.

## South Linden Avenue and Scott Street Grade Separation Planning Study





# Potential Mitigations for Option B to reach LOS D in 2045

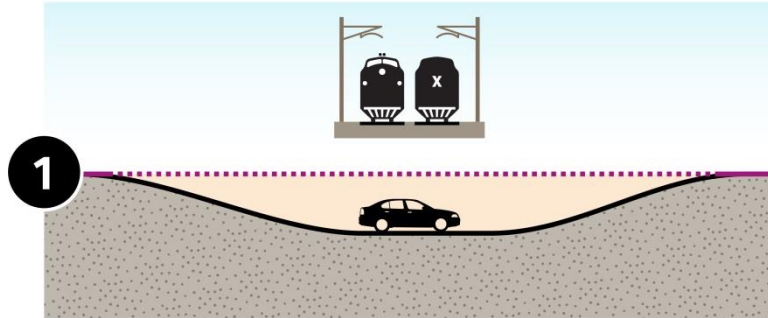
- Adversely Impacted Intersections
  - **Intersection #2, San Mateo Ave & San Bruno Ave:** Traffic conditions deteriorate from LOS D to LOS E
  - **Intersection #3, Huntington Ave & San Bruno Ave:** Traffic conditions deteriorate from LOS D to LOS E
  - **Intersection #8, Huntington Ave & Forest Ln/Herman St:** Traffic conditions improve over No Build, however, are still at LOS E
  - **Intersection #9, S. Linden Ave & San Mateo Ave:** Traffic conditions remain at LOS F
- Mitigation Measures when needed or as warranted will be considered such as:
  - Signal cycle length optimization
  - Addition of left or right turning lanes
  - Signalization
- Other Considerations
  - Conduct feasibility analysis for new connection between Scott St and Huntington Ave to assess travel way widening needs, relocation of on-street parking, and speed and noise impacts on residences.

South Linden Avenue and Scott Street Grade Separation Planning Study



# Option C: Scott St Grade Separated for Vehicles, Bikes, and Pedestrians (with four variations)

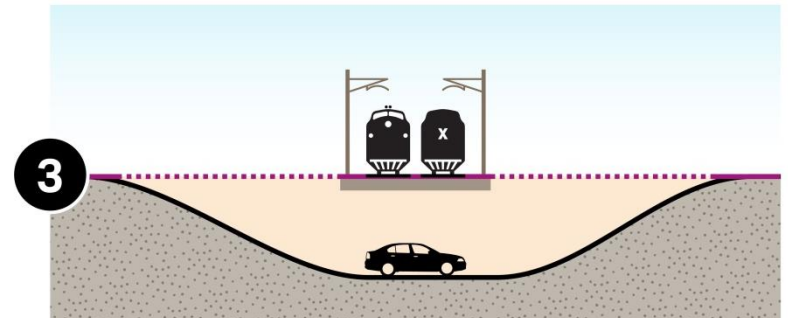
**Option C-1: Hybrid (Track Raised, Roadway Lowered)**



**Scott Street**

Rail Partially Elevated/Roadway Partially Lowered

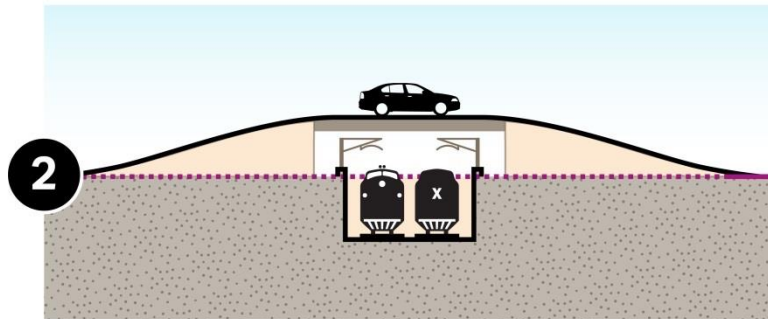
**Option C-3: Rail at grade with Roadway Underpass**



**Scott Street**

Rail at-grade, Roadway Lowered

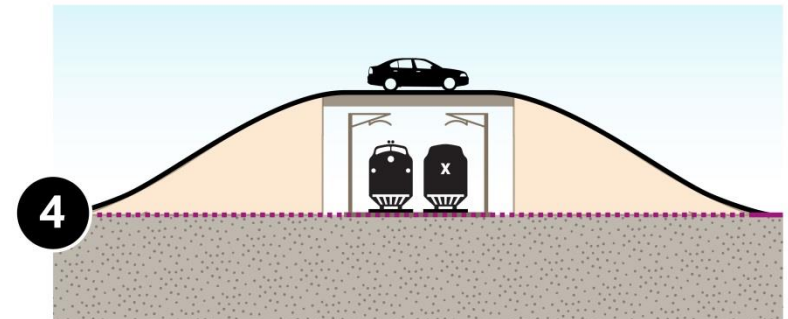
**Option C-2: Hybrid (Track Lowered, Roadway Raised)**



**Scott Street**

Rail Lowered, Roadway Elevated

**Option C-4: Rail at grade with Roadway Overpass**



**Scott Street**

Rail at-grade, Roadway Elevated

## South Linden Avenue and Scott Street Grade Separation Planning Study



# Grade Separation Examples



Holly Street, San Carlos (similar to Option C-1)



Jefferson Avenue, Redwood City (similar to Option C-3)



San Antonio Road, Mountain View (similar to Option C-4)

South Linden Avenue and Scott Street Grade Separation Planning Study



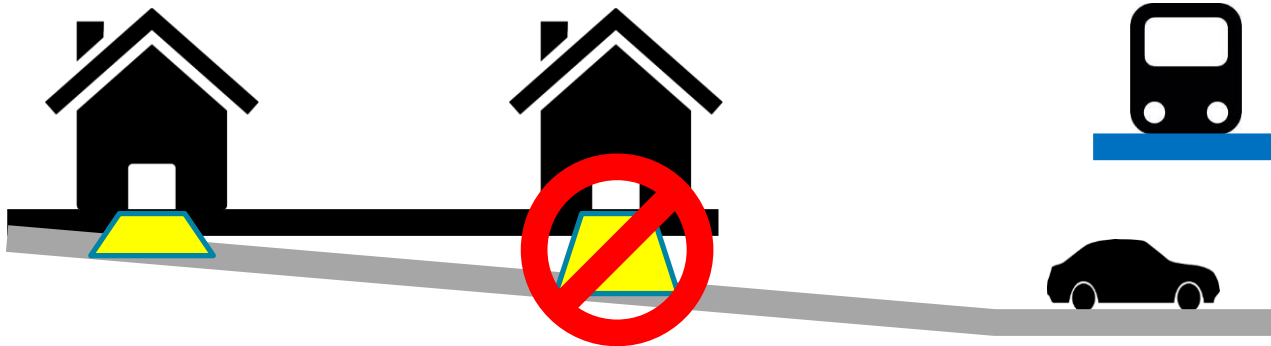
# Raising or Lowering the Road Impacts Nearby Properties

## Scott Street Grade Separated for Vehicles, Pedestrians, Bikes



Option A: AT-GRADE CROSSING

Option B: PED-BIKE UNDER/OVERCROSSING



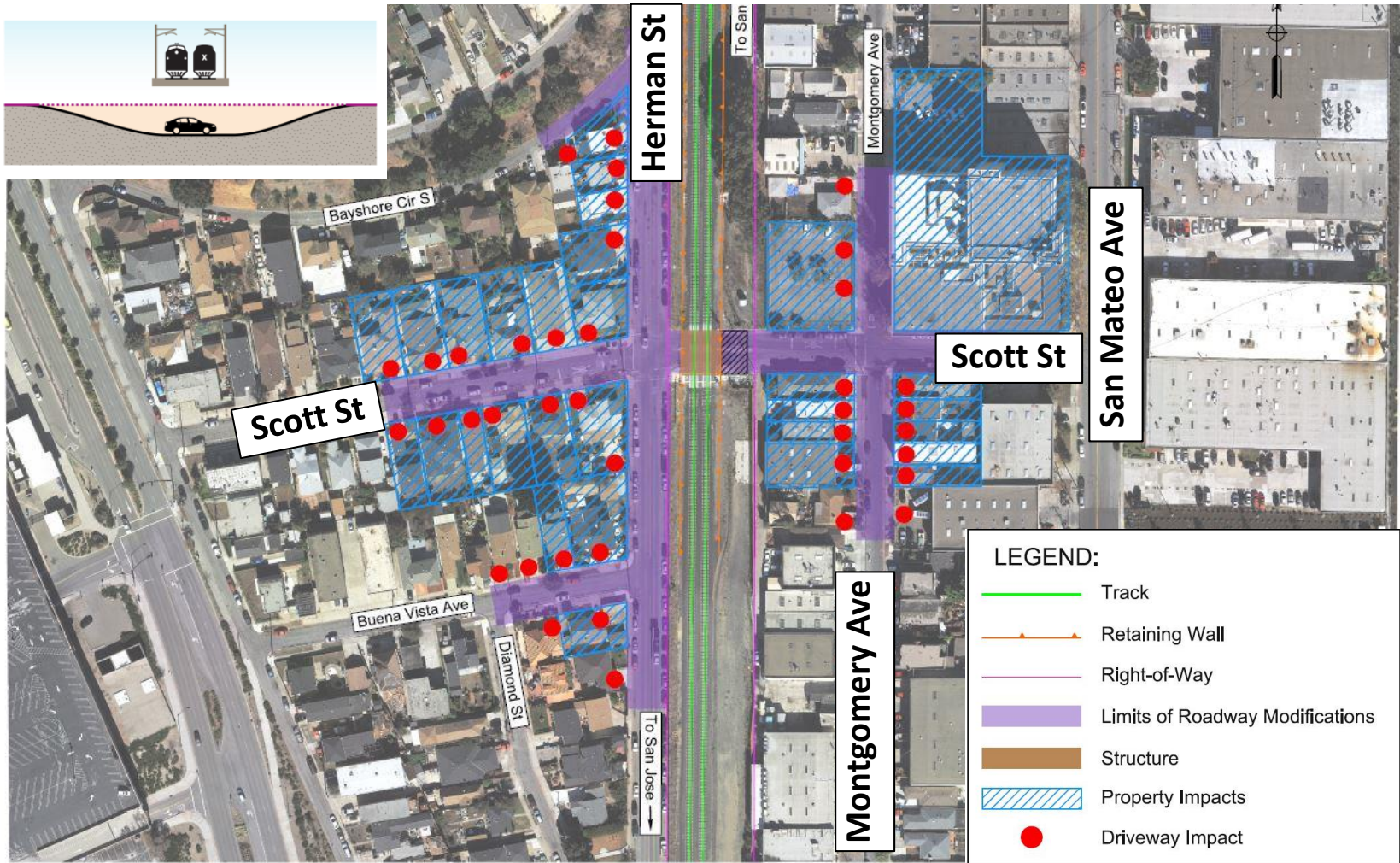
Option C: GRADE SEPARATED CROSSING

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# Option C-1: Hybrid (Track Raised, Roadway Lowered) Scott Street Grade Separated for Vehicles, Pedestrians, Bikes



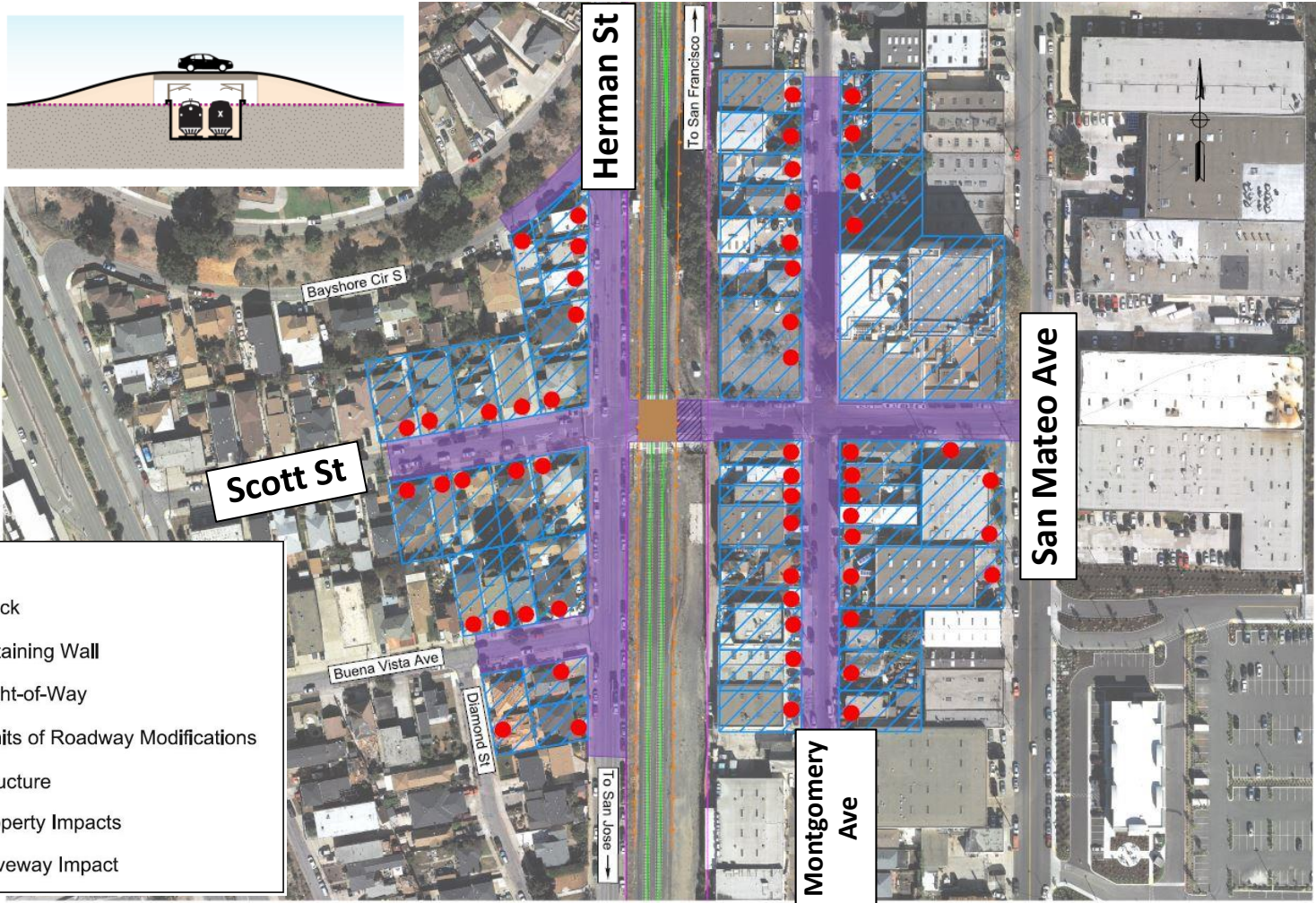
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# Option C-2: Hybrid (Track Lowered, Roadway Raised)

## Scott Street Grade Separated for Vehicles, Pedestrians, Bikes



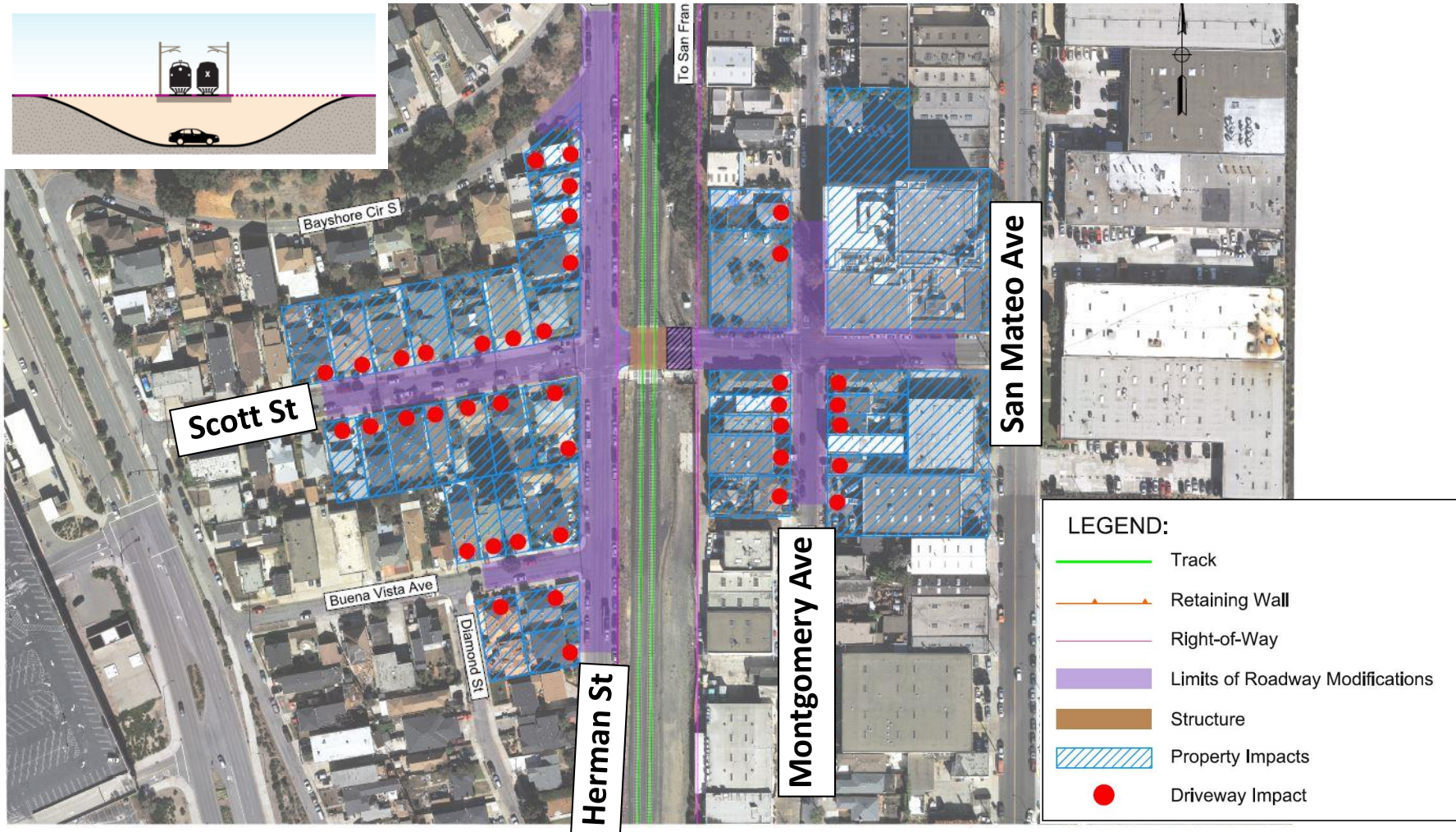
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# Option C-3: Rail at grade with Roadway Underpass

## Scott Street Grade Separated for Vehicles, Pedestrians, Bikes



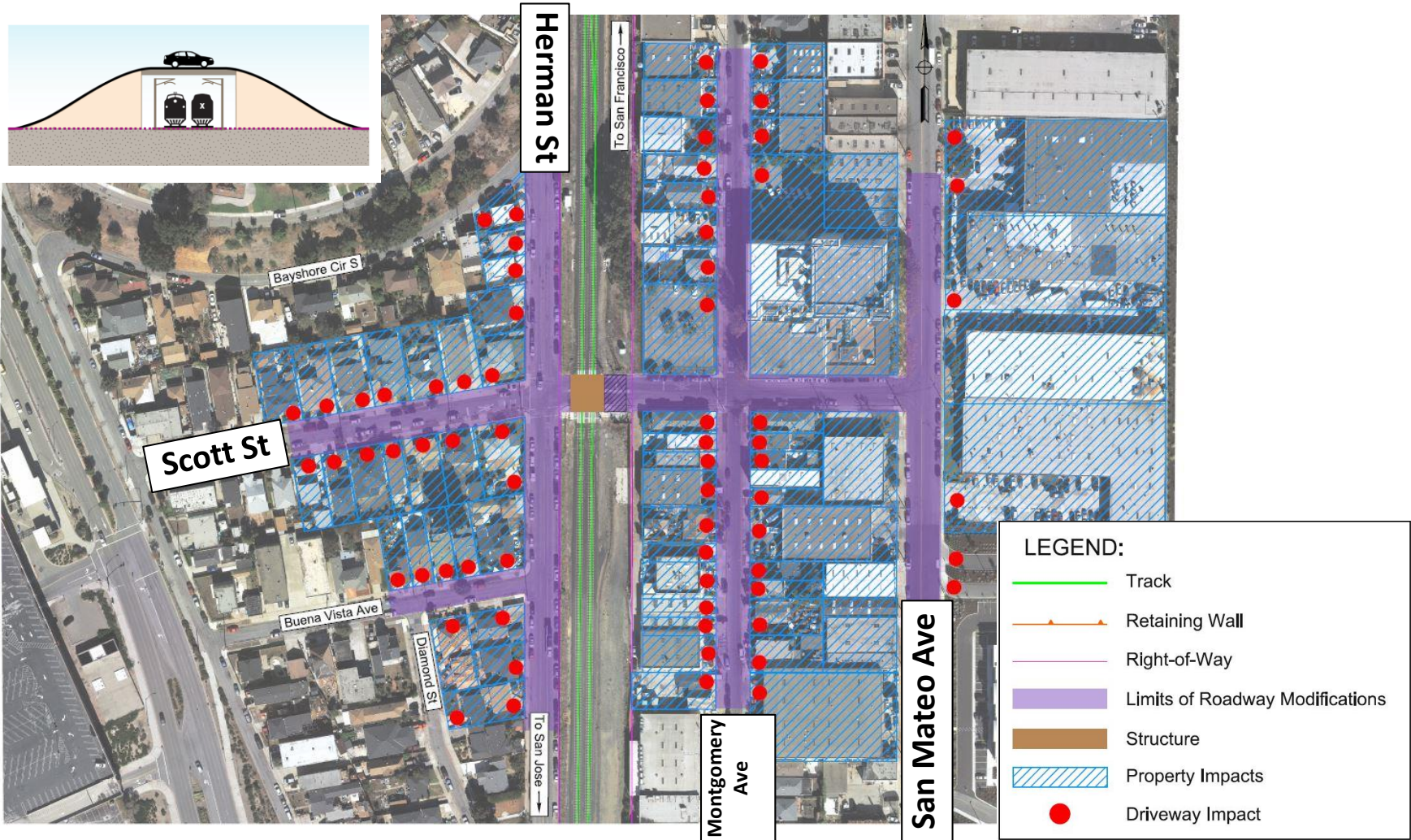
South Linden Avenue and Scott Street Grade Separation Planning Study





# Option C-4: Rail at grade with Roadway Overpass

## Scott Street Grade Separated for Vehicles, Pedestrians, Bikes



South Linden Avenue and Scott Street Grade Separation Planning Study



# Summary of Scott Street Options

| Options  |   | Pros   | Cons   |
|----------|---|--|--|
| <b>A</b> | Scott St remains an at-grade crossing                         | <ul style="list-style-type: none"> <li>▪ Maintains connectivity for all modes</li> <li>▪ No property impacts</li> <li>▪ Lowest construction cost</li> </ul>                          | <ul style="list-style-type: none"> <li>▪ Does not improve safety</li> <li>▪ Intolerable delays for traffic (extensive gate down time)</li> <li>▪ Limits opportunities for future improvements</li> </ul> |
| <b>B</b> | Scott St closed to vehicles and grade separated for ped/bikes | <ul style="list-style-type: none"> <li>▪ Provides safe crossing for ped/bikes</li> <li>▪ No residential property impacts</li> <li>▪ Improves traffic flow around Scott St</li> </ul> | <ul style="list-style-type: none"> <li>▪ Traffic diversions due to street closure</li> </ul>   |
| <b>C</b> | Scott St grade separated (open to all modes)                  | <ul style="list-style-type: none"> <li>▪ Provides safe crossing</li> <li>▪ Maintains connectivity for all modes</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Significant property impacts</li> <li>▪ Highest construction cost</li> </ul>  |

South Linden Avenue and Scott Street Grade Separation Planning Study



# Questions and Answers



# Stations

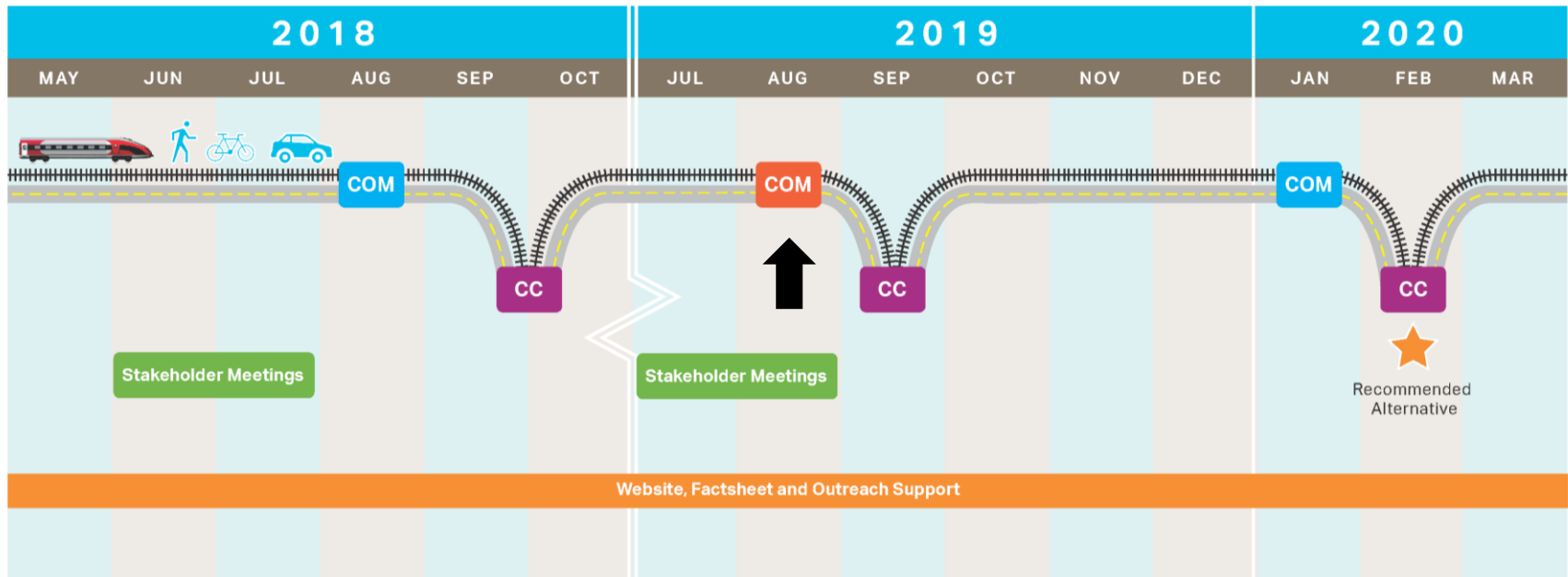
- Option A
  - **Scott St remains an at-grade crossing**
- Option B
  - **Scott St closed to vehicles and grade separated for pedestrians and bicycles**
- Option C
  - **Scott St grade separated for vehicles, pedestrians, and bicycles**
- Indicate where you live
- Place a dot on your preferred option








## South Linden Avenue and Scott Street Grade Separation Planning Study



# Next Steps



-  Combined City Community Meeting
-  City Council Meeting (3 each per city)
-  Single City Community Meeting
-  Recommended Alternative—Advance to Environmental Clearance
-  Today's Meeting

## South Linden Avenue and Scott Street Grade Separation Planning Study



Thank you

The background is a solid blue color. On the right side, there are several thin, white, intersecting lines that create a geometric pattern of triangles and quadrilaterals. The lines are thin and extend across the right half of the image.