

South Linden Avenue & Scott Street Grade Separation Planning Study

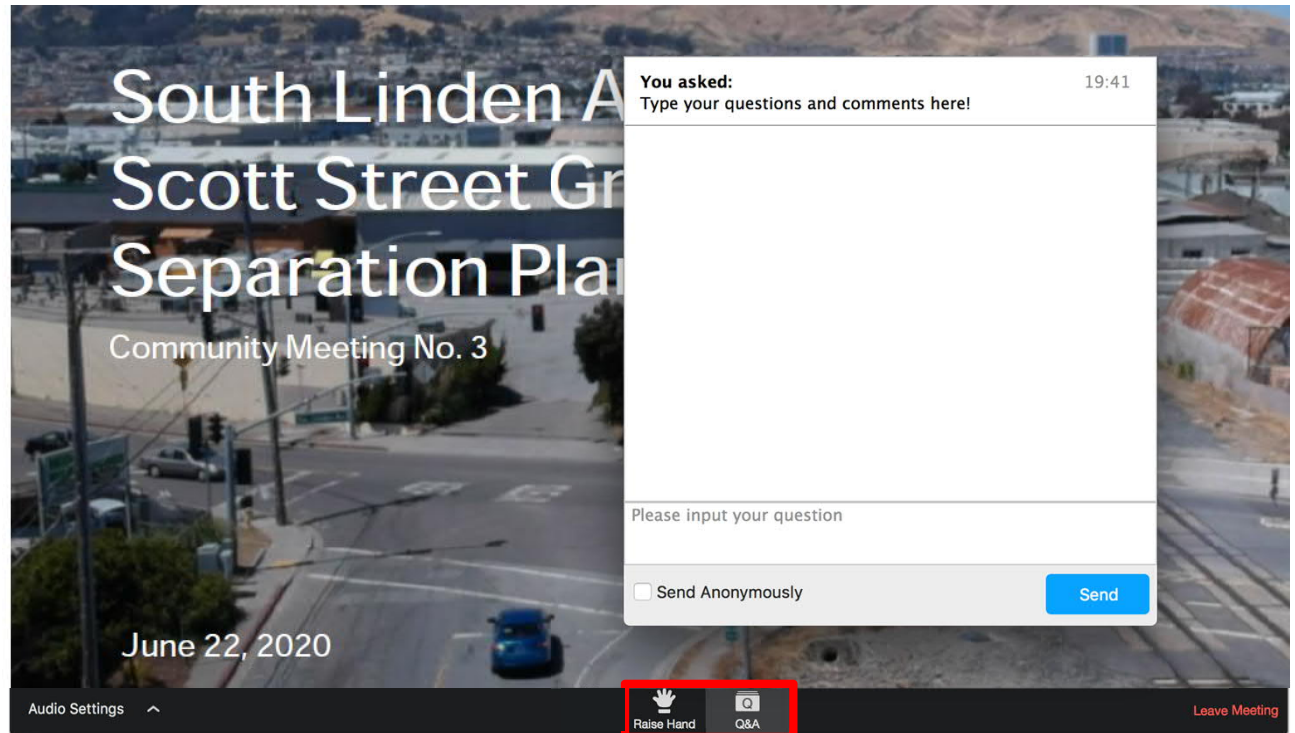
Community Meeting No. 3

June 22, 2020



Meeting Logistics

- All attendees are muted
- Q&A at end of presentation
 - Raise hand
 - Type using Q&A option
 - On Phone Press *9
- Recording of the presentation will be available after the webinar
- Public Comments:
ps@sanbruno.ca.gov
engineering@ssf.net



South Linden Avenue and Scott Street Grade Separation Planning Study



Team Introductions

- Presenters
 - Brent Tietjen, Caltrain
 - Melissa Reggiardo, Caltrain
 - Millette Litzinger, AECOM
 - Eileen Goodwin, Apex Strategies

- Supporting Team Members
 - Bianca Liu, City of South San Francisco
 - HaeWon Ritchie, City of San Bruno
 - Ryan McCauley, Caltrain
 - Peter DeStefano, AECOM
 - ETTY Mercurio, AECOM

South Linden Avenue and Scott Street Grade Separation Planning Study



Meet the City Representatives

- City of San Bruno
 - Hae Won Ritchie
 - Department of Public Works
 - ps@sanbruno.ca.gov
 - (650) 616-7065

- City of South San Francisco
 - Bianca Liu
 - Department of Public Works
 - engineering@ssf.net
 - (650) 829-6652



Scott Street – City of San Bruno



South Linden Avenue – City of South San Francisco

South Linden Avenue and Scott Street Grade Separation Planning Study



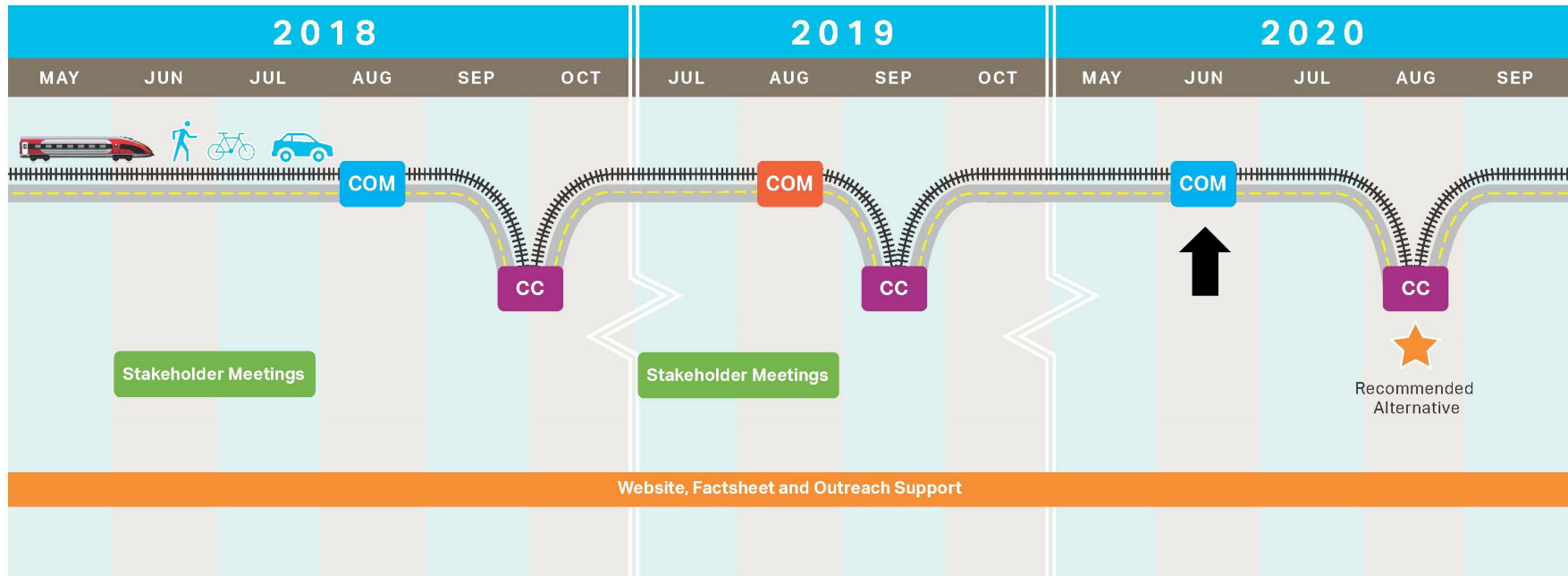
Agenda

- Project Background
- Work Done to Date
- Caltrain Presentation - Planning Context
- Project Alternatives
- Temporary Impacts during Construction
- Advantages & Disadvantages
- Questions/ Comments

South Linden Avenue and Scott Street Grade Separation Planning Study



Community Engagement Schedule



- COM** Combined City Community Meeting (2, with South San Francisco **and** San Bruno)
- CC** City Council Meeting (3 each per city)
- COM** Single City Community Meeting
- ★ Recommended Alternative—Advance to Environmental Clearance
- ↑ Today's Meeting

South Linden Avenue and Scott Street Grade Separation Planning Study



Work Done to Date

- August 2018 SSF & San Bruno Community Meeting #1 (four alternatives)
- June/September 2018 Council Updates
- August 2019 San Bruno Only Community Meeting #2
- November 2019 San Bruno City Council Update (ped/bike crossing only at Scott St preferred)
- January 2019 SSF City Council Update

South Linden Avenue and Scott Street Grade Separation Planning Study



Why Build a Grade Separation/Why is the Project Needed?

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

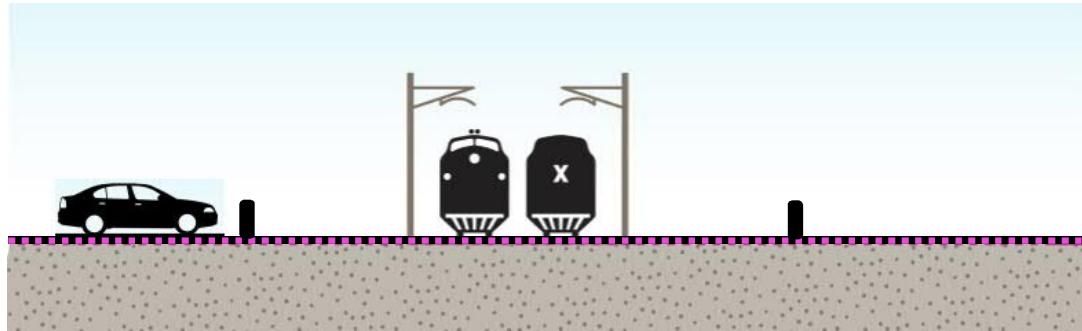
Safer Facility + Less Congestion = Higher Quality of Life

South Linden Avenue and Scott Street Grade Separation Planning Study



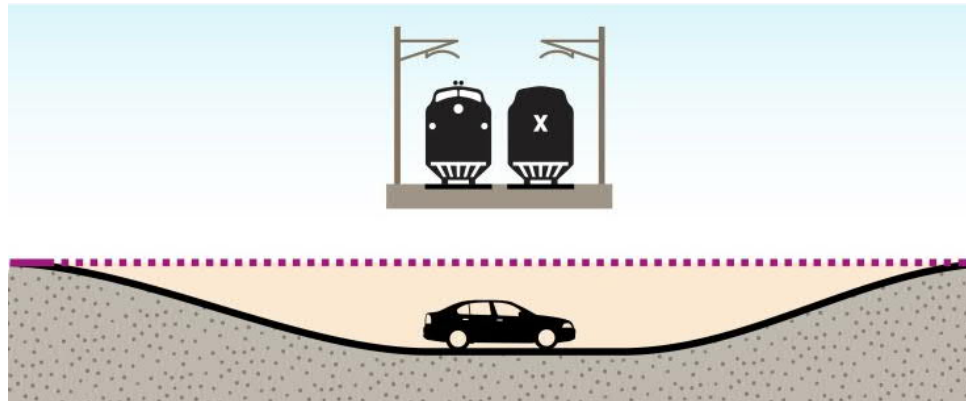
AT- GRADE

- Road and tracks intersect at the same elevation.



GRADE SEPARATION

- Road and tracks intersect at different elevations



South Linden Avenue and Scott Street Grade Separation Planning Study



The Caltrain Context

■ Caltrain Business Plan

• 2040 Long Range Service Vision

- » 3 Scenarios Examined: Baseline, Moderate Growth and High Growth
- » Moderate Growth Scenario adopted by JPB Board in October 2019
- » Accommodates 12 trains per “peak” hour/per direction (TPHPD)
 - 8 Caltrain TPHPD
 - 4 High-Speed Rail TPHPD

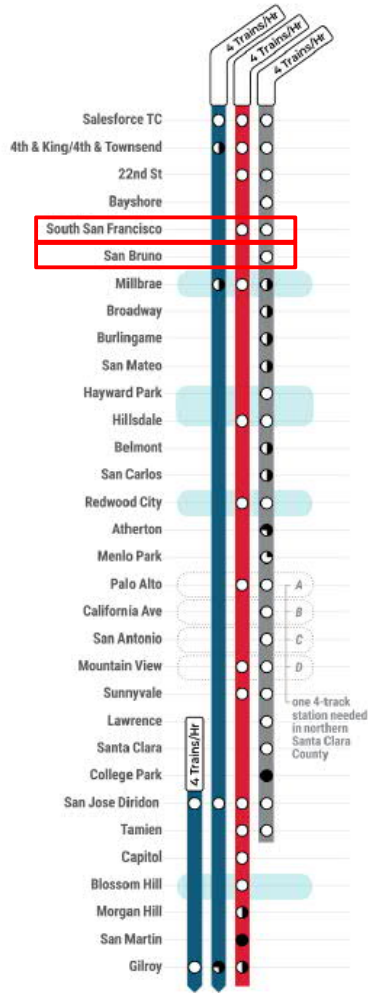
• Determines necessary infrastructure upgrades to accommodate the Long Range Service Vision



South Linden Avenue and Scott Street Grade Separation Planning Study



The Caltrain Context



- Board also gave direction to continue planning for a “potential higher growth level of service as well as potential new regional and megaregional connections.”
- Higher growth level of service could accommodate up to 16 (TPHPD)
 - » 12 Caltrain/Other Rail Services TPHPD
 - » 4 High-Speed Rail TPHPD
- A higher growth level of service may include a 4-track section through South San Francisco and San Bruno

South Linden Avenue and Scott Street Grade Separation Planning Study



The Caltrain Context

SERVICE CONCEPTS IN SOUTH SAN FRANCISCO



South Linden Avenue and Scott Street Grade Separation Planning Study



The Caltrain Context

SERVICE CONCEPTS IN SAN BRUNO

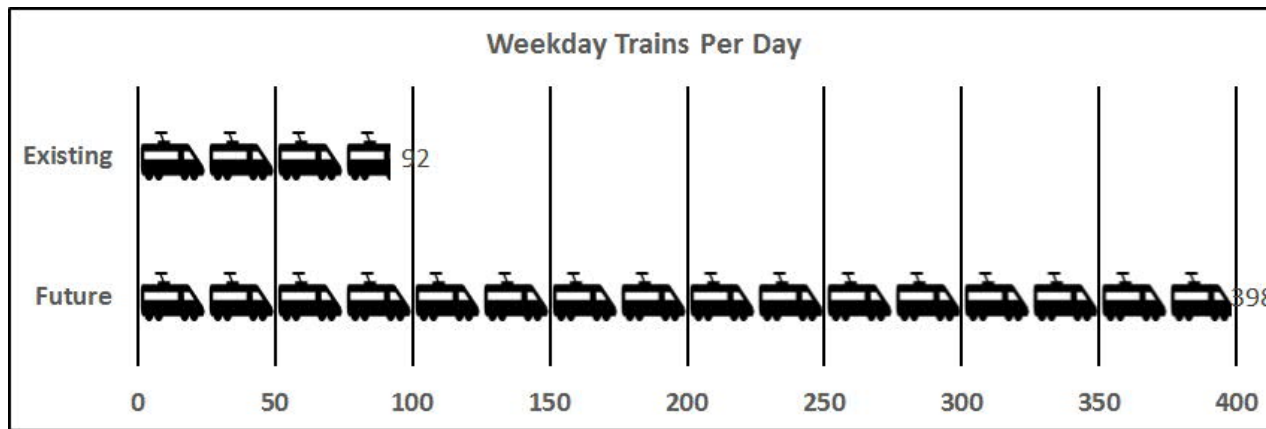


South Linden Avenue and Scott Street Grade Separation Planning Study



The Caltrain Context

Long Range Service Vision (Adopted Moderate Growth Scenario): Weekday Trains Per Day



Potential Higher Growth Level of Service:
Weekday Trains Per Day

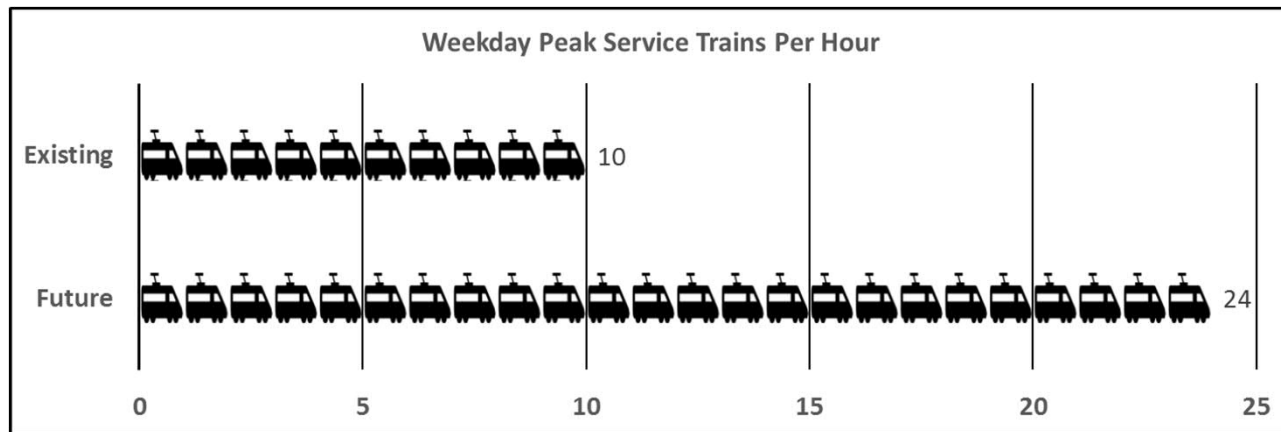
- Could go as high as 478 per day

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The Caltrain Context

Long Range Service Vision (Adopted Moderate Growth Scenario): Number of Weekday Trains at "Peak" Hours



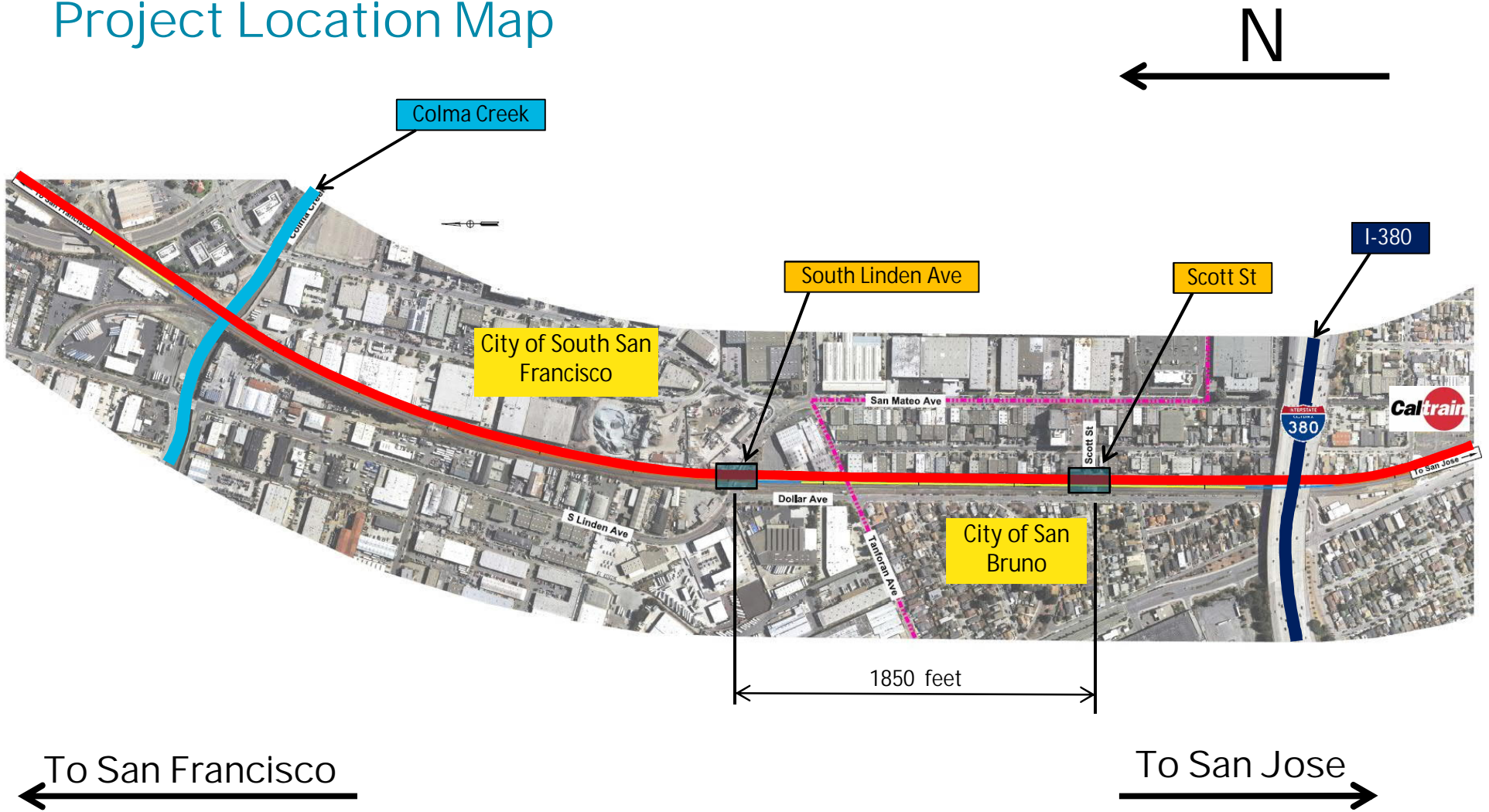
Potential Higher Growth Level of Service

- Could go as high as 32 trains/peak hour

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Project Location Map

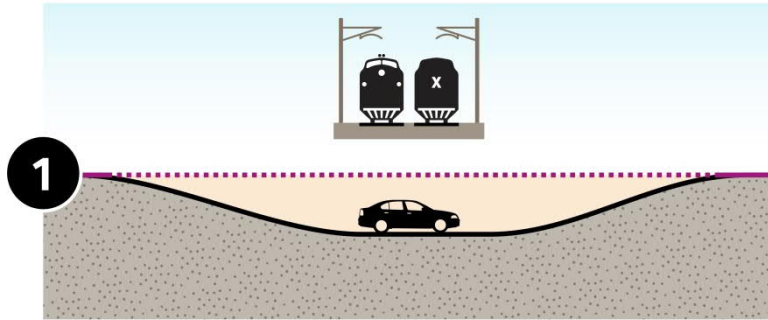


South Linden Avenue and Scott Street Grade Separation Planning Study



Four Alternatives to Evaluate for Grade Separation

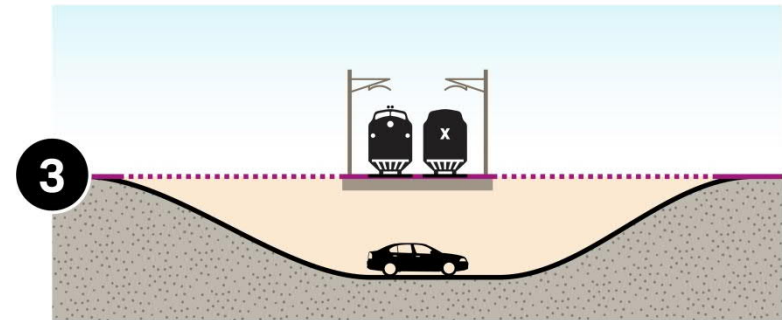
Alternative 1: Hybrid (Track Raised, Linden Ave Lowered)



South Linden Avenue

Rail Partially Elevated/Roadway Partially Lowered

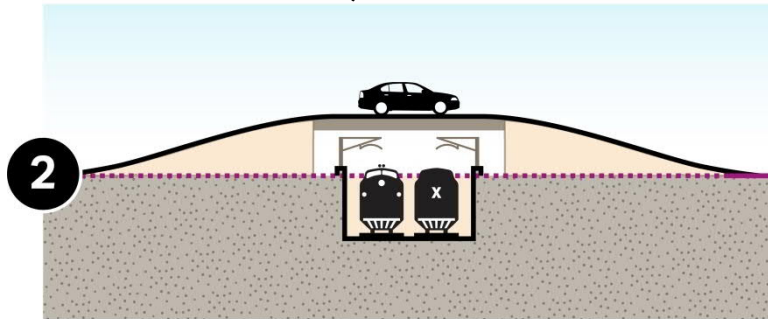
Alternative 3: Rail at grade with Linden Ave Underpass



South Linden Avenue

Rail at-grade, Roadway Lowered

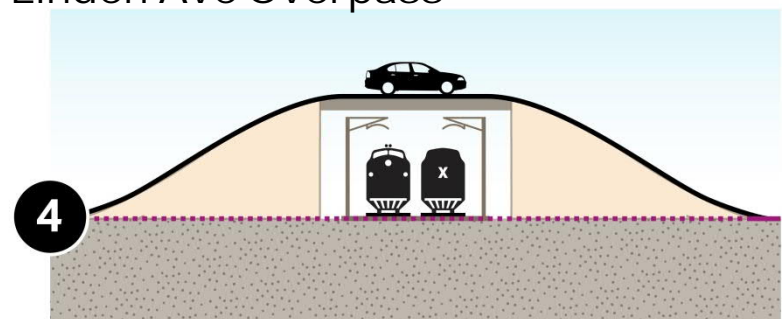
Alternative 2: Hybrid (Track Lowered, Linden Ave Raised)



South Linden Avenue

Rail Partially Lowered/Roadway Partially Elevated

Alternative 4: Rail at grade with Linden Ave Overpass



South Linden Avenue

Rail at-grade, Roadway Elevated

South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Hybrid Alternative

- Holly Street, San Carlos
- Issues
 - Long embankments
 - Raised tracks
 - Improved connectivity
 - Reduced impact to adjacent properties



South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Underpass Alternative

- Jefferson Avenue, Redwood City
- Issues
 - Retaining walls
 - Limits access to adjacent properties
 - Side street connectivity



South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Overpass Alternative

- San Antonio Road, Mountain View
- Issues
 - Requires 30 ft bridge
 - Overpass length: 1,100 ft
 - Requires raising El Camino Real
 - Major visual impacts
 - Largest footprint



South Linden Avenue and Scott Street Grade Separation Planning Study



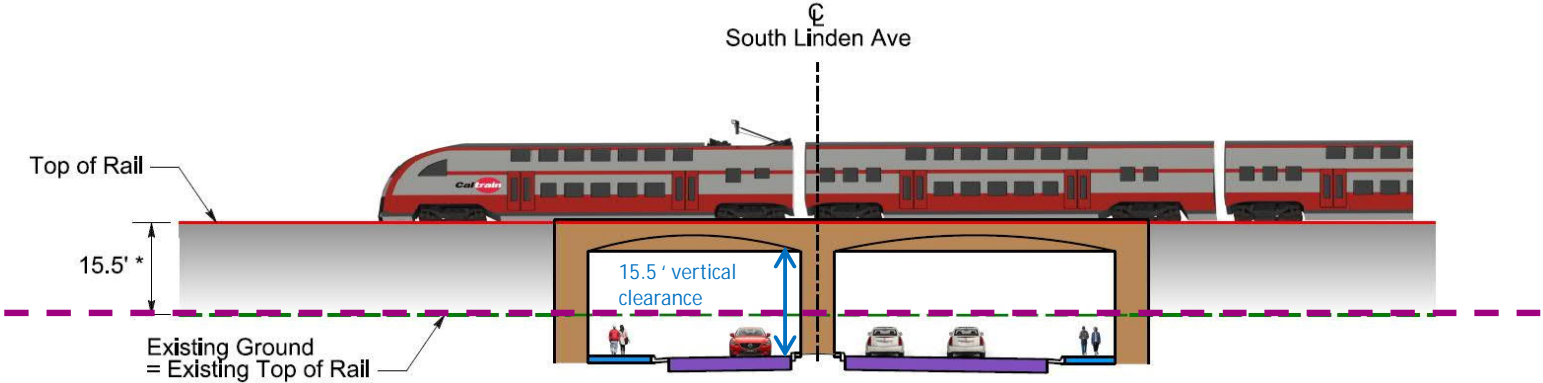
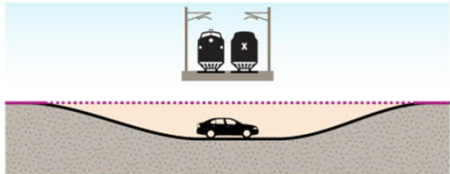
Alternative 1: Hybrid (Track Raised, Linden Ave Lowered) South Linden Avenue Layout



South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 1: Hybrid (Track Raised, Linden Ave Lowered) South Linden Avenue Typical Section



South Linden Avenue and Scott Street Grade Separation Planning Study



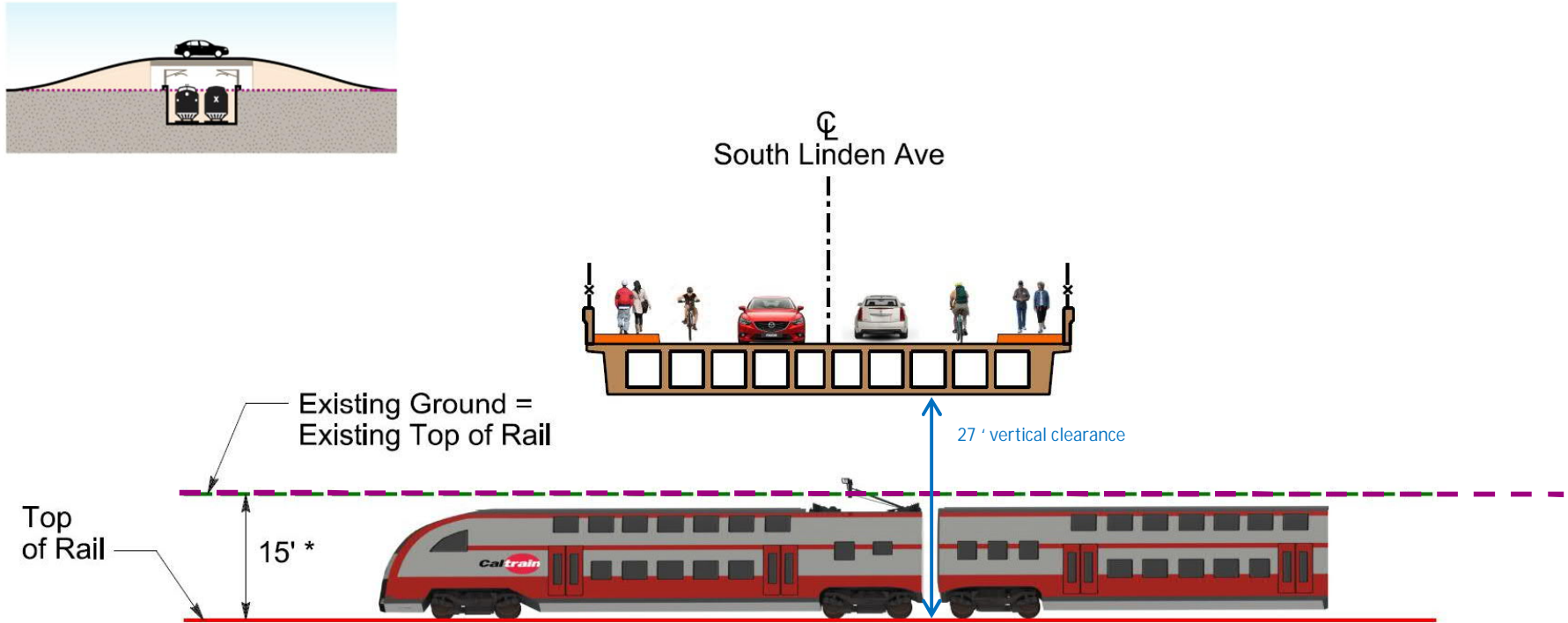
Alternative 2: Hybrid (Track Lowered, Linden Ave Raised) South Linden Avenue Layout



South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 2: Hybrid (Track Lowered, Linden Ave Raised) South Linden Avenue Typical Section



* Elevation difference between the proposed and existing top of rail at the centerline of South Linden Avenue

South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 3: Rail at grade with Linden Ave Underpass

South Linden Avenue Layout

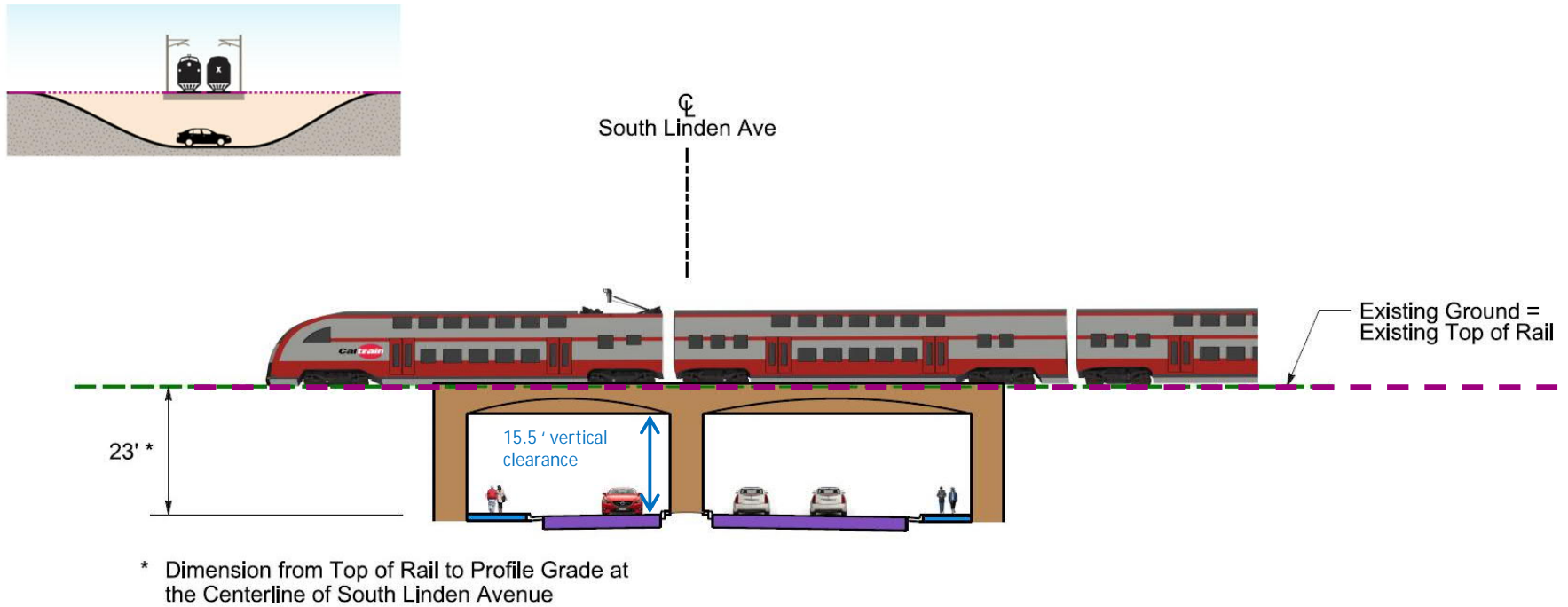


South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 3: Rail at grade with Linden Ave Underpass

South Linden Avenue Typical Section



South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 4: Rail at grade with Linden Ave Overpass

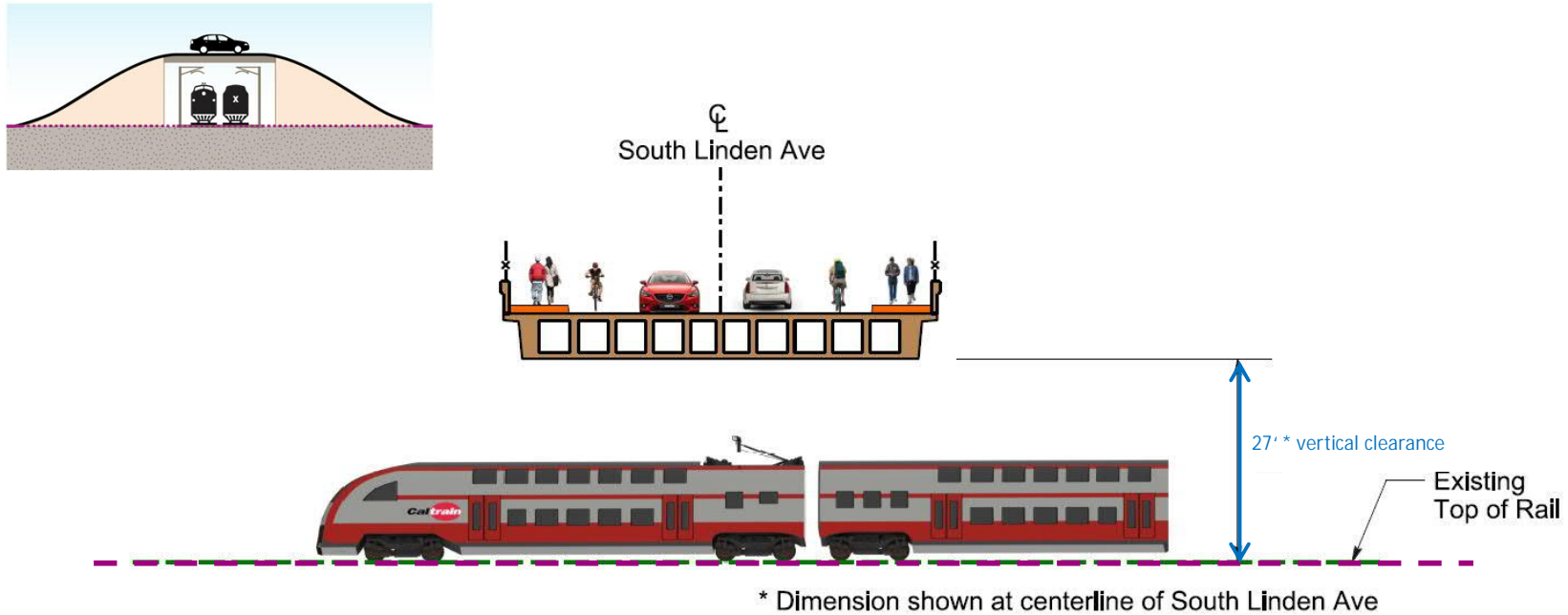
South Linden Avenue Layout



South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 4: Rail at grade with Linden Ave Overpass South Linden Avenue – Typical Section

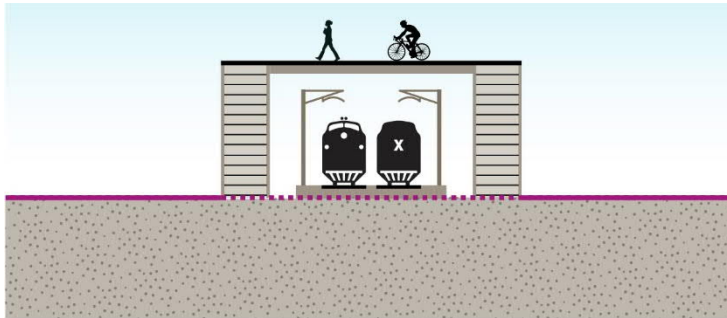


South Linden Avenue and Scott Street Grade Separation Planning Study



Options to Evaluate for Ped/Bike Overcrossing

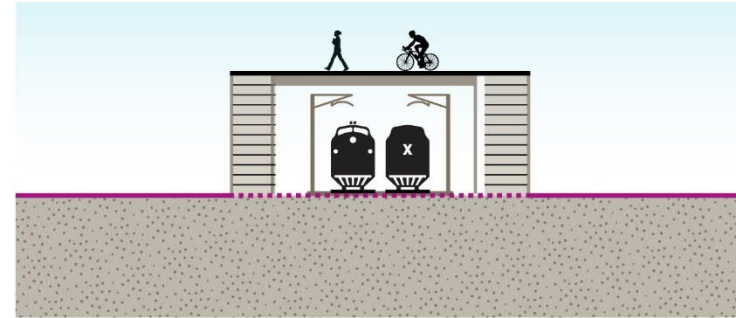
Alternative 1: Hybrid (Track Raised, Linden Ave Lowered)



Scott Street

Rail Partially Elevated with a Ped/Bike Overcrossing

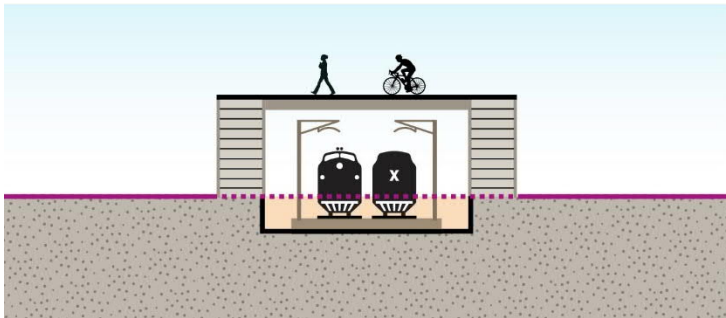
Alternative 3: Rail at grade with Linden Ave Underpass



Scott Street

Rail at-grade with a Ped/Bike Overcrossing

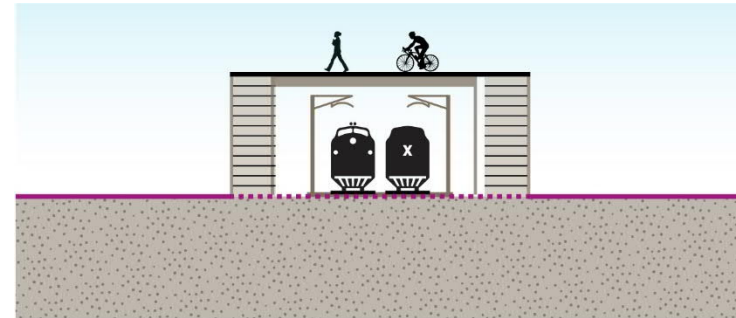
Alternative 2: Hybrid (Track Lowered, Linden Ave Raised)



Scott Street

Rail Partially Lowered with a Ped/Bike Overcrossing

Alternative 4: Rail at grade with Linden Ave Overpass



Scott Street

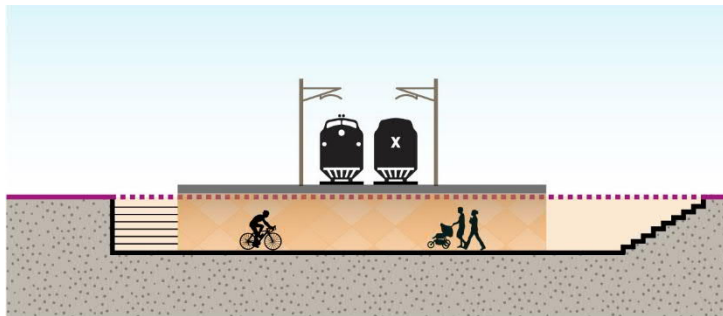
Rail at-grade with a Ped/Bike Overcrossing

South Linden Avenue and Scott Street Grade Separation Planning Study



Options to Evaluate for Ped/Bike Undercrossing

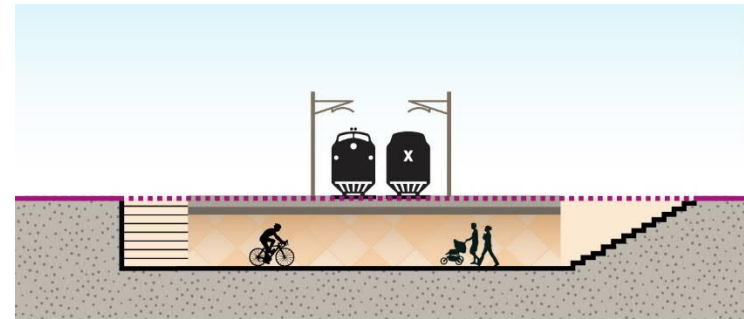
Alternative 1: Hybrid (Track Raised, Linden Ave Lowered)



Scott Street

Rail Partially Elevated with a Ped/Bike Undercrossing

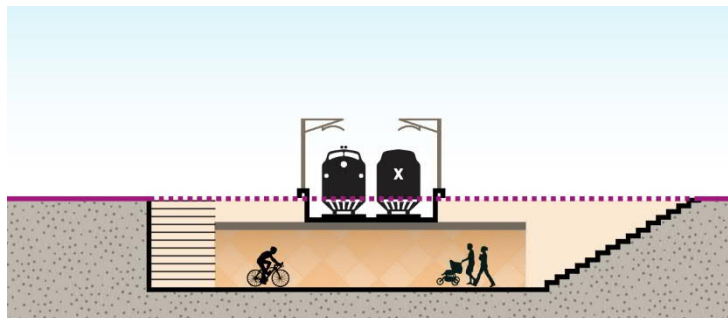
Alternative 3: Rail at grade with Linden Ave Underpass



Scott Street

Rail at-grade with a Ped/Bike Undercrossing

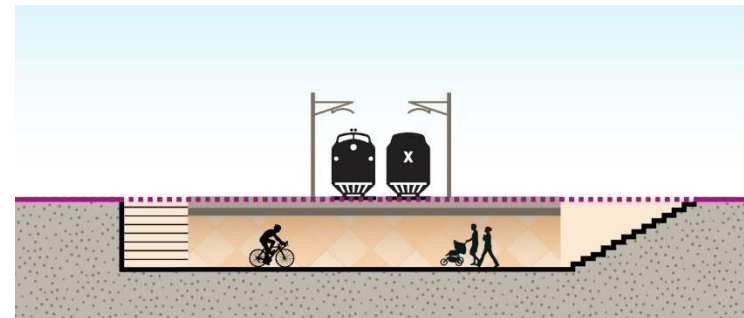
Alternative 2: Hybrid (Track Lowered, Linden Ave Raised)



Scott Street

Rail Partially Lowered with a Ped/Bike Undercrossing

Alternative 4: Rail at grade with Linden Ave Overpass



Scott Street

Rail at-grade with a Ped/Bike Undercrossing

South Linden Avenue and Scott Street Grade Separation Planning Study



Elevation Changes at Scott St Ped Crossing

Alternative	Rail Elevation Change (x) (ft)	Descent (D) from Herman St (ft) (Undercrossing)	Ascent (A) from Herman St (ft) (Overcrossing)
1	+2.5	14.0	33.5
2	-6.0	22.5	25.0
3	+0.0	16.5	31.0
4	+0.0	16.5	31.0

Descent (D) = $16.5 - x$ ← As x increases (rail is elevated), D decreases

Ascent (A) = $31.0 + x$ ← As x decreases (rail is lowered), A decreases

South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Pedestrian Undercrossing



Homer Avenue, Palo Alto

South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Pedestrian Overcrossing



Blossom Hill Avenue, San Jose

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Design Considerations/Differentiators

- Accessibility (Elevation Change)
- Right-of-Way
- Utilities
- Design Requirements (vertical clearance, etc)
- Constructability
- General Visual Impact/Overall Aesthetics

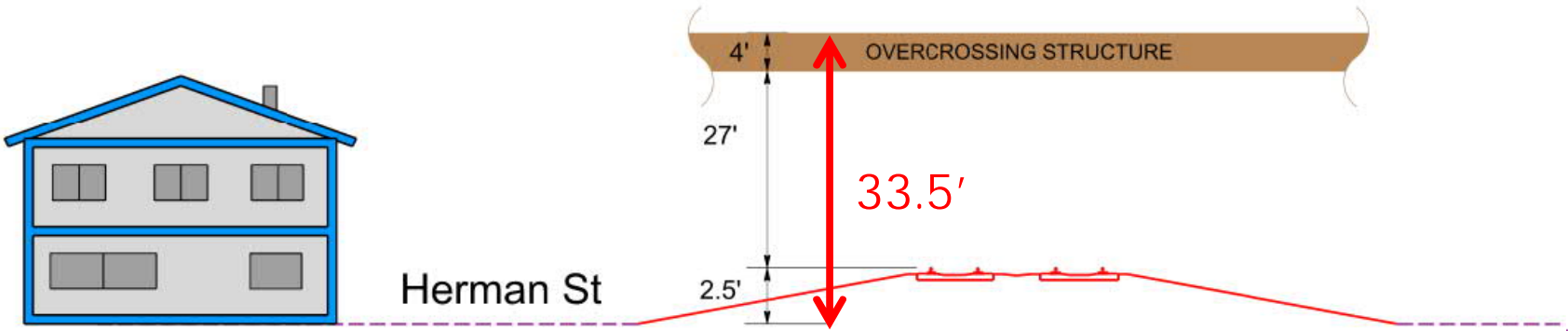
South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 1: Hybrid (Track Raised, Linden Ave Lowered) Scott St Typical Section – Overcrossing



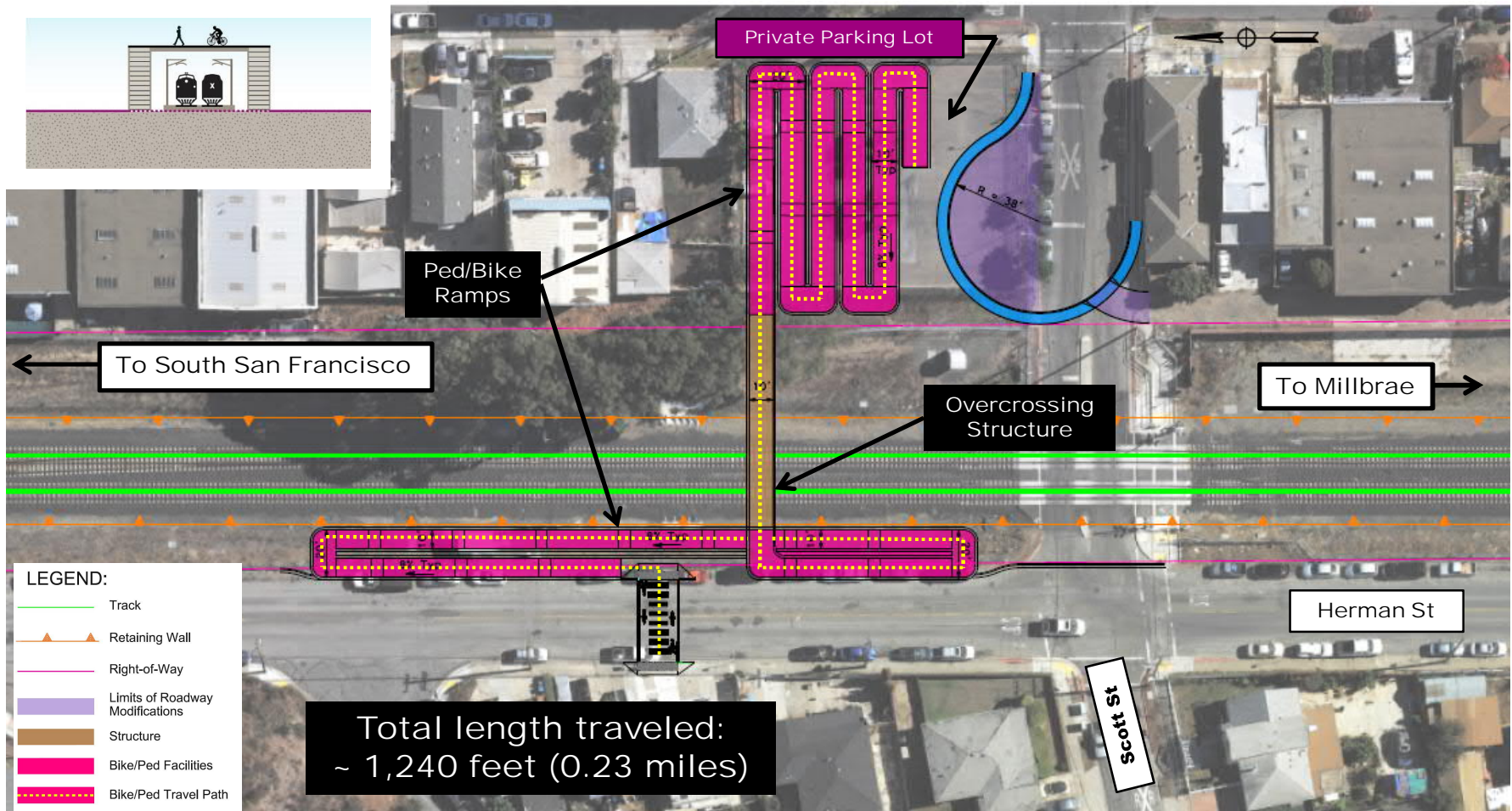
Top of Rail Elevation Increase	2.5 ft
Vertical Clearance	27 ft
Structure Depth	4 ft
Total Elevation Climb from Herman St	33.5 ft



South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 1: Hybrid (Track Raised, Linden Ave Lowered) Scott St Layout- Overcrossing



South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Pedestrian Overcrossing



Riverside Elementary School, San Pablo

South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Pedestrian Overcrossing

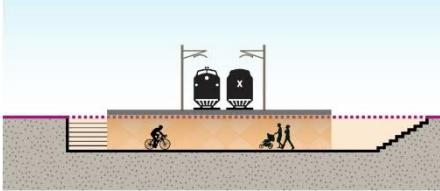


Market Street Overpass, San Francisco

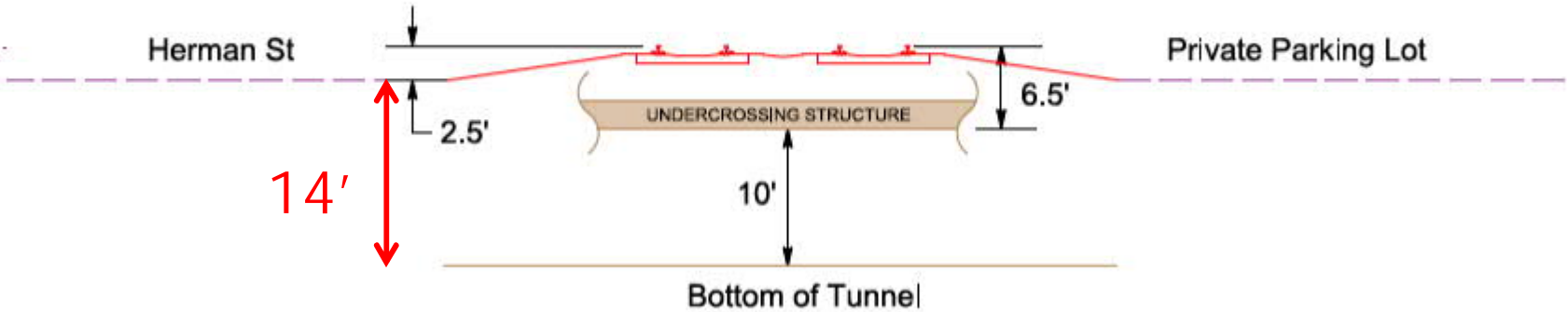
South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 1: Hybrid (Track Raised, Linden Ave Lowered) Scott Street Typical Section - Undercrossing



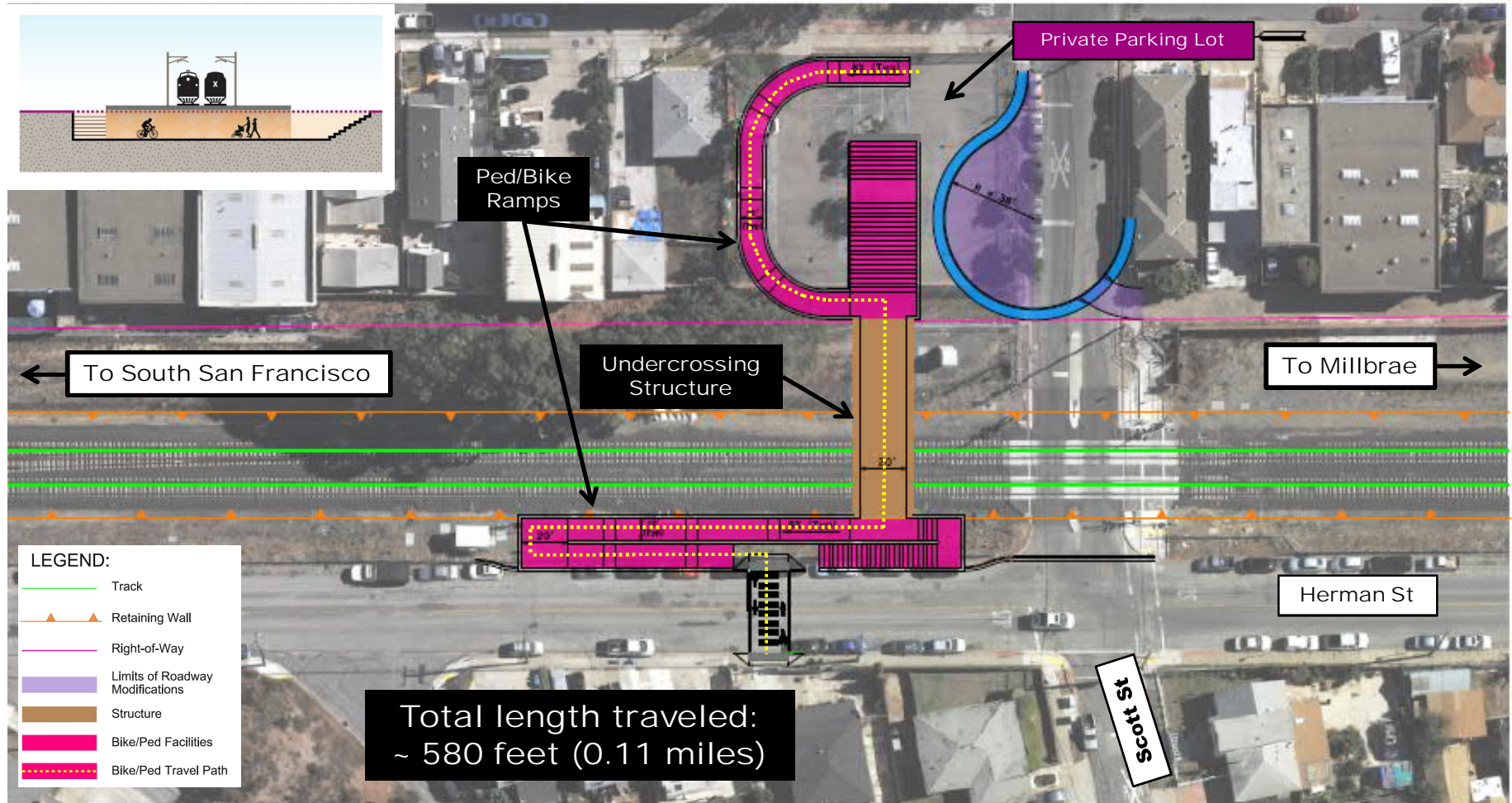
Top of Rail Elevation Increase	2.5 ft
Vertical Clearance	10 ft
Clearance from roof of structure to T/R	6.5 ft
Total Elevation Descent from Herman St	14 ft



South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 1: Hybrid (Track Raised, Linden Ave Lowered) Scott Street Layout – Undercrossing



South Linden Avenue and Scott Street Grade Separation Planning Study



Example of Pedestrian Undercrossing



Arroyo Avenue, San Carlos

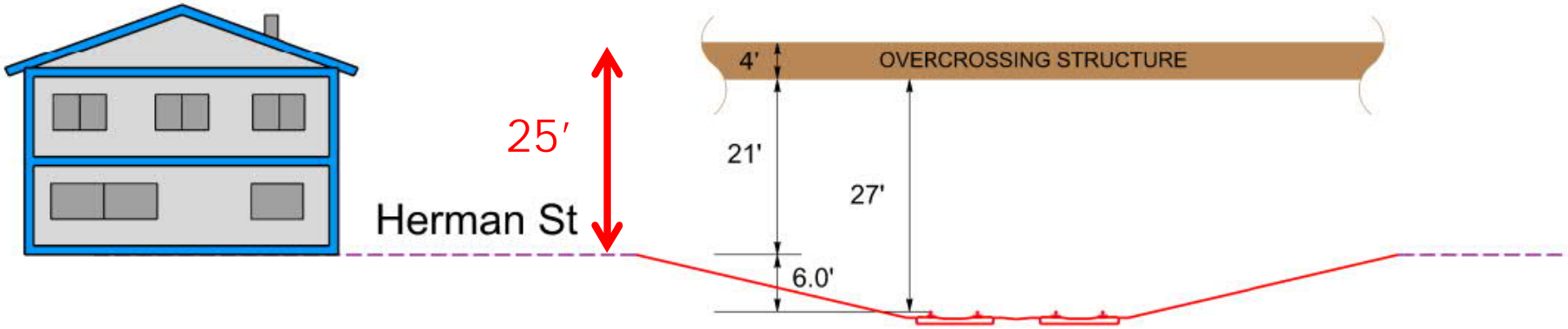
South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 2: Hybrid (Track Lowered, Linden Ave Raised) Scott St Typical Section - Overcrossing



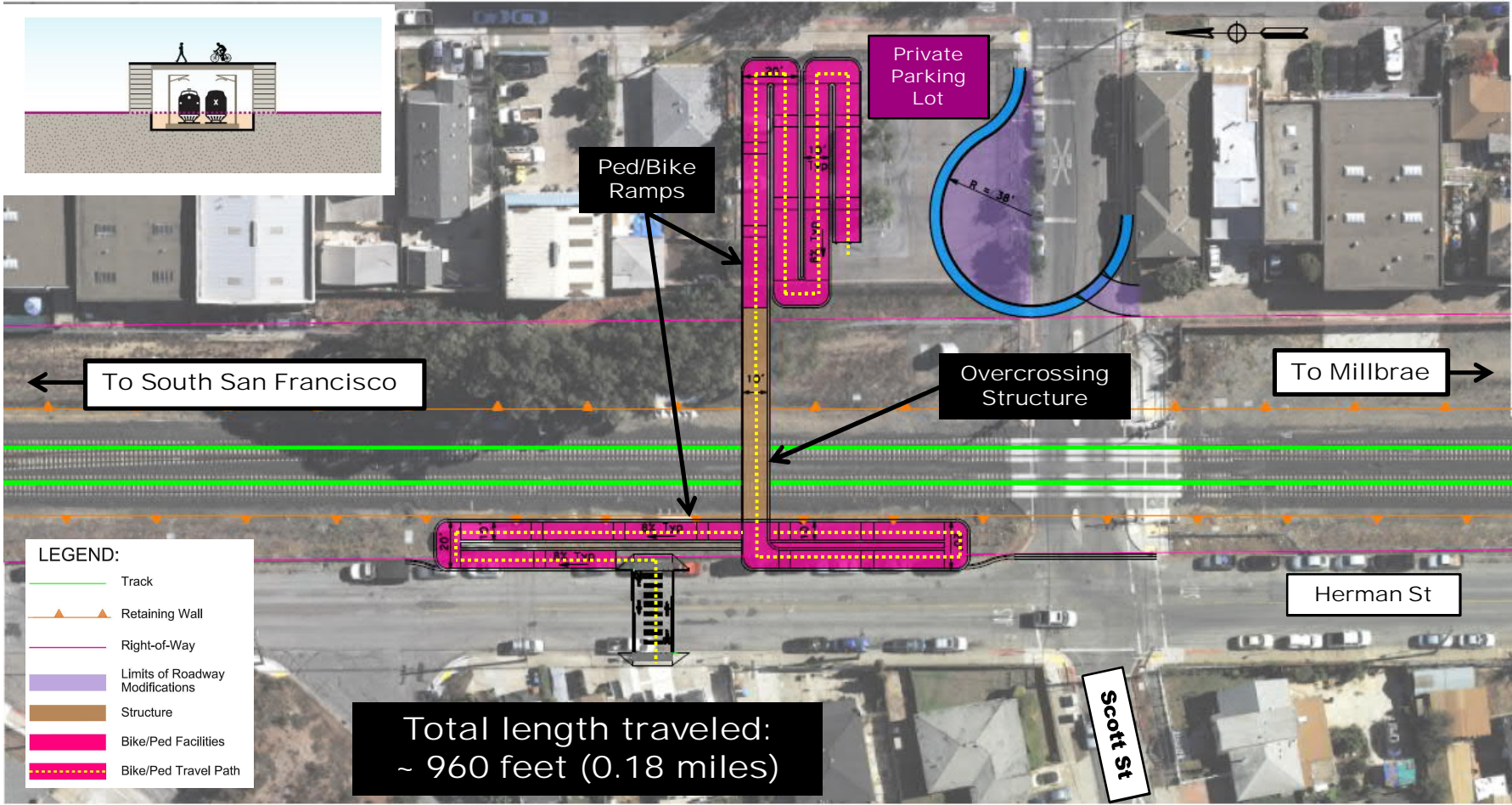
Top of Rail Elevation Lowered	-6 ft
Vertical Clearance	27 ft
Structure Depth	4 ft
Total Elevation Climb from Herman St	25 ft



South Linden Avenue and Scott Street Grade Separation Planning Study



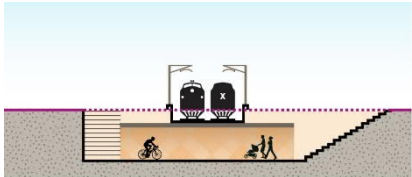
Alternative 2: Hybrid (Track Lowered, Linden Ave Raised) Scott St Layout- Overcrossing



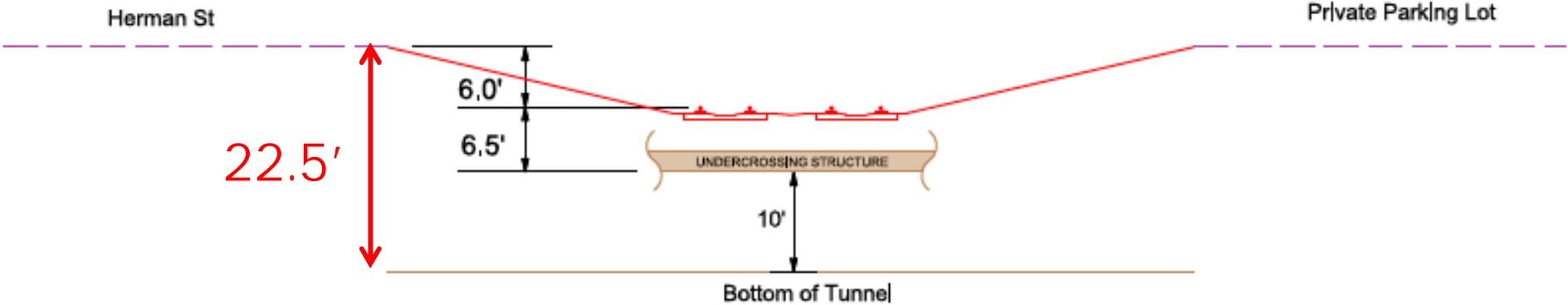
South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 2: Hybrid (Track Lowered, Linden Ave Raised) Scott St Typical Section – Undercrossing



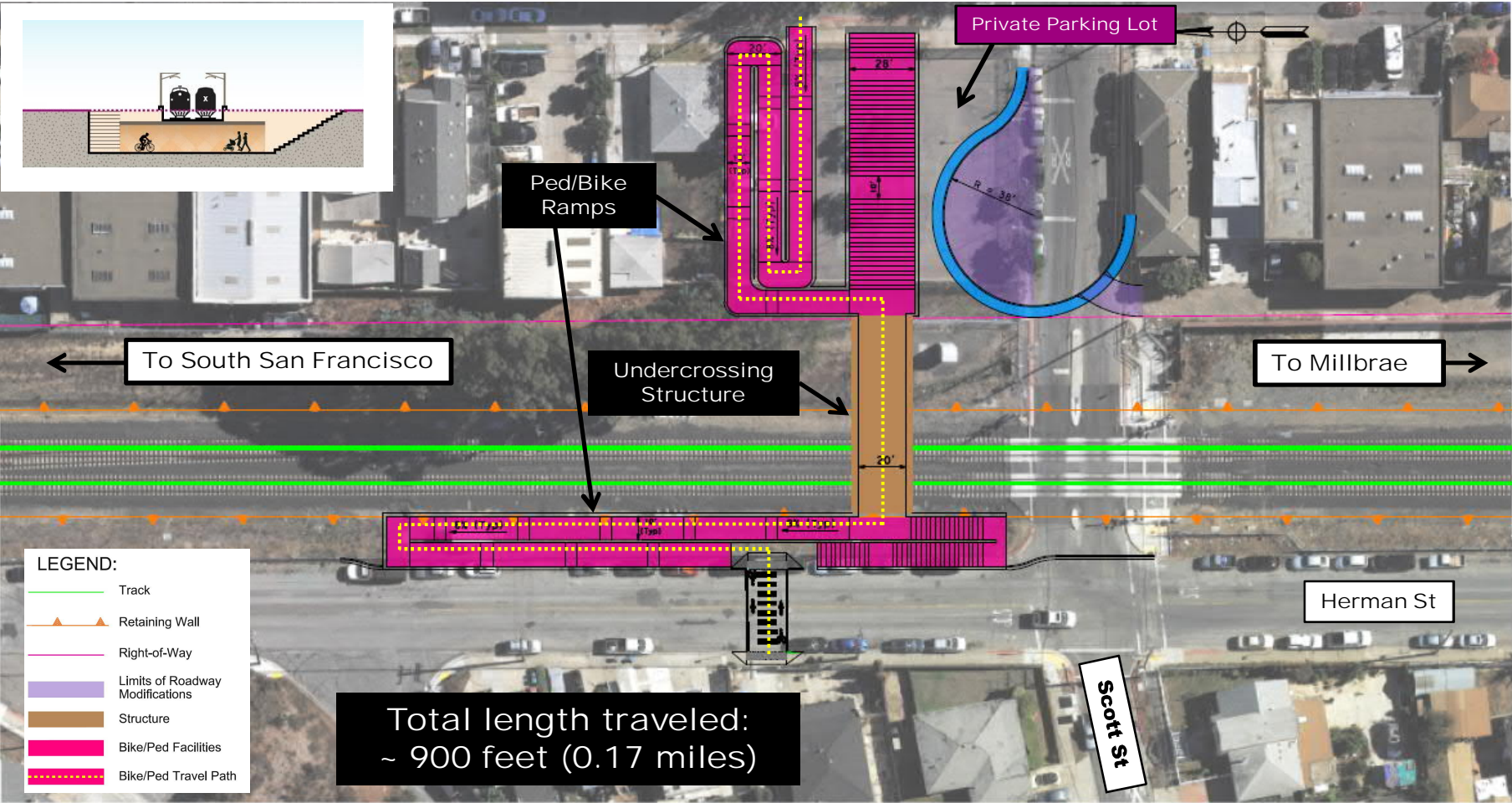
Top of Rail Elevation Lowered	6 ft
Vertical Clearance	10 ft
Clearance from roof of structure to T/R	6.5 ft
Total Elevation Descent from Herman St	22.5 ft



South Linden Avenue and Scott Street Grade Separation Planning Study



Alternative 2: Hybrid (Track Lowered, Linden Ave Raised) Scott St Layout – Undercrossing



South Linden Avenue and Scott Street Grade Separation Planning Study



Elevation Changes at Scott St Ped Crossing

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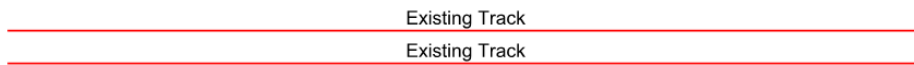
Ascent (A) = $31.0 + x$ ← As x decreases (rail is lowered), A decreases

South Linden Avenue and Scott Street Grade Separation Planning Study



What Is a Shoofly?

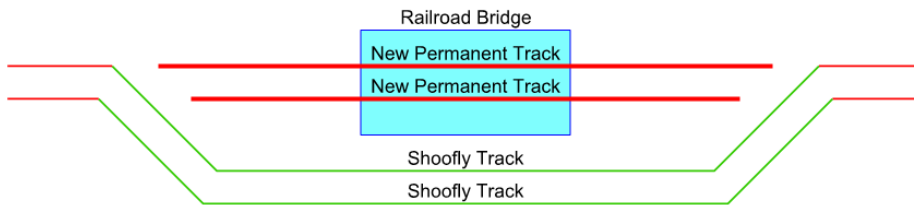
A shoofly track is a temporary track around a construction site or other obstruction, allowing for continuous railroad operation during construction.



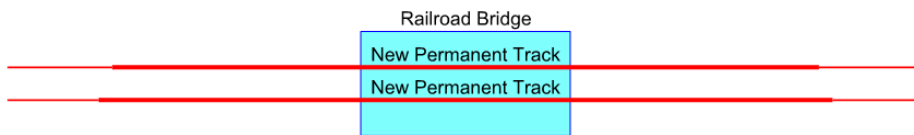
1. Existing track condition.



2. Construct shoofly tracks adjacent to the existing tracks and cutover railroad operations onto the shoofly tracks.



3. Construct the new railroad bridge on the new permanent tracks.

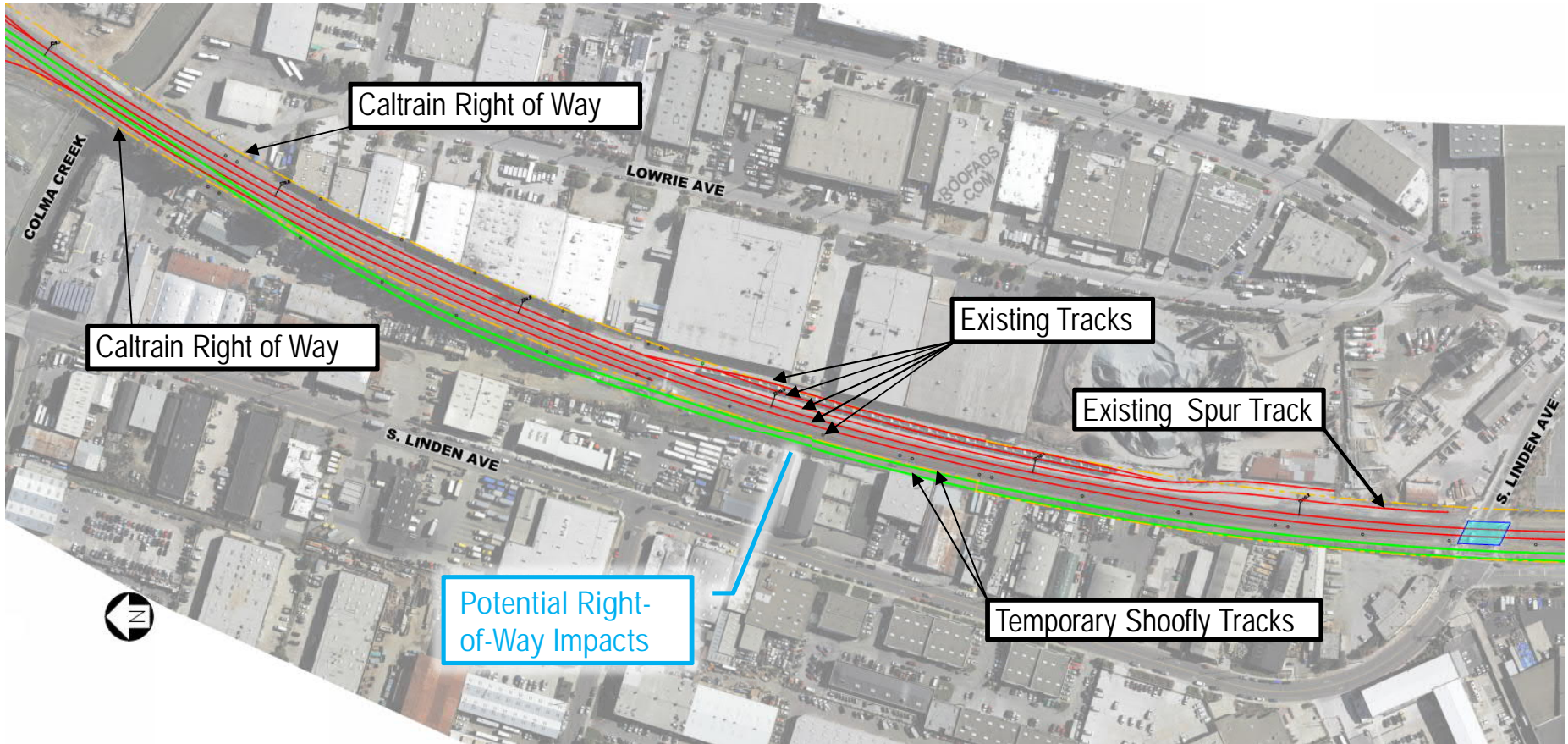


4. Cutover railroad operations back to the new permanent tracks and remove the shoofly tracks.

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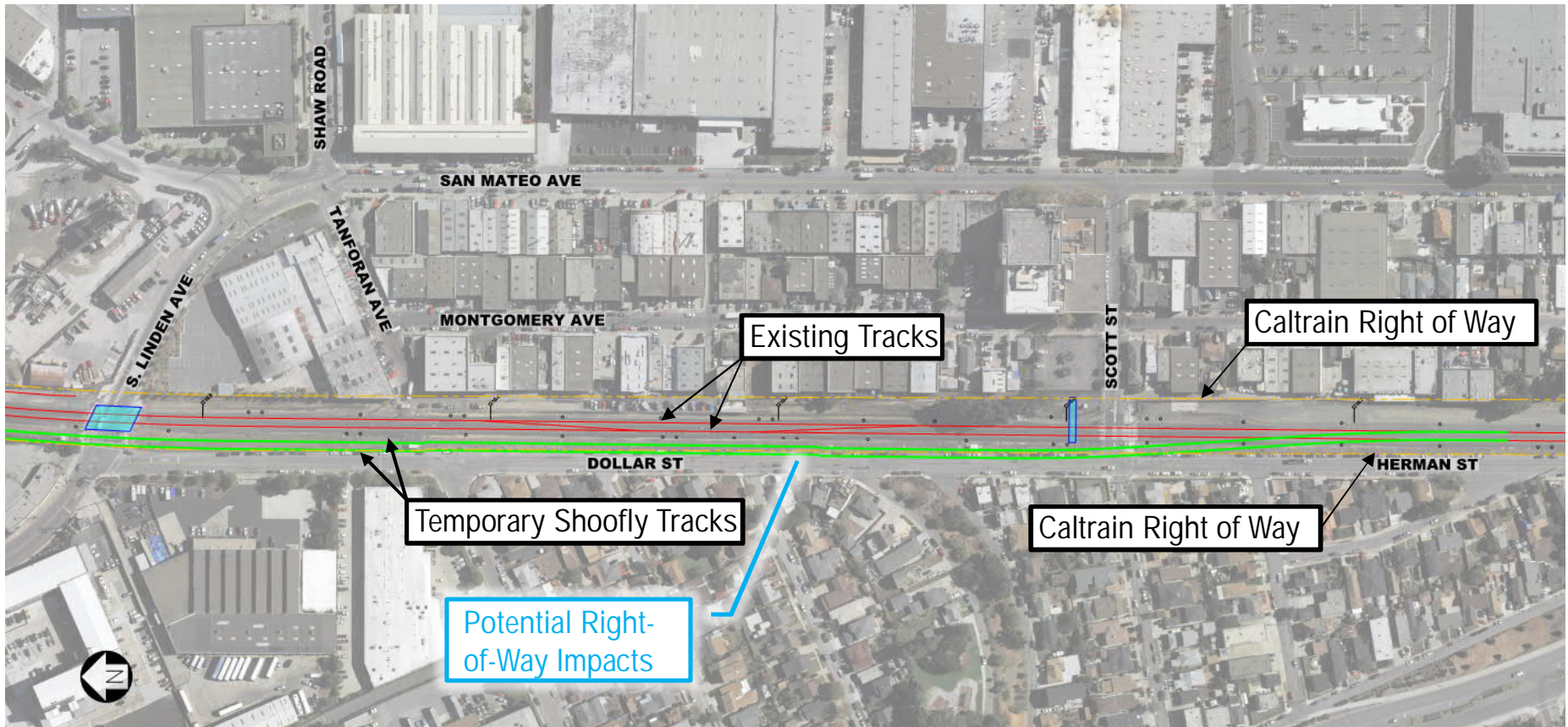
Potential Right-of-Way Impacts for Temporary Tracks



South Linden Avenue and Scott Street Grade Separation Planning Study



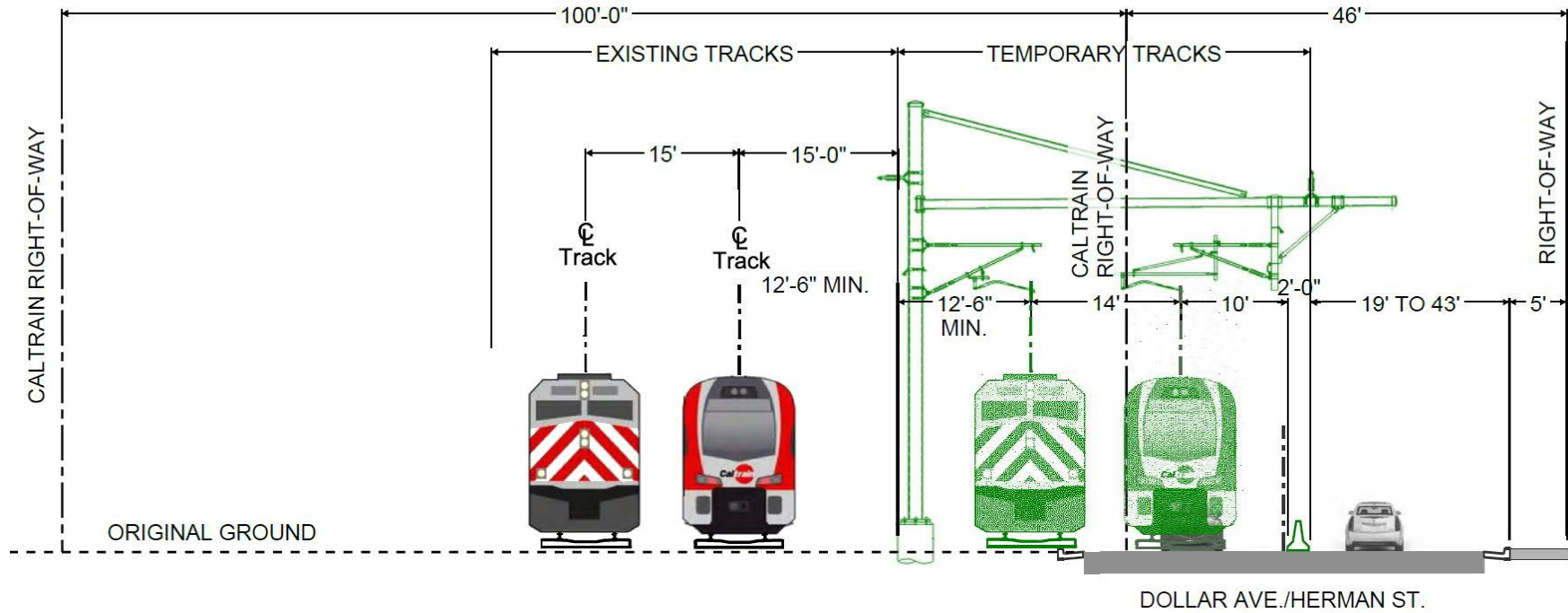
Potential Right-of-Way Impacts for Temporary Tracks



South Linden Avenue and Scott Street Grade Separation Planning Study



Cross Section at Dollar Ave/Herman St during Construction

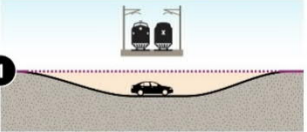
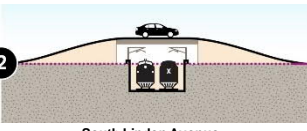
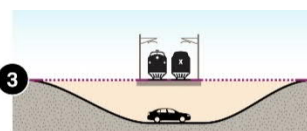
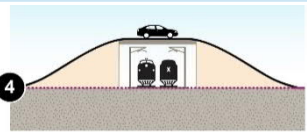


NOT TO SCALE

South Linden Avenue and Scott Street Grade Separation Planning Study



Advantages & Disadvantages of Grade Separation Alternatives


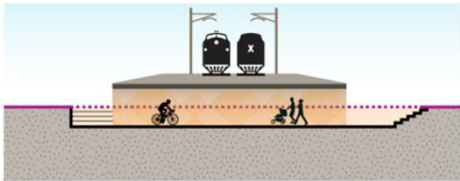
Alternative	Advantages	Disadvantages
 <p>1 South Linden Avenue Rail Partially Elevated/Roadway Partially Lowered</p>	<ul style="list-style-type: none"> ▪ Least Property Impacts ▪ Lowest Cost (Probable) 	<ul style="list-style-type: none"> ▪ Shoofly Required*
 <p>2 South Linden Avenue Rail Partially Lowered/Roadway Partially Elevated</p>	<ul style="list-style-type: none"> ▪ Reduces Train Noise (Rail Elevation Lowered) 	<ul style="list-style-type: none"> ▪ More Property Impacts than Alt 1 ▪ Shoofly Required* ▪ High Cost
 <p>3 South Linden Avenue Rail at-grade, Roadway Lowered</p>	<ul style="list-style-type: none"> ▪ Rail Remains At-Grade 	<ul style="list-style-type: none"> ▪ More Property Impacts than Alt 1 ▪ Limits Access to Adjacent Properties ▪ Greatest Impacts to Sidestreets ▪ Shoofly Required* ▪ High Cost
 <p>4 South Linden Avenue Rail at-grade, Roadway Elevated</p>	<ul style="list-style-type: none"> ▪ Rail Remains At-Grade ▪ No Shoofly Required 	<ul style="list-style-type: none"> ▪ Greatest Property Impacts ▪ Visual impacts ▪ Highest Cost (Probable)

* During construction shoofly will result in potential right of way impacts north of Linden Avenue and disruption to traffic on Dollar/ Herman south of Linden Avenue.

South Linden Avenue and Scott Street Grade Separation Planning Study



Advantages & Disadvantages of Ped/Bike Crossing Options

Ped/Bike Crossing	Advantages	Disadvantages
 <p data-bbox="237 771 533 808">OVERCROSSING</p>	<ul style="list-style-type: none"> ▪ Easier to construct than an undercrossing ▪ Less disruption to railroad operations during construction ▪ Potentially less costly 	<ul style="list-style-type: none"> ▪ More difficult to cross (longer ramps) ▪ Greater visual impact overall
 <p data-bbox="222 1146 543 1183">UNDERCROSSING</p>	<ul style="list-style-type: none"> ▪ Easier for pedestrians to cross (shorter ramps) ▪ Low visual impact 	<ul style="list-style-type: none"> ▪ More difficult to construct than an overcrossing ▪ Greater impact to railroad operations during construction ▪ Potentially more costly

South Linden Avenue and Scott Street Grade Separation Planning Study



Next Steps

- Q&A Session, June 24, 4:00-5:30p

Link: <https://zoom.us/j/92328425584>

Or Telephone: 1 (669) 900-9128, Webinar ID: 948 4915 0437

- August 2020 City Council Updates
(select preferred alternative)

South San Francisco City Council Link:

<https://www.ssf.net/departments/city-clerk/city-council-meetings>

San Bruno City Council Link:

https://www.sanbruno.ca.gov/gov/elected_officials/city_council_minutes_n_agendas.htm

- December 2020 Finalize Project Study Report

South San Francisco Project Link: <https://www.ssf.net/SoLindenGS>

San Bruno Project Link: <https://tinyurl.com/ScottStGradeSep>

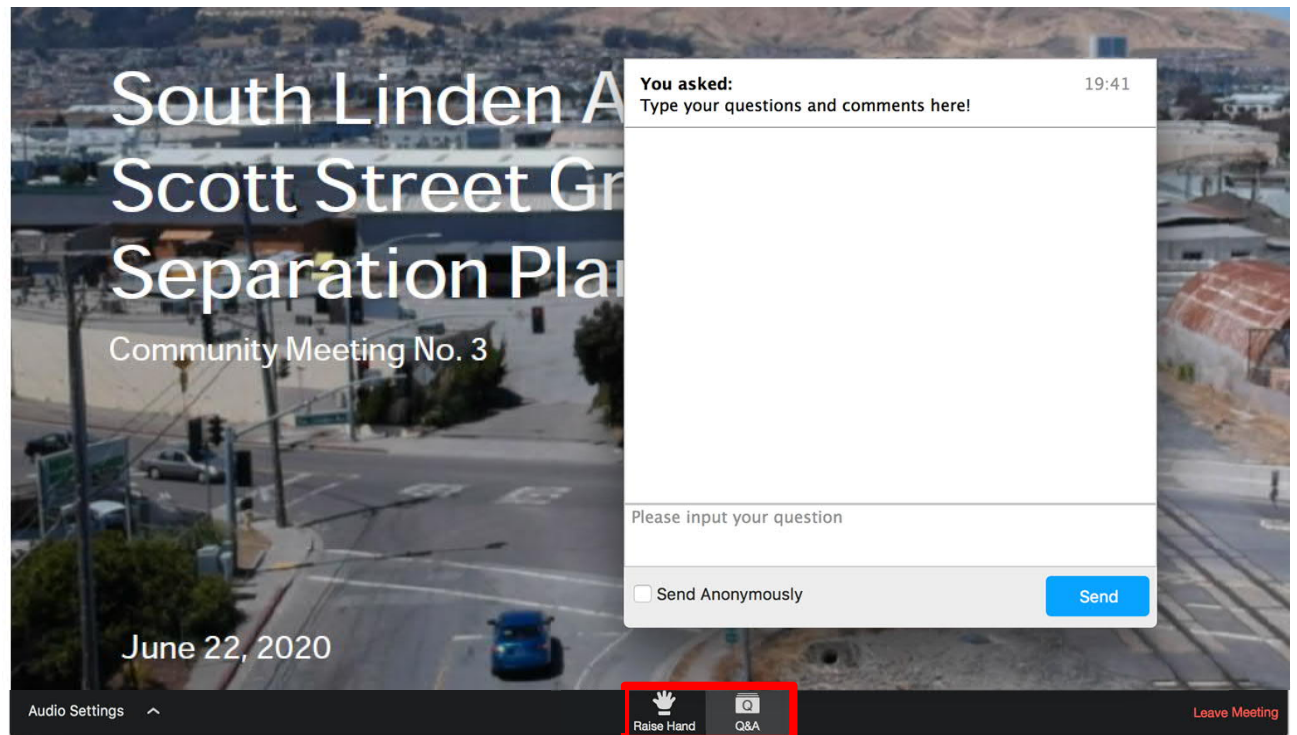
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Questions?

Meeting Logistics

- All attendees are muted
- Q&A at end of presentation
 - Raise hand
 - Type using Q&A option
 - On Phone Press *9
- Recording of the presentation will be available after the webinar
- Public Comments:
 - ps@sanbruno.ca.gov
 - engineering@ssf.net



South Linden Avenue and Scott Street Grade Separation Planning Study



The background is a solid blue color. On the right side, there are several thin white lines that intersect and create a geometric pattern, resembling a stylized 'X' or a series of overlapping planes.

Feedback

Thank You

The background is a solid blue color. On the right side, there are several thin white lines that intersect to form a series of overlapping triangles and quadrilaterals, creating a geometric pattern.