

Caltrain Grade Separation Feasibility Study

Railroad Crossing Community Meeting
August 24, 2017

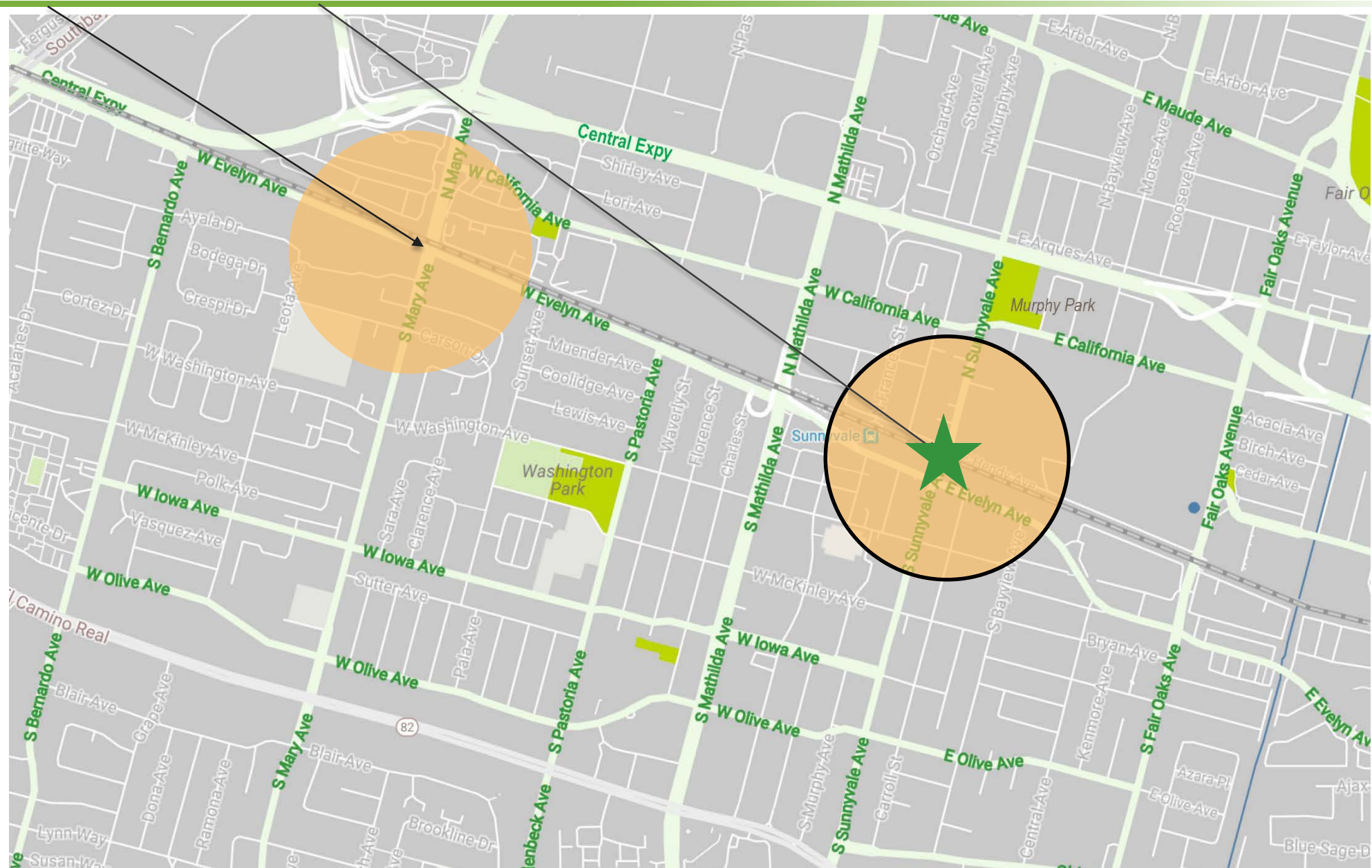


Sunnyvale

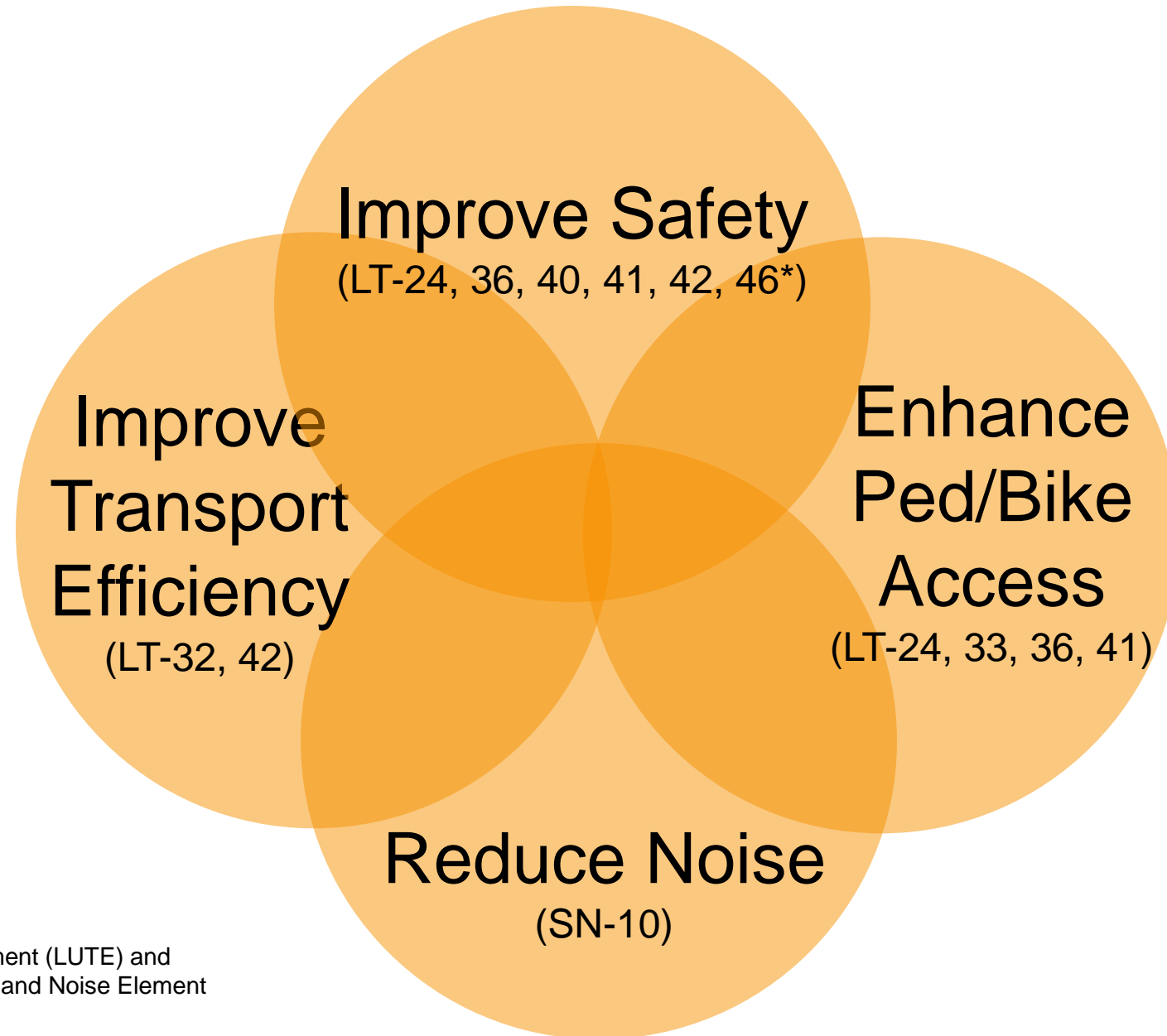
Agenda

- **Meeting format review**
- **Goals and context**
- **Sunnyvale Avenue options**
 - ✓ **Feedback**
- **Q and A**
- **Next steps**
- **Adjourn**

Caltrain Grade Separations

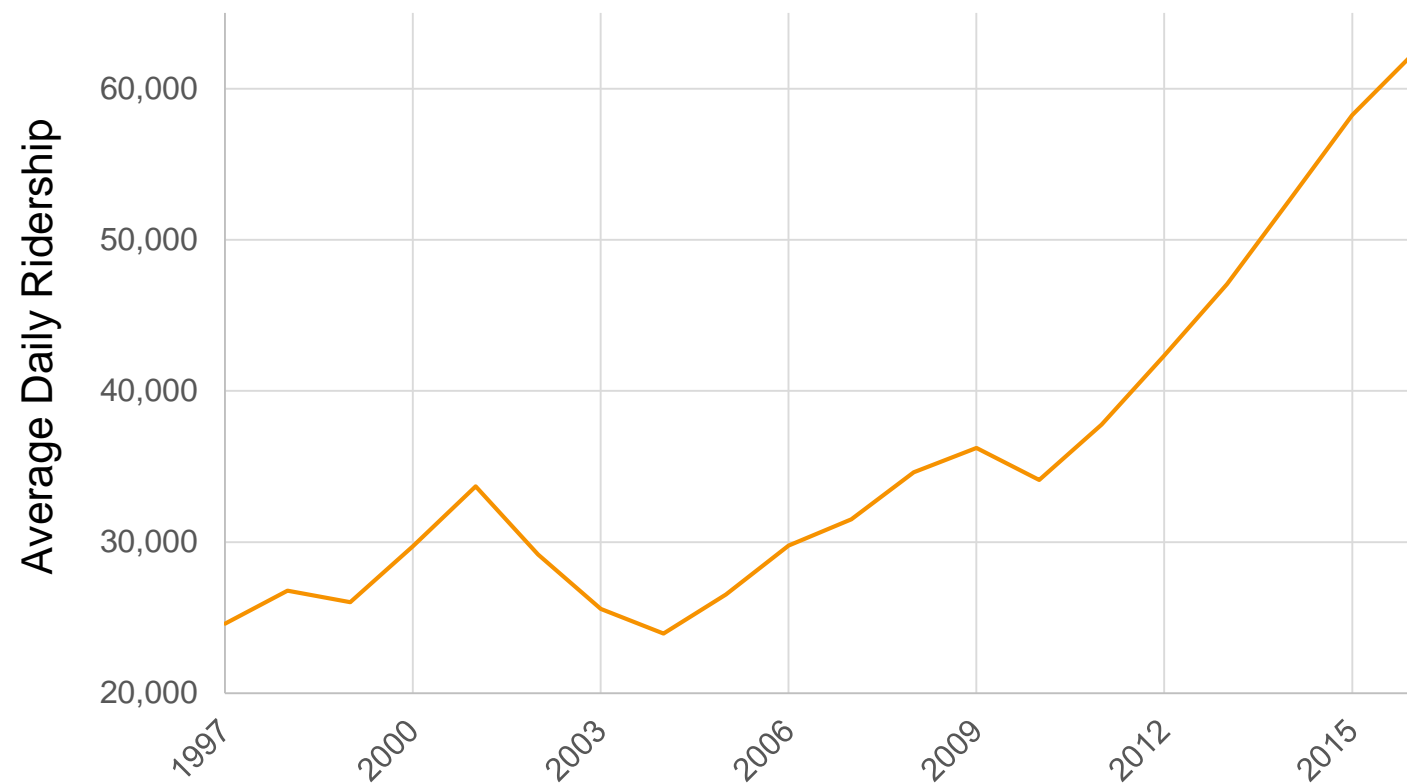


Project Goals



* General Plan Policies refer to
2017 Land Use and Transportation Element (LUTE) and
2011 Consolidated General Plan Safety and Noise Element

Project Context



76 trains
(2003)

92 trains
(2016)

114 trains
+80-106 HSR
(2040)

Caltrain Grade Separation – VTA Program Description

- \$700 Million
- Projects in cities of:
 - Sunnyvale
 - Mountain View
 - Palo Alto
- Increase safety for
 - Drivers
 - Bicyclists
 - Pedestrians
- Reduce congestion at crossings intersections



Sunnyvale has 2 of the 8 at grade crossings

Solutions that move you

13

VTA criteria include cost efficiency and Complete Streets

Schedule

Feasibility Study

Environmental
Analysis
&
Concept Design

Detailed Design
&
Property
Acquisition

Bid
&
Construction

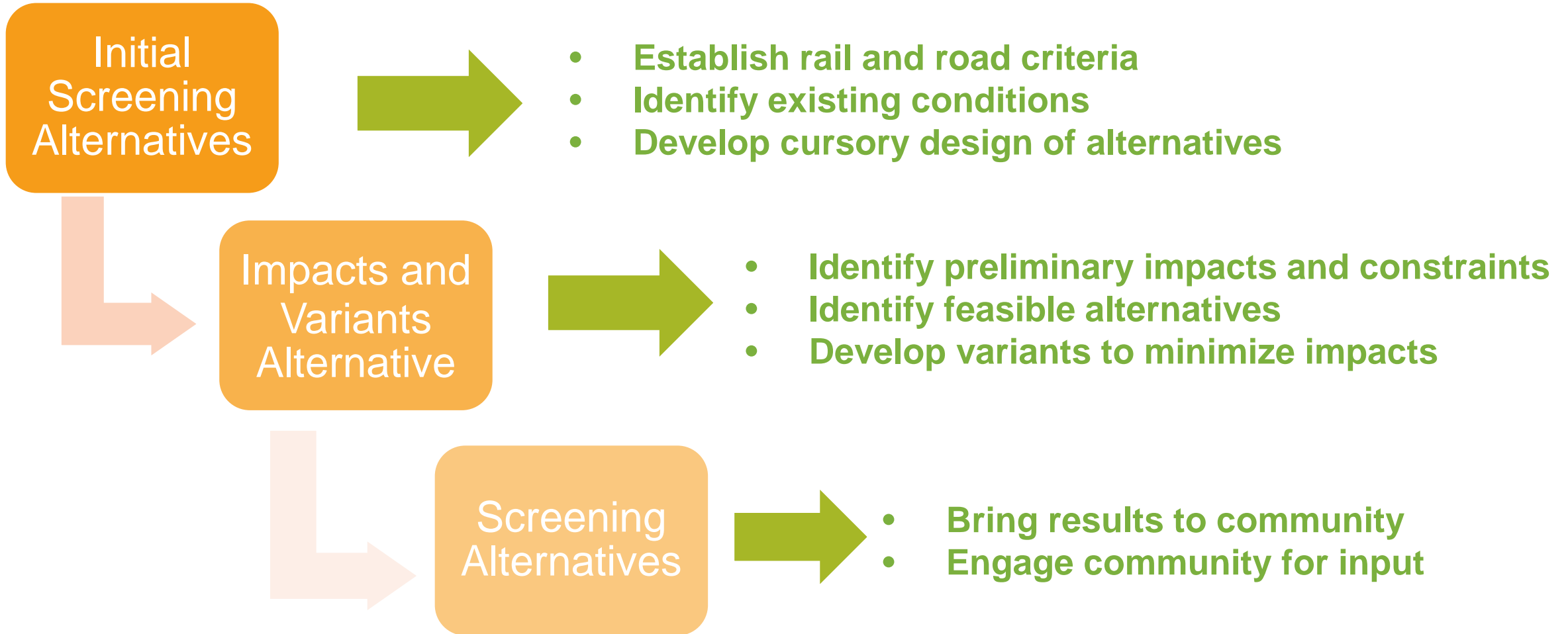
12 months

18 months

2 years

2 years

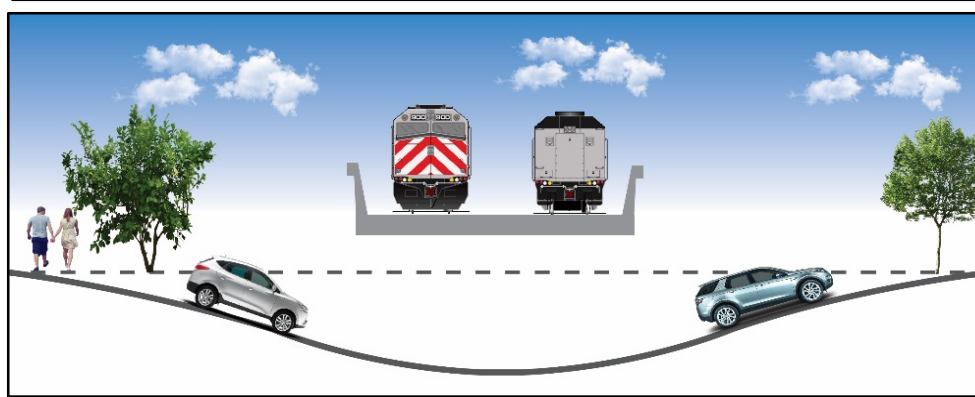
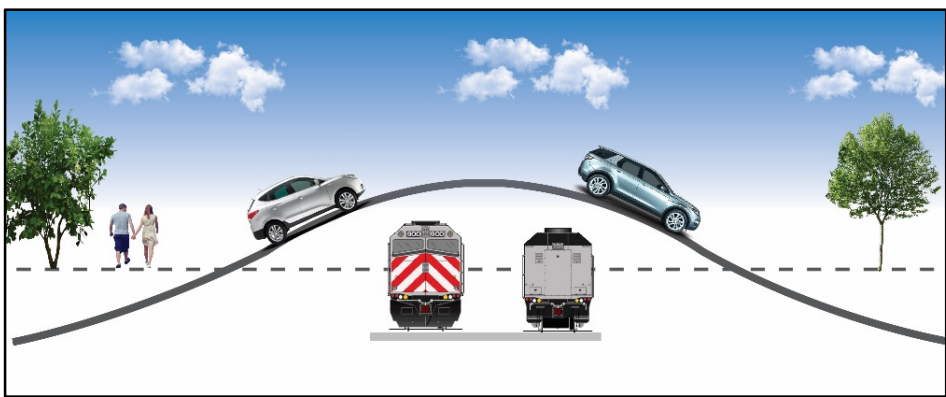
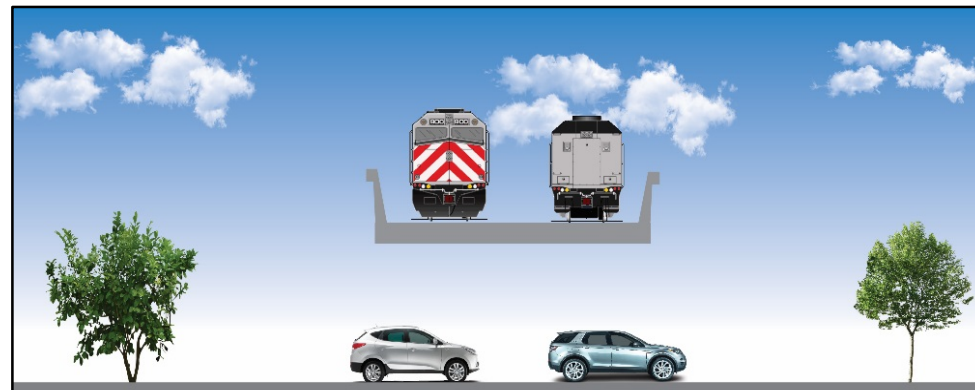
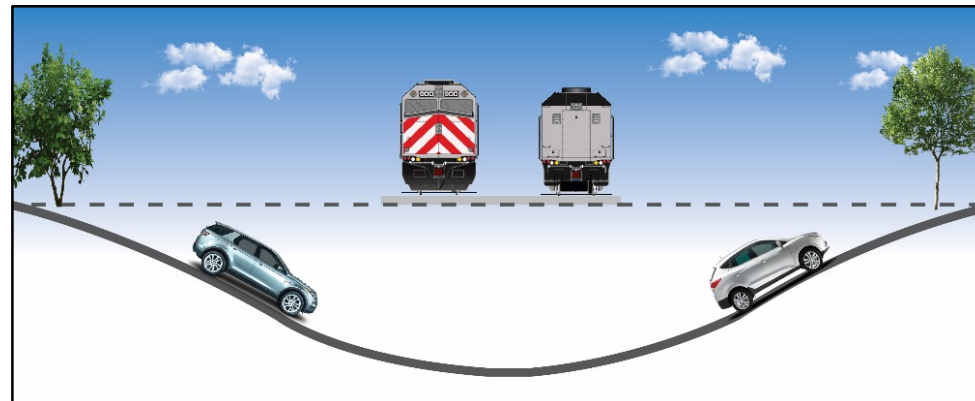
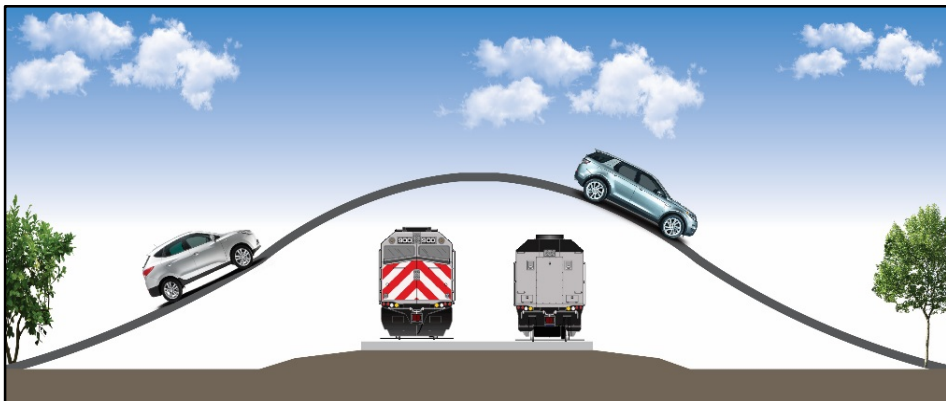
Screening Alternatives



Design Criteria

	Roadway	Railroad
Grades	4.75%	1.2% max
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

Initial Screening Alternatives



Screening Criteria

Screening Considerations
Safety
Multi-modal accessibility
Right of Way impacts
Utility impacts
Traffic circulation
Visual and character impacts
Environmental compliance (noise, air, visual)
Construction feasibility
Engineering feasibility
Cost
Fundability
Community support

Road Overpass



Mathilda Avenue, Sunnyvale (Google Maps)



Tustin/Rose Overpass

Road Underpass

Jefferson Avenue, Redwood City (Google Maps)



Marina Bay Parkway, Richmond (BKF)



Split Road Underpass



Holly Street, San Carlos

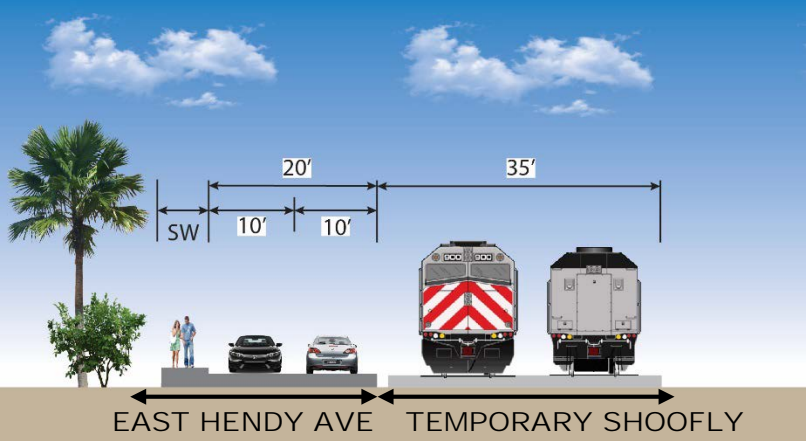
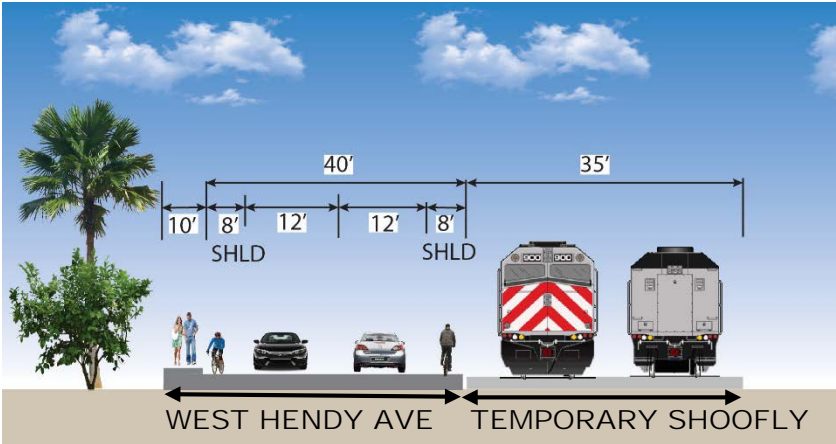
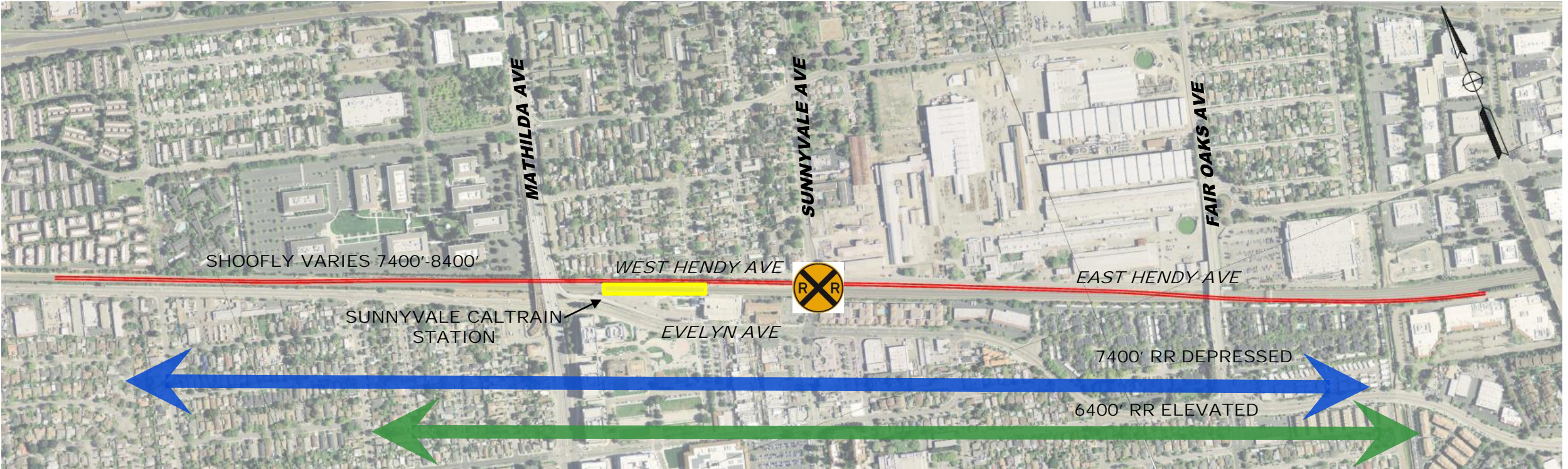


Ralston Avenue, Belmont

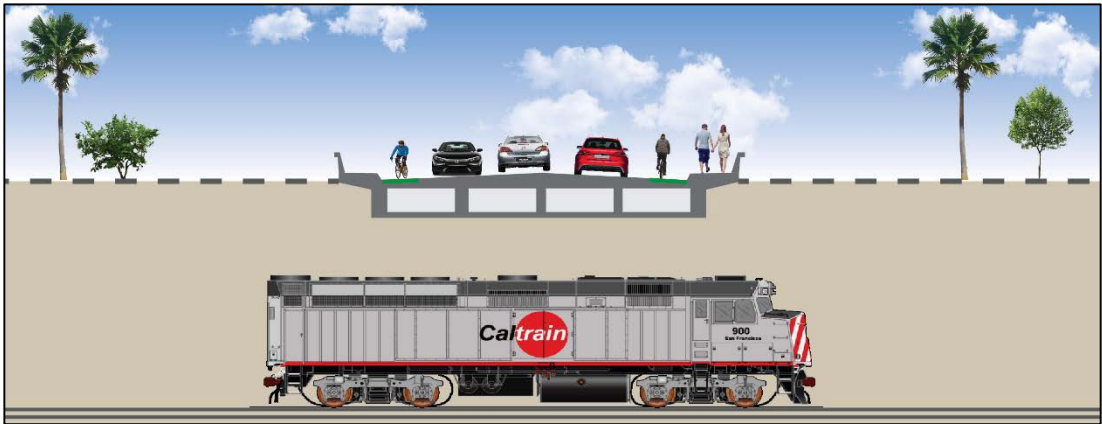
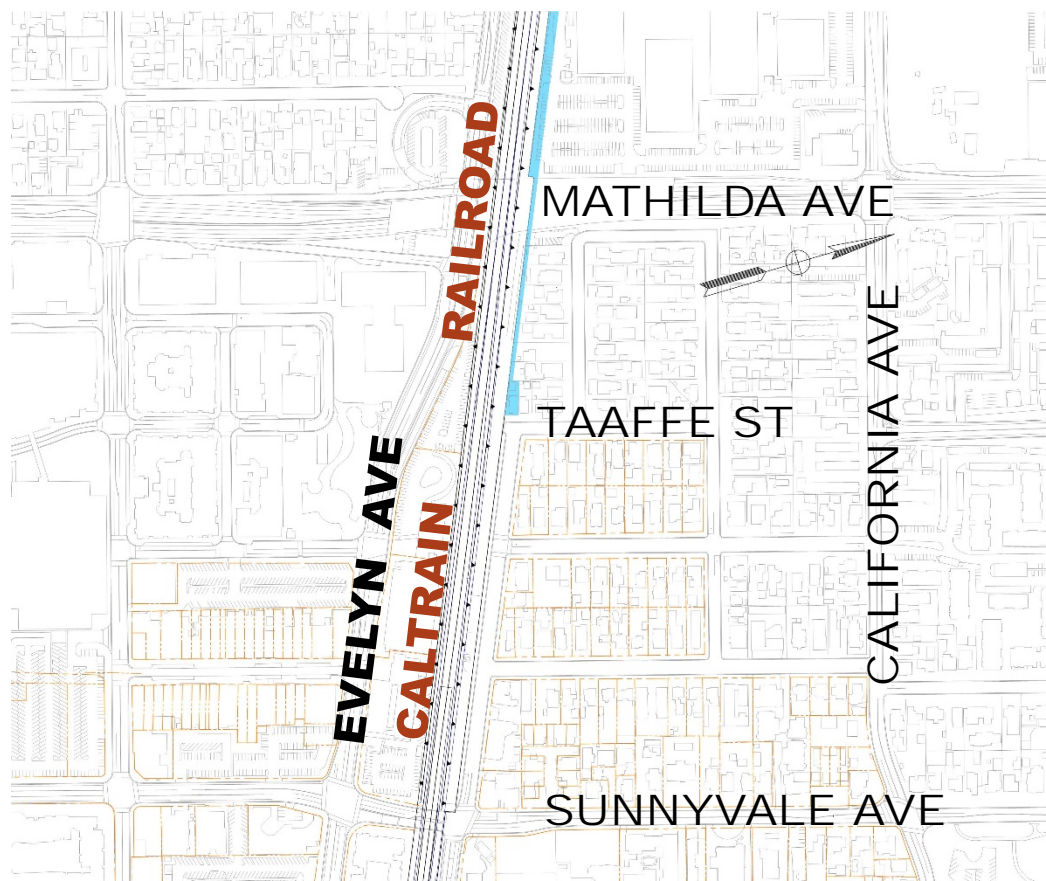
Sunnyvale Avenue



Magnitude of Rail Construction at Sunnyvale Avenue

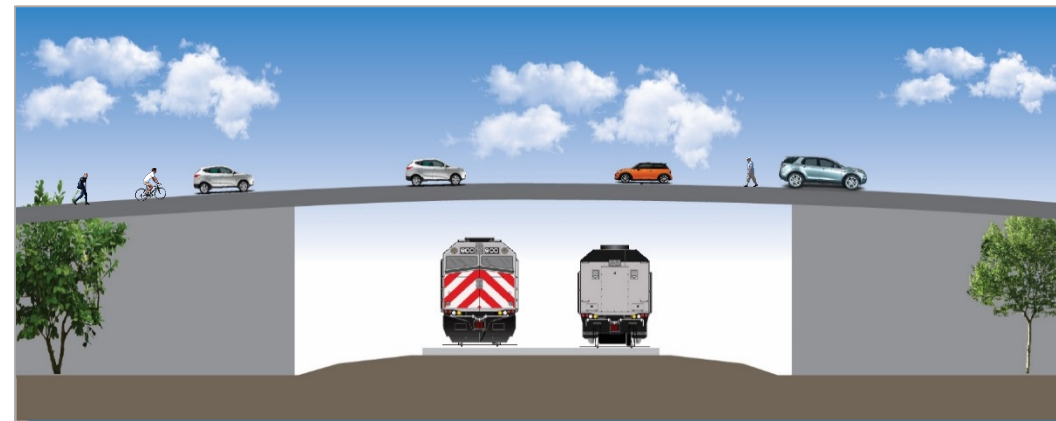
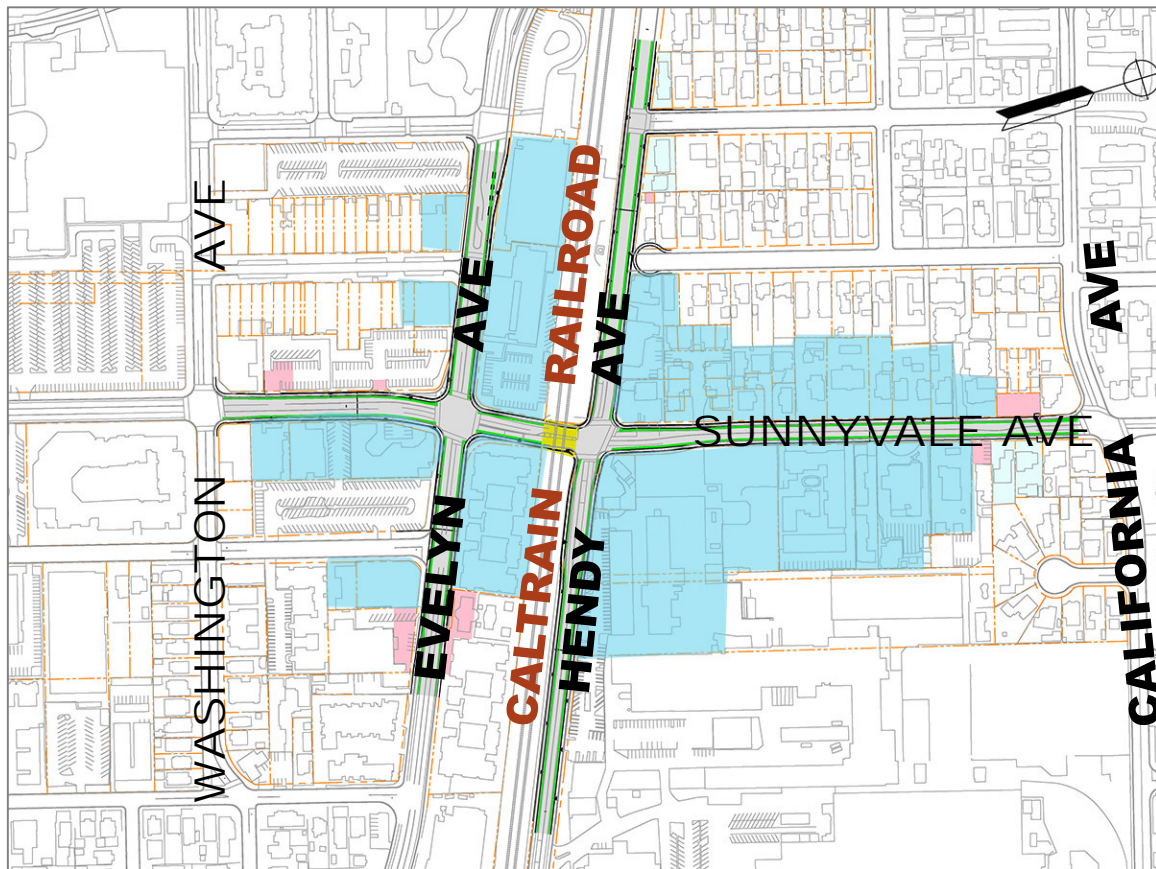


Sunnyvale Avenue Rail Underpass



Railroad fully depressed		
✗ Potential acquisition of 8+ parcels	✗ Significant rail cost	✗ Rail construction required
	\$\$\$\$\$\$\$ \$\$\$\$\$\$ \$\$\$ (Construction)	✗ Station reconstruction required

Sunnyvale Avenue Overpass



Sunnyvale Ave elevated

- ✗ Potential acquisition of 27+ parcels
- ✗ Modifications to 7+ driveways

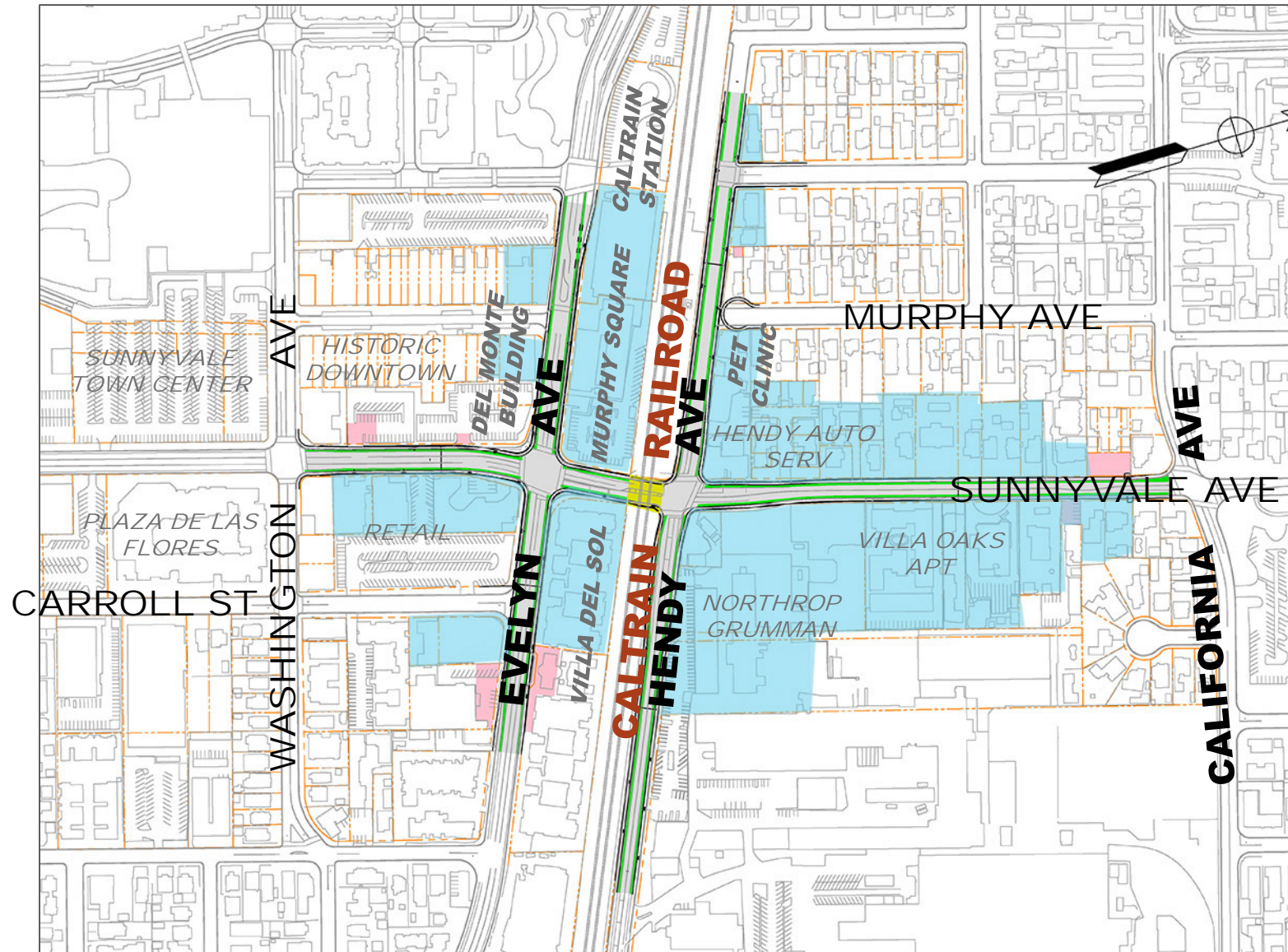
Evelyn Ave elevated

- ✗ Significant bridge cost
- \$\$\$\$\$ (Construction)

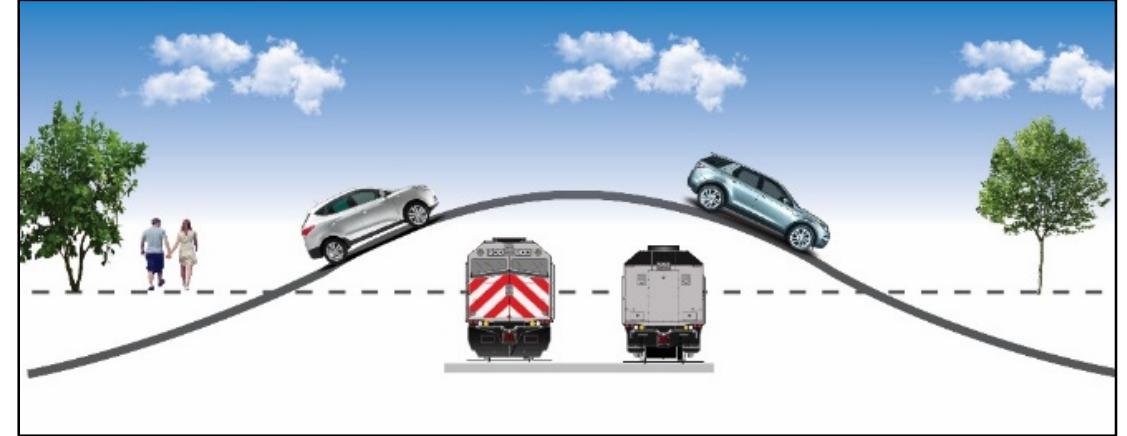
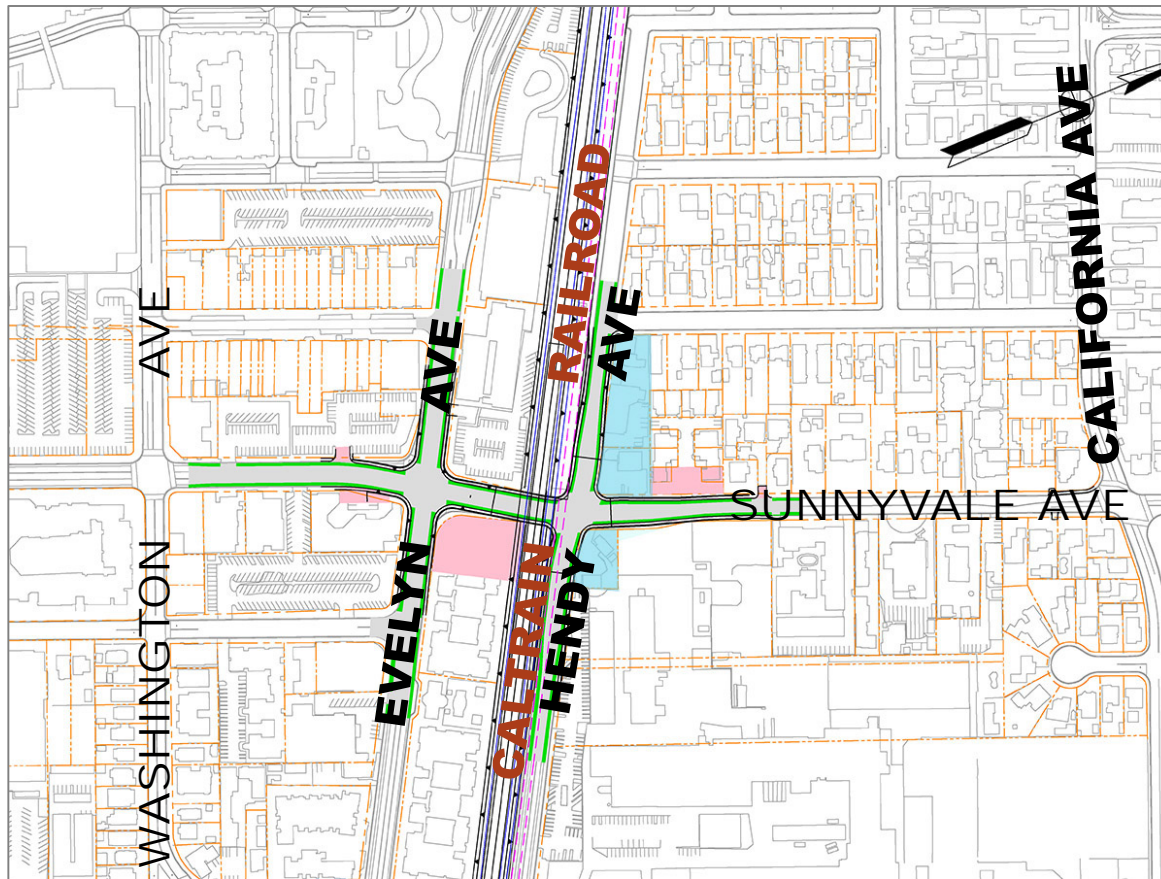
Hendy Ave elevated

- ✓ No rail construction required
- ✓ No station reconstruction

Sunnyvale Avenue Overpass



Sunnyvale Avenue Split Overpass



Sunnyvale Ave partially elevated

✗ Potential acquisition of 8+ parcels

Modifications to 4+ driveways

Evelyn Avenue partially elevated

✗ Significant bridge cost

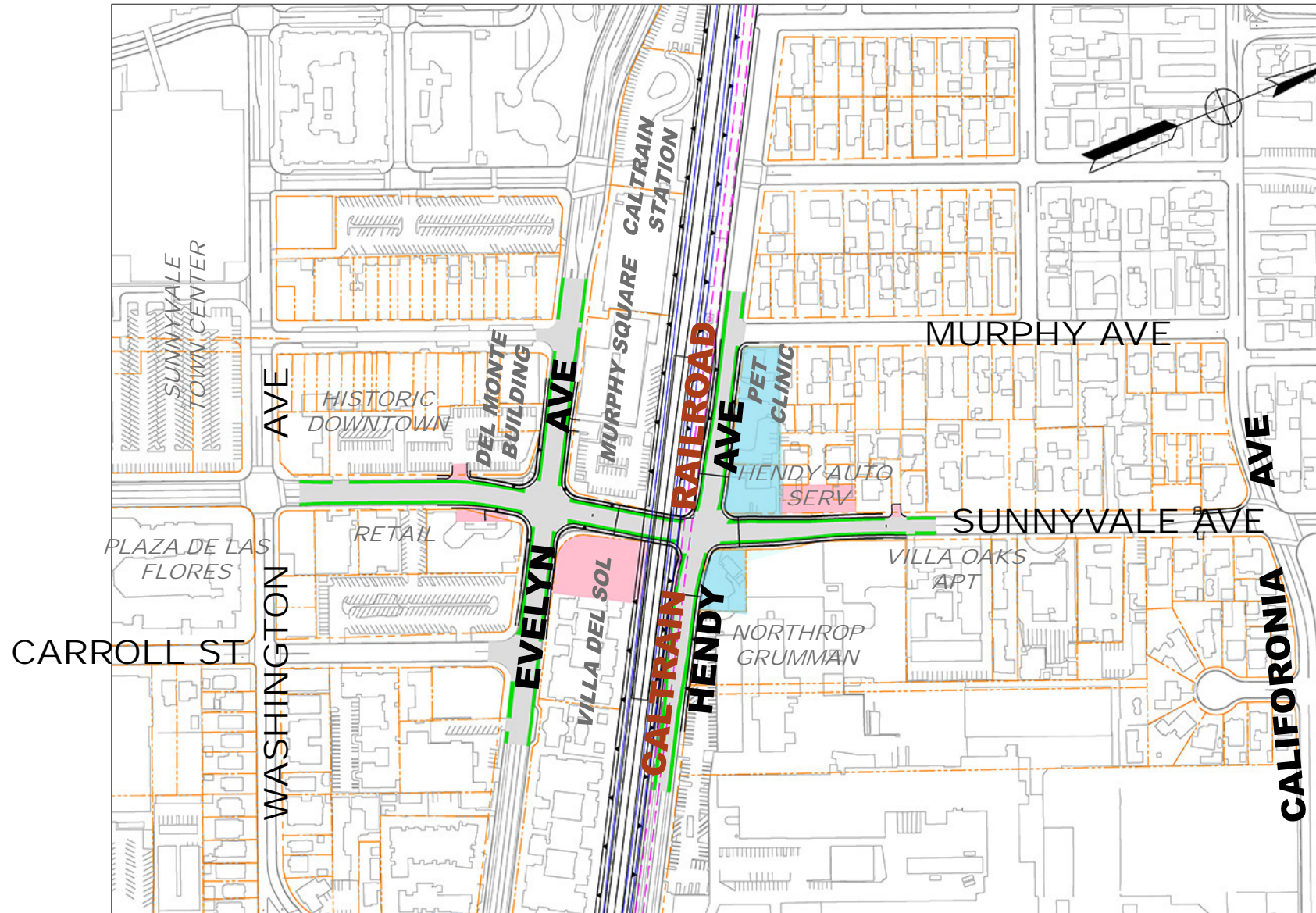
\$\$\$\$\$ \$\$\$ (Construction)

Hendy Avenue partially elevated

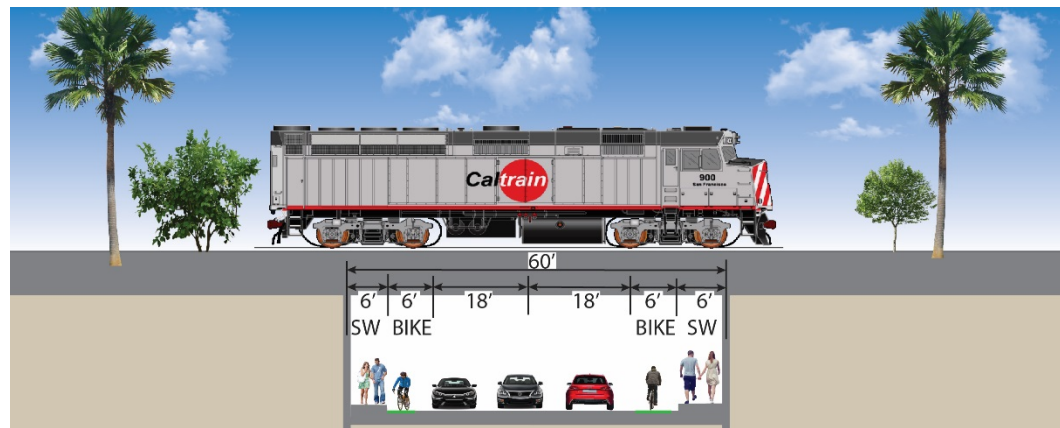
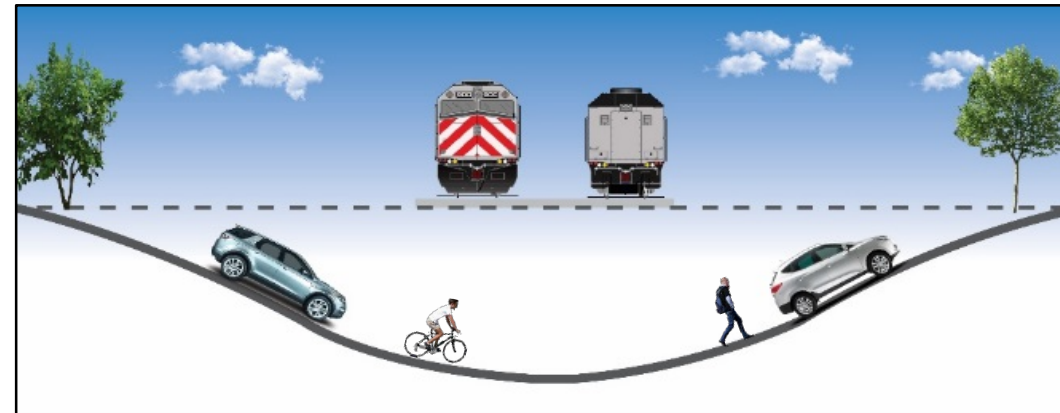
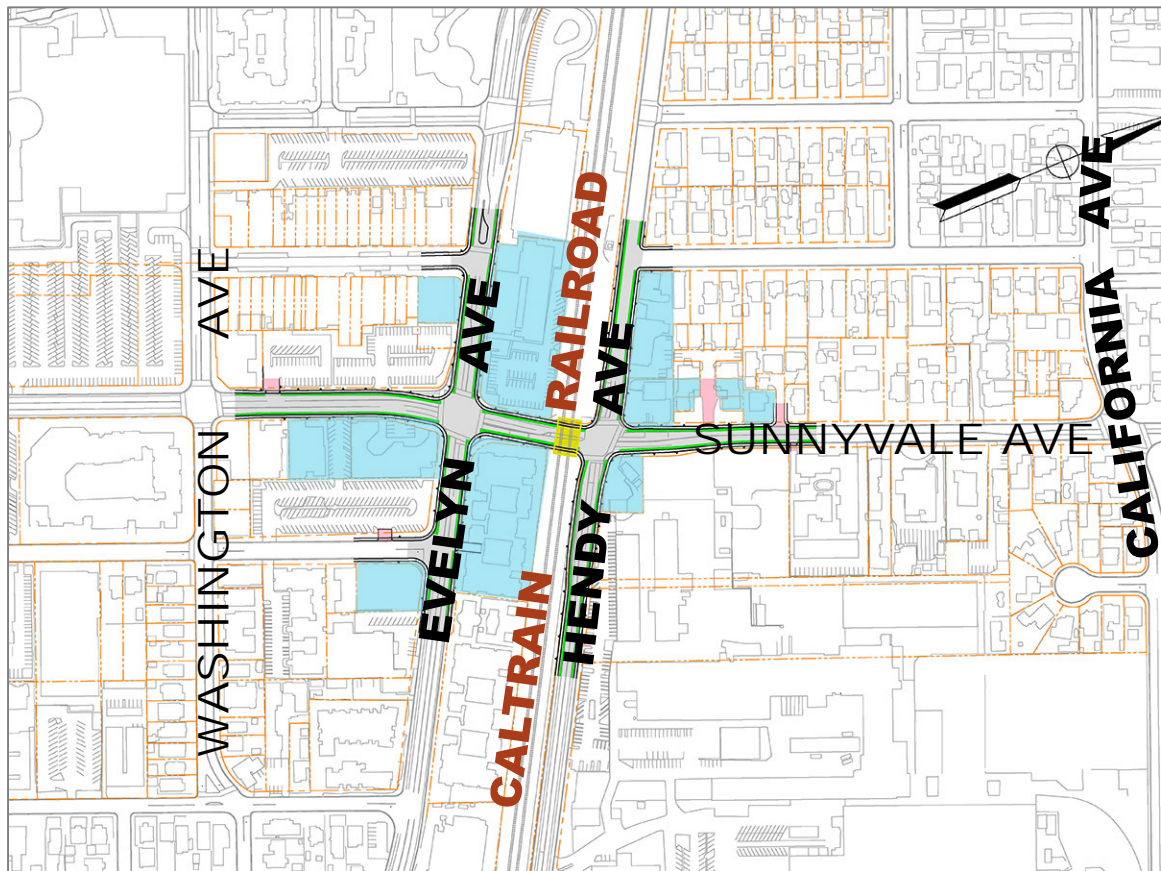
✗ Rail construction required

✗ Station reconstruction required

Sunnyvale Avenue Split Overpass

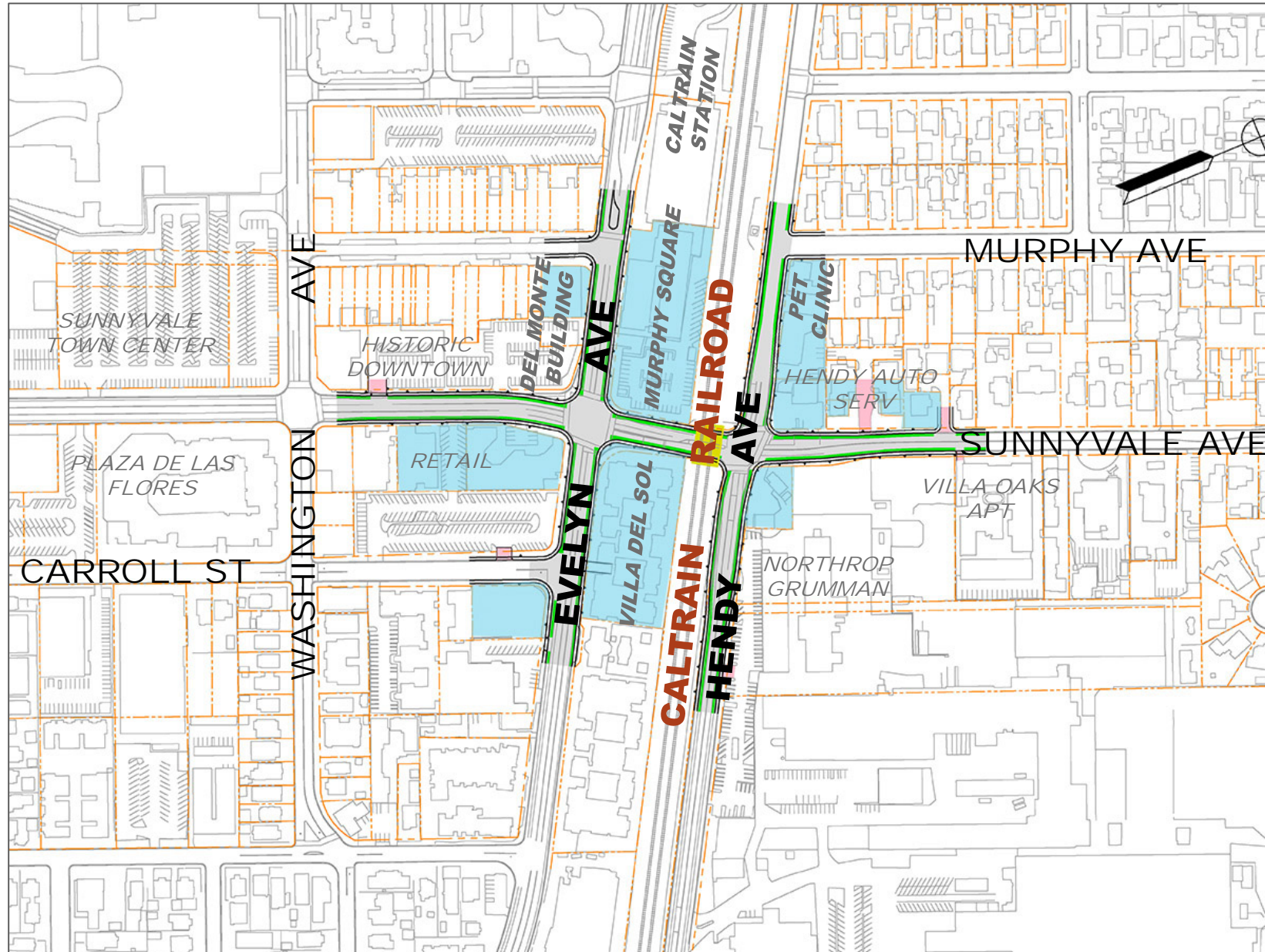


Sunnyvale Avenue Underpass

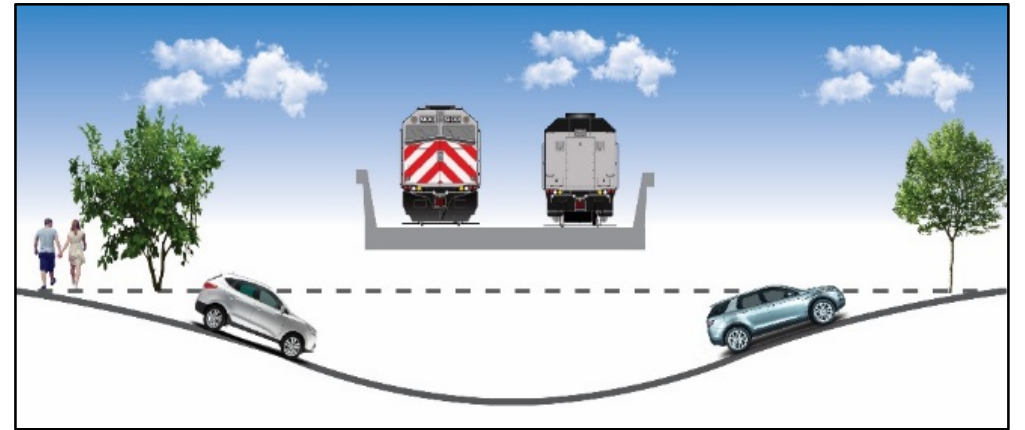
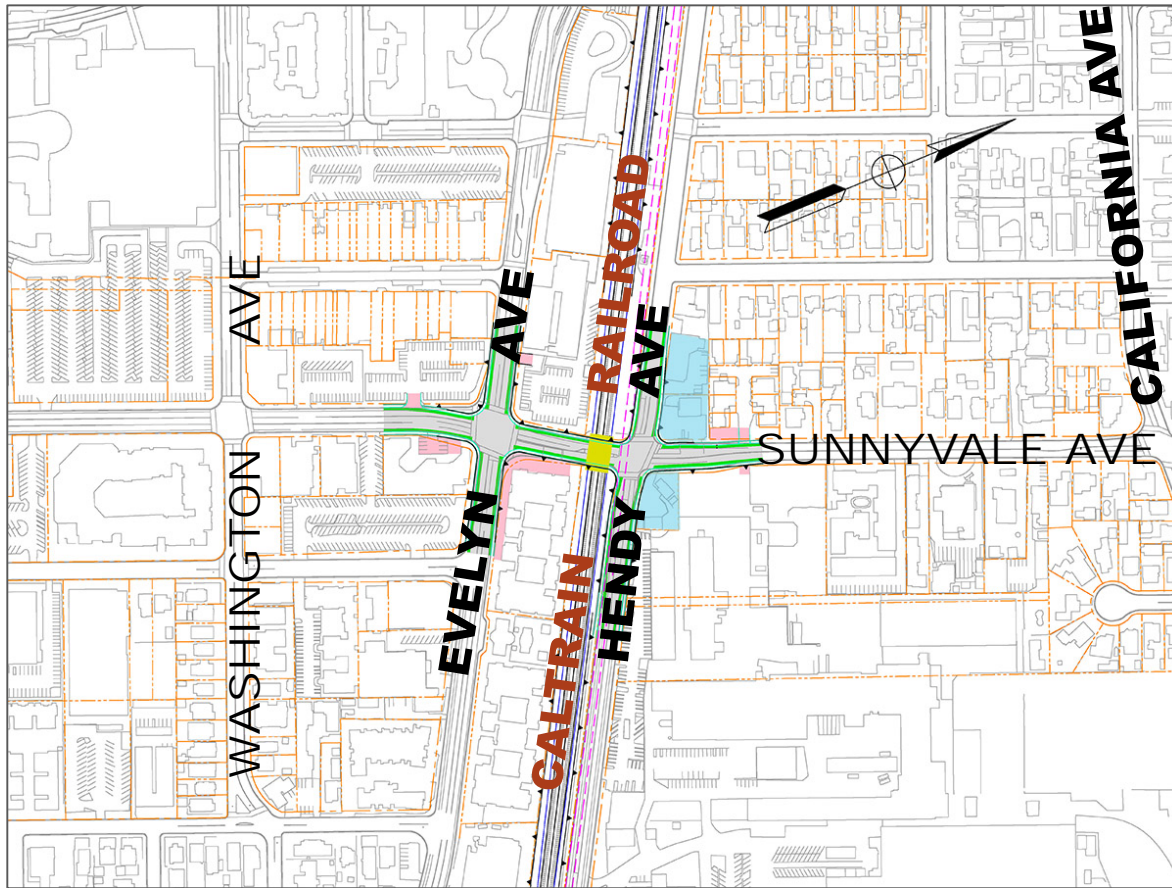


Sunnyvale Ave depressed	Evelyn Ave depressed	Hendy Ave depressed
✗ Potential acquisition of 11+ parcels	✓ No permanent rail impact	✓ No station reconstruction
✗ Modifications to 5+ driveways	\$\$\$\$ (Construction)	

Sunnyvale Avenue Underpass



Sunnyvale Avenue Split Underpass



Sunnyvale Avenue partially depressed

Potential acquisition of 3+ parcels

Modifications to 7+ driveways

Evelyn Avenue partially depressed

✗ Significant rail cost

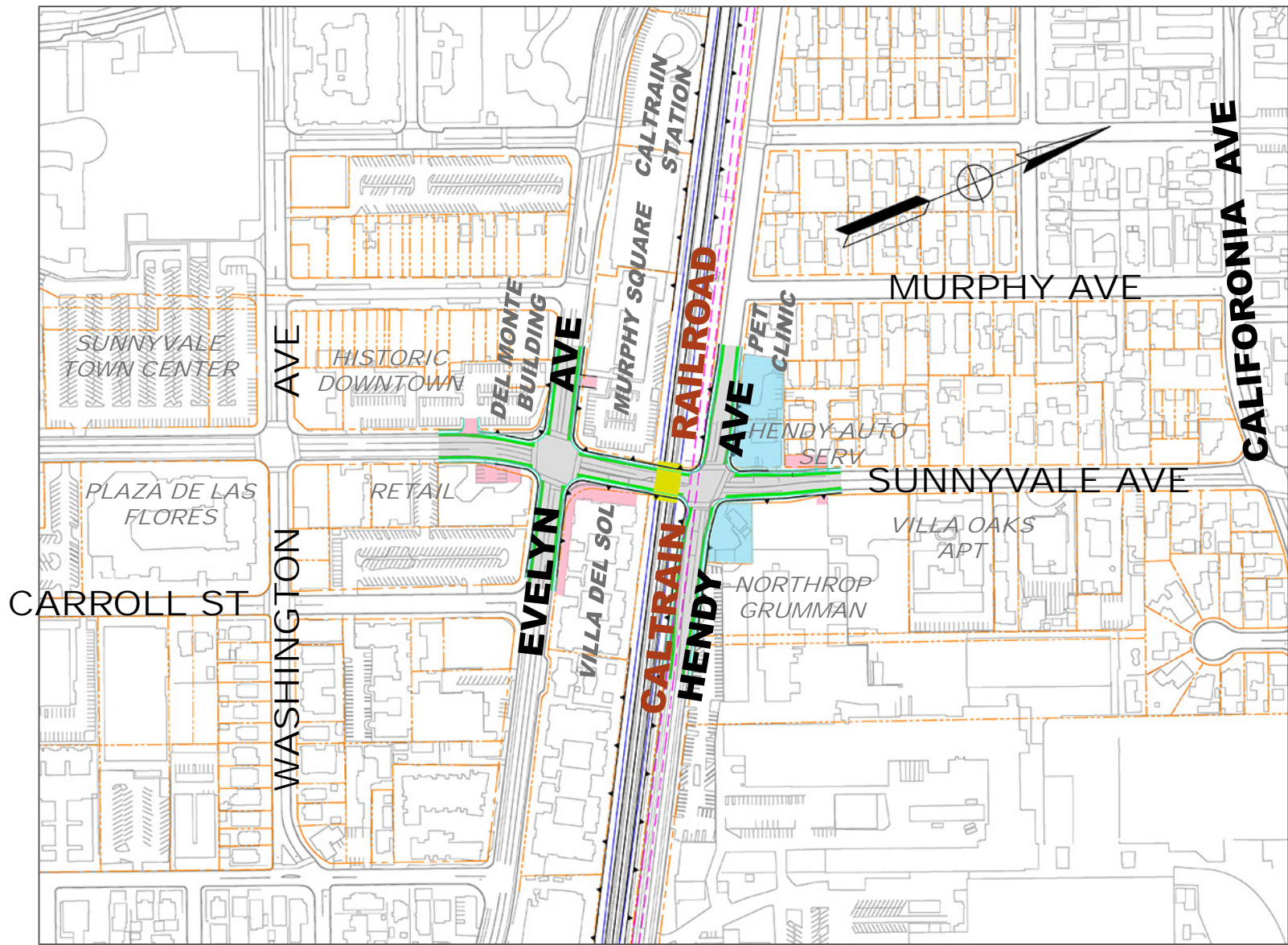
\$\$\$\$\$ \$\$\$\$ (Construction)

Hendy Avenue partially depressed

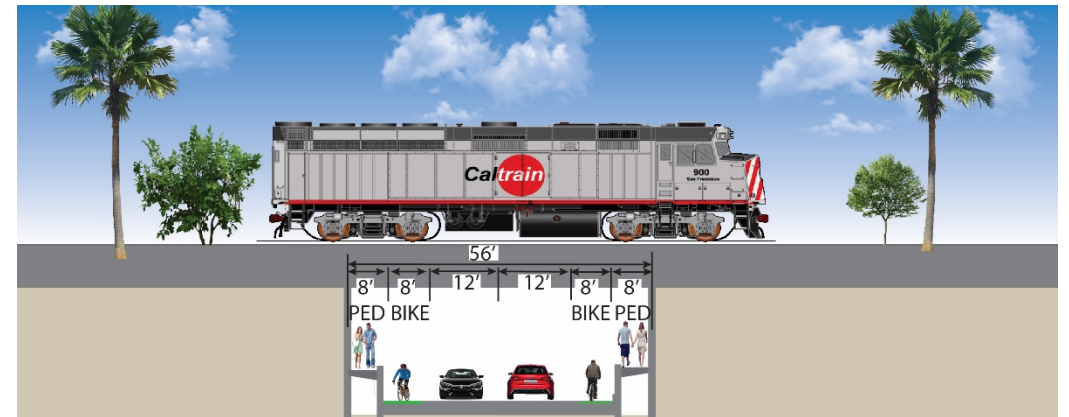
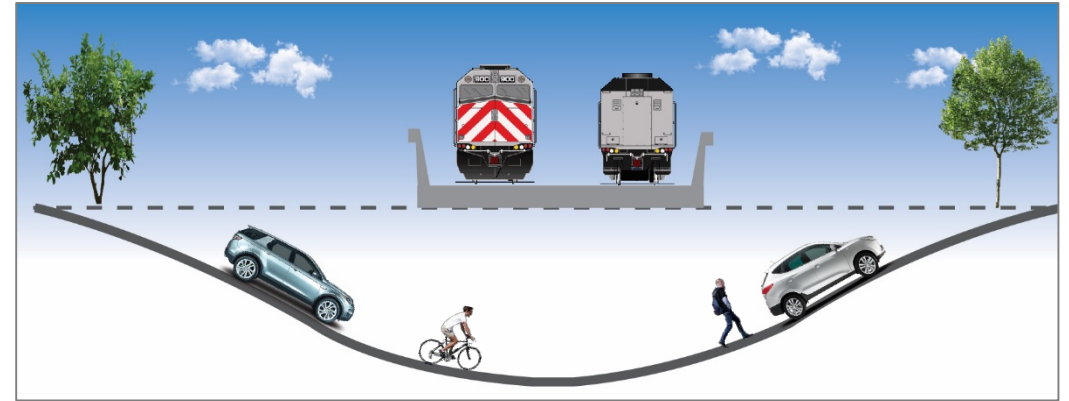
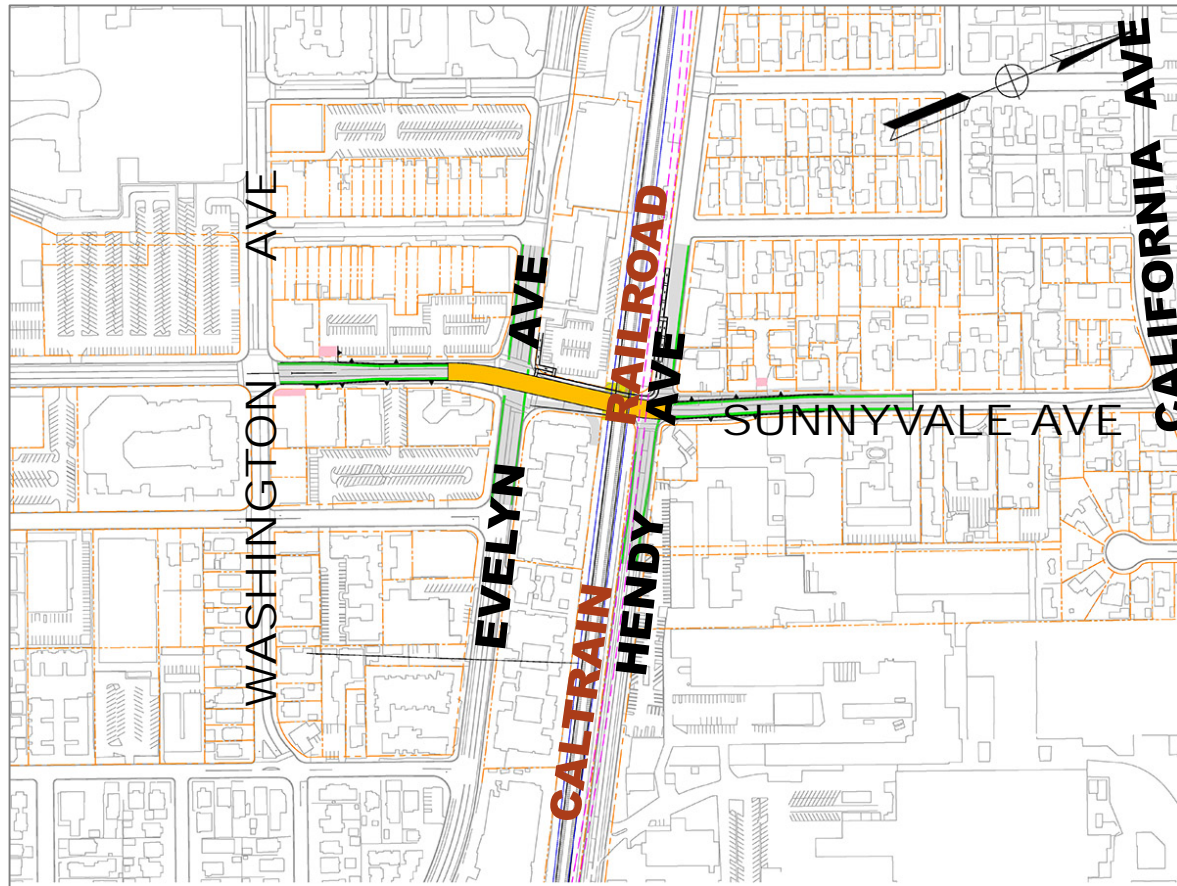
✗ Permanent rail impact

✗ Station reconstruction

Sunnyvale Avenue Split Underpass

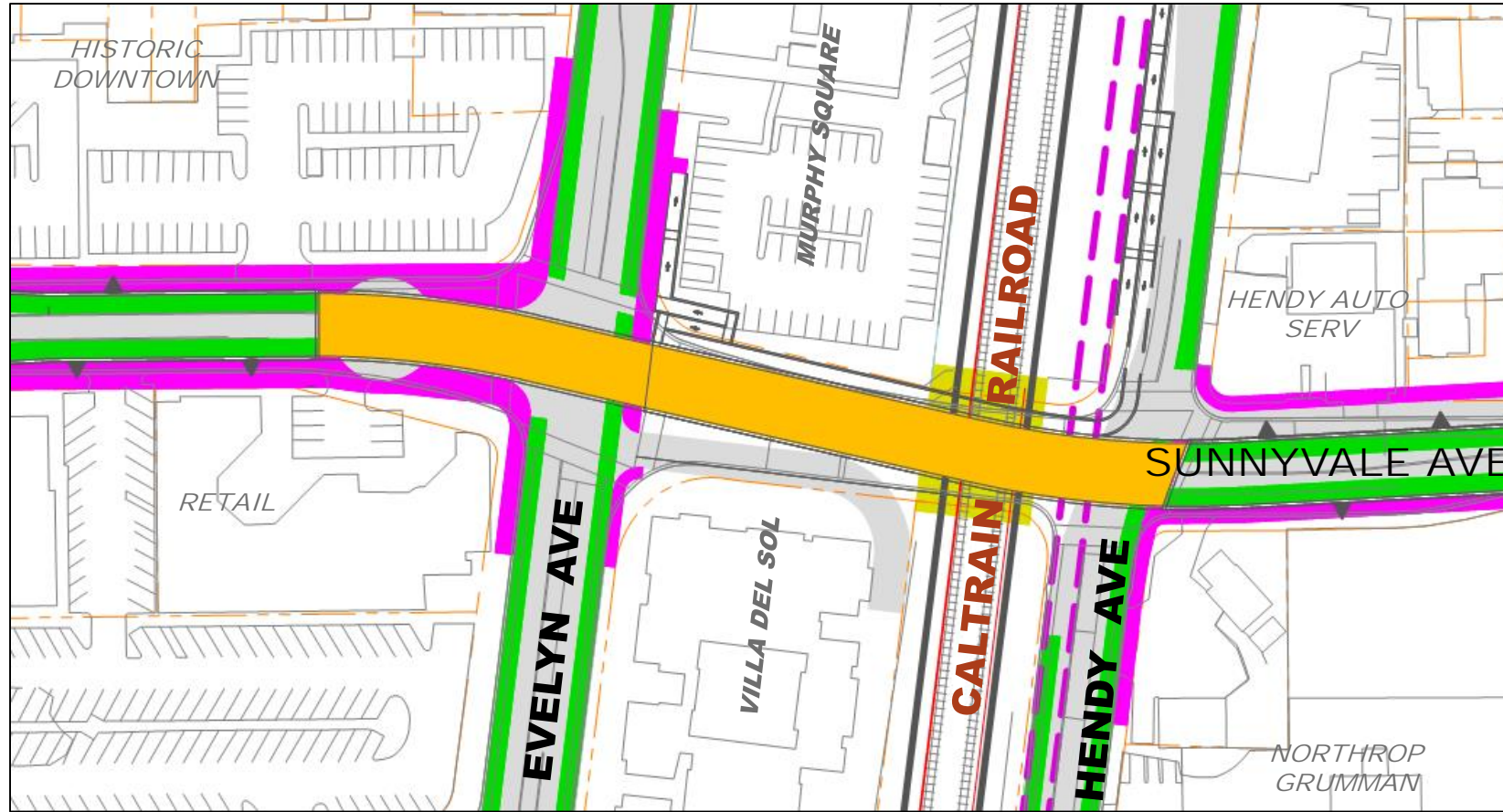


Sunnyvale Avenue Underpass / Tunnel

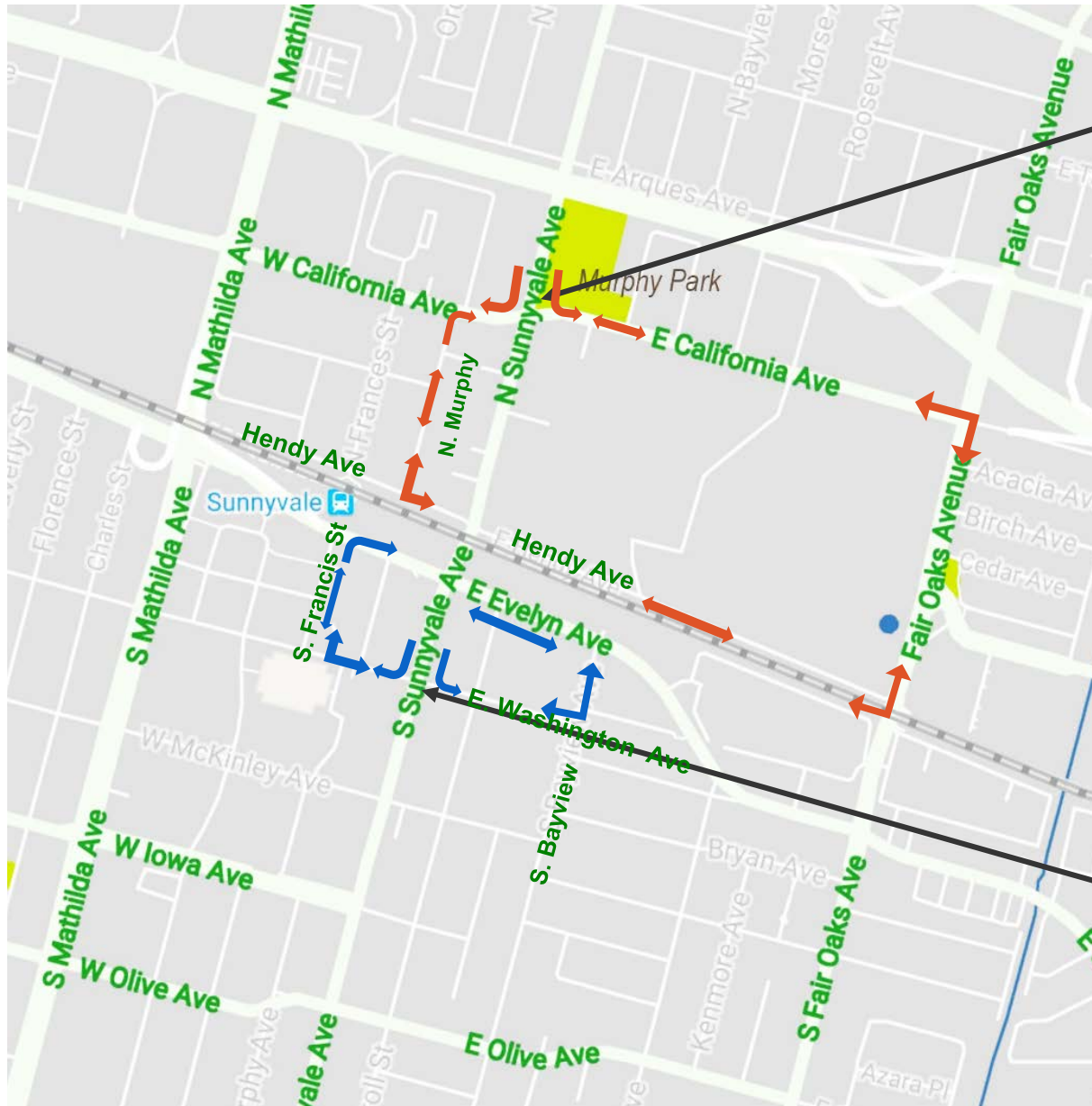


Sunnyvale Ave depressed	Evelyn Ave at-grade	Hendy Ave at-grade
✓ No significant impacts of parcels	✗ No Sunnyvale access to Evelyn or Hendy	✓ No permanent rail impact
✓ Modifications to 3+ driveways	\$\$\$\$\$ (Construction)	✓ No station reconstruction

Sunnyvale Avenue Underpass / Tunnel



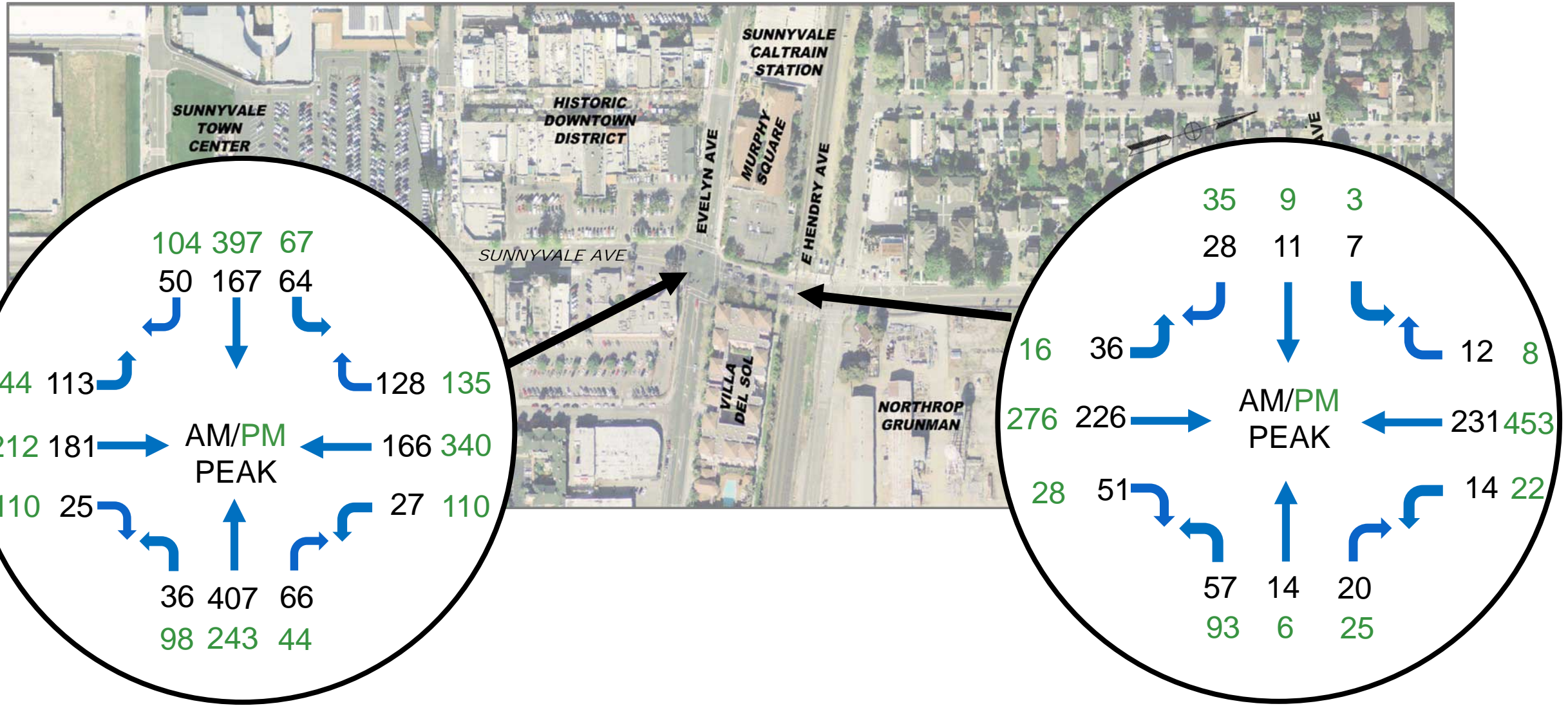
Sunnyvale Avenue Underpass / Tunnel – Traffic Circulation



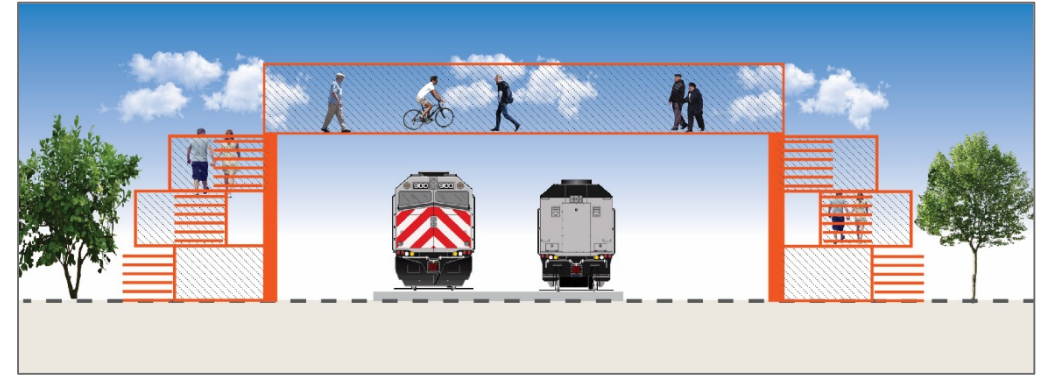
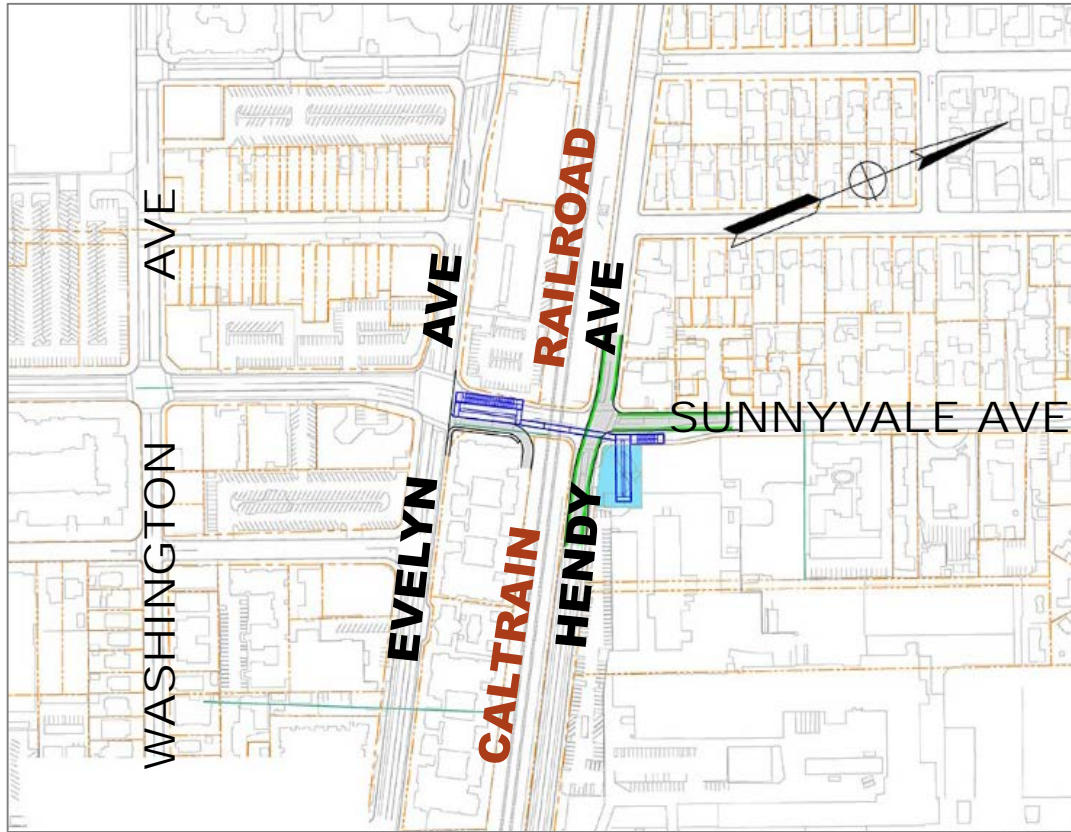
- Sunnyvale Ave tunnel
- No connection to Hendy Ave

- Sunnyvale Ave tunnel
- Tunnel: No Connection to Evelyn Ave

Sunnyvale Avenue Weekday Peak Hour Motor Vehicle Counts

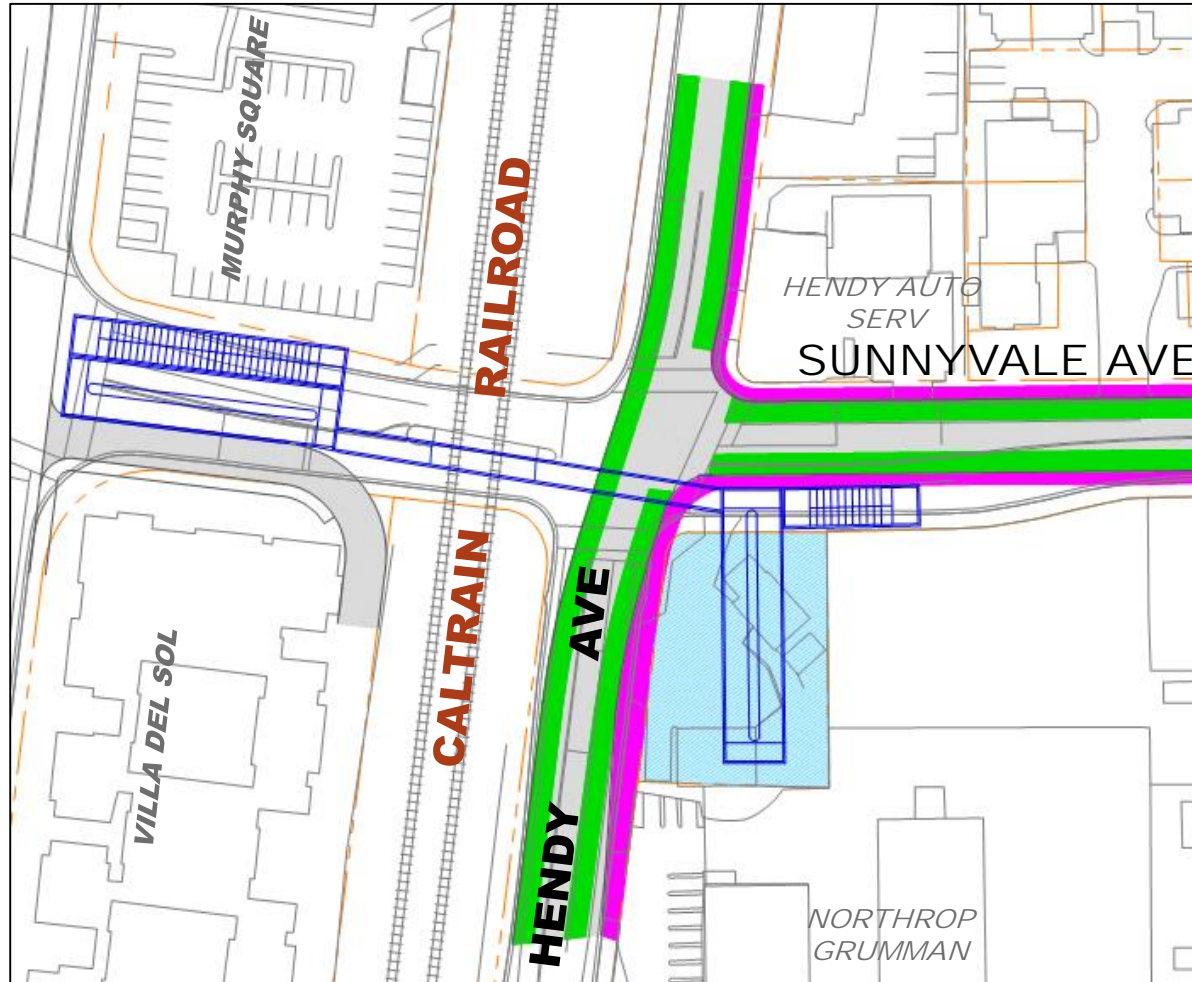


Sunnyvale Avenue Bike/Pedestrian Overpass



Sunnyvale Ave at grade	Evelyn Ave at-grade	Hendy Ave at-grade
✗ Vehicle access via Fair Oaks or Mathilda	Least cost alternative	✓ No rail construction required
Potential acquisition of 1+ parcel	✗ Permanent change to traffic circulation	✓ No station reconstruction
Modifications to 1+ driveways	\$\$\$\$ (Construction)	

Sunnyvale Avenue Bike/Pedestrian Overpass




Sunnyvale Avenue Bike/Pedestrian Crossing – Traffic Circulation



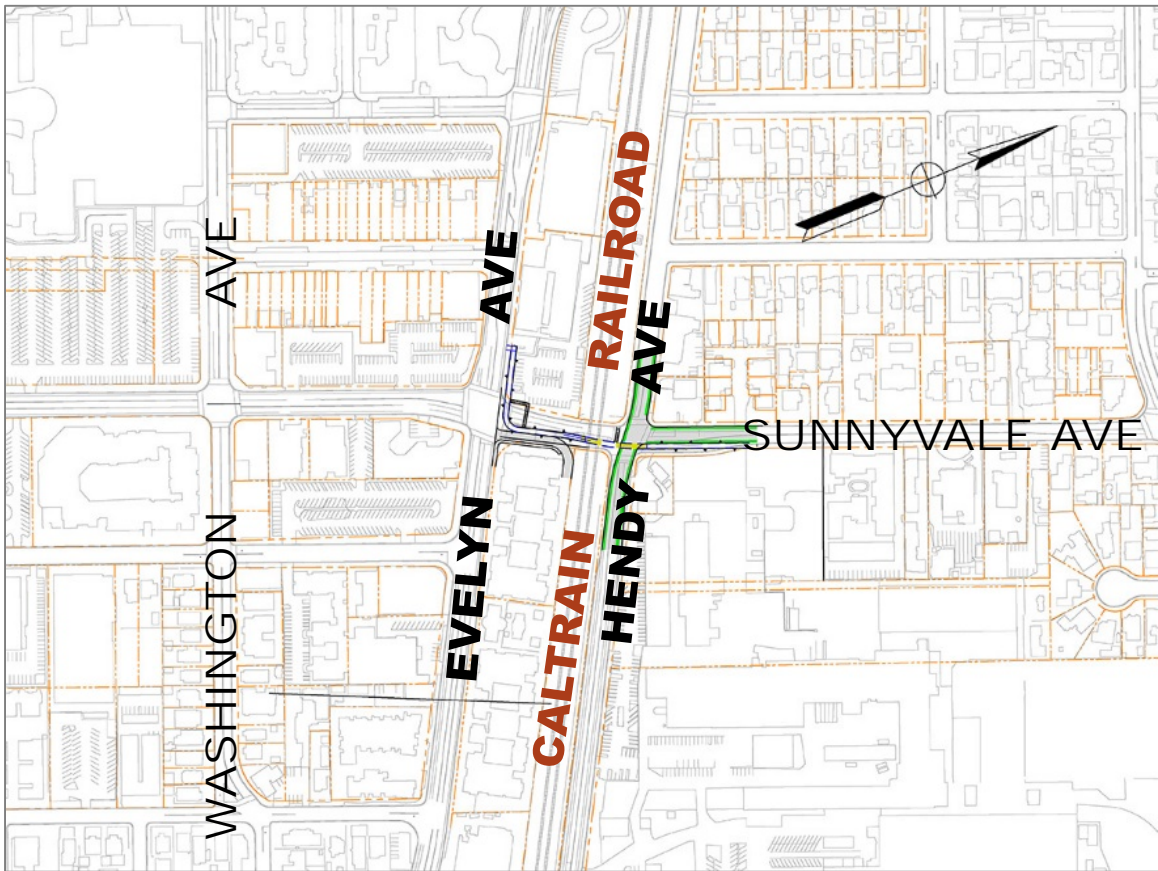
Sunnyvale Ave
Not a through street
at railroad

 Motorized vehicular closure

 Circulation via arterials

 Circulation via local street

Sunnyvale Avenue Bike/Pedestrian Underpass

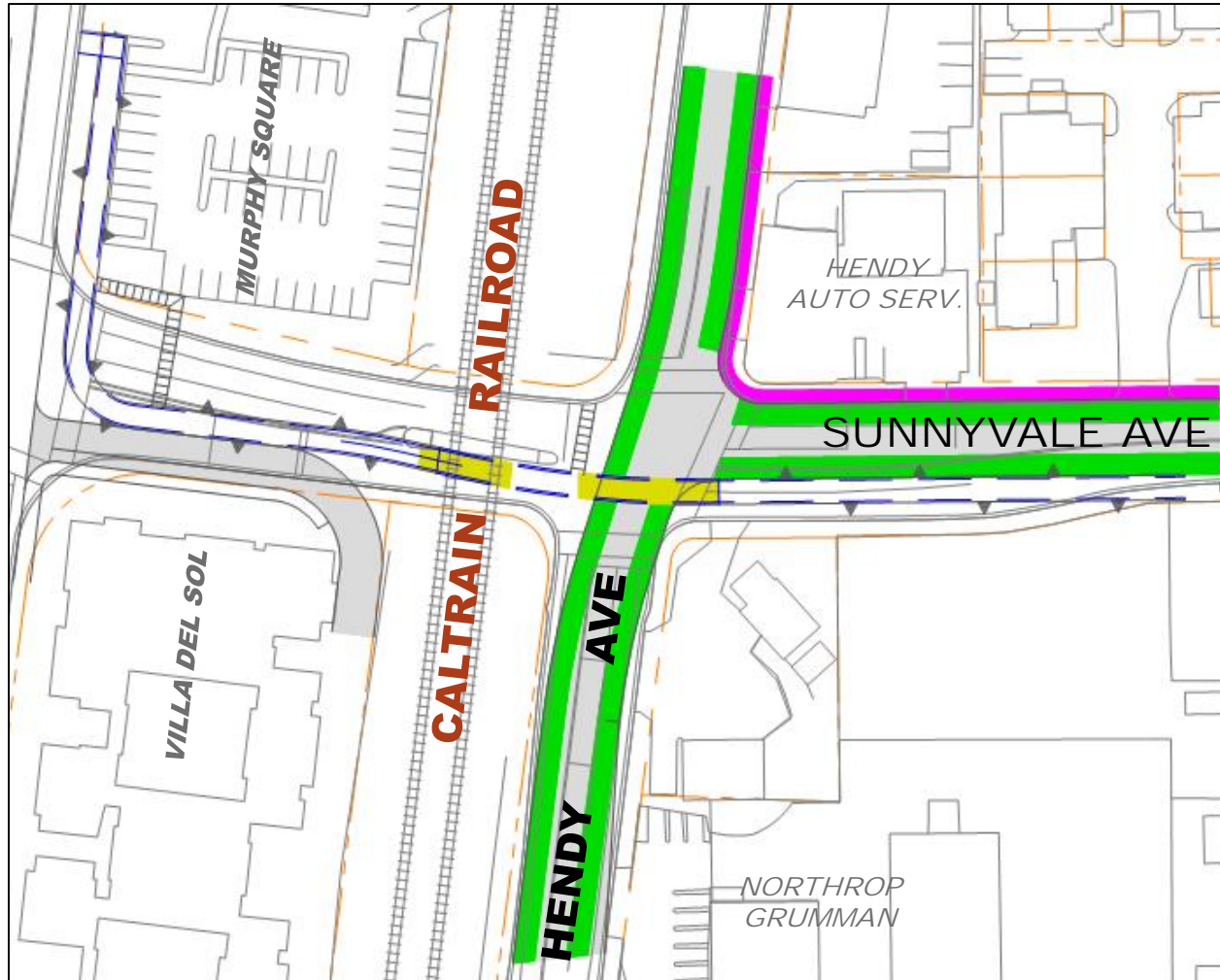


Sunnyvale Ave at grade	Evelyn Ave at-grade	Hendy Ave at-grade
<div>✗ Vehicle access via Fair Oaks or Mathilda</div>	<div>✗ Permanent change to traffic circulation</div>	<div>✓ No rail construction required</div>
<div>✓ Reconstruction to 1+ road access</div>	<div>✗ Circuitous access to ped/bike portals</div>	<div>✓ No station reconstruction</div>
<div>✓ No significant impacts to parcels</div>	<div>\$\$ (Construction)</div>	<div>✓ Least cost alternative</div>

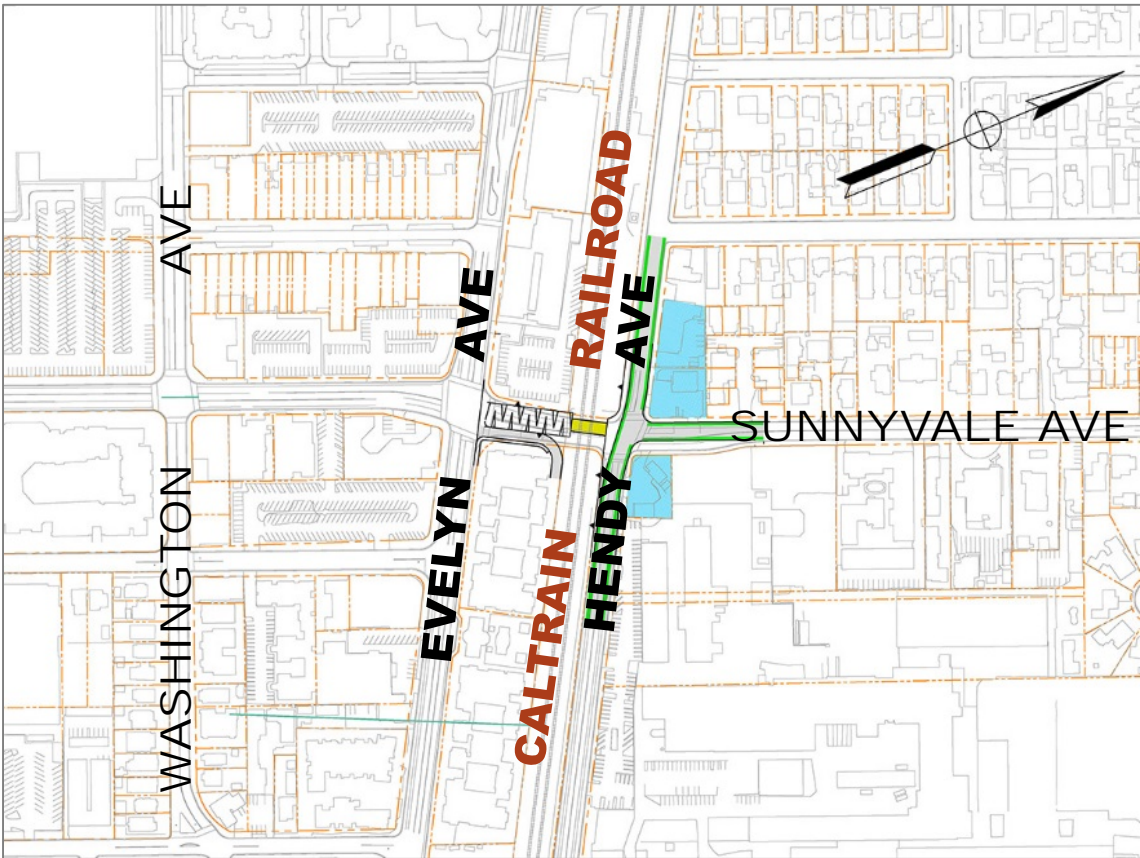
Grade Separated Crossing – Underpass



Sunnyvale Avenue Bike/Pedestrian Underpass

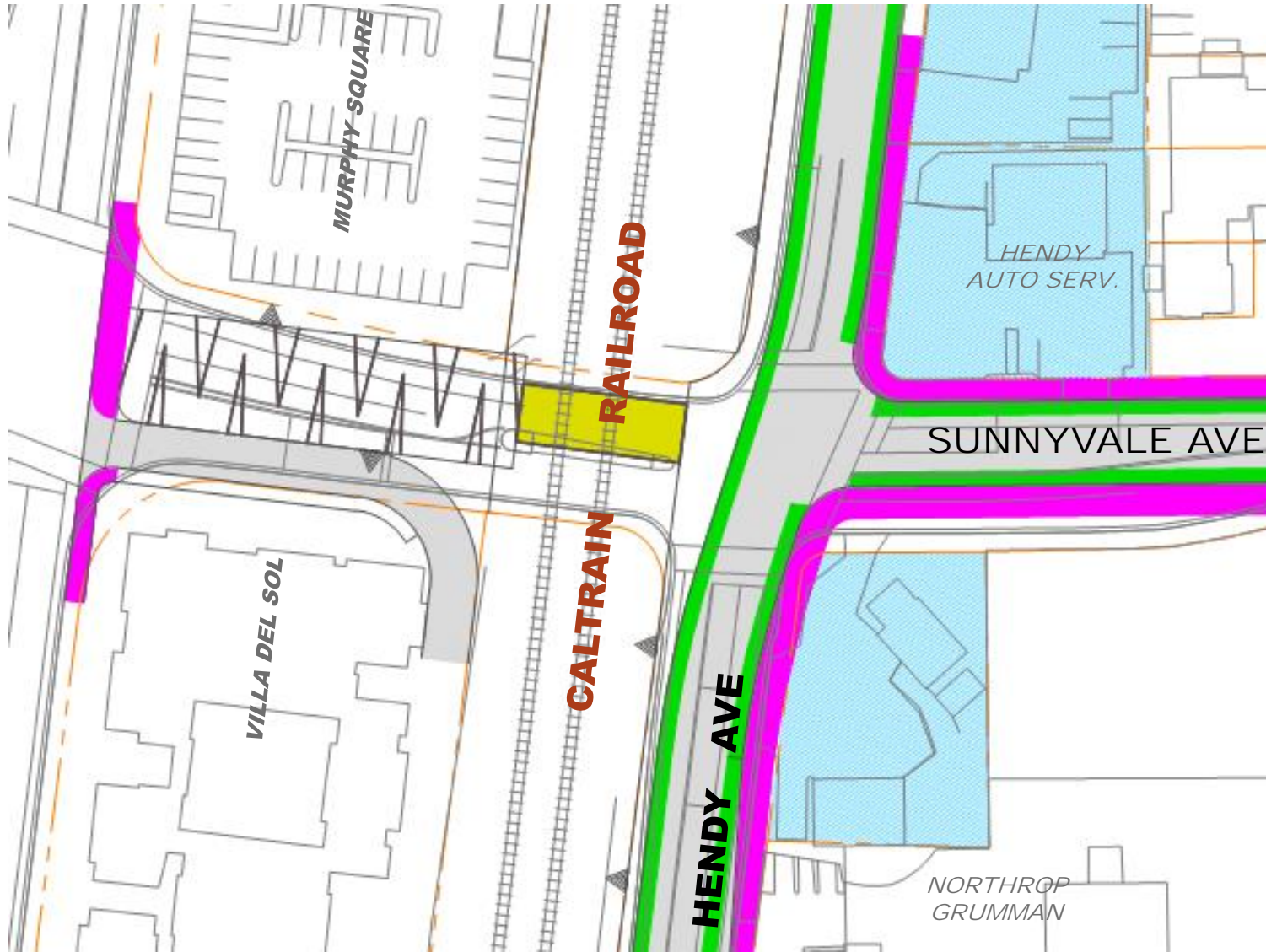


Sunnyvale Avenue Bike/Pedestrian Underpass Switchback

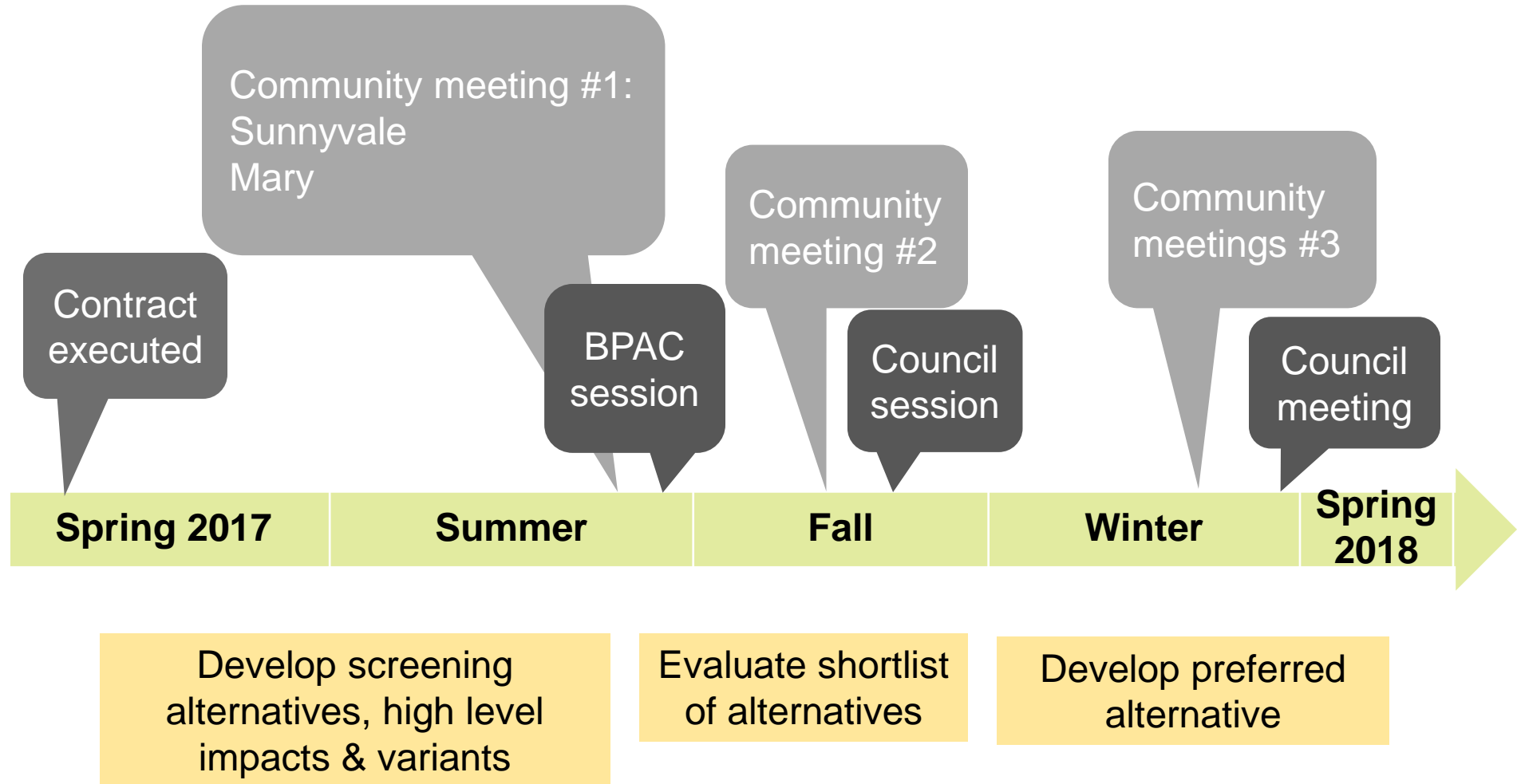


Sunnyvale Ave at grade	Evelyn Av at-grade	Hendy Ave at-grade
✗ Vehicle access via Fair Oaks or Mathilda	✗ Permanent change to traffic circulation	✓ No rail construction required
Potential acquisition of 3+ parcels	Switch-back access to ped/bike	✓ No station reconstruction
✓ Modifications to 1+ driveways	\$\$	✓ Least cost alternative

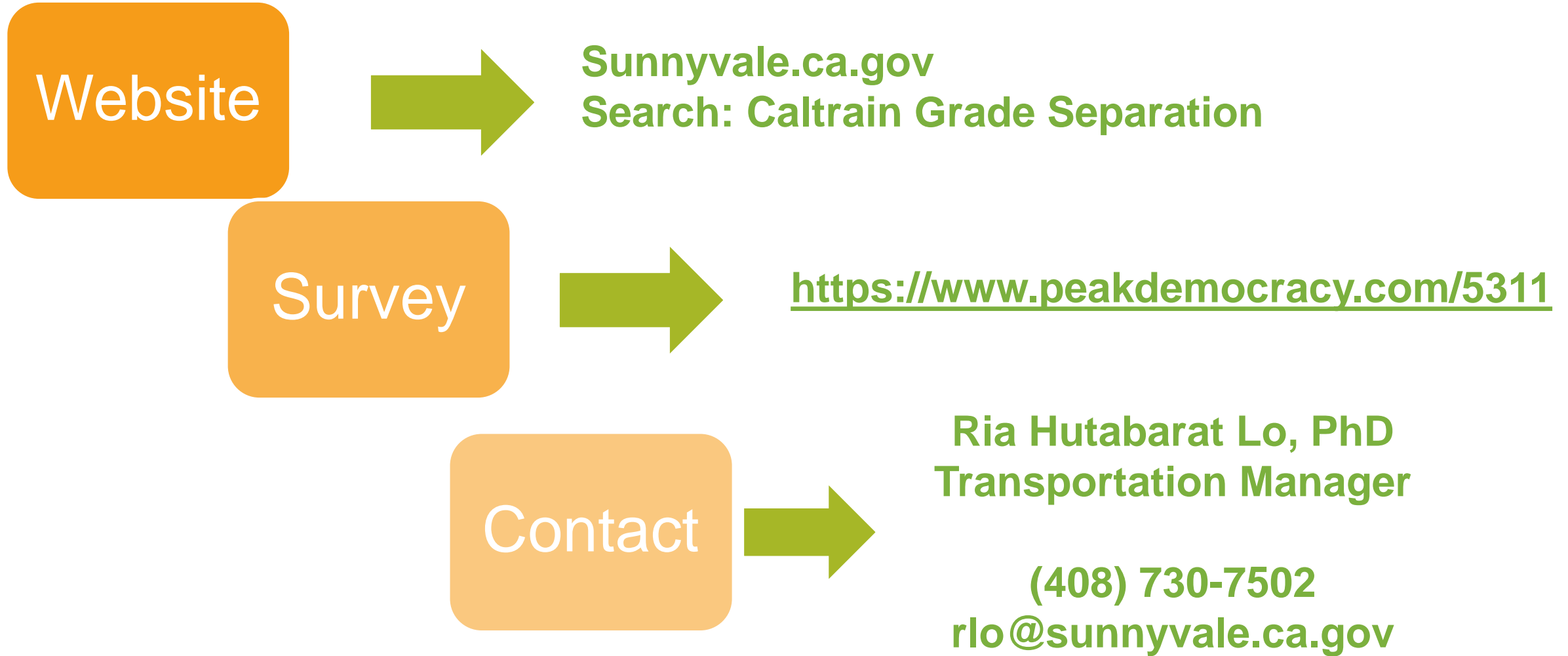
Sunnyvale Avenue Bike/Pedestrian Underpass Switchback Entry



Schedule and Next Steps



Information



Thank You!



Sunnyvale

Ria Hutabarat Lo, PhD

408 730 7502
rlo@sunnyvale.ca.gov