

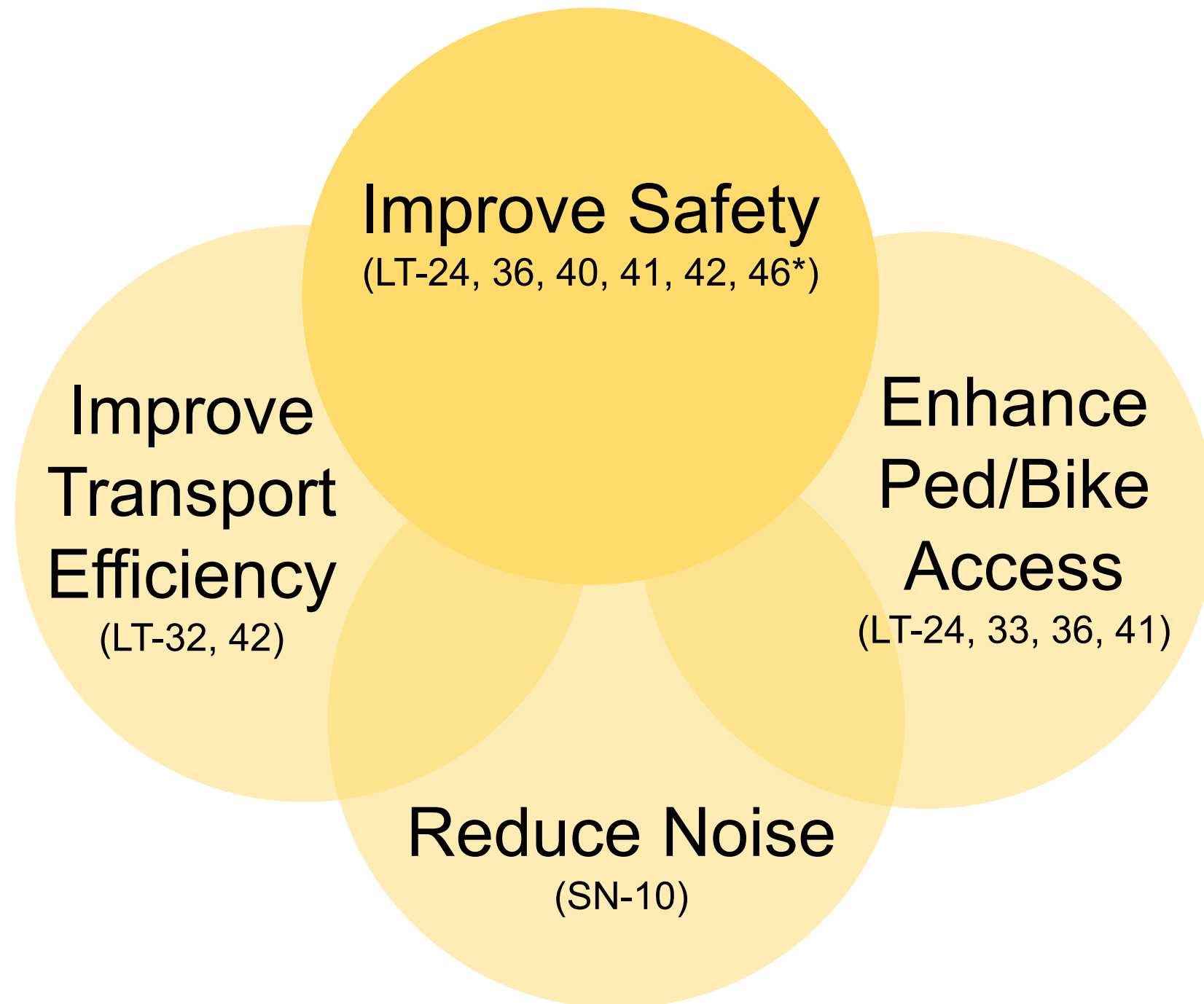
Caltrain Grade Separation Feasibility Study

Joint City Council / BPAC Study Session
October 17, 2017



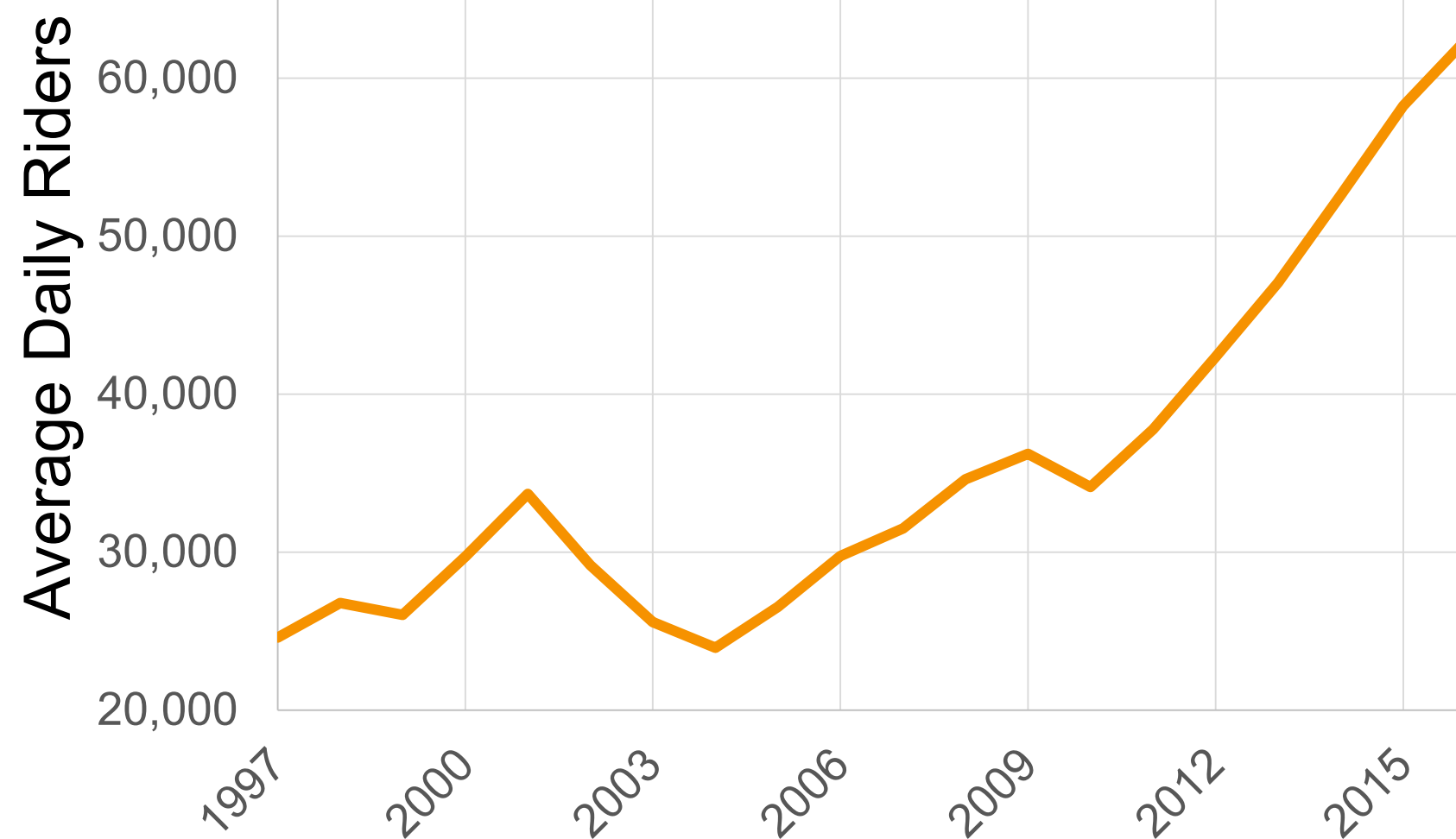
Sunnyvale

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

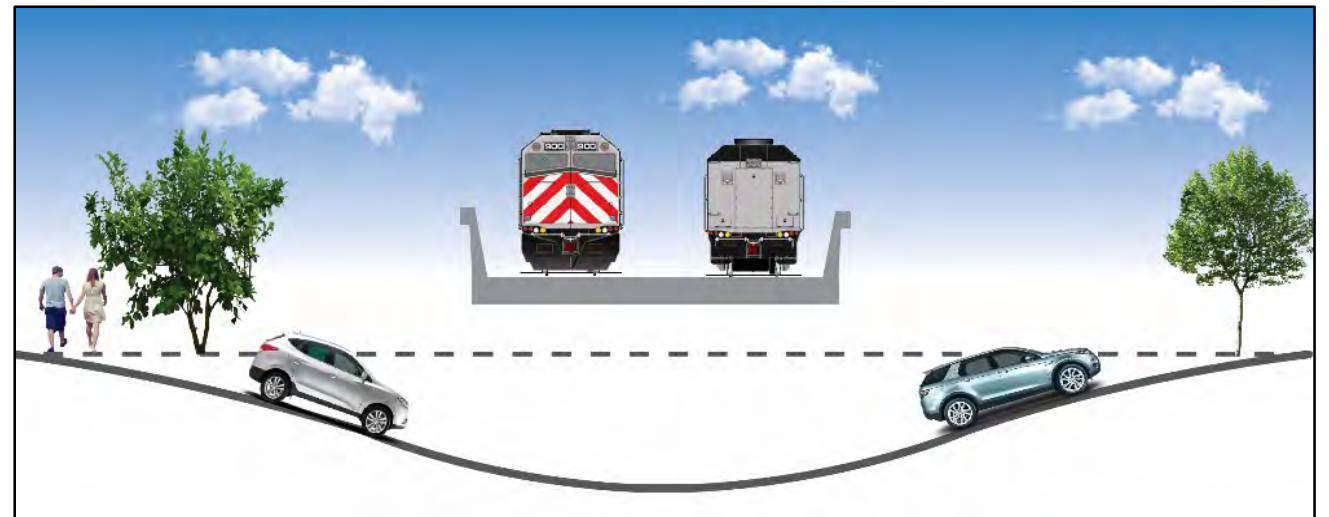
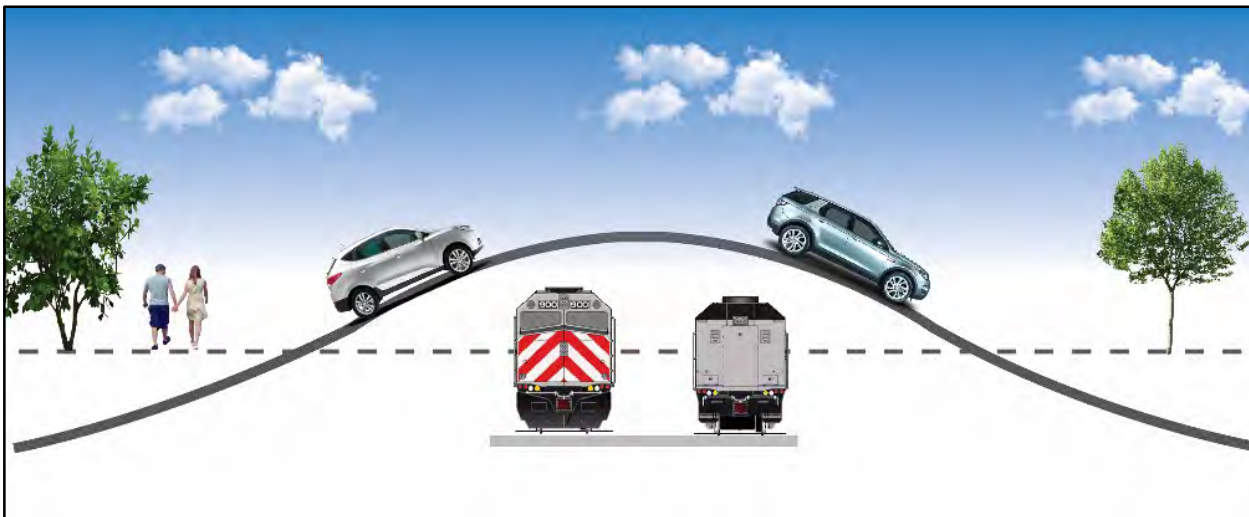
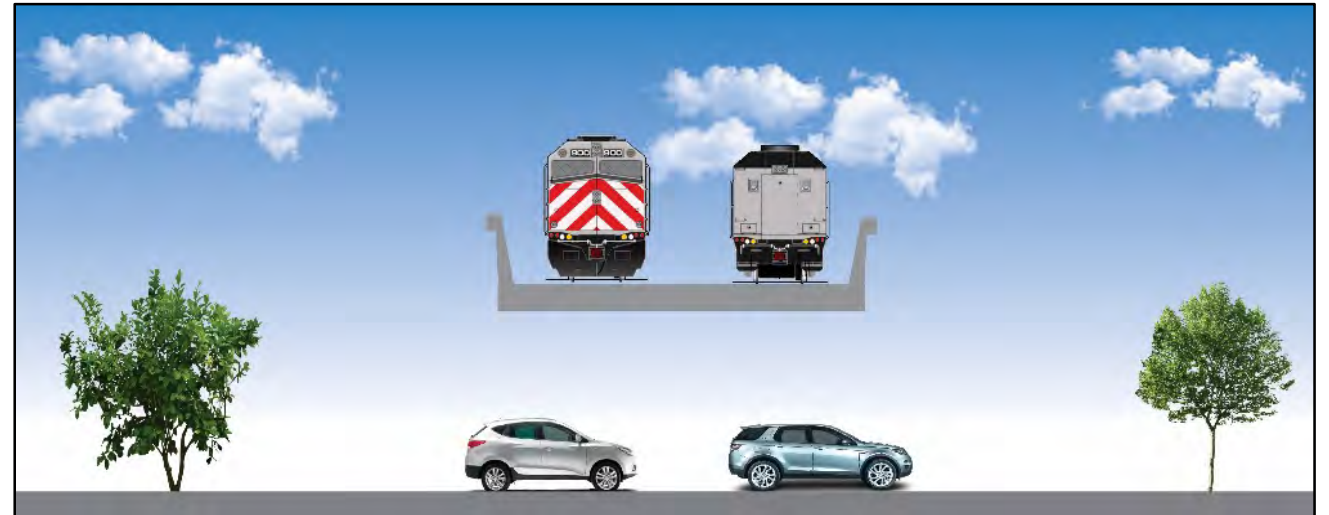
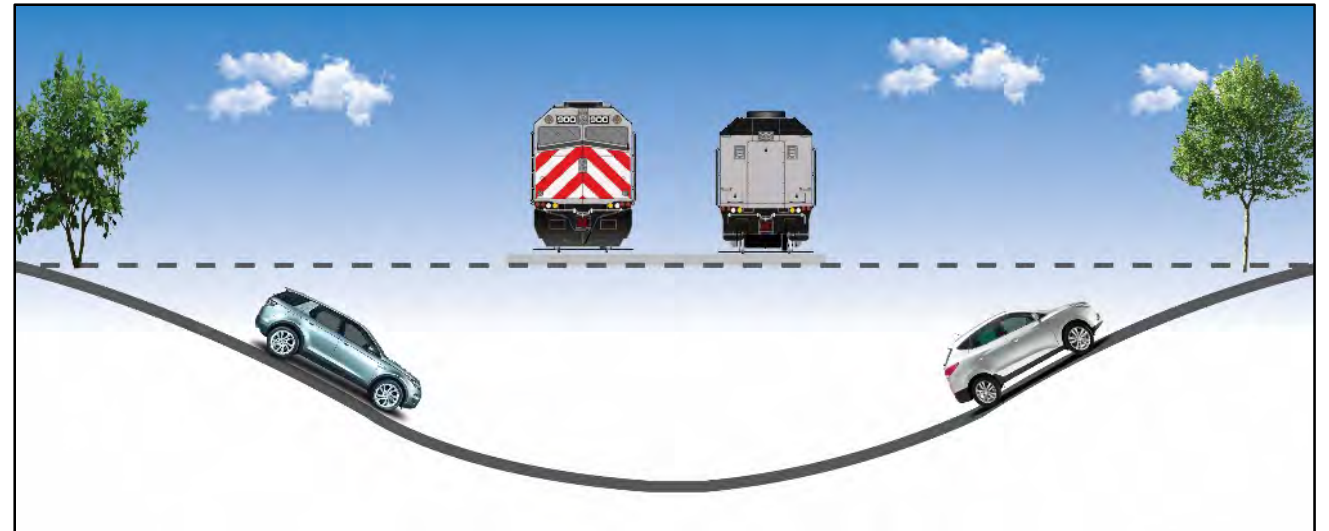
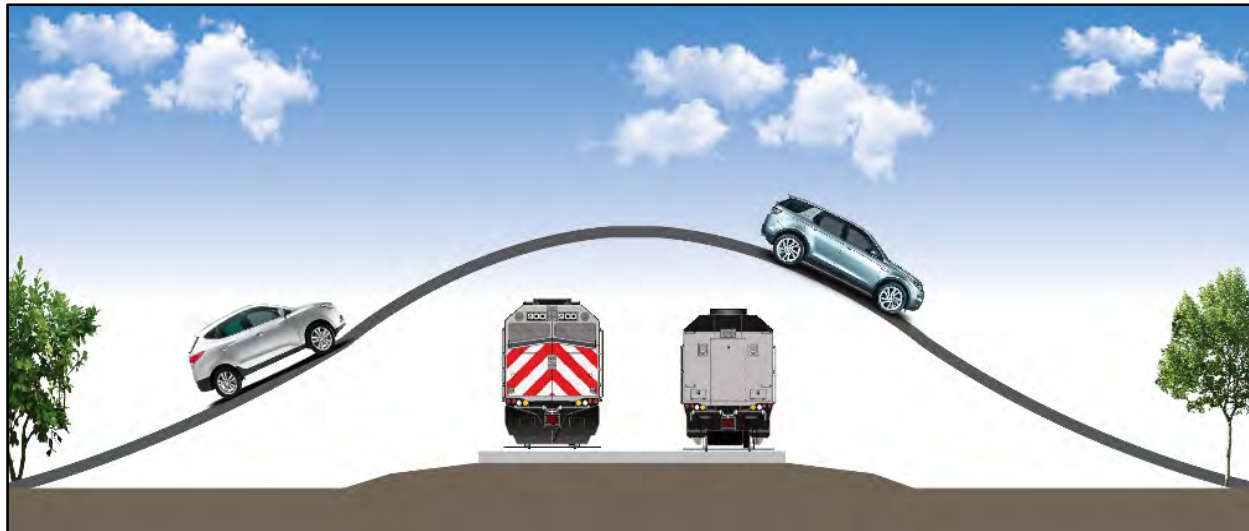


Solutions that move you

Sunnyvale has 2 of the 8 at grade crossings

VTA criteria include cost efficiency and Complete Streets

Initial Screening Alternatives



Road Overpass



Mathilda Avenue, Sunnyvale (Google Maps)



Tustin/Rose Overpass (BKF)

Road Underpass



Marina Bay Parkway, Richmond (BKF)



Jefferson Avenue, Redwood City (Google Maps)

Split Road Underpass



Holly Street, San Carlos (Google Maps)



Harbor Blvd, Belmont (Google Maps)

Depressed Rail

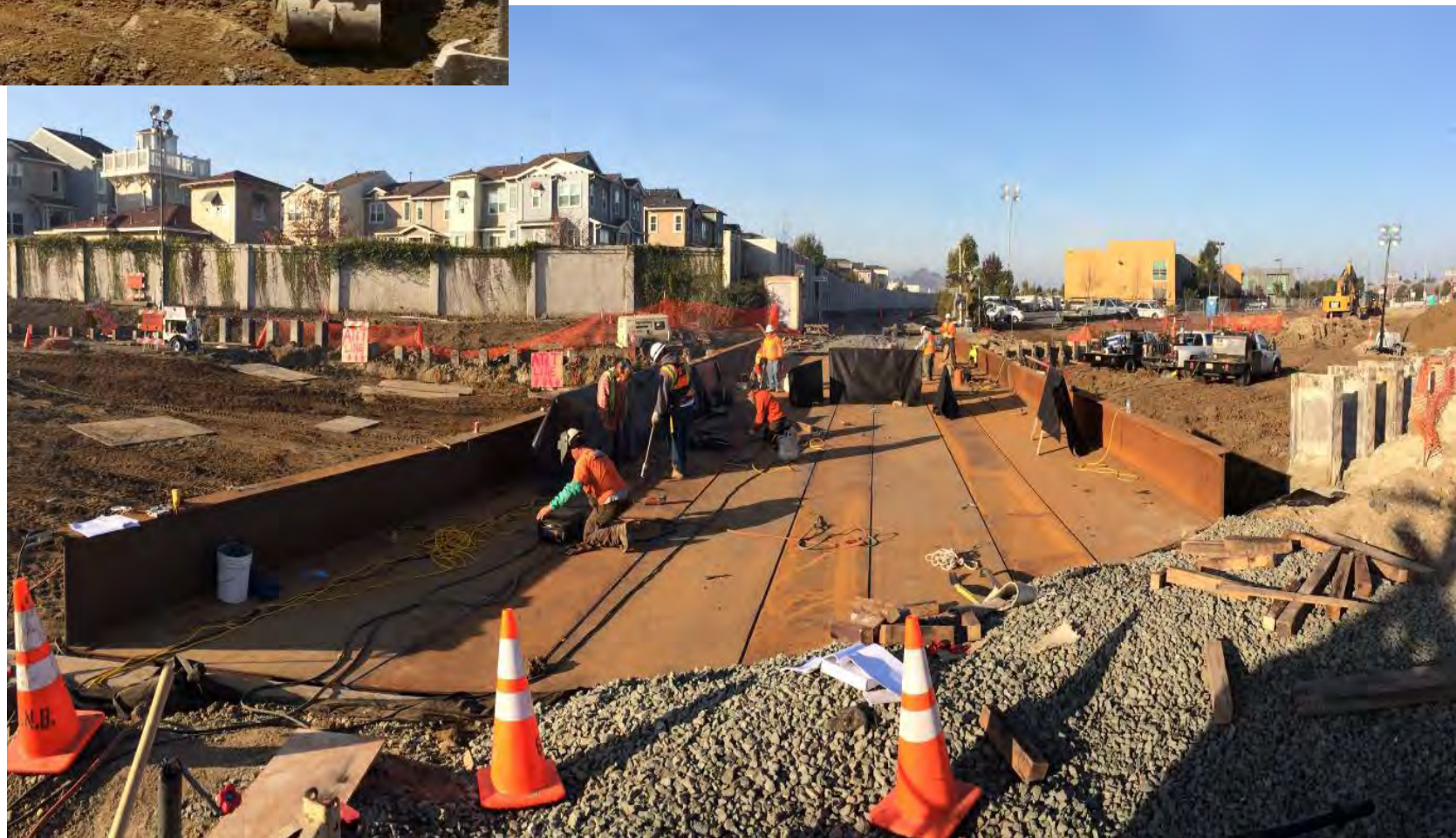


4th Street at Clay Street, Oakland (Flickr user Andy Tucker)



VTA Light Rail at Diridon Station

Grade Separation Construction



Community Outreach

Project Webpage

Business Outreach Meeting 7/26

BPAC Meeting 8/17

Mary Ave Community Meeting 8/10*
(100 participants)

Sunnyvale Ave Community Mtg 8/24*
(65 participants)

Mary Ave Expressions Meeting 8/22

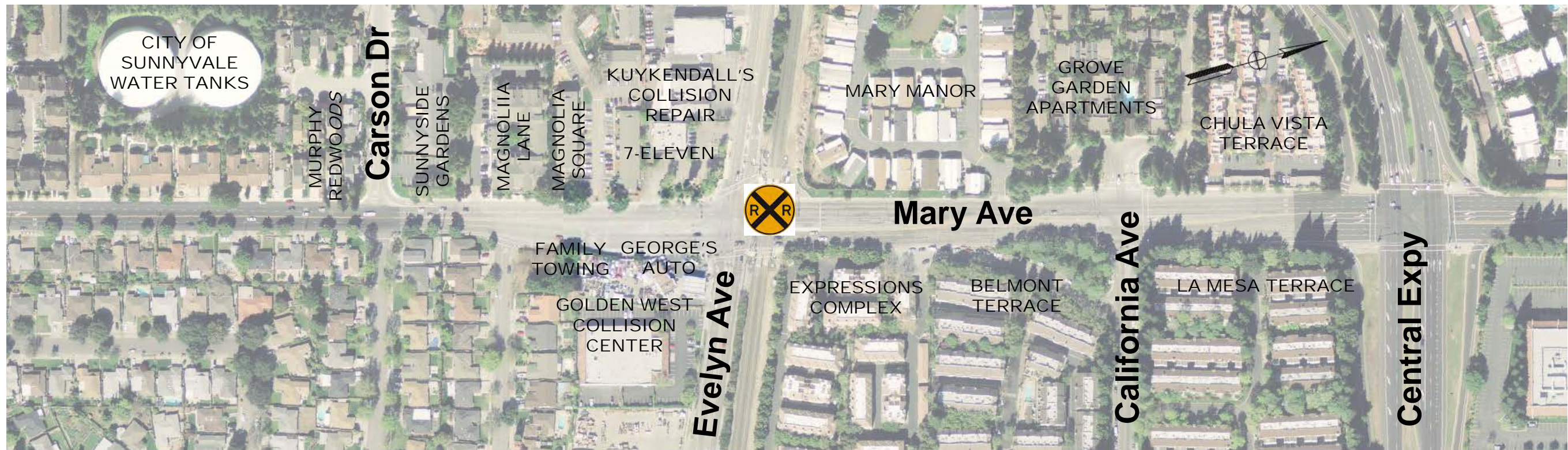
Sunnyvale Downtown Association 9/6

Mary Ave Online Survey 9/15
(128 responses)

Sunnyvale Ave Online Survey 9/15
(77 responses)

* Outreach included: 8,934 postcards, NextDoor (62 groups), Yahoo! Group (126 members), eBlast, City website calendar, Council/Commission notices, FaceBook, Twitter.

Mary Avenue



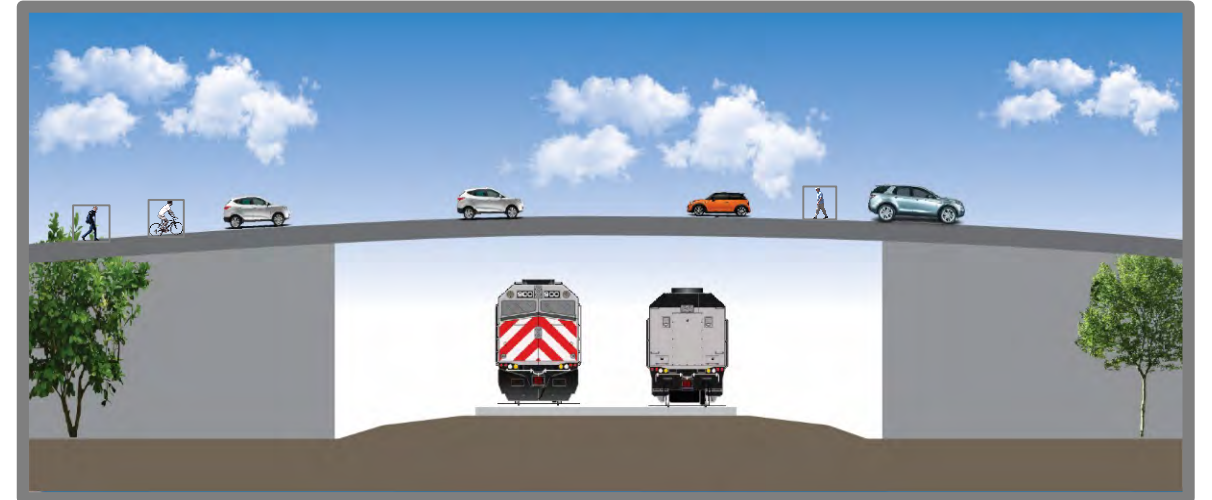
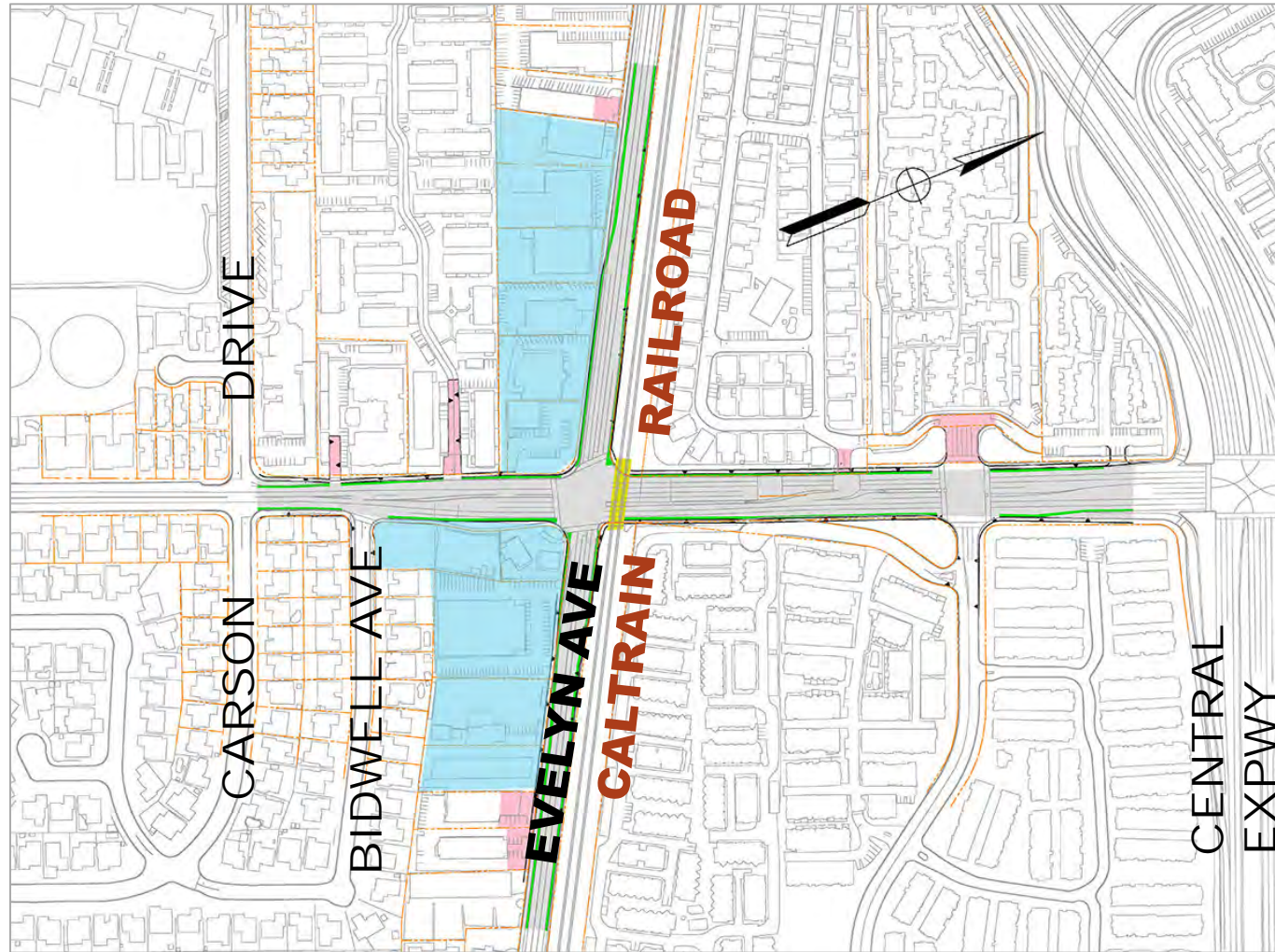
Mary Avenue Elevated Rail



No grade change to Mary Ave	No grade change to Evelyn Ave	Railroad elevated
✗ Noise and visual impacts along residences	✗ Evelyn Ave reduced to one lane during construction	✗ Shoofly required
✗ Mathilda ramp bridge reconstructed	\$150M - \$250M*	✗ Rail disruption

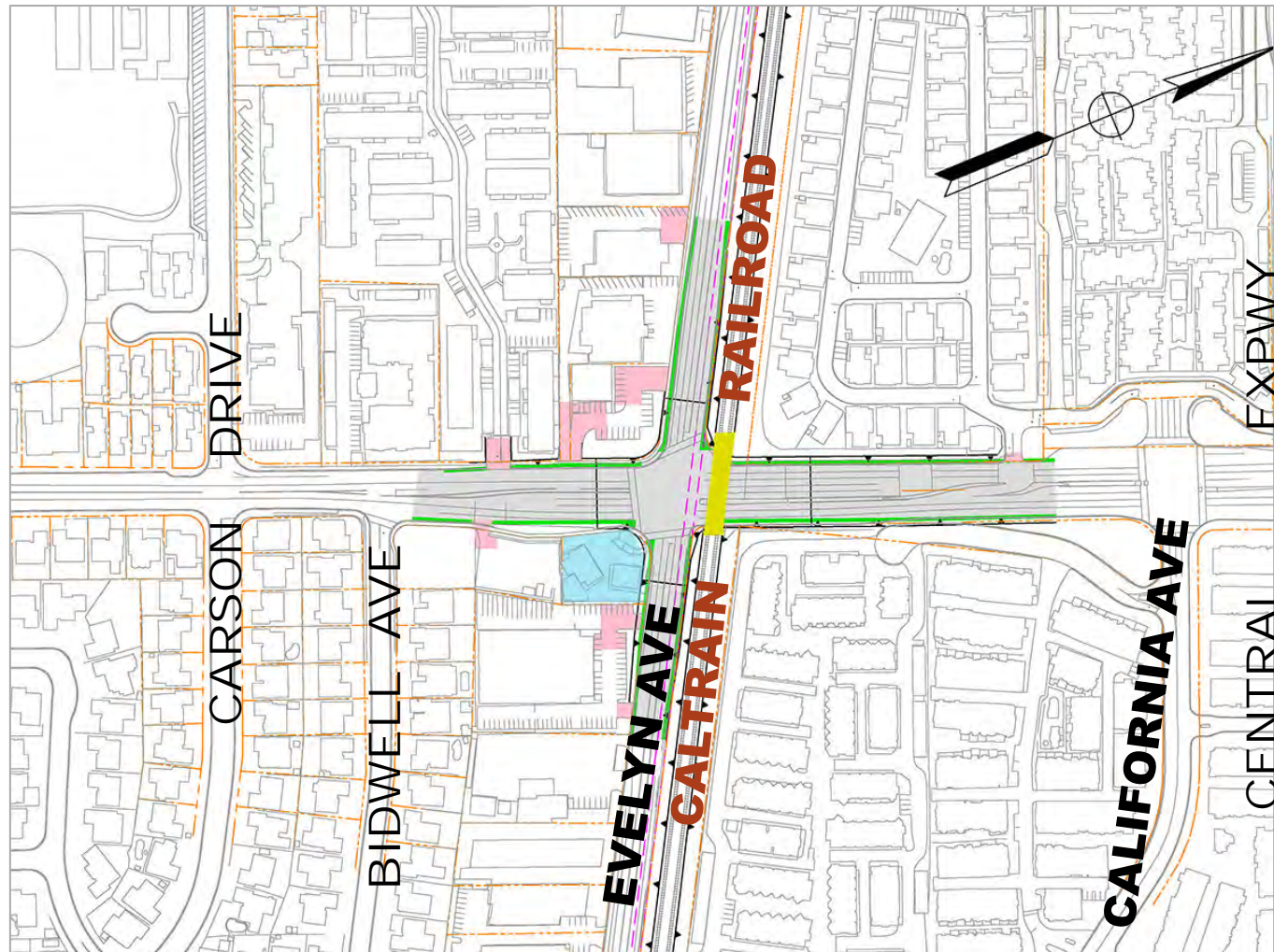
* Costs within presentation include construction, utility relocation, right of way and admin costs

Mary Avenue Overpass



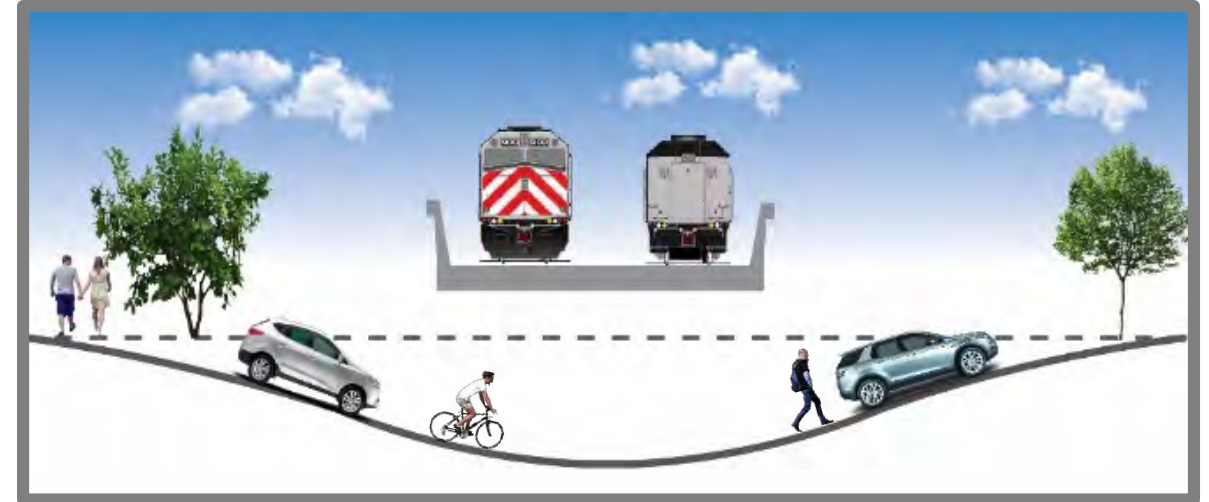
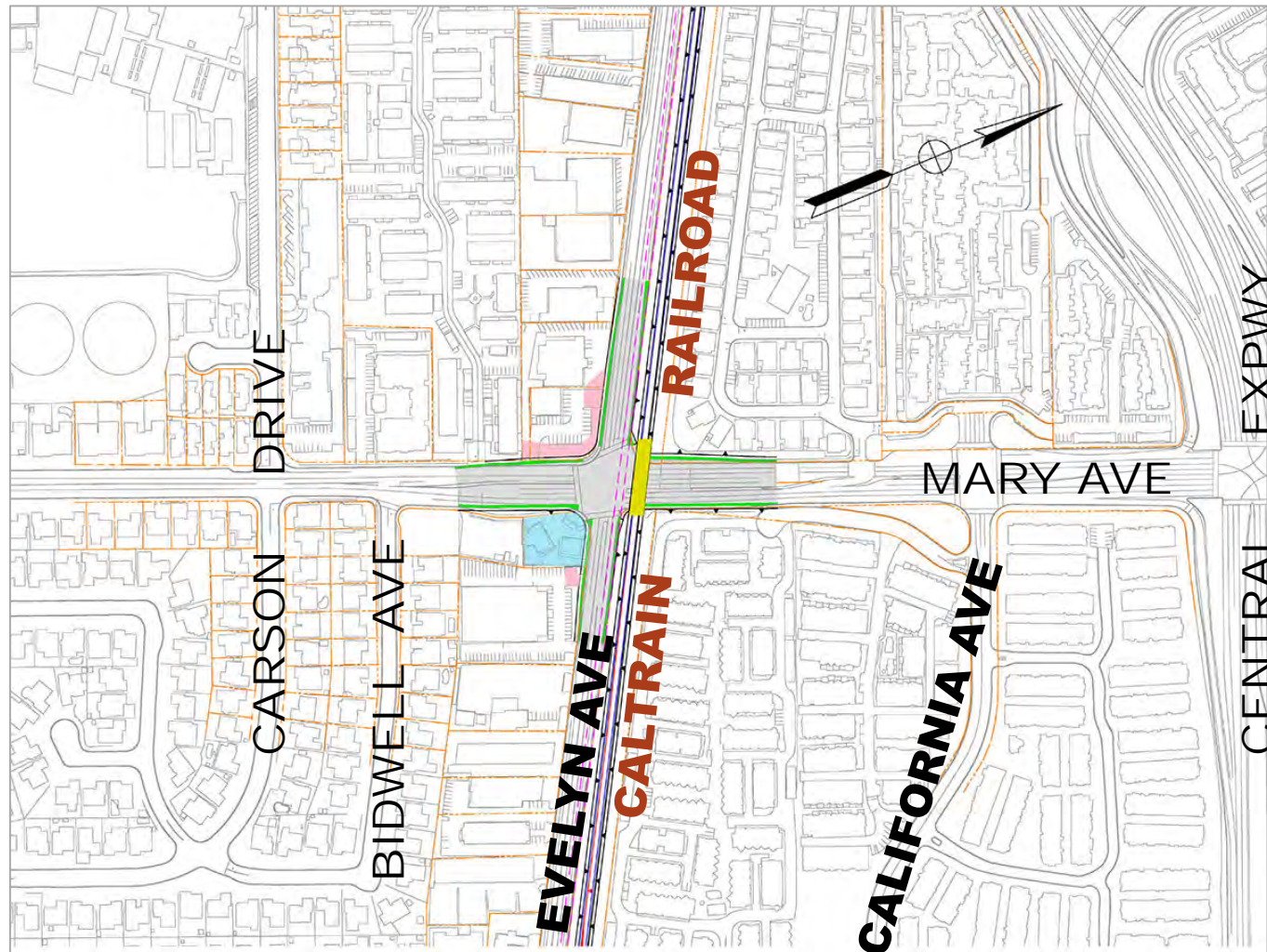
Mary Ave elevated	Evelyn Ave elevated	Railroad at-grade
✗ Potential acquisition of 12+ parcels	✗ Noise and visual impacts along residences	✓ No rail disruption
✗ Modifications to 7+ driveways	\$200M - \$250M	

Mary Avenue Split Overpass



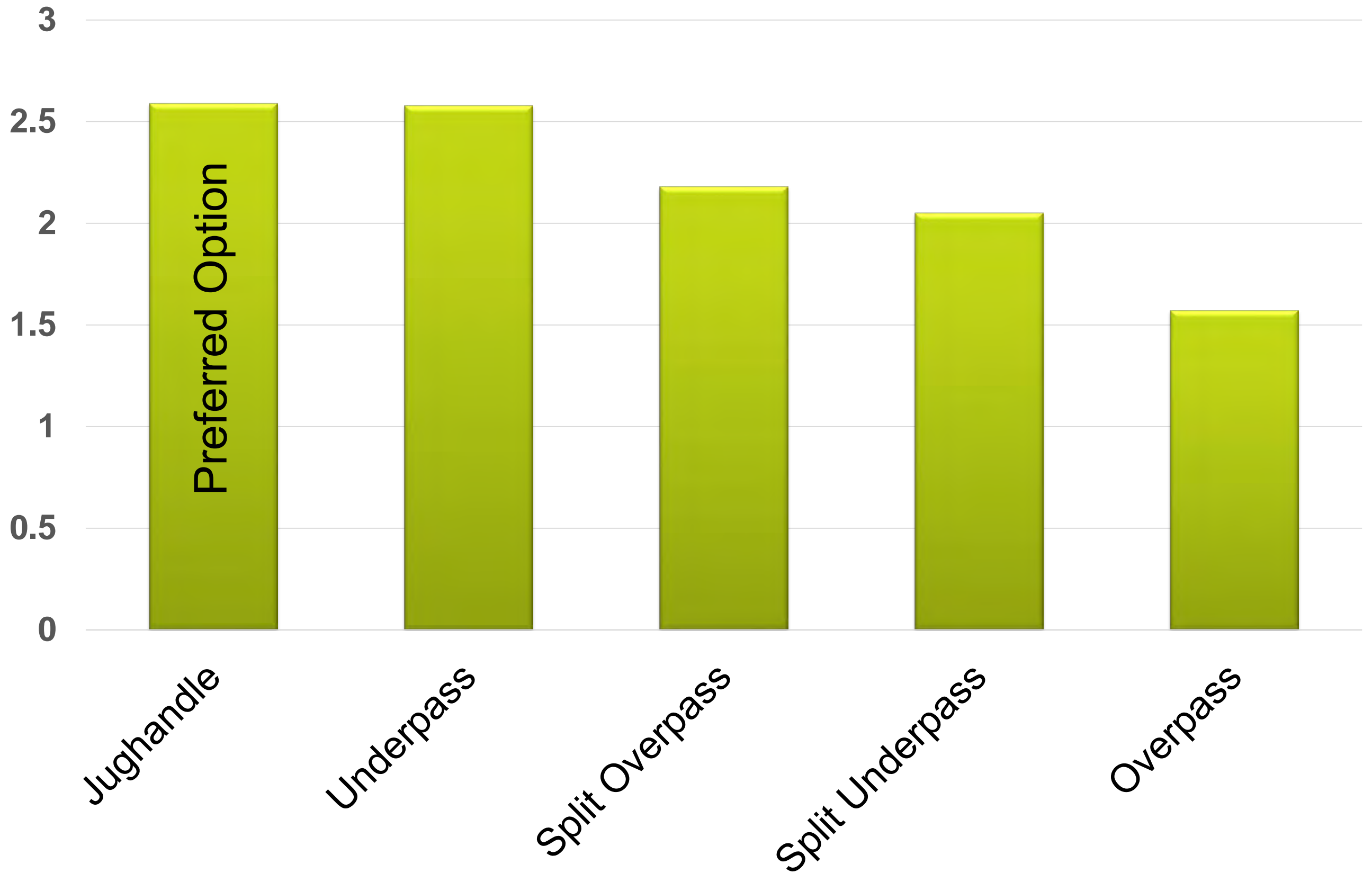
Mary Ave partially elevated	Evelyn Ave partially elevated	Railroad partially depressed
✗ Potential acquisition of 1+ parcels	✗ Evelyn Ave reduced to one lane during construction	✗ Noise and visual impacts along residences
✗ Modifications to 7+ driveways	\$200M - \$250M	✗ Shoofly and rail disruption

Mary Avenue Split Underpass



Mary Ave partially depressed	Evelyn Ave partially depressed	Railroad partially elevated
<p>✗ Potential acquisition of 1+ parcels</p>	<p>✗ Evelyn Ave reduced to one lane during construction</p>	<p>✗ Noise and visual impacts along residences</p>
<p>✗ Modifications to 3+ driveways</p>	<p>\$150M - \$250M</p>	<p>✗ Shoofly and rail disruption</p>

Mary Avenue Online Survey



Mary Avenue Alternatives

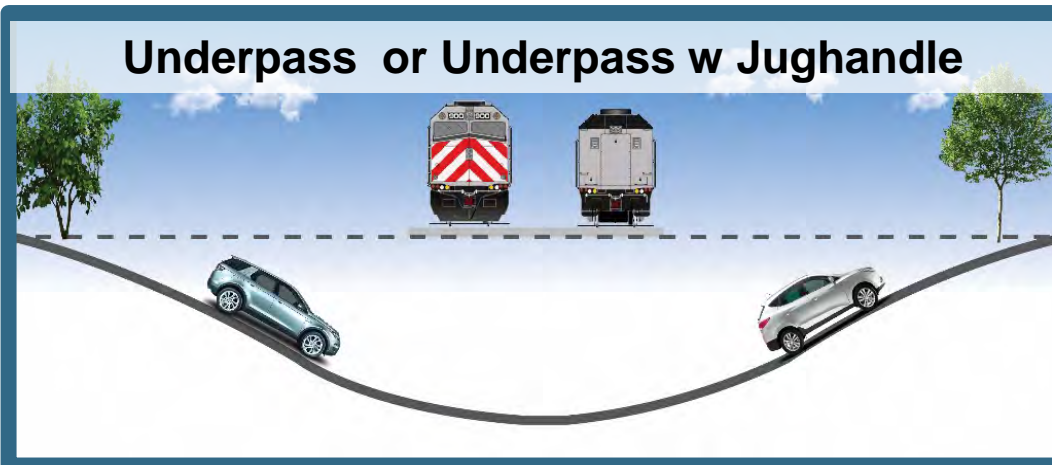
Depressed Rail



X Overpass



Underpass or Underpass w Jughandle



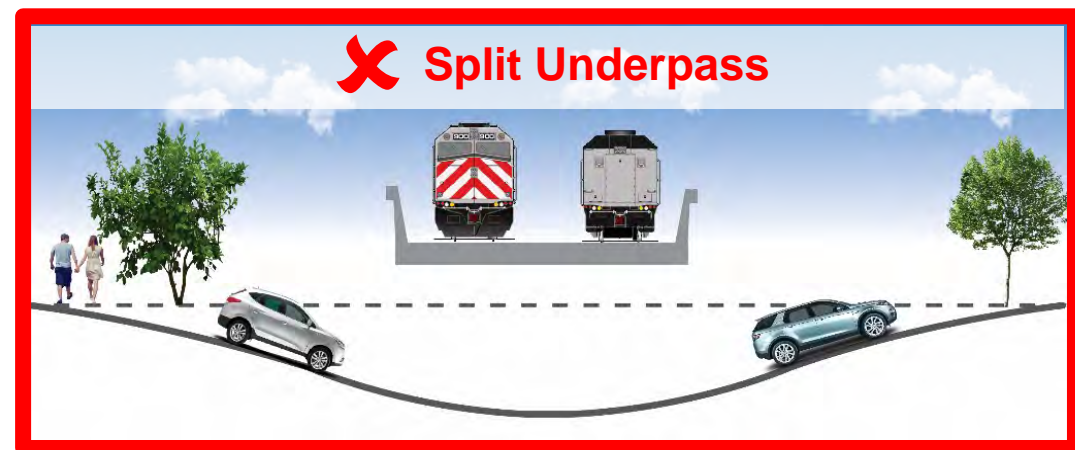
X Elevated Rail



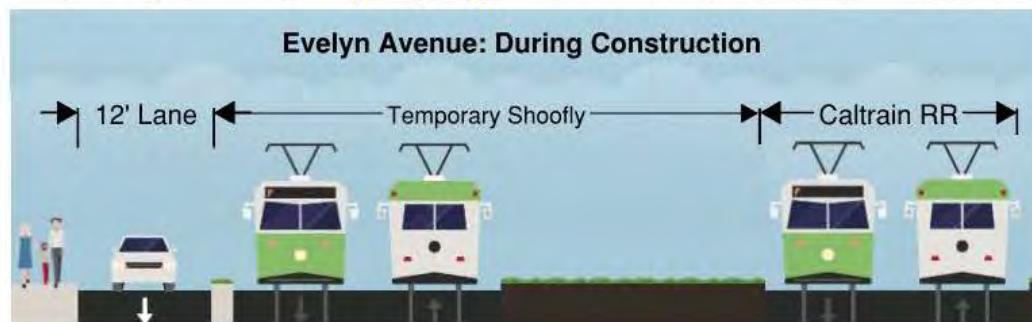
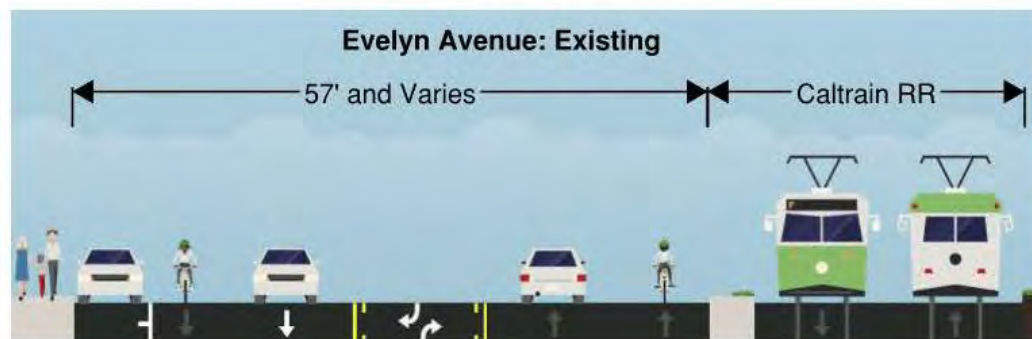
X Split Overpass



X Split Underpass



Mary Avenue Depressed Rail



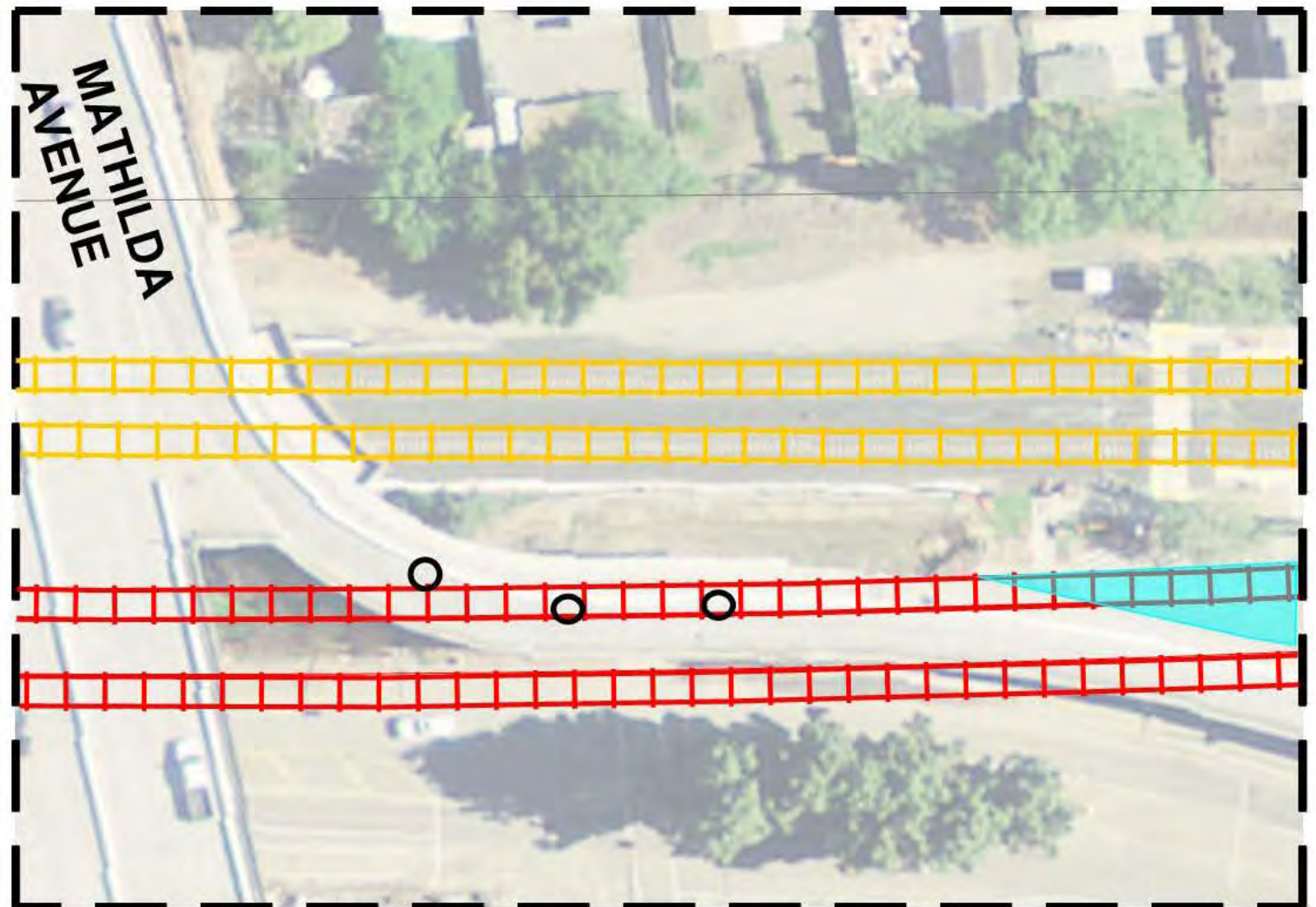
LEGEND:

Existing Caltrain Railroad

Existing Ramp Columns

Proposed Right-of-Way Acquisition

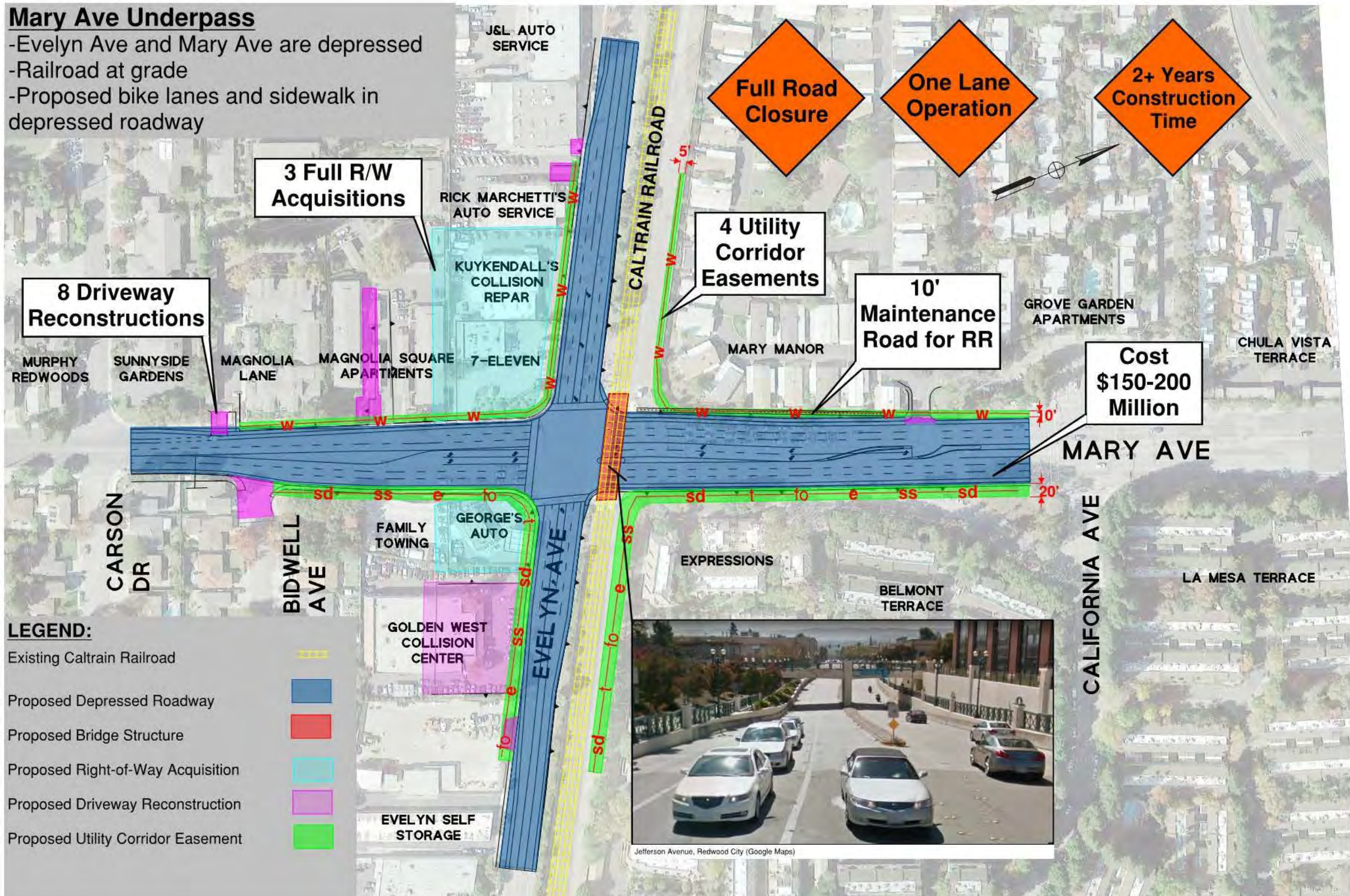
Proposed Temporary Shoofly



Mary Avenue Underpass

Mary Ave Underpass

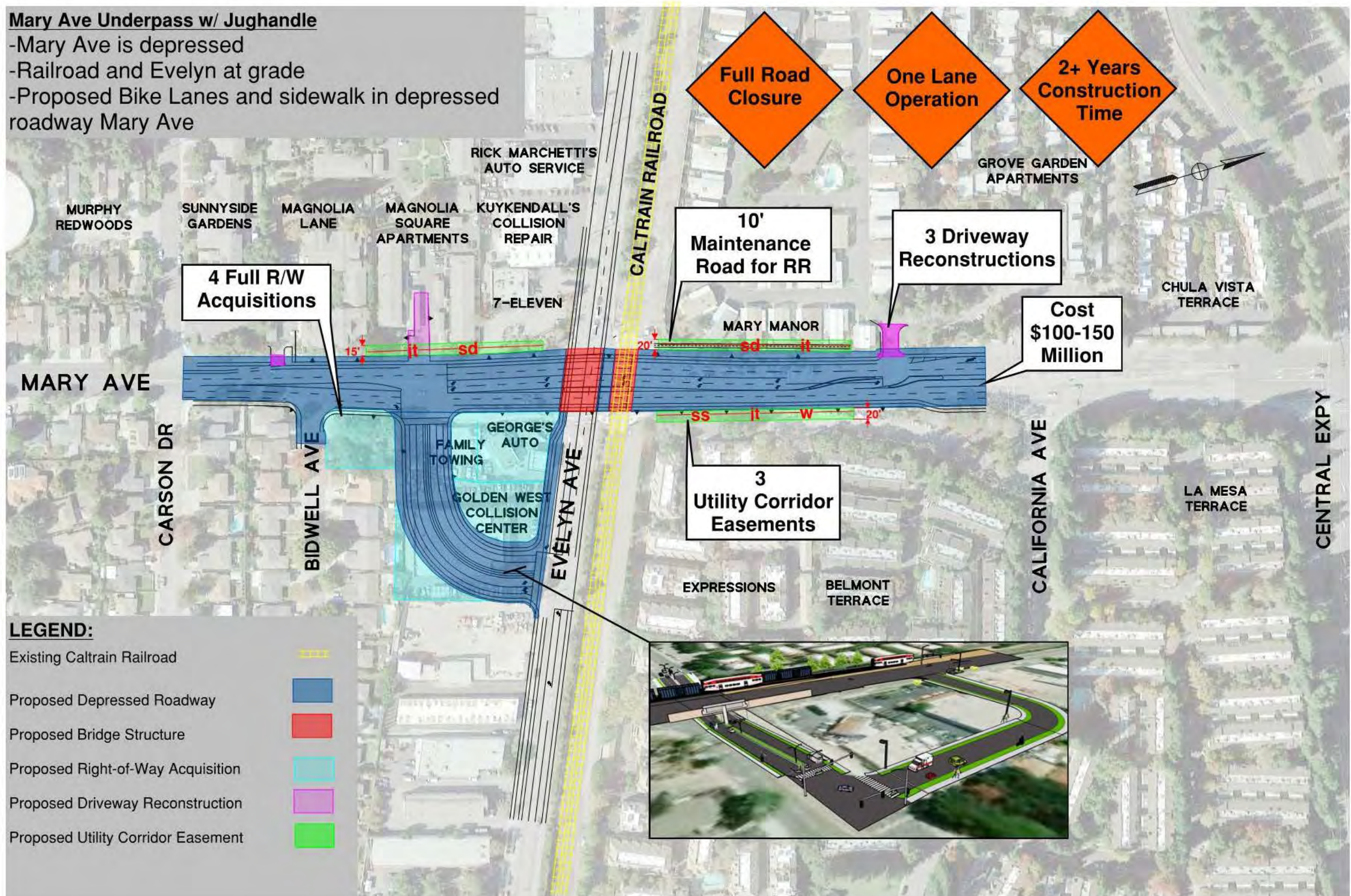
- Evelyn Ave and Mary Ave are depressed
- Railroad at grade
- Proposed bike lanes and sidewalk in depressed roadway



Mary Avenue Underpass with Jughandle

Mary Ave Underpass w/ Jughandle

- Mary Ave is depressed
- Railroad and Evelyn at grade
- Proposed Bike Lanes and sidewalk in depressed roadway Mary Ave



Mary Avenue Underpass with Jughandle



Sunnyvale Avenue

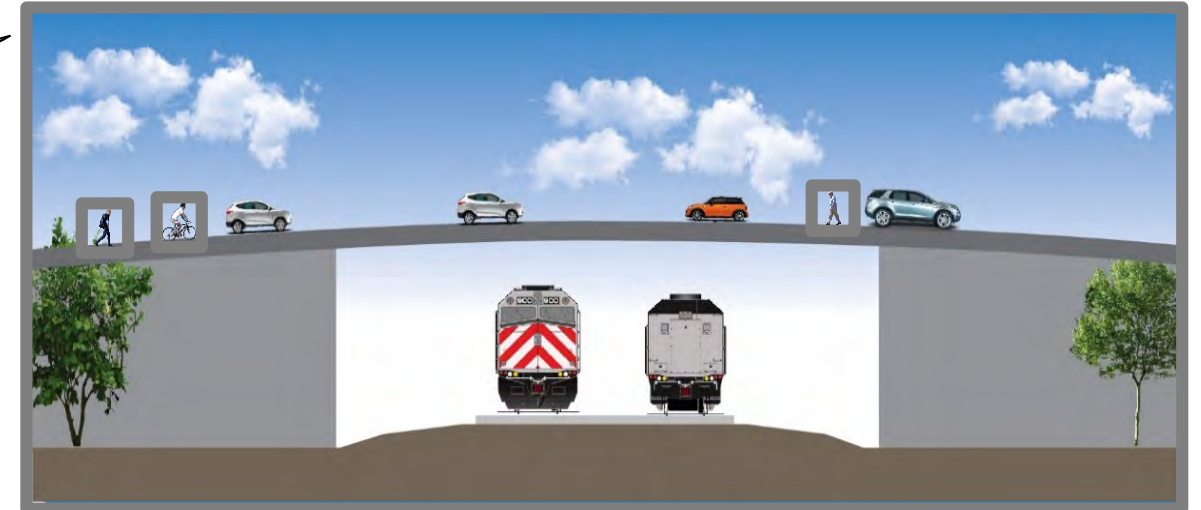
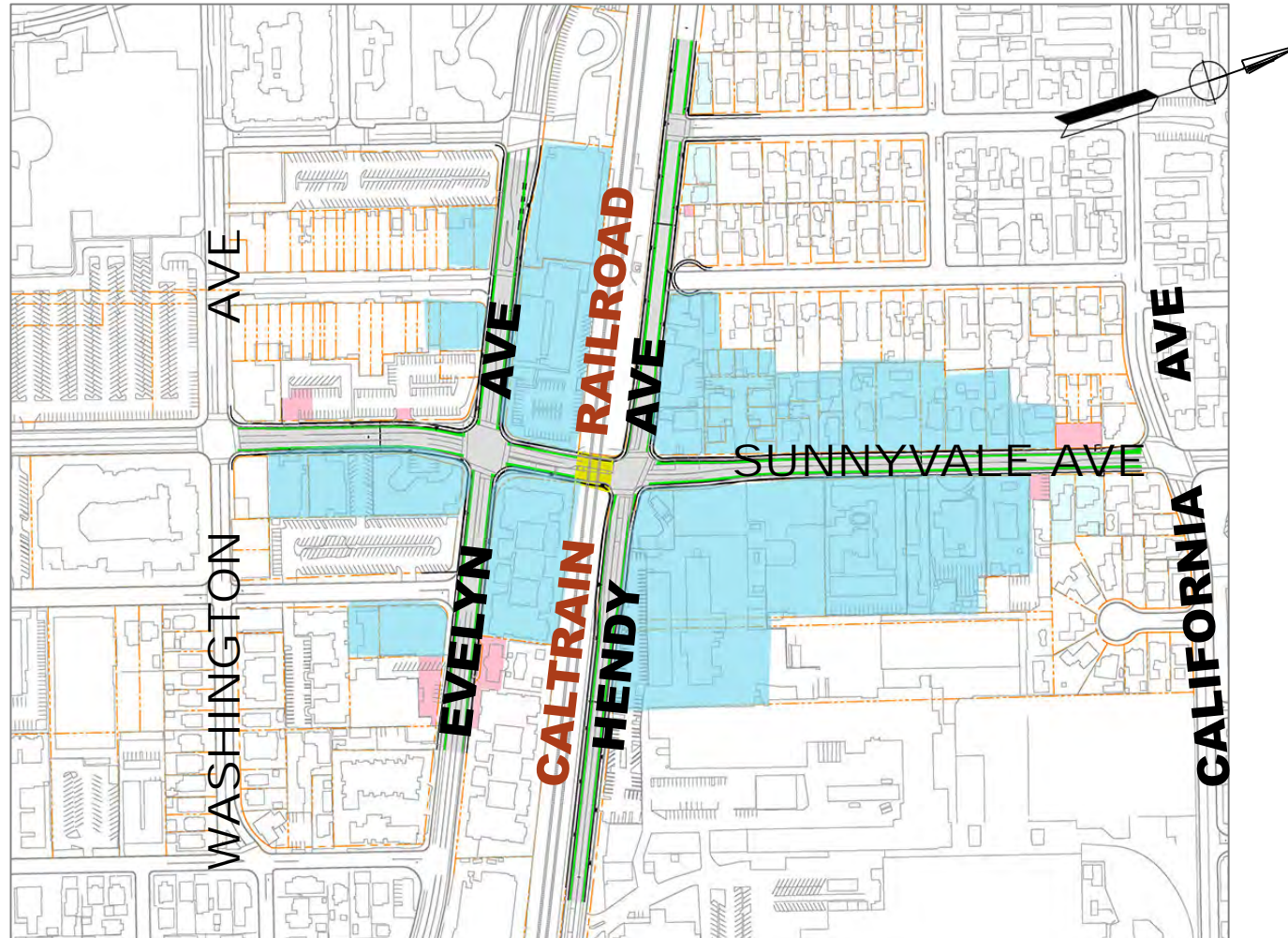


Sunnyvale Avenue Elevated Rail



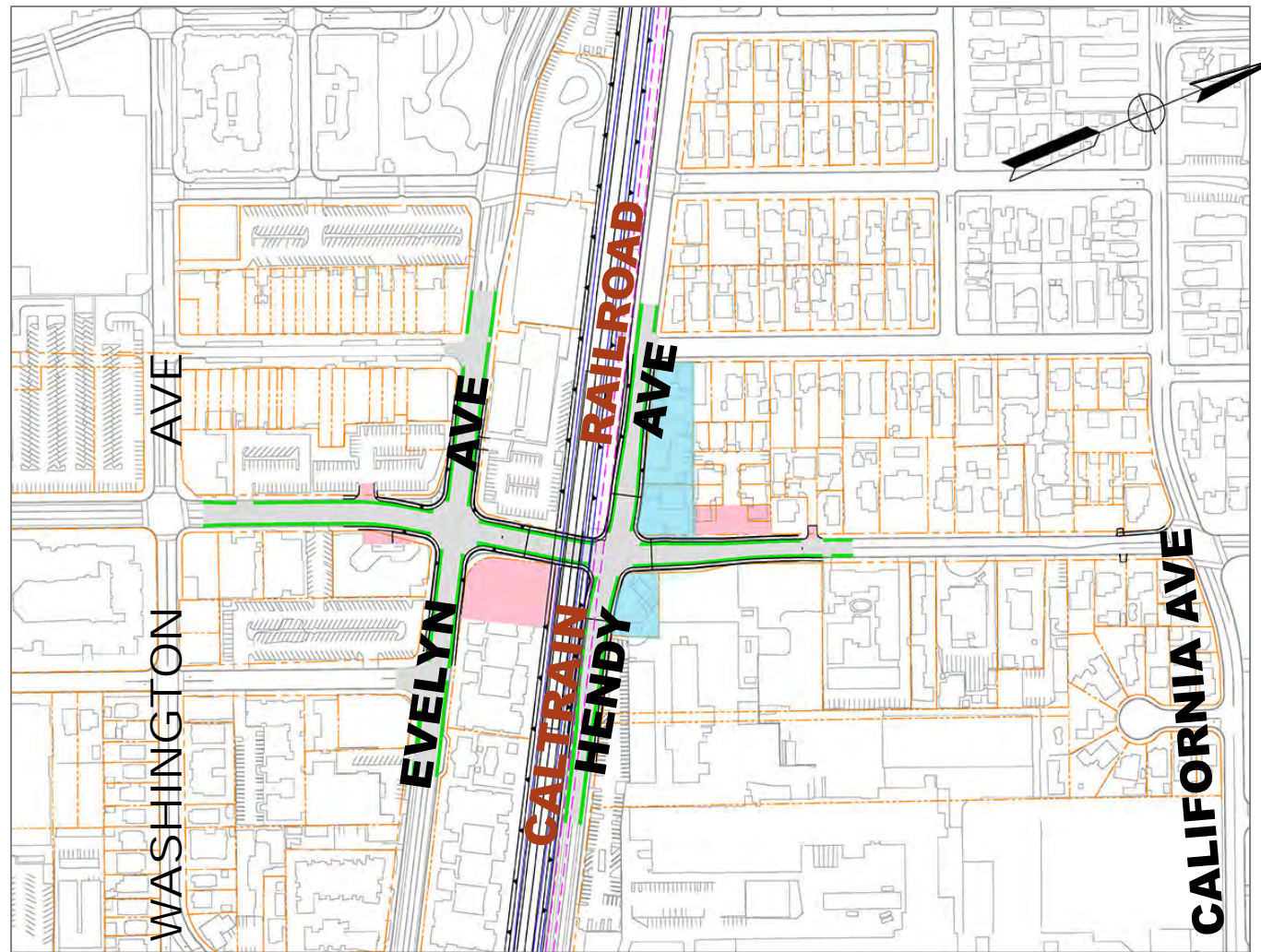
No grade change to Sunnyvale Avenue	No grade change to Evelyn Ave	No grade change to Hendy Ave
✗ Noise and visual impacts along residences	✗ Conflicts with Fair Oaks and Mathilda bridges	✗ Shoofly required
✗ No driveway access along Hendy Ave	\$150M - \$250M	✗ Rail and station disruption

Sunnyvale Avenue Overpass



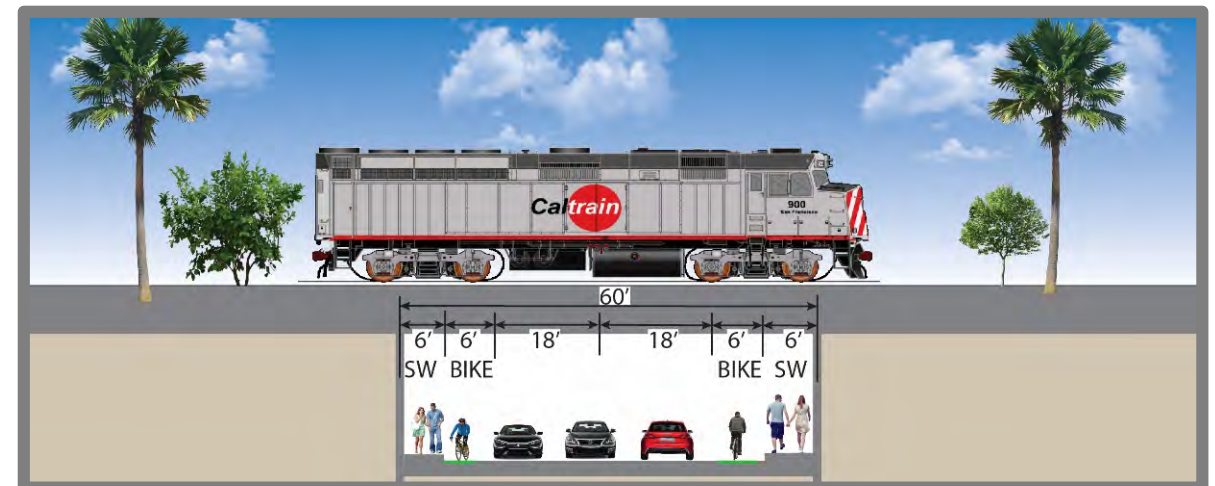
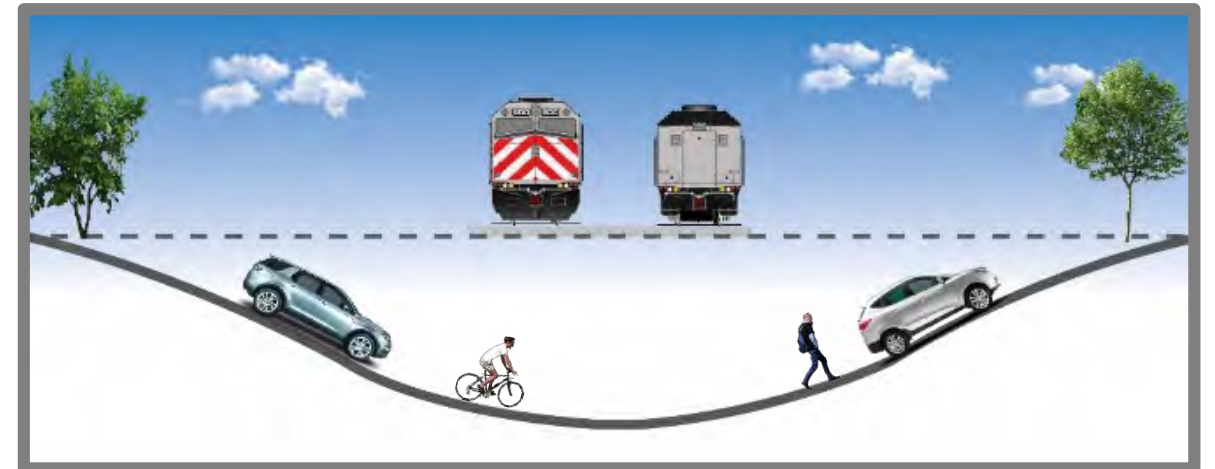
Sunnyvale Ave elevated	Evelyn Ave elevated	Hendy Ave elevated
✗ Potential acquisition of 44+ parcels	✗ Noise and visual impacts along residences	✓ No rail construction required
✗ Modifications to 16+ driveways	\$300M - \$350M	✓ No station reconstruction

Sunnyvale Avenue Split Overpass



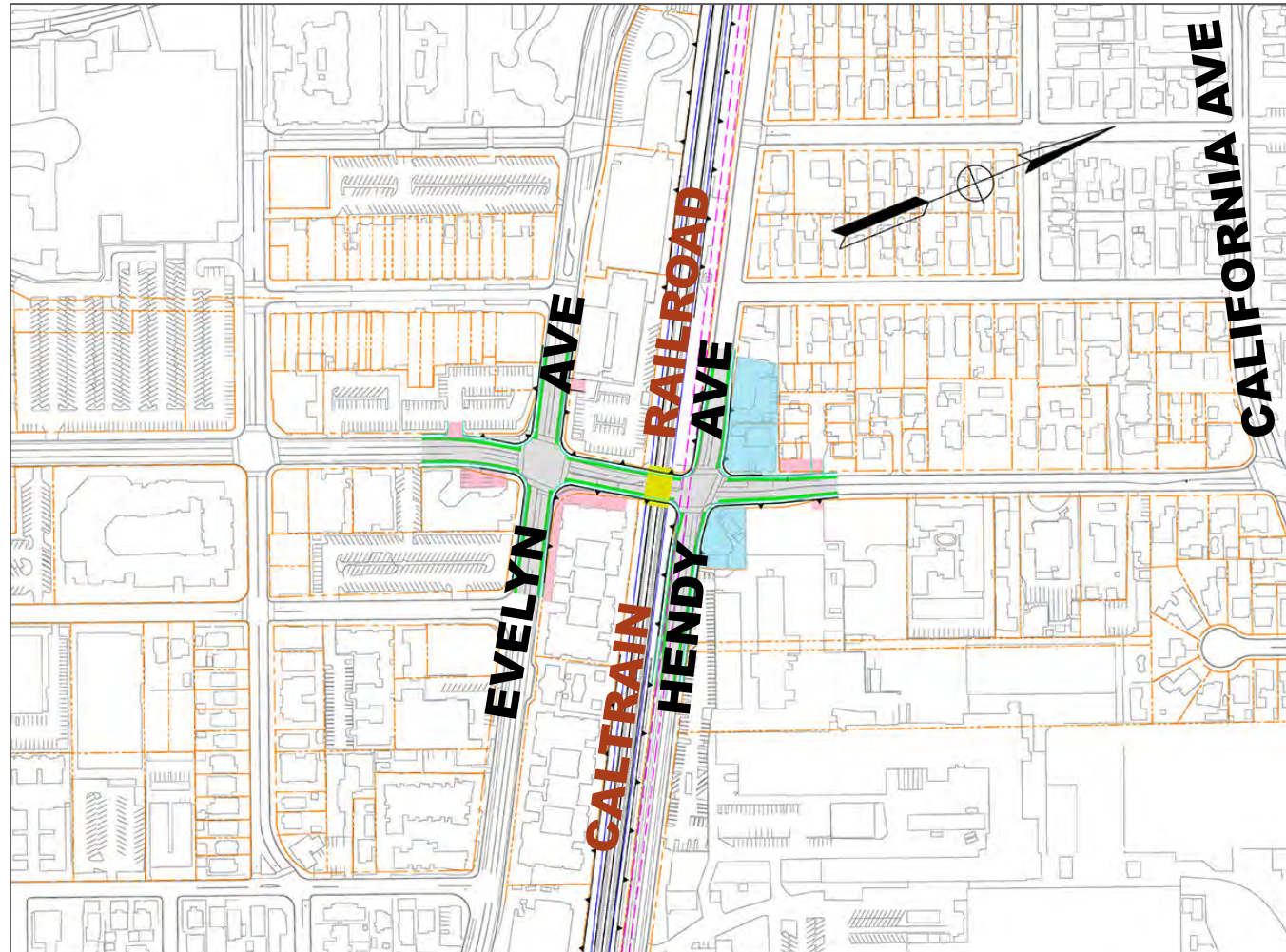
Sunnyvale Ave partially elevated	Evelyn Ave partially elevated	Hendy Ave partially elevated
✗ Potential acquisition of 5+ parcels	✗ Noise and visual impacts along residences	✗ Shoofly and rail and station disruption
✗ Modifications to 4+ driveways	\$350M - \$450M	✗ No driveway access along Hendy Ave

Sunnyvale Avenue Underpass



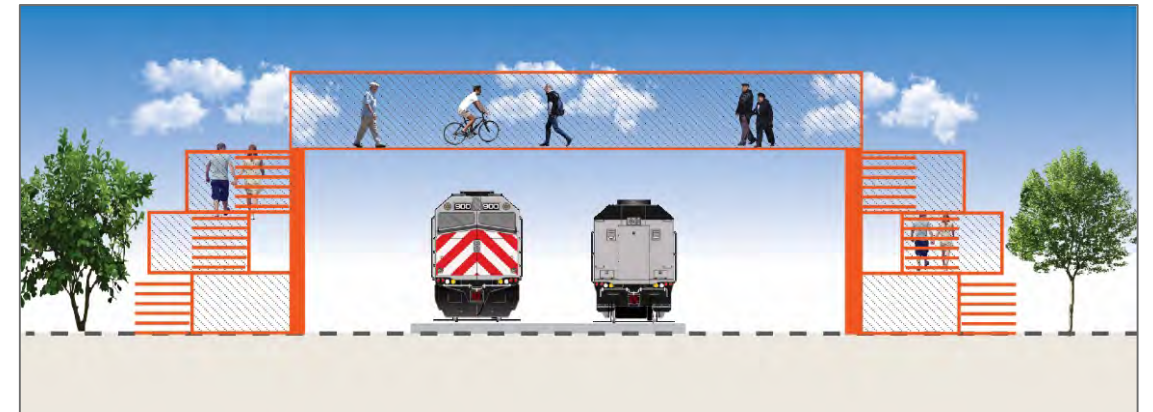
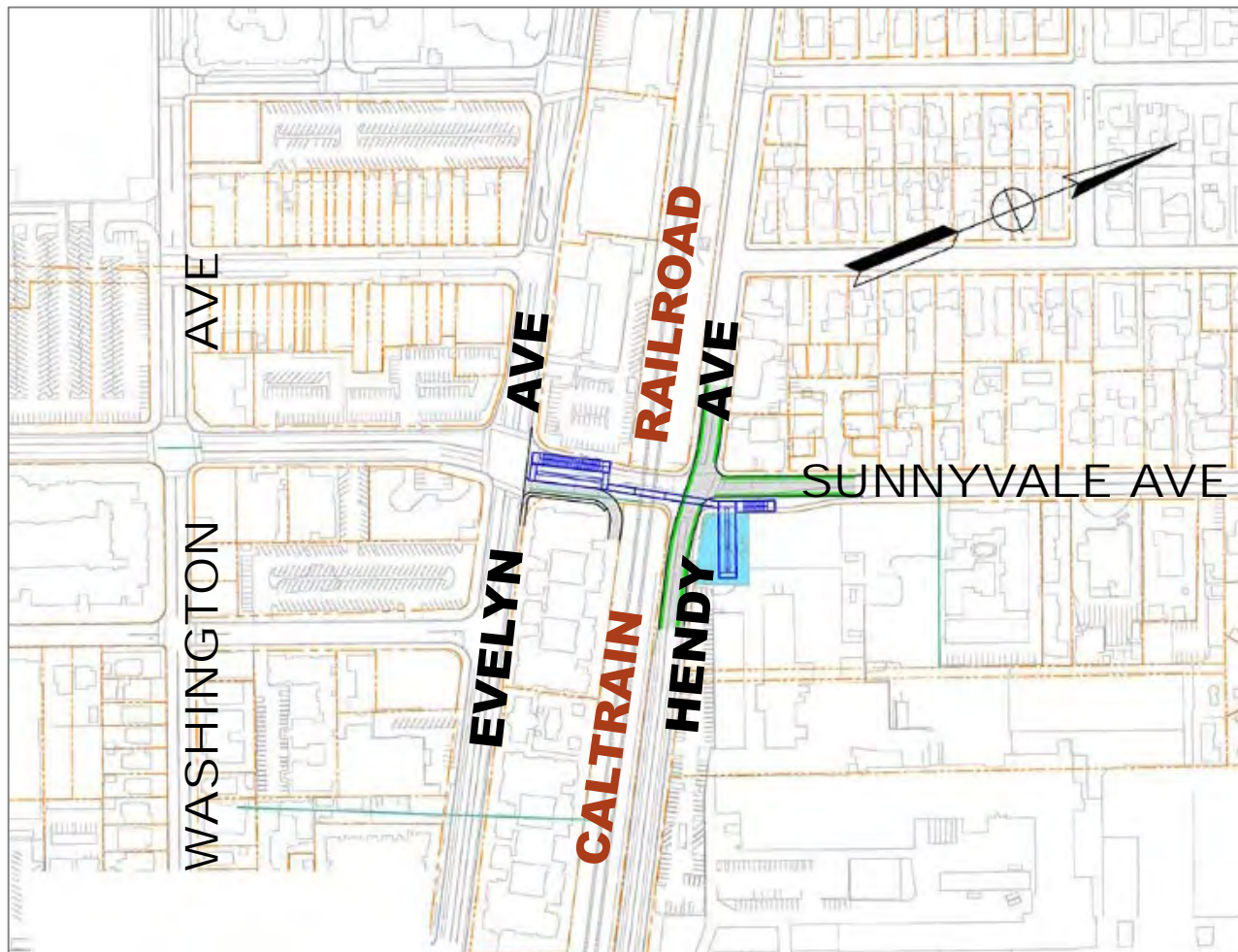
Sunnyvale Ave depressed	Evelyn Ave depressed	Hendy Ave depressed
<div>✗</div> Potential acquisition of 14+ parcels	<div>✓</div> No permanent rail impact	<div>✓</div> No station reconstruction
<div>✗</div> Modifications to 5+ driveways	\$150M - \$200M	

Sunnyvale Avenue Split Underpass



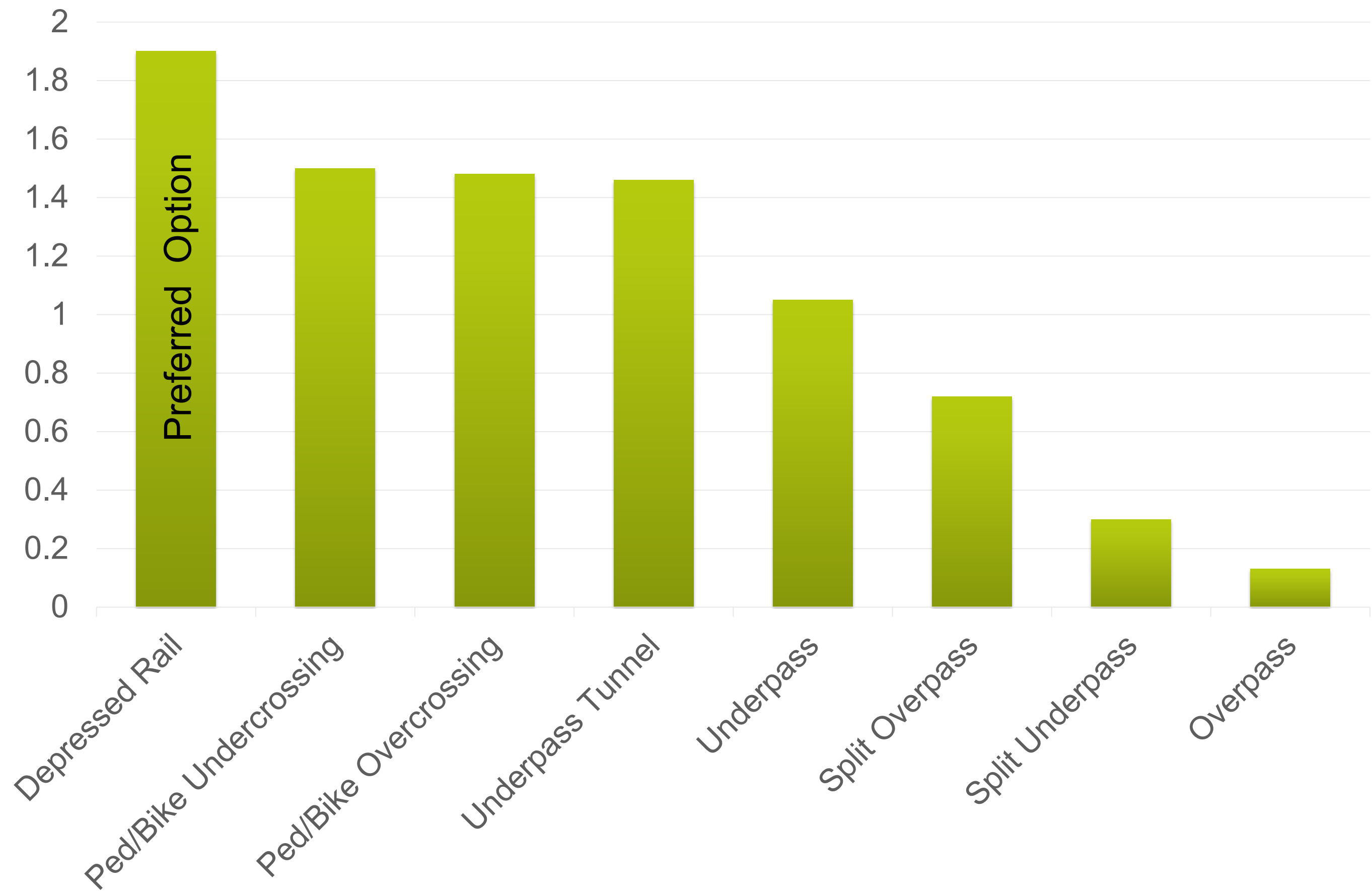
Sunnyvale Ave partially depressed	Evelyn Ave partially depressed	Hendy Ave partially depressed
✗ Potential acquisition of 3+ parcels	✗ Noise and visual impacts along residences	✗ Shoofly and rail and station disruption
✗ Modifications to 5+ driveways	\$200M - \$250M	✗ No driveway access along Hendy Ave

Sunnyvale Avenue Bike/Pedestrian Overcrossing



Sunnyvale Ave at-grade	Evelyn Ave at-grade	Hendy Ave at-grade
✗ Sunnyvale closed at crossing	✗ Visual impacts along residences	✓ No rail construction required
✗ Potential acquisition of 1+ parcel	\$25M - \$35M	✓ No station reconstruction

Sunnyvale Avenue Online Survey



Sunnyvale Avenue Alternatives

✗ Rail Elevated



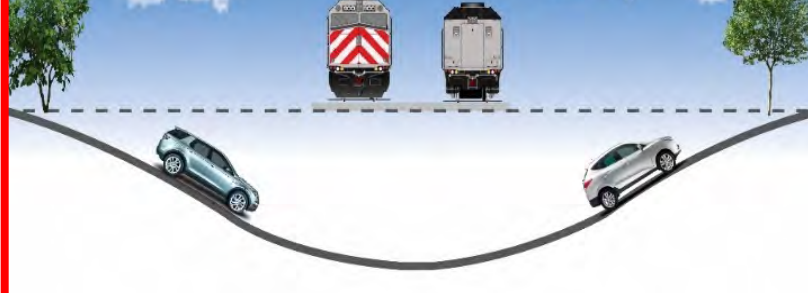
✗ Overpass



Depressed Rail



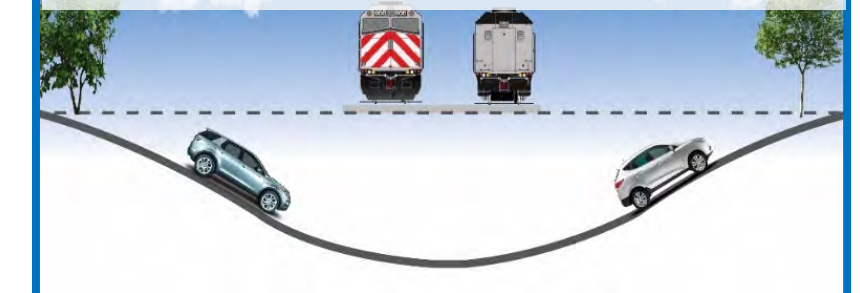
✗ Underpass



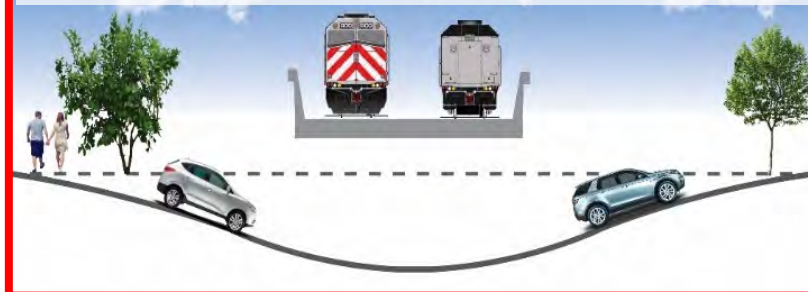
✗ Split Overpass



Underpass Tunnel



✗ Split Underpass



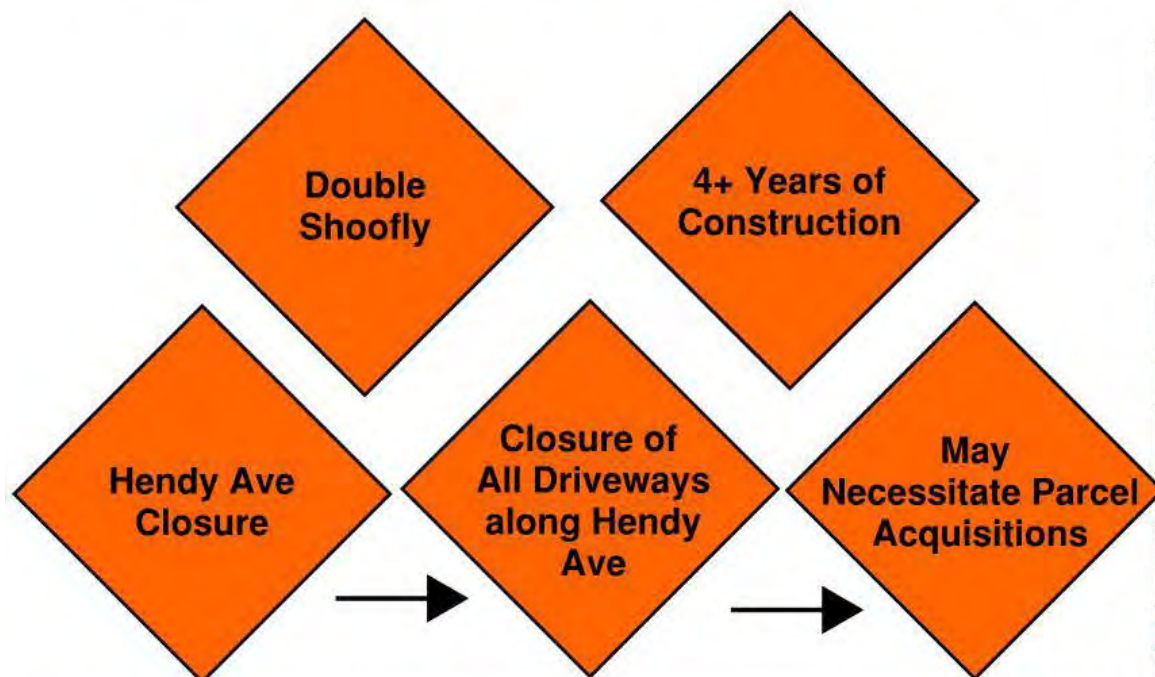
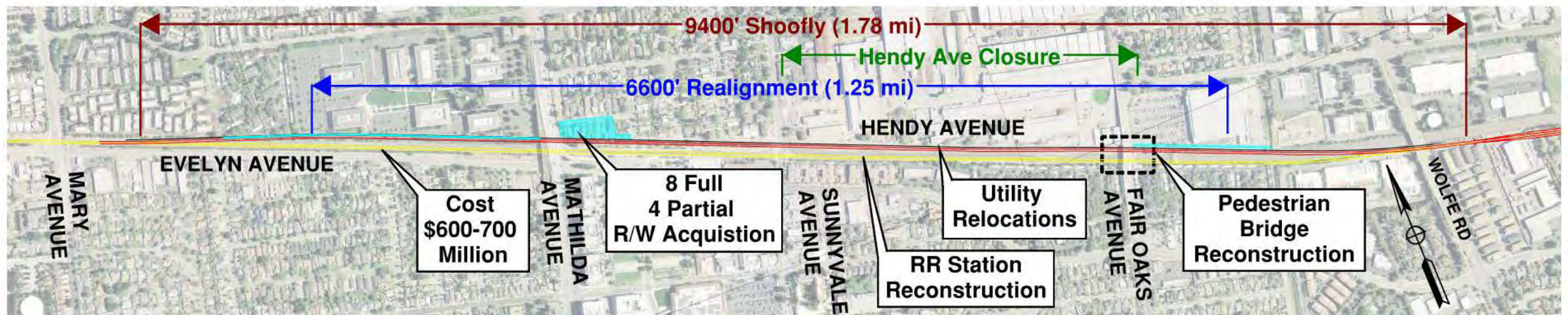
✗ Ped/Bike Overcrossing



Ped/Bike Undercrossing

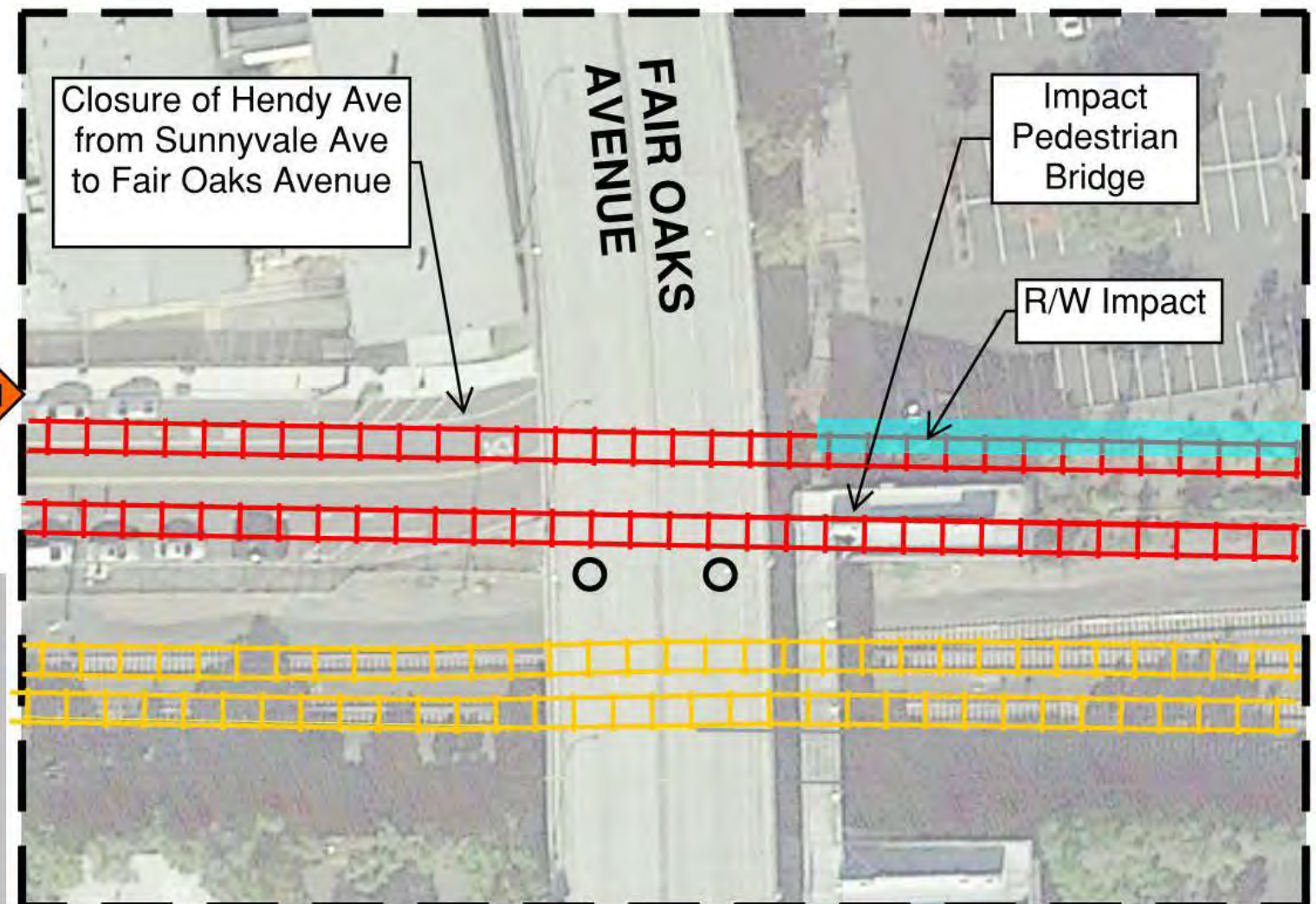


Sunnyvale Avenue Depressed Rail



LEGEND:

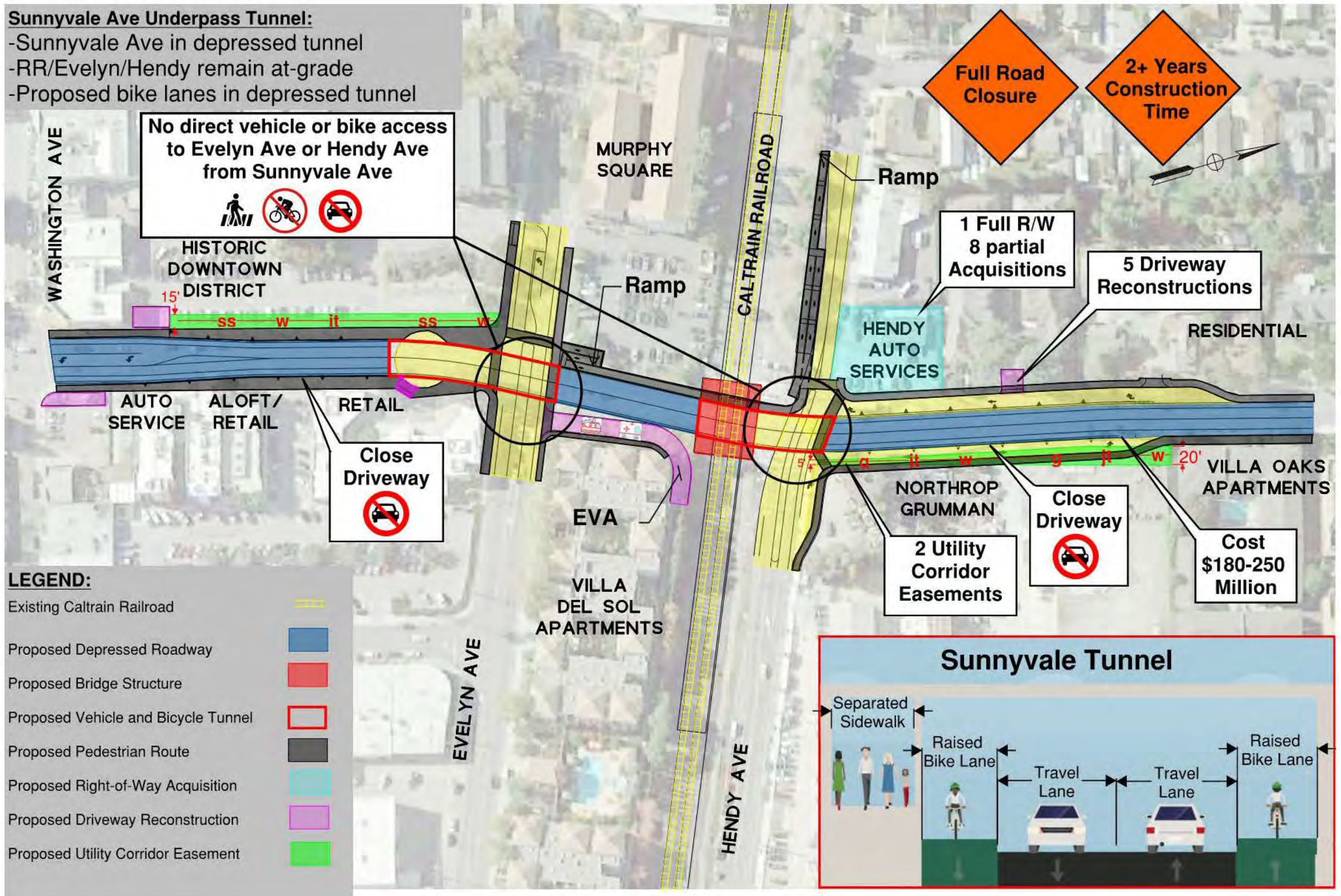
- Proposed Right-of-Way Acquisition ■
- Existing Caltrain Railroad ■
- Proposed Temporary Shoofly ■
- Existing Bridge Columns ○



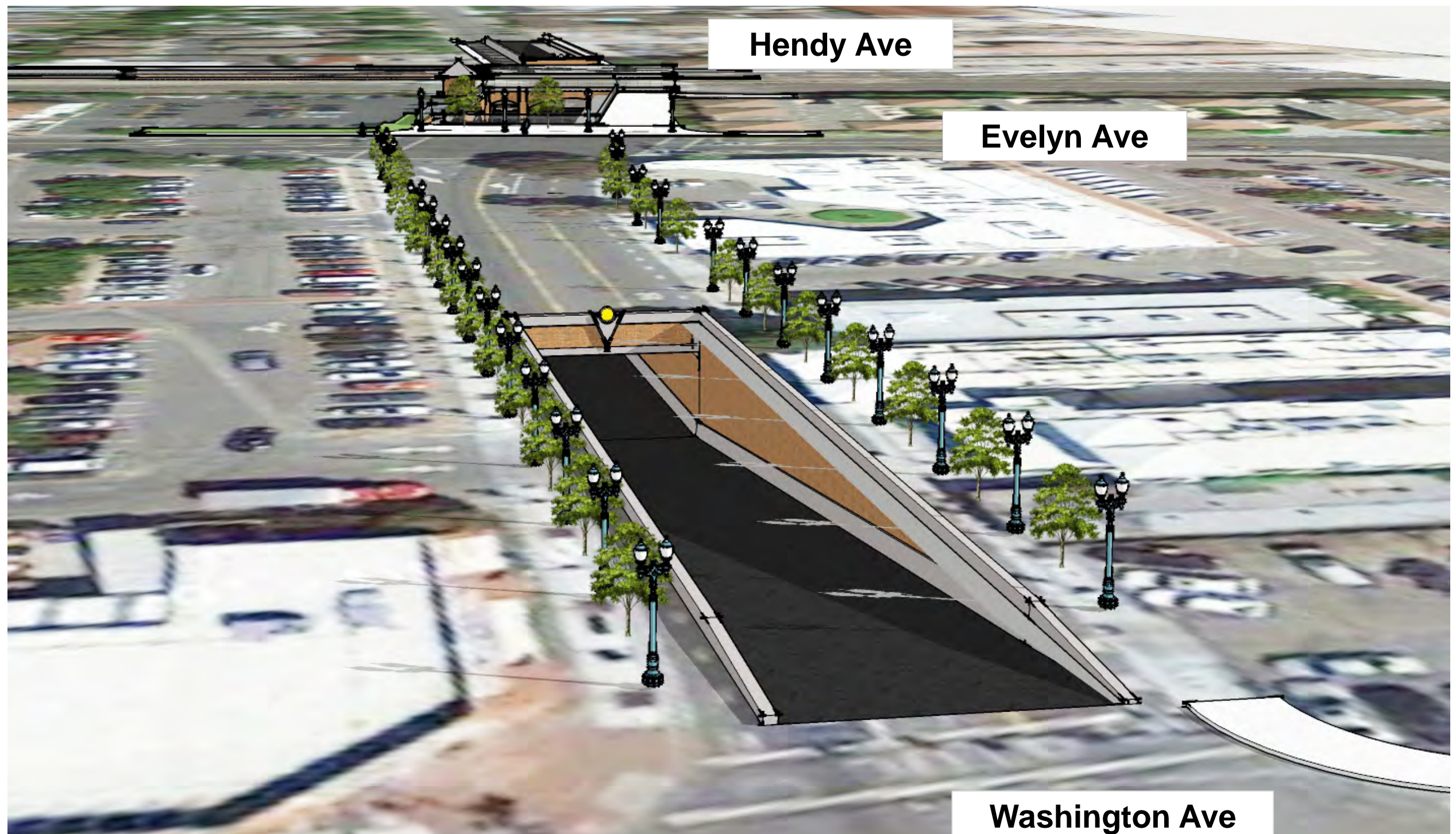
Sunnyvale Avenue Underpass Tunnel

Sunnyvale Ave Underpass Tunnel:

- Sunnyvale Ave in depressed tunnel
- RR/Evelyn/Hendy remain at-grade
- Proposed bike lanes in depressed tunnel



Sunnyvale Avenue Underpass Tunnel



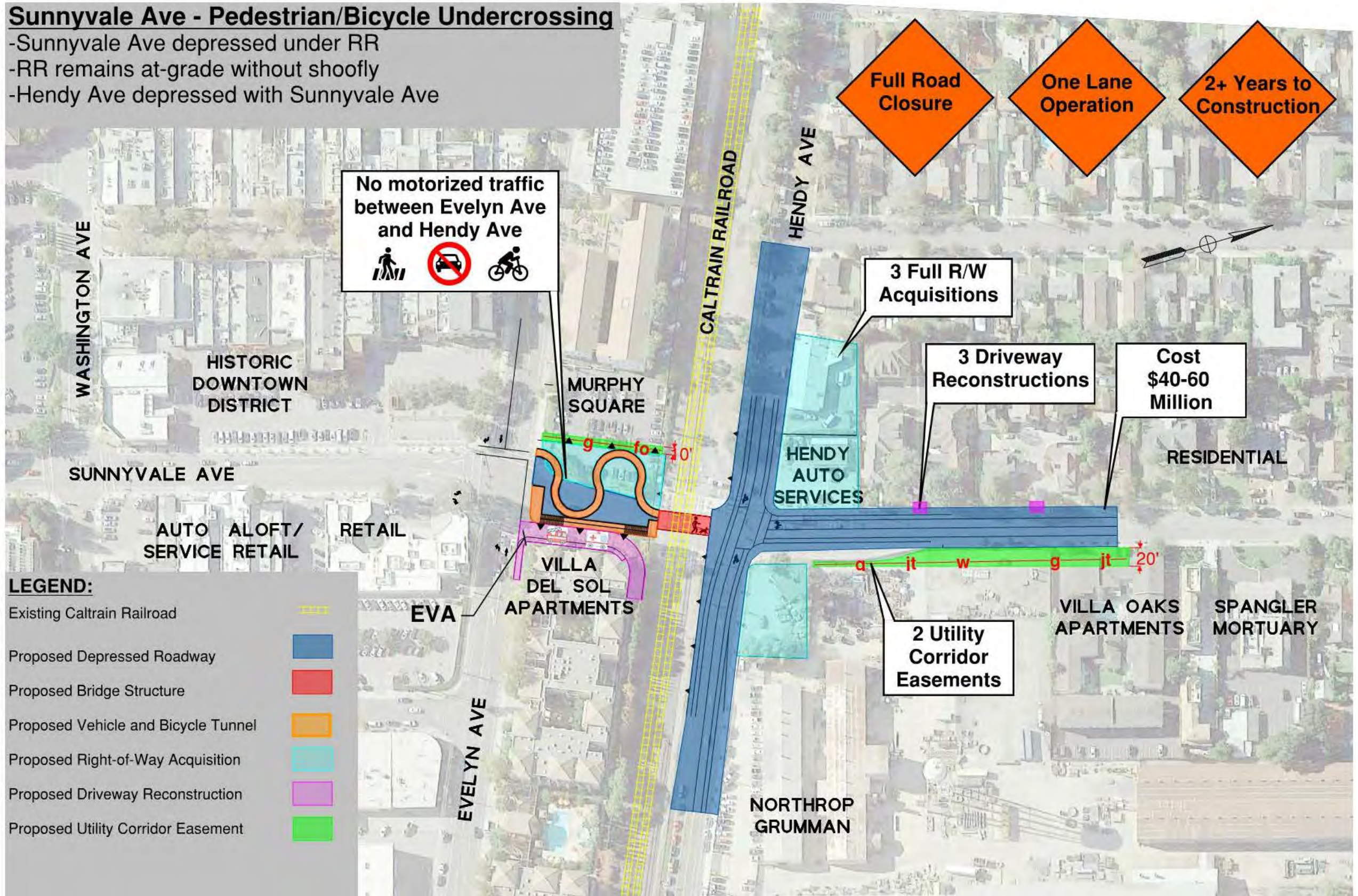
Sunnyvale Avenue Underpass Tunnel



Sunnyvale Avenue Pedestrian/Bicycle Undercrossing

Sunnyvale Ave - Pedestrian/Bicycle Undercrossing

- Sunnyvale Ave depressed under RR
- RR remains at-grade without shoofly
- Hendy Ave depressed with Sunnyvale Ave



Pedestrian/Bicycle Undercrossing



Palo Alto Homer Undercrossing



Santa Clara Ped Undercrossing

Schedule and Process

Feasibility Study

**Environmental
Analysis &
Concept Design**

**Detailed Design &
Property
Acquisition**

**Bid &
Construction**

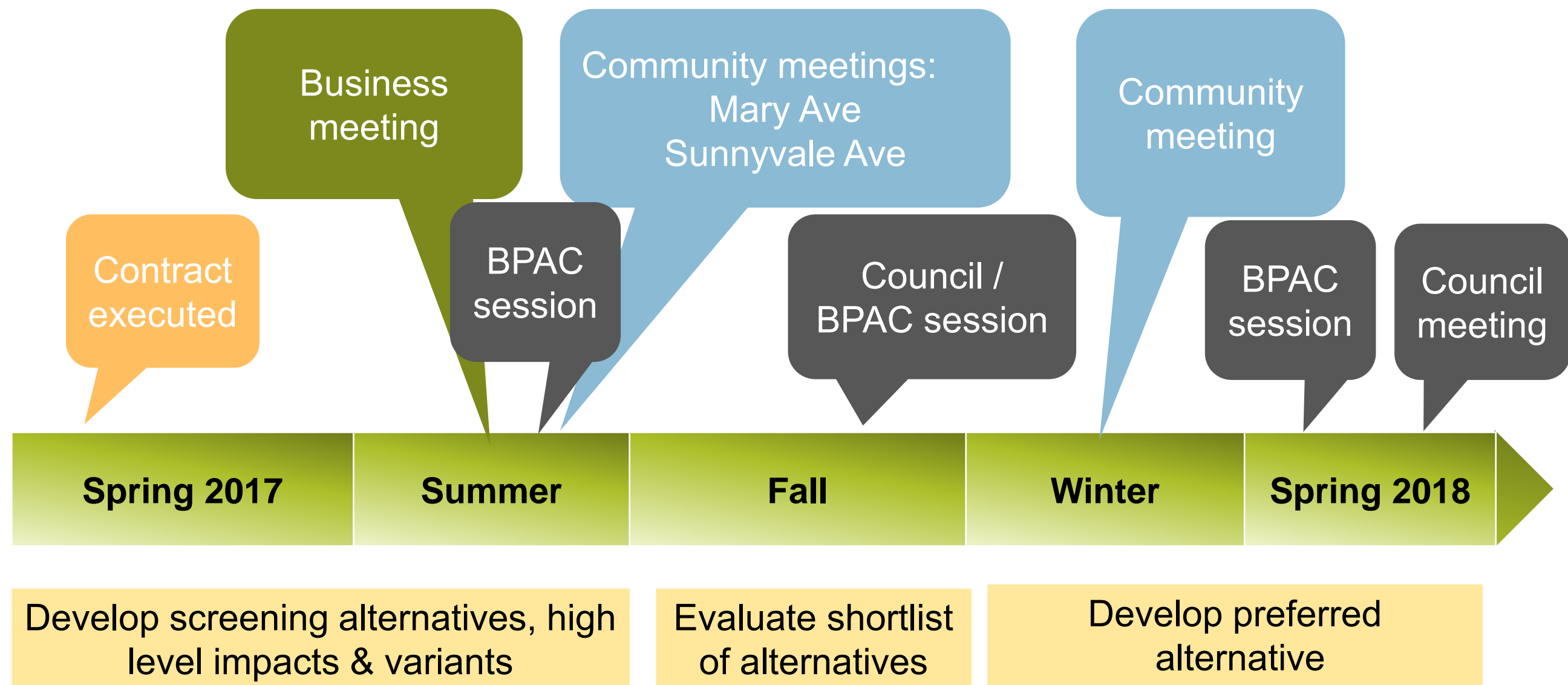
1 year

1 1/2 years

2 years

2-5 years

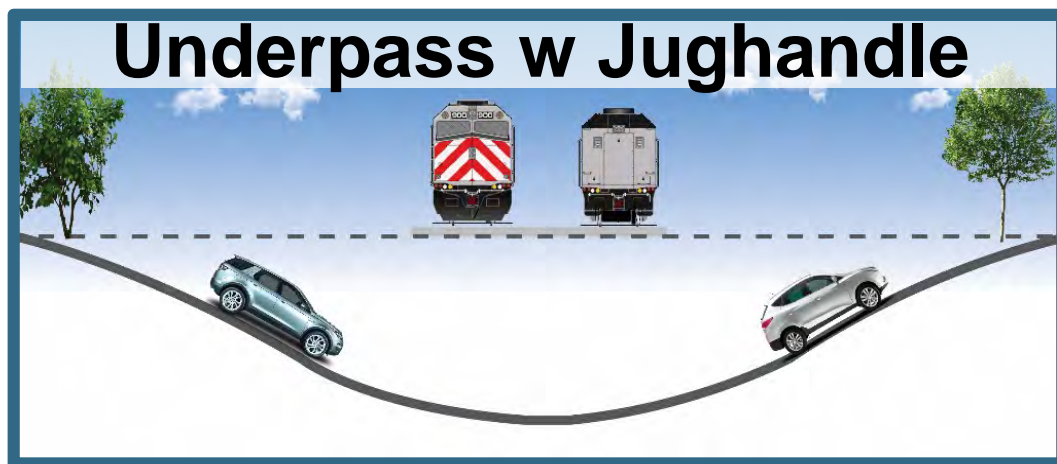
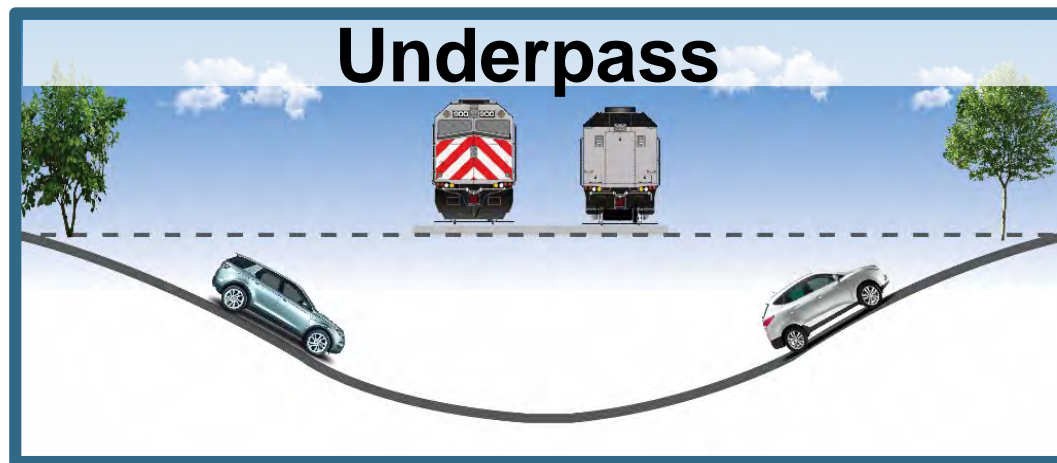
Feasibility Study Process



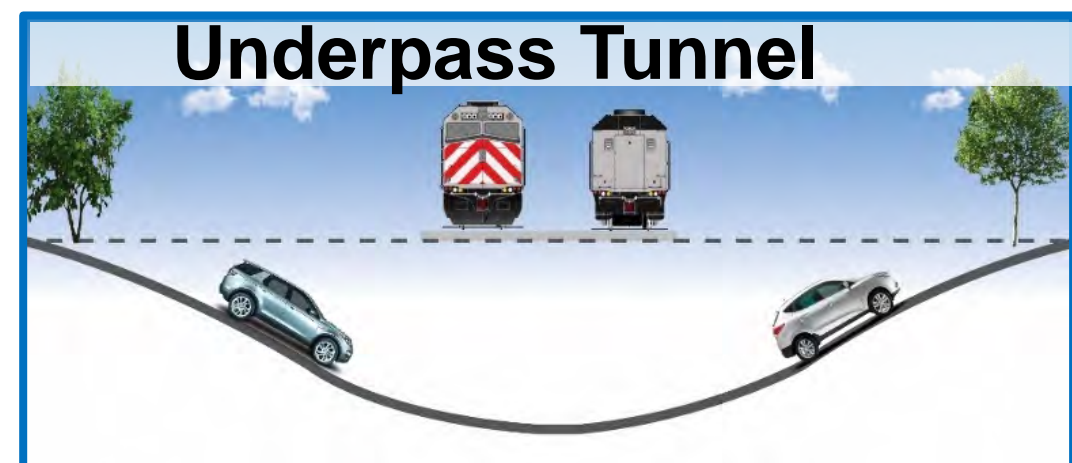
Next Steps

- Move forward with further analysis and refinement:

Mary Avenue



Sunnyvale Avenue



Thank You!



Sunnyvale