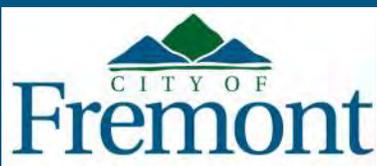




Prepared for:



Prepared by:



2201 Broadway, Suite 400
Oakland, CA 94612

City of Fremont SR 84 Relinquishment Measure BB Scoping Study

June 2016



INTRODUCTION

Caltrans and the City of Fremont are working to relinquish State Route 84 (SR 84), located between Interstate 880 and Mission Boulevard (SR 238), to local control. The purpose is to give Fremont control over the right-of-way and implement multi-modal complete streets enhancements through the heart of Centerville, which serves important Priority Development Area, Safe Routes to School, and Safe Routes to Transit functions. This portion of SR 84 is approximately 3.7 miles in length and is comprised of portions of four roadways: Thornton Avenue, Fremont Boulevard, Peralta Boulevard and Mowry Avenue. The cross sections, built environment, and land uses are varied and bicycle and pedestrian facilities are incomplete. This document serves as scoping study for the corridor, documenting preferred concepts, phasing strategies, and funding sources for using Caltrans, City, and Alameda CTC's Measure BB funding to transform these roadways in Fremont.

Background and Work to Date: Ongoing Investments in Complete Streets

The majority of the roadway segments included in this scope have been part of SR 84 for many years. As part of the memorandum of understanding between Alameda CTC, Caltrans, Union City and Fremont, it was agreed that Caltrans would relinquish these segments of SR 84 to the City of Fremont. Being part of SR 84 under Caltrans' control for many years, these roadways have not been properly maintained and have been developed to old state highway standards focused on vehicle traffic with wide lanes and curb radii. There are large gaps in the sidewalk and bicycle lanes, and an overall lack of improvements for bicycles and pedestrians. Given that the area encompasses an MTC-designated Priority Development Area (PDA) centered around the Centerville commercial district and the ACE/Amtrak Station in addition to numerous schools, it is critical to close these complete streets gaps.

Although the City and Caltrans have reached an agreement whereby Caltrans will provide the funding, using Local Alternative Transportation Improvement Program (LATIP) funds, to bring the roads to a "state of good repair", the State will not provide funding for any other improvements. To realize the City's vision for these streets, many improvements need to be made to convert these streets to Complete Streets that serve all users and provide safe routes to the many schools along these corridors. To do so will require eliminating some traffic lanes, narrowing all other lanes, adding bike lanes with buffers where possible, closing all sidewalk gaps and widening sidewalks in some locations, improving intersections to be more pedestrian and bicycle friendly, adding key pedestrian crossings, and improving lighting and landscaping in key areas like downtown Centerville. Revisions to the existing truck route on SR 84 are proposed to limit truck access through the heart of the Centerville PDA.

KEY CONSIDERATIONS

- Wide variation in cross-section, built environment, and land use requires segmentation
- Opportunities to provide Safe Routes to School and Safe Routes to Transit enhancements on Thornton Avenue, Fremont Boulevard, and Peralta Boulevard
- Interim design opportunities can provide walking and biking access improvements and safety enhancements for all roadway users in the near-term
- Long-term capital improvements require widening in constrained sections, such as portions of Peralta Boulevard and Mowry Avenue



Five Lane Constrained Cross-Section on Fremont Boulevard



Two Lane Constrained Cross Section on Peralta Boulevard



Five Lane Cross Section on Peralta Boulevard

Figure O1 presents the four segments of SR 84 to be relinquished. Note that this study includes Fremont Boulevard between Alder Avenue and Thornton Avenue, and between Peralta Boulevard to Mattos Drive which fall outside of the SR 84 designation. These are within the City's existing right-of-way and are included in this scoping study to ensure continuous complete streets improvements through Centerville.

Thornton Avenue

- Study area extends between Dondero Way and Fremont Boulevard
- Mostly consistent existing cross section
- Mix of commercial and residential uses, including multiple schools

Fremont Boulevard

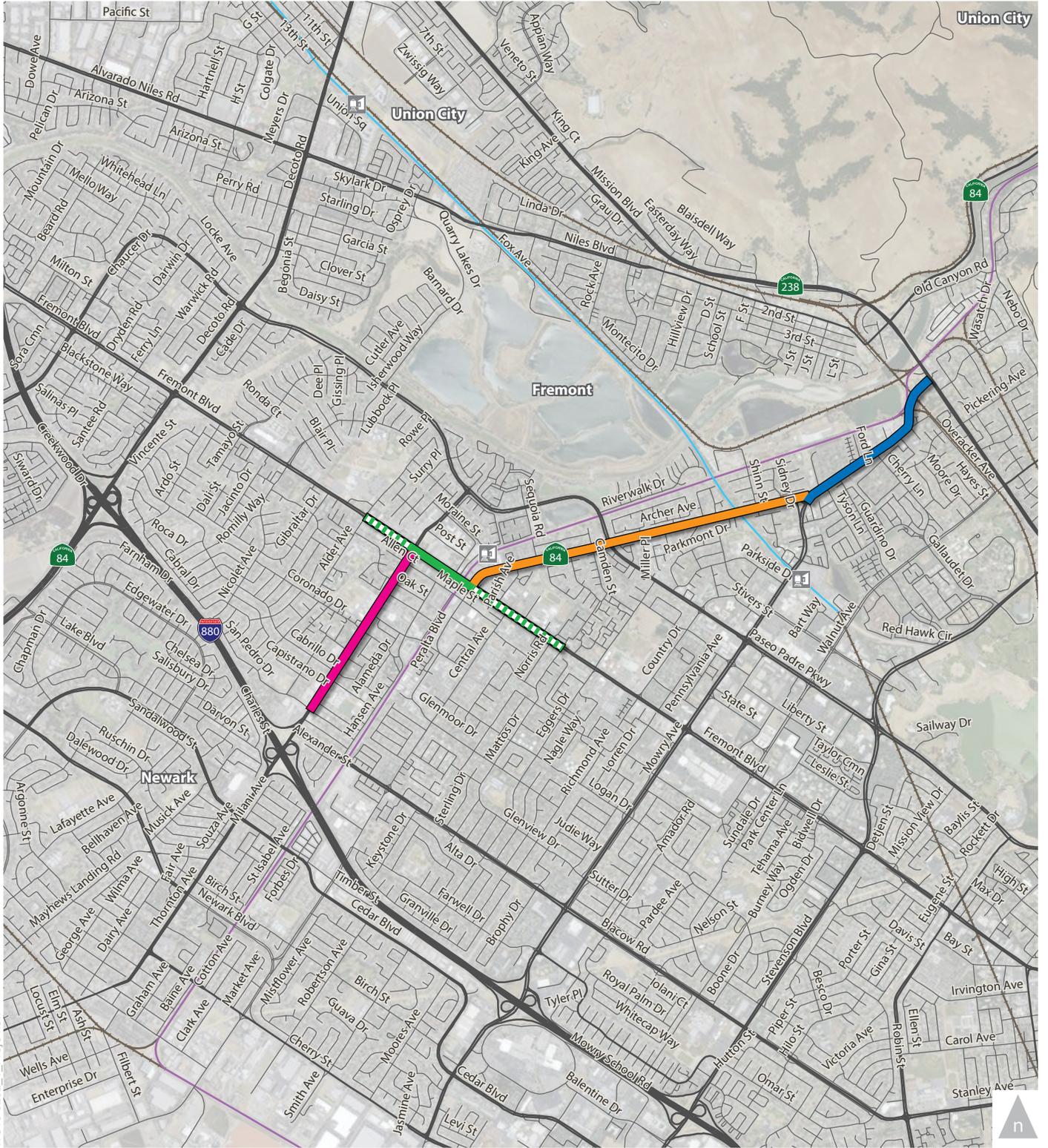
- Study area extends between Alder Road and Mattos Drive, beyond extents of existing SR 84
- Constrained right-of-way between Thornton Avenue and Peralta Boulevard
- Uses include Centerville commercial core, Amtrak/ACE Station, residential, and schools

Peralta Boulevard

- Study area extends between Fremont Boulevard and Mowry Avenue
- Most constrained and inconsistent cross section
- Limited fronting development east of Camden Street
- Frequent sidewalk gaps throughout

Mowry Avenue

- Study area extends between Peralta Boulevard and Mission Boulevard
- Constrained right-of-way due to two railroad undercrossings
- Largely consistent cross section with some sidewalk gaps



SR 84 Study Area Segments (Existing Caltrans Right-of-Way)

- Thornton Avenue
- Fremont Boulevard
- Peralta Boulevard
- Mowry Avenue
- Fremont Boulevard (existing City of right-of-way)



Figure O1
Study Area Segments
SR 84 Relinquishment Study

KEY CORRIDOR CONSIDERATIONS

- Wide roadway cross-section and large curb radii at intersections result in long crossing distances for pedestrians
- Signalized intersections do not consistently provide pedestrian countdown signal heads or median refuges
- High vehicle speeds and on-street parking result in high traffic stress for bicyclists
- Road provides access to schools for pedestrians, bicyclists, and vehicles, including students using transit



Top: Students crossing Thornton Avenue at Fremont Boulevard

Bottom: Typical five-lane cross section of Thornton Avenue

Segment Overview

Thornton Avenue extends between Dondero Way and Fremont Boulevard. This segment has a relatively consistent five-lane cross-section with a raised median, creating a typical curb-to-curb dimension of 90 feet. This roadway acts as an arterial and provides direct access to single and multi-family residential neighborhoods, public and private schools (Thornton Junior High, Oliveira Elementary, and Fremont Christian Schools), local shopping centers, and regional auto access via Interstate 880. Two of those schools front Thornton Avenue directly, making it an important school route for all modes. Changes in the cross-section occur where landscaped medians are present or where on-street parking is allowed. AC Transit operates Routes 251, which provides access to Union City BART and Four Corners Shopping Area, and 275, which serves Fremont BART and the Ohlone College Newark campus.

Existing Conditions

- Posted speed limit is 35 MPH
- ADT is 27,584 (2015)
- Sidewalks range from 4' with 6' landscaping to 10' with sporadic trees
- Wide 8-12' Class II bike lanes are present, which may result in stopping/parking in the bike lanes
- On-street parking exists on approximately 10% of the corridor
- Inconsistent street trees and empty planter strips
- Lane widths are typically 12-14'

Needs and Opportunities

Figure T1 identifies the existing needs and opportunities:

- Utilize existing excess travel lane widths to better provide for walking and biking
- Opportunistically widen sidewalk and plant street trees, especially near schools
- Improve the comfort of bicyclists by addressing high level of traffic stress caused by the high posted speed limit, number of travel lanes, lack of protection for bicyclists
- Enhance signalized pedestrian crossings and improve crosswalk frequency, particularly near schools
- Reduce curb radii at intersections to improve pedestrian visibility and reduce vehicle speeds



SEGMENTATION

With Thornton’s relatively consistent cross-section, the portion from Dondero Way to Fremont Boulevard is considered as one segment (**Figure T2-A**).

The proposed cross-section between Dondero Way and Fremont Boulevard maintains the existing five vehicle lanes with raised median and adds buffered bicycle lanes. In the interim condition, excess roadway width would be given to a striped shoulder. In the long term, that additional space could be converted into bioretention areas and integrated into the existing landscape strip along the roadway edge.

Proposed Phase 0 Improvements

General Improvements

- Bring pavement to state of good repair through Local Alternative Transportation Improvement Program (LATIP) funding
- Reduce travel lanes to 10’ inside and 11’ outside
- Maintain truck route designation
- Convert existing bike lanes to buffered bike lanes
- Maintain on-street parking where currently allowed on south side of Thornton Avenue between 100’ west of Holly Street to Maple Street

Proposed Phase 1 Improvements

General Improvements

- Install bicycle detection at all signals
- Modify all existing signals to include pedestrian countdown heads, accessible pushbuttons, and two directional curb ramps per intersection corner
- Install pedestrian safety improvements near Thornton Junior High School, including:
 - Curb extensions, reduced curb radii, and third crosswalk at Dusterberry Way
 - New crosswalk(s) with pedestrian hybrid beacon(s) (PHB) at Oak Street, Elm Street, and/or Maple Street
- Install curb extensions, reduced curb radii, and straightened crosswalks at Fremont Boulevard

- Stripe green-skip striping through conflict zone at the eastbound right-turn pocket at Fremont Boulevard intersection
- Reduce curb radii and straighten crosswalks at Dondero Way due to excessive width and proximity to Fremont Christian School

Proposed Phase 2 Improvements

General Improvements

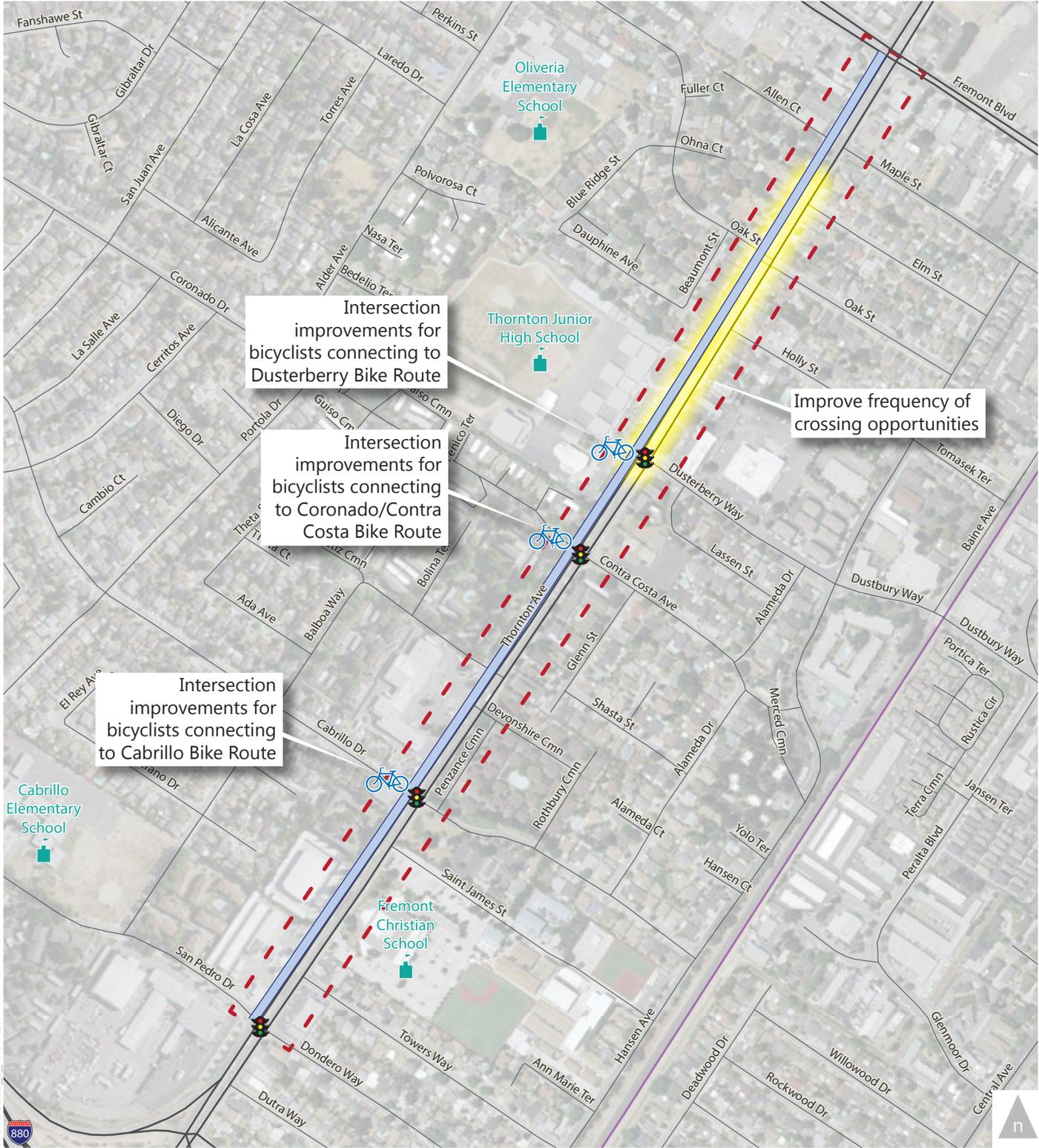
- Widen sidewalk
- Convert striped shoulder to green infrastructure and integrate with existing landscaping

Figures T3-A, 3-B, and 3-C present the full build out of Phase 1 in plan view.

The preliminary cost of the Thornton Avenue **Phase 1** improvements is estimated as follows:

- Preliminary Engineering/Environmental: \$141,000
- Final Design: \$292,000
- Construction: \$2,360,000
- **Total Cost: \$2,793,000**

Specific Thornton Avenue **Phase 2** improvements were not defined as part of this scoping study and therefore, a cost estimate was not developed.



WC16-3292 2 Thornton

LEGEND

 Enhance Existing Bike Lane as Buffered Bike Lane or Separated Bikeway (Both Sides) and Narrow Travel Lanes to Reduce Speeds

 Improve Frequency of Crossing Opportunities

 Potential Signal Improvements

- Reduce Curb Radii
- Stripe All Crosswalks
- Install Pedestrian Countdown Heads

 Study Segment

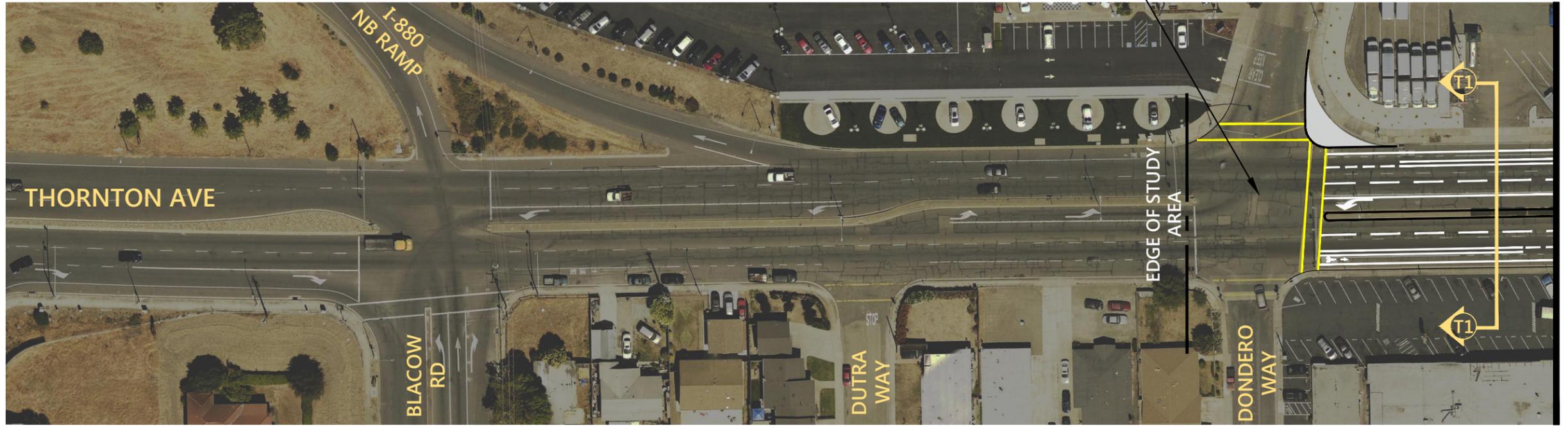


Figure T1

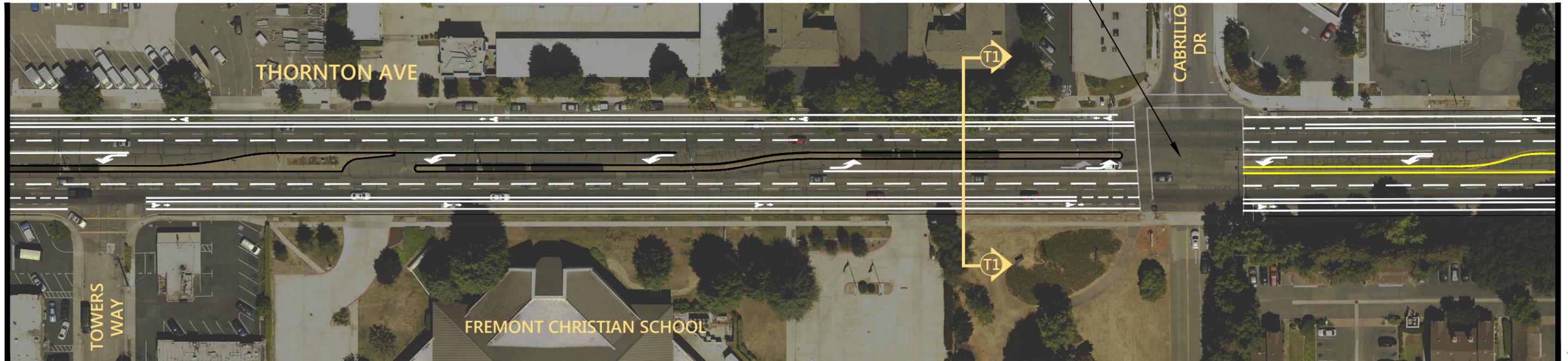
Thornton Avenue Existing Issues and Opportunities

LEGEND:

NEW OR WIDENED SIDEWALK



CONSIDER ADDING THIRD CROSSWALK LEG AND REDUCING CURB RADII



GENERAL NOTES:

1. REFRESH ALL CROSSWALK STRIPING UNLESS OTHERWISE NOTED.
2. MARK CROSSWALKS AT ALL SIDE STREET STOPS AND RELOCATE STOP BAR, LEGEND, AND NEW INTERSECTION EDGE.
3. AT SIGNALS, INSTALL BICYCLE DETECTION, COUNTDOWN SIGNALS, AND ACCESSIBLE PUSHBUTTONS UNLESS ALREADY INSTALLED.
4. INSTALL DIRECTIONAL CURB RAMPS AT ALL INTERSECITON CORNERS.



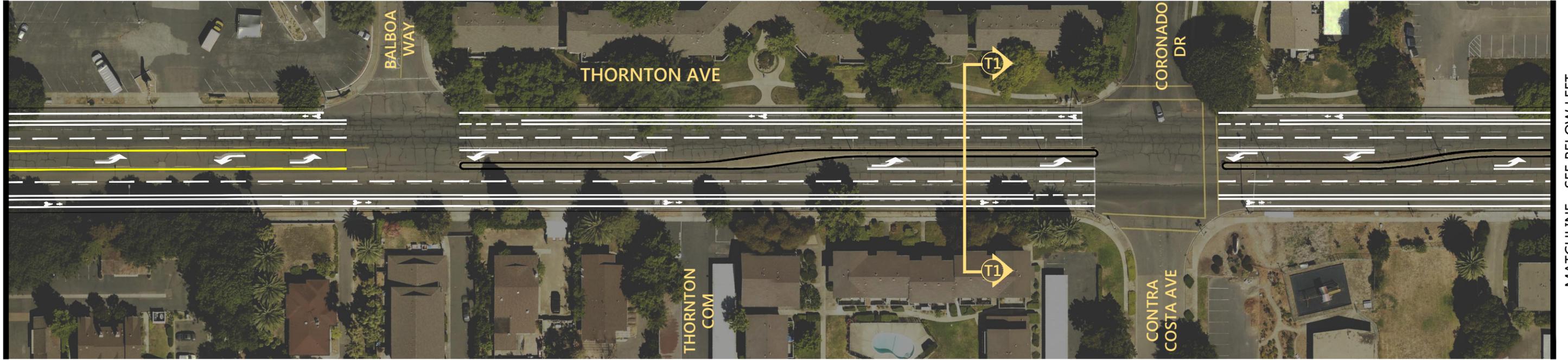
Figure T3-A
Thornton Avenue
Blacow Ave to Cabrillo Dr



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MATCHLINE - SEE FIGURE T3-A



MATCHLINE - SEE BELOW LEFT

MATCHLINE - SEE ABOVE RIGHT



MATCHLINE - SEE FIGURE T3-C

STRIPE ALL CROSSWALKS AND REDUCE INTERSECTION SIZE TO SUPPORT CHILDREN WALKING TO SCHOOL

CONSIDER INSTALLING ENHANCED CROSSWALK WITH PEDESTRIAN HYBRID BEACON OR FULL TRAFFIC SIGNAL

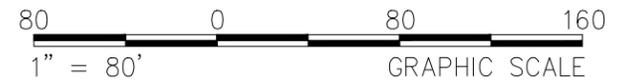
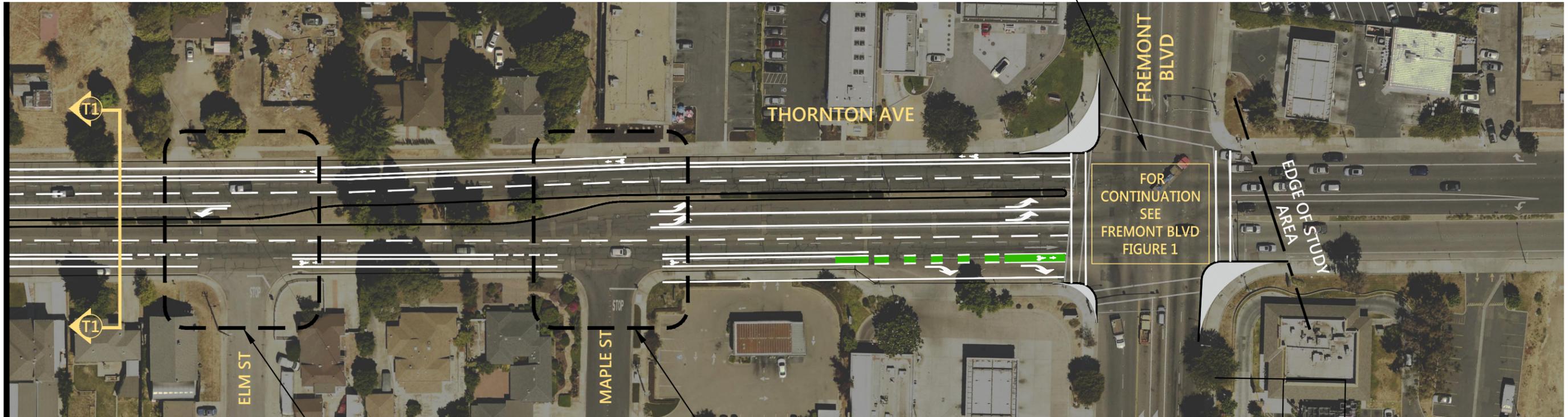


Figure T3-B
Thornton Avenue
Cabrillo Terrace to Oak St

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MATCHLINE - SEE FIGURE T3-B



CONSIDER INSTALLING ENHANCED CROSSWALK WITH PEDESTRIAN HYBRID BEACON OR FULL TRAFFIC SIGNAL

CONSIDER INSTALLING ENHANCED CROSSWALK WITH PEDESTRIAN HYBRID BEACON OR FULL TRAFFIC SIGNAL

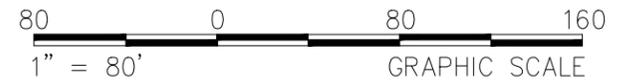


Figure T3-C
Thornton Avenue
Oak St to Fremont Blvd

KEY CORRIDOR CONSIDERATIONS

- Commercial uses of Centerville create high pedestrian demand throughout corridor
- Vehicles must wait at the at-grade rail crossing of Fremont Blvd when trains are stopped at the Fremont/Centerville station
- The multi-lane cross-section, vehicle volumes, posted speed limit, and long distance between signalized crosswalks create barriers for pedestrians
- Discontinuous bicycle lanes result in high traffic stress for bicyclists



Top: Typical five-lane cross-section of Fremont Boulevard at Thornton Avenue

Bottom: Fremont Boulevard at Norris Road with recently-striped buffered bike lanes

Segment Overview

The study area of Fremont Boulevard extends between Alder Avenue and Mattos Drive. This segment has a cross-section with curb-to-curb dimensions varying between approximately 60 and 100 feet. This roadway serves as an arterial and provides direct access to local shopping centers, the Centerville train station, single and multi-family residential neighborhoods, and multiple schools (American and Washington High Schools, Centerville Junior High School). On-street parking, right-of-way, bikeways, and median vary throughout the corridor. Amtrak and ACE trains stop at Fremont/Centerville station, and AC Transit operates Routes 99, 210, 216, 801, and U.

Existing Conditions

- Long block lengths of up to 1000', with 600 or more feet between signalized crosswalks
- 21,309 ADT (2010)
- Posted speed limit is 40 MPH north of Thornton, 30 MPH south of Thornton, and 35 MPH south of Central Avenue
- Five-lane cross section with 11' left turn lanes/median and two travel lanes in each direction, typically ranging from 11' to 14'
- Sidewalks range from 4' with 6' landscape strips to 10'
- Buffered Class II bike lanes are present south of Peralta Boulevard, with a 4' buffer and 7-9' bike lane
- 6' standard Class II bike lanes are present between Alder Avenue and ~ 300' north of Thornton Avenue
- On-street parking exists for approximately 30% of the corridor
- Existing thematic pedestrian lights in portions

Needs and Opportunities

Figure F1 identifies the existing needs and opportunities:

- Focus on pedestrian-friendly access and safety enhancements, including improving crosswalk frequency, enhancing crosswalks, and reducing crossing distances
- Improve bike facilities and close gaps to reduce level of traffic stress caused by high vehicle speeds, number of travel lanes, lack of protection for bicyclists
- Narrow lane widths, using excess to provide continuous dedicated bicycle facilities
- Opportunities for parklets through Centerville
- Enhance connections to Amtrak/ACE Train Station and bus stops
- Reroute trucks to allow narrowed lanes and reduce stress on bicyclists

SEGMENTATION

Fremont Boulevard is divided into the following segments:

- Alder Avenue to Thornton Avenue (**Figure F2-A**)
- Thornton Avenue to Peralta Boulevard (**Figure F2-B**)
- Peralta Boulevard to Mattos Drive (**Figure F2-C**)

The Fremont Boulevard proposed cross-section between Alder Avenue and Thornton Avenue and Peralta Boulevard to Mattos Drive would maintain the existing five-lane cross-section with raised median, add buffered bicycle lanes and, where feasible, widen sidewalk. Existing on-street parking between Peralta Boulevard and Mattos Drive would remain. Maintaining this cross-section between Peralta Boulevard and Parish Avenue, requires removing the existing trees and landscape on the west side of the street.

The existing third northbound travel lane that is added between Alder Avenue and Thornton Avenue is proposed to be repurposed as a bioretention area. Landscaping and bioretention would be added where feasible. In the interim condition, excess roadway width would become a striped shoulder. In the long term, that additional space would be converted into widened sidewalk and bioretention/landscaping areas.

Proposed Phase 0 Improvements

General Improvements

- Bring pavement to state of good repair using LATIP funds

Proposed Phase 1 Improvements

General Improvements

- Reduce travel lanes to 10'
- Stripe buffered bike lanes
- Remove truck route designation
- Convert existing bike lanes into buffered bike lanes with 3' buffer and 6' bicycle lane
- Modify all existing signals to include pedestrian countdown heads, accessible pushbuttons, and two directional curb ramps per intersection corner
- Install bicycle detection at all signals

Alder Avenue to Thornton Avenue, Peralta Boulevard to Mattos Drive

- Reduce travel lanes to 10'
- Stripe buffered bike lanes

Thornton Avenue to Peralta Boulevard

- Install pedestrian safety improvements near the Centerville commercial district, Fremont/Centerville ACE and Amtrak Station, Holy Spirit School, and Centerville Junior High School:
 - Install curb extensions, reduced curb radii, and straightened crosswalks at Thornton Ave
 - New enhanced uncontrolled mid-block crosswalk north of Parish Ave through Centerville area
 - New enhanced uncontrolled crosswalks with RRFBs and advanced yield markings at Bonde Way
 - At the railroad crossing, replace existing single vehicle gate arm with dual vehicle-pedestrian gate arm system, add two additional pedestrian gates, install truncated domes, and bring pedestrian path of travel to ADA compliance
 - Install curb extensions, reduce curb radii, and modify signal to split phase between northbound and southbound to protect pedestrians at Peralta
 - Enhance existing uncontrolled crosswalk and add new enhanced crosswalk with RRFBs and advanced yield markings at Parish Avenue
 - Enhance existing uncontrolled crosswalk with RRFBs and advanced yield markings at Norris Road
- Stripe green-skip striping in bicycle-auto conflict zone at the southbound right-turn lane at Thornton Ave
- Add on-street parking between Thornton Ave and Bonde Way per the Artist Walk development proposal and the Centerville Plan.

Proposed Phase 2 Improvements

Alder Avenue to Thornton Avenue

- Convert third northbound travel lane between Alder Ave and Thornton Ave to bioretention area
- Widen sidewalk
- Install bioretention/landscaping

Thornton Avenue to Peralta Boulevard

- Install street furnishings

Peralta Boulevard to Mattos Drive

- Widen sidewalk
- Install bioretention/landscaping where feasible and where parking is currently prohibited

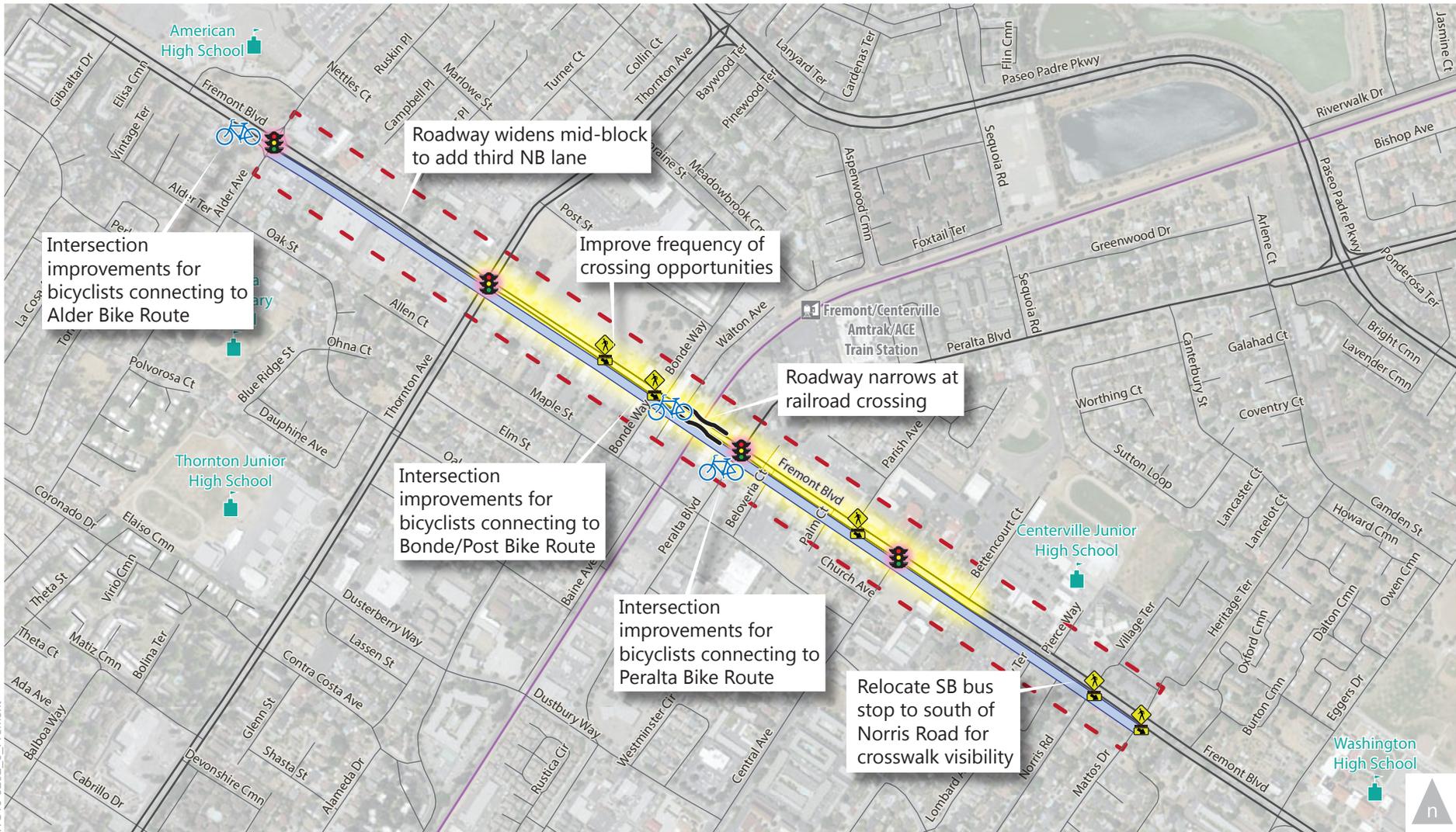
Figures F3-A, 3-B, and 3-C present the full build out of Phases 1 and 2 in plan view. **Figure F4** presents an illustrative plan view of Fremont Boulevard in Centerville.

The preliminary cost of the Fremont Boulevard **Phase 1** improvements is estimated as follows:

- Preliminary Engineering/Environmental: \$259,000
- Final Design: \$535,000
- Construction: \$4,381,000
- **Total Cost: \$5,175,000**

The preliminary cost of the Fremont Boulevard **Phase 2** improvements is estimated as follows:

- Preliminary Engineering/Environmental: \$211,000
- Final Design: \$436,000
- Right-of-way: \$1,253,000
- Construction: \$3,578,000
- **Total Cost: \$5,479,000**



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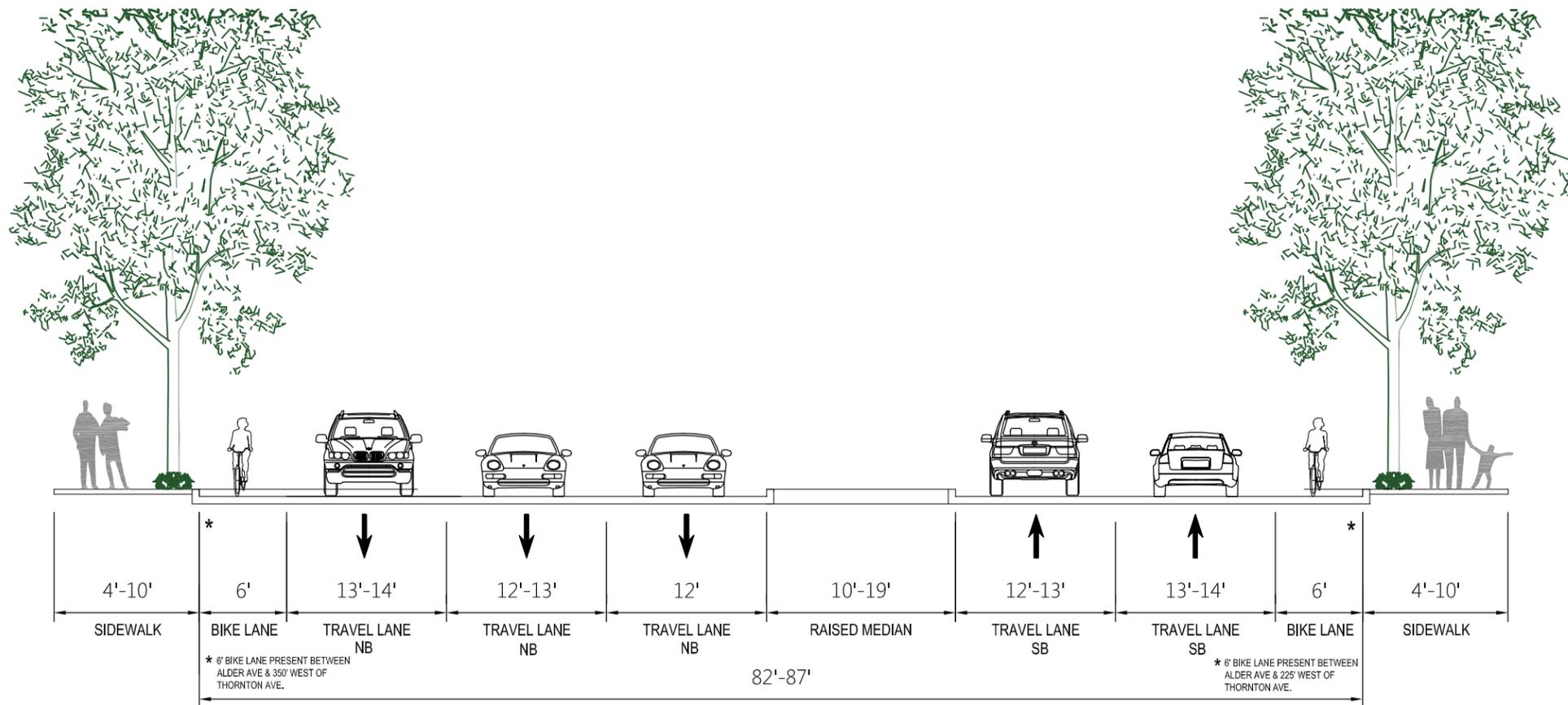
LEGEND

- Enhance Existing Bike Lane as Buffered Bike Lane or Separated Bikeway (Both Sides) and Narrow Travel Lanes to Reduce Speeds
- Study Segment
- Improve Frequency of Crossing Opportunities and Quality of Streetscape (Trees, Wide Sidewalk, Street Furnishings) per Centerville Framework Plan
- Enhance Existing Uncontrolled Crosswalk with RRFB or PHB
- Potential Signal Improvements
 - Reduce Curb Radii
 - Stripe All Crosswalks
 - Install Pedestrian Countdown Heads
- Pinch Point

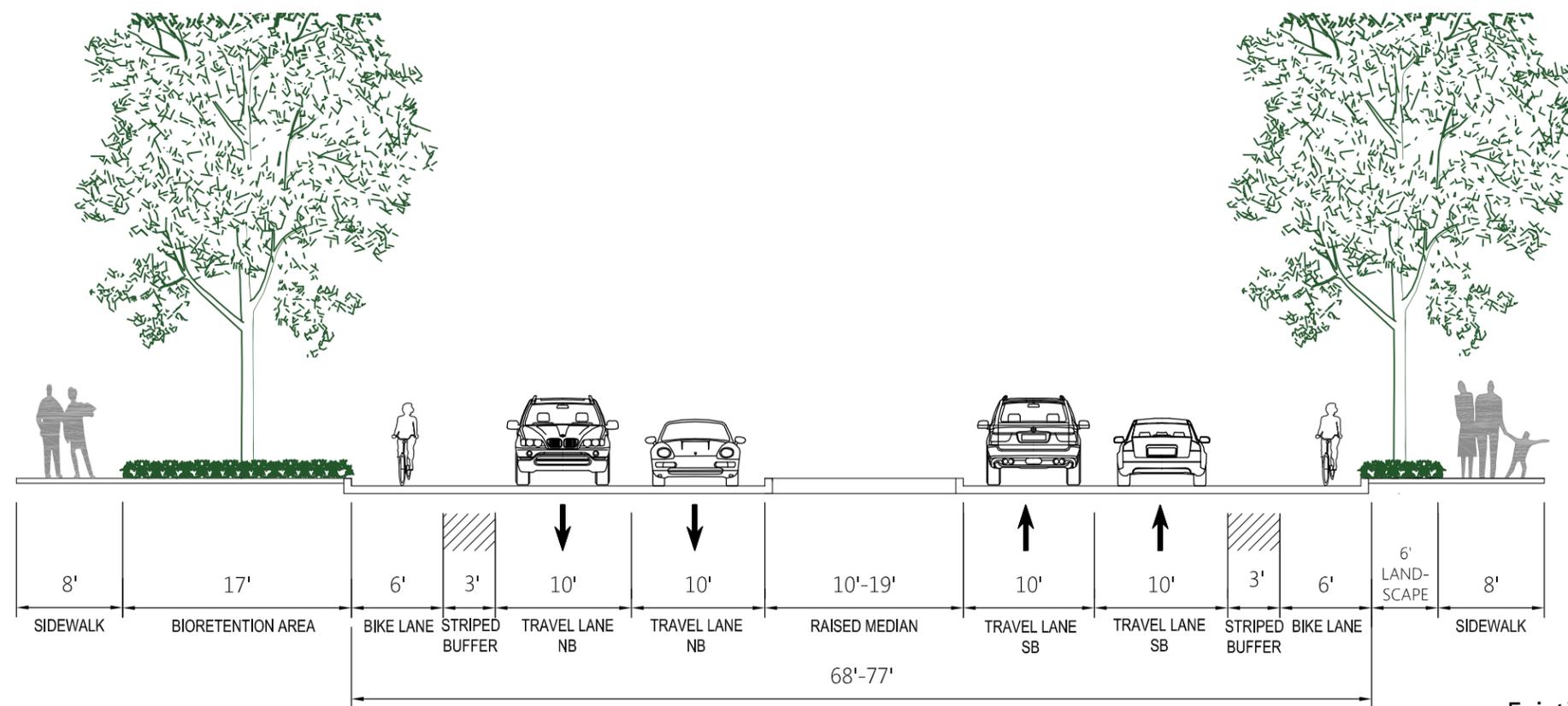


Figure F1

Fremont Boulevard Existing Issues and Opportunities



EXISTING FREMONT BOULEVARD TYPICAL CROSS SECTION
ALDER AVENUE TO THORNTON AVENUE



PROPOSED FREMONT BOULEVARD TYPICAL CROSS SECTION (F2-A)
ALDER AVENUE TO THORNTON AVENUE

Figure F2-A
Fremont Boulevard
Alder Avenue to Thornton Avenue
Existing & Proposed Street Cross Sections

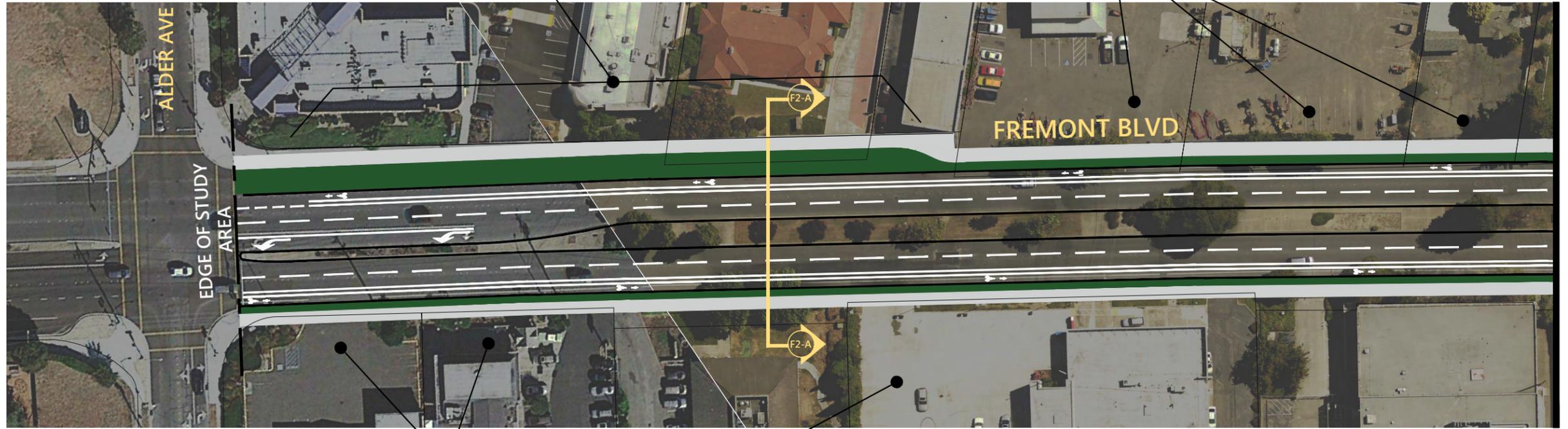


LEGEND:

- NEW OR WIDENED LANDSCAPING DESIGN AS GREEN INFRASTRUCTURE/BIORETENSION WHEREVER FEASIBLE. (PHASE II)
- NEW OR WIDENED SIDEWALK (PHASE II)
- RRFB = RETANGULAR RAPID FLASHING BEACON

REMOVE THIRD NORTHBOUND TRAVEL LABEL AND REPURPOSE AS BIORETENSION/LANDSCAPING AREA

RIGHT-OF-WAY REQUIRED



MATCHLINE - SEE BELOW LEFT

REDUCE CURB RADII TO REDUCE CROSSING DISTANCES AND DECREASE TURNING VEHICLES SPEEDS FOR SAFE ROUTES TO SCHOOL AND TRANSIT. STRAIGHTEN CROSSWALKS

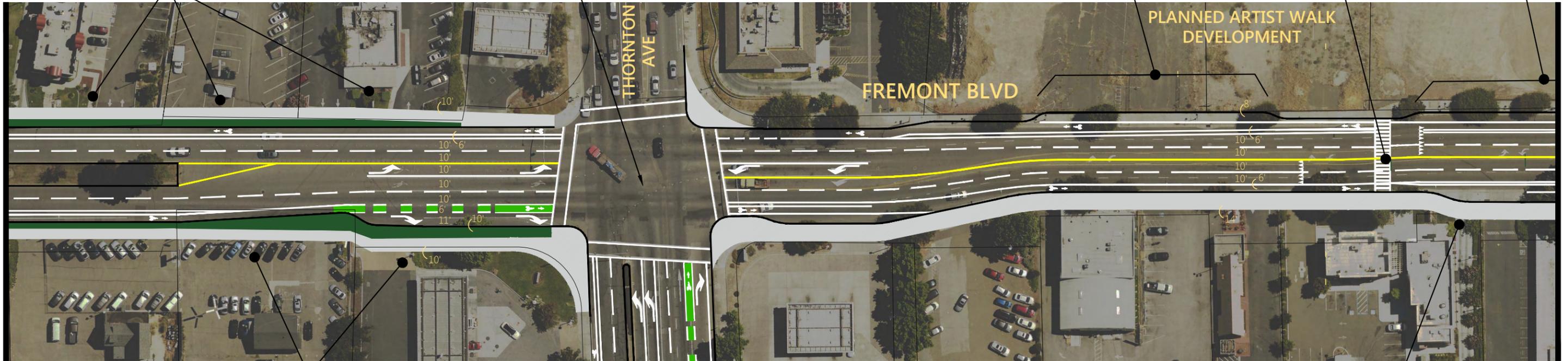
RIGHT-OF-WAY REQUIRED

STRIPE CROSSWALK
INSTALL RRFB

PARKING ALLOWED

PARKING ALLOWED

RIGHT-OF-WAY REQUIRED



RIGHT-OF-WAY REQUIRED

RIGHT-OF-WAY REQUIRED

GENERAL NOTES:

1. NARROW TRAVEL LANES TO 10' FOR ALL TRAVEL LANES.
2. STRIPE CONTINUOUS 3' BUFFER AND 6' BIKE LANE.
3. WIDEN SIDEWALKS AND LANDSCAPE AREA WHEREVER FEASIBLE. INCLUDE STREET TREES TO IMPROVE PEDESTRIAN ENVIRONMENT.



Figure F3-A
Fremont Blvd
Alder Ave to Thornton Ave



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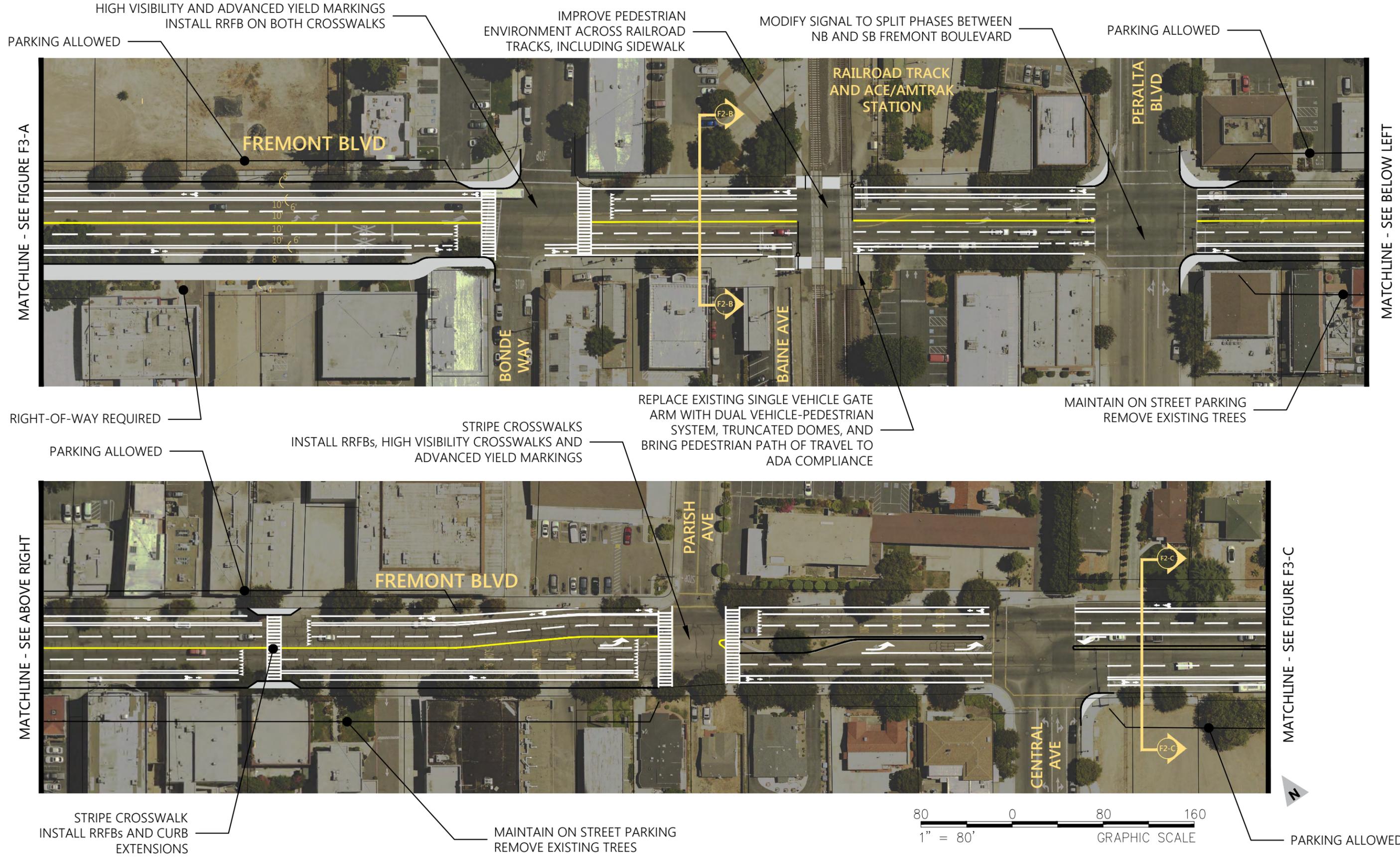
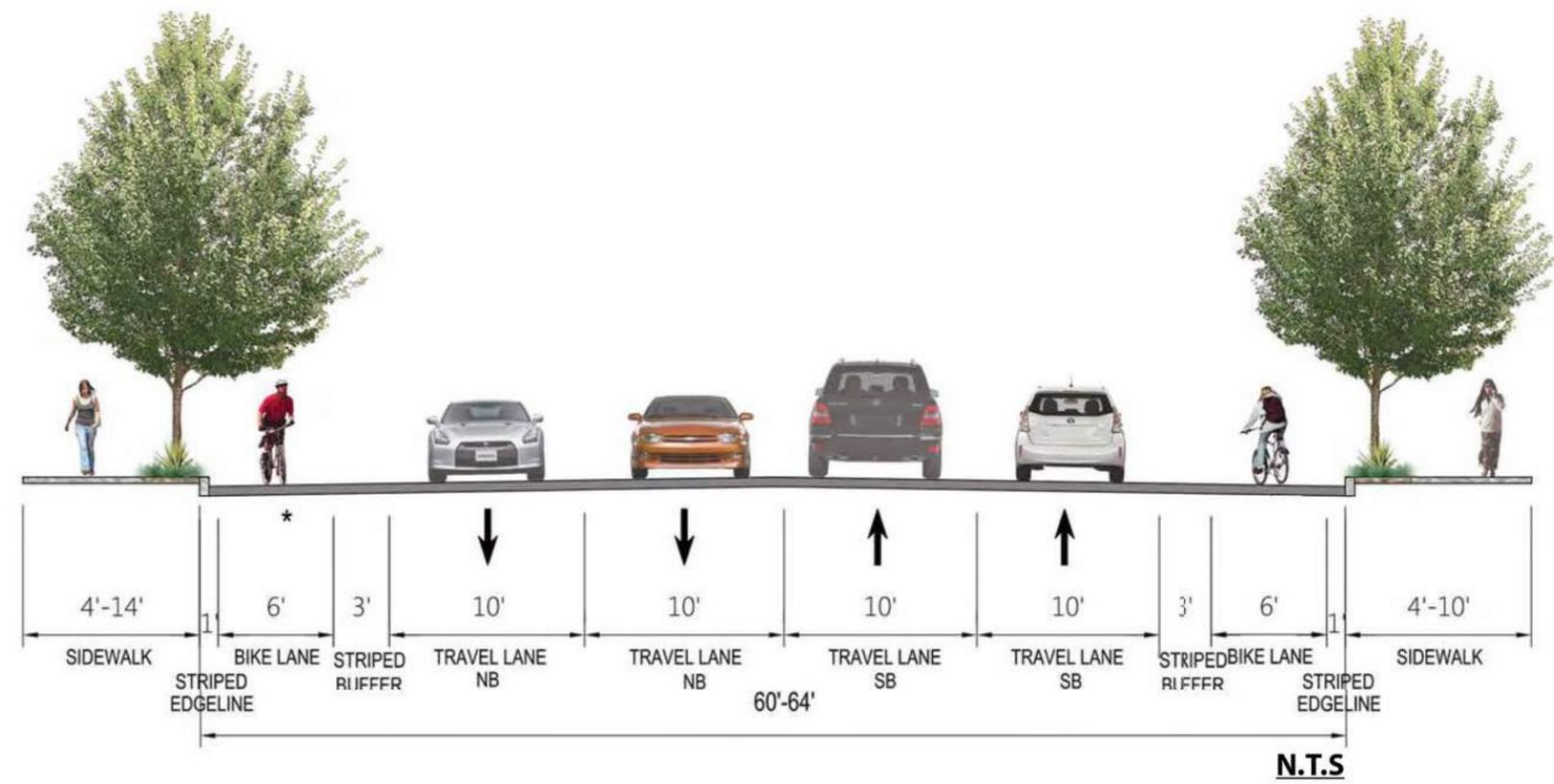
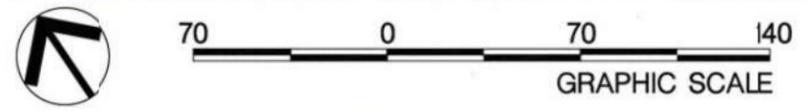
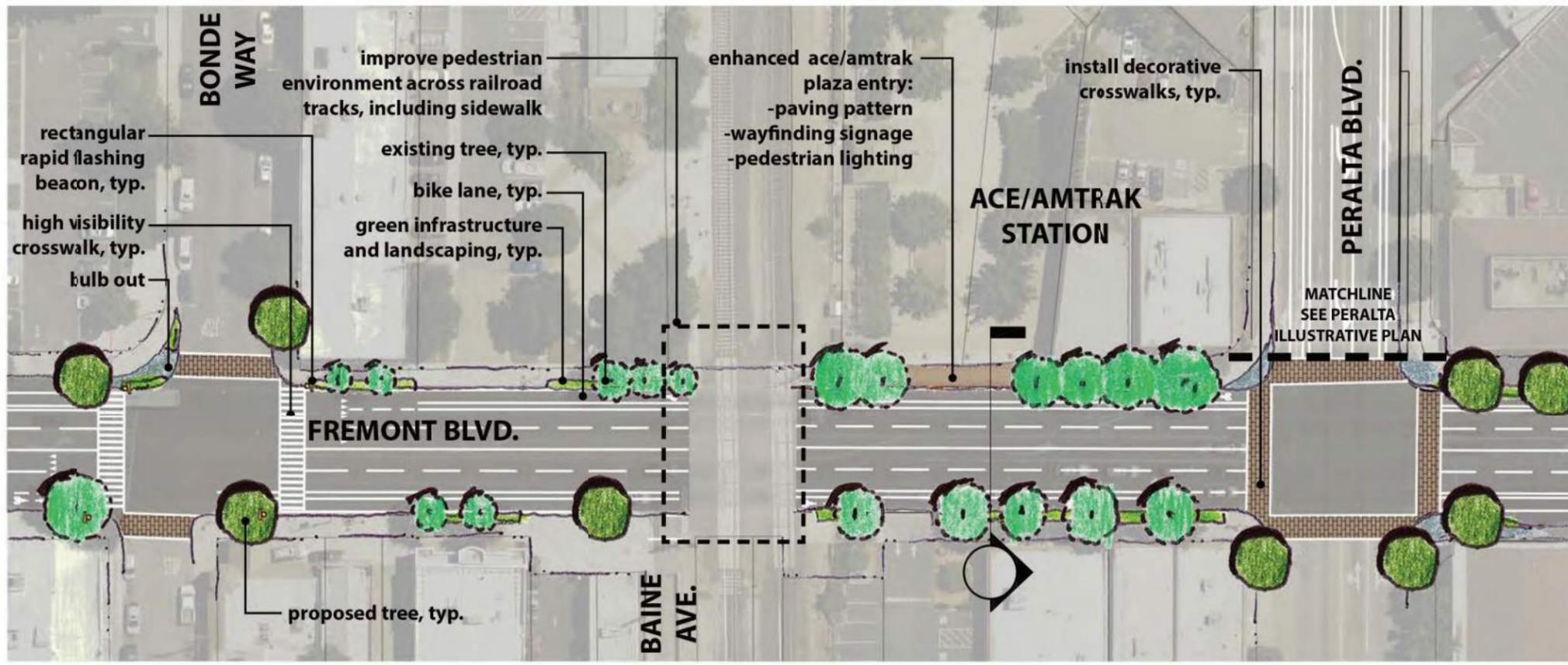


Figure F3-B
 Fremont Blvd
 Thornton Ave to Central Ave





Figure F3-C
Fremont Blvd
Central Ave to Mattos Dr



* CROSS SECTION ASSUMES SIGNAL PHASING MODIFICATIONS AT PERALTA BOULEVARD INTERSECTION
 * PARKING ALLOWED IN SOME SEGMENTS ON NORTH SIDE

FREMONT ILLUSTRATIVE PLAN AND SECTION
SR84 RELINQUISHMENT
 Fremont, California

Figure F4

KEY CORRIDOR CONSIDERATIONS

- Frequent sidewalk gaps force pedestrians to walk in the roadway shoulder
- Near Fremont Boulevard, a mix of commercial and residential uses front Peralta
- East of Camden Street, single-family neighborhoods are located adjacent to but do not front Peralta, and commercial uses sporadically front the street
- Roadway right-of-way is generally wide but changes frequently, resulting in sidewalk and streetscape set back from the roadway by very wide paved or unpaved shoulders
- Wide lanes and shoulders encourages high speeds



Top: Near Paseo Padre, the two- to three-lane roadways widens to five-lanes with a raised median.

Middle: Three-lane cross-section at Edward Ave.

Bottom: At its narrowest, the roadway is a two-lane roadway with shoulders that are used for parking and walking.

Segment Overview

Peralta Boulevard extends between Fremont Boulevard and Mowry Avenue. This segment has a frequently changing cross-section with a curb-to-curb dimension ranging between 41 and 83 feet. The roadway provides access to single and multi-family residential neighborhoods and some commercial uses.

Changes in the cross-section vary by block depending on when the adjacent property was developed. As roadway volumes do not warrant additional travel lanes, wide paved and striped shoulders are prevalent. Sidewalk gaps exist on either side of the street for much of the corridor. Transit does not operate on Peralta Boulevard.

Existing Conditions

- Posted speed limit is 35 MPH west of and 40 mph east of Martha Avenue
- Sidewalk gaps are located throughout the corridor
- Where present, sidewalks range from 4' with 6' landscaping to 10' and are set back from the edge of the travel way by wide paved or unpaved shoulders
- No bike lanes exist
- On-street parking is permitted on approximately 30% of the corridor
- Challenges with overhead utilities and conforming to existing grades are present in portions
- Lane widths vary from 11-13' typically, with wide shoulders often 15-20'

Needs and Opportunities

- Repurpose travel lanes to create a consistent three-lane cross-section based on low traffic volumes
- Utilize existing excess lane width to better provide for walking and biking
- Improve bicycle facilities to reduce level of traffic stress caused by high vehicle speeds, number of travel lanes, and lack of protection for bicyclists
- At the intersection with Mowry Avenue, consider removing the over-sized right-turn slip lanes, replacing the signal with a roundabout, or otherwise redesigning to right-size the intersection for the neighborhood and repurpose as public park space
- Utilize excess right-of-way to treat stormwater
- Improve accessibility and mobility for pedestrians through sidewalk gap closures

Peralta Boulevard

SEGMENTATION

As an irregular corridor with wide ranging right-of-way dimensions, Peralta Boulevard is divided into the following segments:

- Fremont Boulevard to Sequoia Avenue (**Figure P2-A**)
- Sequoia Avenue to Mowry Avenue (**Figure P2-B**)

Proposed Phase 0 Improvements

General Improvements

- Bring pavement to state of good repair with LATIP funds

Proposed Phase 1 Improvements

General Improvements

- Lane reduction to one travel lane in each direction
- Widen roadway where needed to allow landscaped median, left-turn pockets, and buffered bike lanes
- Reduce curb radii at intersections
- Install bicycle detection at all signals
- Modify all existing signals to include pedestrian countdowns, accessible pushbuttons, and two directional curb ramps per intersection corner

Fremont Boulevard to Sequoia Avenue Improvements

- Create consistent cross-section between Fremont Boulevard and Sequoia Street
- Stripe 10' median
- Close sidewalk gaps on south side of street
- Preserve parking on both sides of street near Sequoia Road

Sequoia Avenue to Camden Street Improvements

- Widen roadway, which requires minor right-of-way acquisition
- Stripe buffered bike lanes
- Close sidewalk gaps on south and north sides of street
- Provide continuous sidewalk adjacent to travelway

Camden Street to Mowry Avenue Improvements

- Lane reduction to one travel lane in each direction with two-way left-turn lane

- Stripe buffered bike lanes
- Enhance existing school crosswalk at Acacia Street with RRFBs and ladder striping and reduce curb radii
- One of two options for improving the intersection at Mowry Avenue (**Figure P5a** and **P5b**)

Proposed Improvements Phase 2 Improvements

General Improvements

- Install landscaped median, sidewalk widening and green infrastructure/landscaping improvements between Sequoia Avenue and Mowry Avenue

Fremont Boulevard to Sequoia Avenue Improvements

- Consider installing landscaped median
- Install green infrastructure

Sequoia Avenue to Camden Street Improvements

- Install green infrastructure

Camden Street to Mowry Avenue Improvements

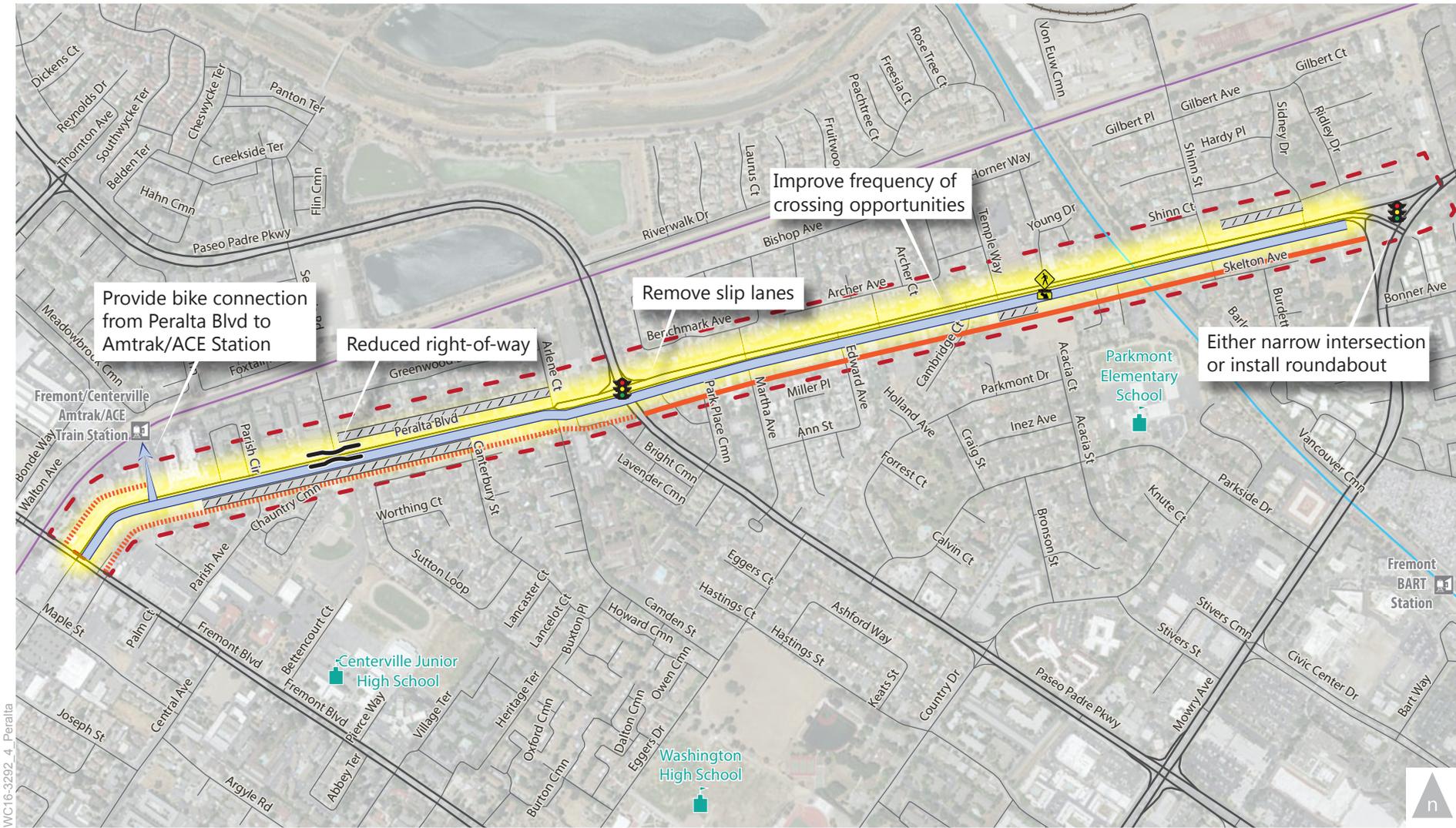
- Construct wide landscaped median, approximately 18' in width
- Install bioretention in excess right-of-way
- Consider locating sidewalk closer to the existing edge of roadway and abandon the sidewalk that is set 20' or more back from the roadway OR widen the existing sidewalk and provide landscaping/green infrastructure to create a park/path-like feel
- Acquire right-of-way on parcel near Martin Avenue
- Remove channelized right-turns at Paseo Padre intersection to improve pedestrian safety

Figures P3-A, 3-B, 3-C, and 3-D present the full build out of Phases 1 and 2 in plan view. **Figure P4** presents an illustrative plan view of Peralta Boulevard near Fremont Boulevard. The preliminary cost of the Peralta Boulevard **Phase 1** improvements is estimated as follows:

- Preliminary Engineering/Environmental: \$529,000
- Final Design: \$1,093,000
- Right-of-way: \$866,000
- Construction: \$8,837,000
- **Total Cost: \$11,325,000**

The preliminary cost of the Peralta Boulevard **Phase 2** improvements is estimated as follows:

- Preliminary Engineering/Environmental: \$827,000
- Final Design: \$1,710,000
- Right-of-way: \$1,289,000
- Construction: \$14,444,000
- **Total Cost: \$18,271,000**



WIC16-3292_4_Peralta

LEGEND

- | | | | | |
|---|--|--|---|---|
|  Enhance Existing Bike Lane as Buffered Bike Lane or Separated Bikeway (Both Sides) and Narrow Travel Lanes to Reduce Speeds |  Improve Frequency of Crossing Opportunities where Warranted Based on Adjacent Land Uses throughout Corridor and Install Green Infrastructure |  Enhance Existing Uncontrolled Crosswalk with RRFB or PHB |  Potential Signal Improvements
• Reduce Curb Radii
• Stripe All Crosswalks
• Install Pedestrian Countdown Heads |  Pinch Point |
|  Study Segment |  Remove Truck Route Designation |  Maintain Truck Route Designation |  Close Existing Sidewalk Gap | |



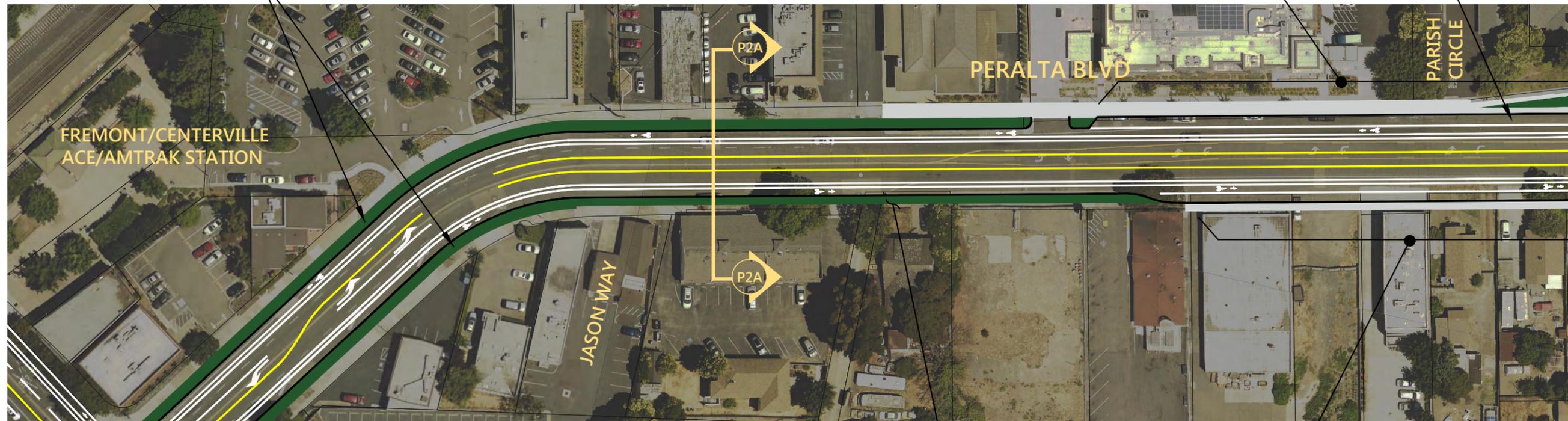
Figure P1

Peralta Boulevard Existing Issues and Opportunities

INSTALL BIORETENTION AREA

ON-STREET PARKING ALLOWED NORTH SIDE OF PERALTA BLVD

PARKING ALLOWED



MATCHLINE - SEE BELOW LEFT

INSTALL BIORETENTION AREA AND STREET TREES

PARKING ALLOWED

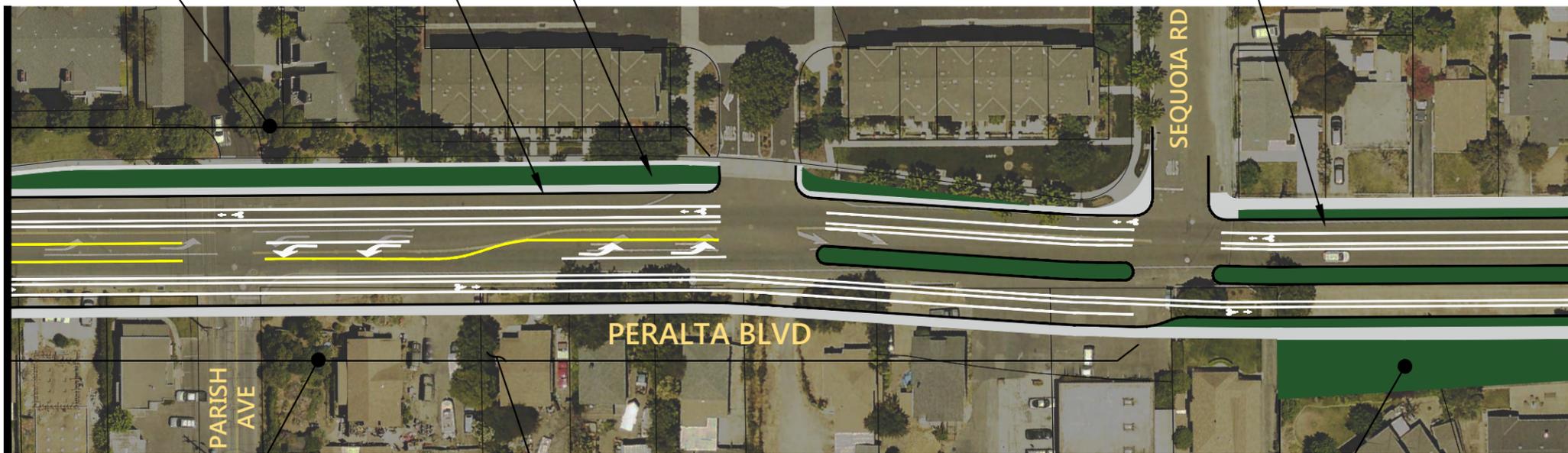
PARKING ALLOWED

INSTALL 4' SIDEWALK FOR PARKING ACCESS

RIGHT-OF-WAY REQUIRED PER CENTERVILLE CROSSING PROJECT

ON-STREET PARKING ALLOWED NORTHSIDE OF PERALTA

FOR CONTINUATION SEE FIGURE F3-B



MATCHLINE - SEE ABOVE RIGHT

MATCHLINE - SEE FIGURE P3-B

LEGEND:

NEW OR WIDENED LANDSCAPING DESIGN AS GREEN INFRASTRUCTURE/BIORETENSION WHEREVER FEASIBLE. (PHASE II)

NEW OR WIDENED SIDEWALK

GENERAL NOTES:

1. REFRESH ALL CROSSWALK STRIPING UNLESS OTHERWISE NOTED.
2. CONSIDERING MARKING CROSSWALKS ACROSS PERALTA BLVD IF WARRANTED BASED ON PEDESTRIAN DESIRE LINES AND AS LAND USES GENERATE PEDESTRIAN TRAFFIC.
3. MARK CROSSWALKS AT ALL SIDE STREET STOPS AND RELOCATE STOP BAR, LEGEND, AND NEW INTERSECTION EDGE.
4. AT SIGNALS, INSTALL BICYCLE DETECTION, COUNTDOWN SIGNALS, AND ACCESSIBLE PUSHBUTTONS UNLESS ALREADY INSTALLED.
5. INSTALL DIRECTIONAL CURB RAMPS AT ALL INTERSECITON CORNERS.

INSTALL BIORETENTION/LANDSCAPING

RIGHT-OF-WAY PROVIDED BY CENTERVILLE CROSSING PROJECT



Figure P3-A
Peralta Blvd
Fremont Blvd to Sequoia Road

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Jun 08, 2016

MATCHLINE - SEE FIGURE P3-A



ABANDON SIDEWALK AT EXISTING RIGHT-OF-WAY EDGE

INSTALL GREEN INFRASTRUCTURE/LANDSCAPING

ON-STREET PARKING ALLOWED NORTH SIDE OF PERALTA BLVD

INSTALL GREEN INFRASTRUCTURE/LANDSCAPING

LEGEND:

NEW OR WIDENED LANDSCAPING DESIGN AS GREEN INFRASTRUCTURE/BIORETENTION WHEREVER FEASIBLE. (PHASE II)

NEW OR WIDENED SIDEWALK (WEST OF CAMDEN STREET, PHASE I, EAST OF CAMDEN STREET PHASE II)

MATCHLINE - SEE BELOW LEFT

MATCHLINE - SEE ABOVE RIGHT



INSTALL GREEN INFRASTRUCTURE/LANDSCAPING

EXISTING MEDIAN

INSTALL GREEN INFRASTRUCTURE/LANDSCAPING



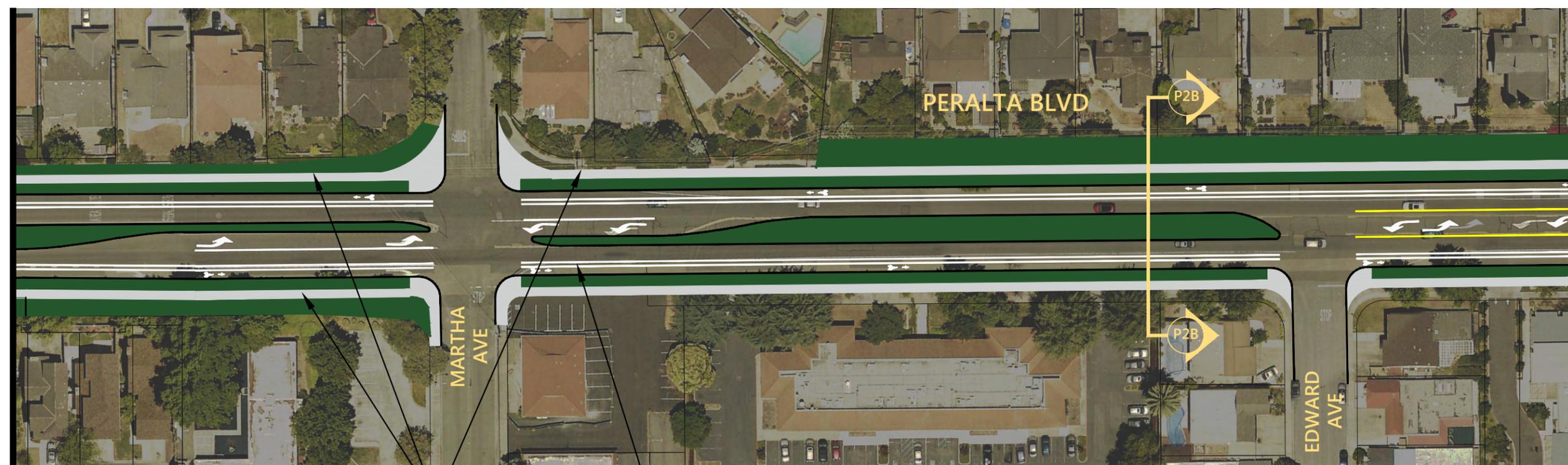
MATCHLINE - SEE FIGURE P3-C



Figure P3-B
Peralta Blvd
Sequoia Road to Paseo Padre Pkwy

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MATCHLINE - SEE FIGURE P3-B



- LEGEND:
- NEW OR WIDENED LANDSCAPING DESIGN AS GREEN INFRASTRUCTURE/ BIORETENTION WHEREVER FEASIBLE. (PHASE II)
 - NEW OR WIDENED SIDEWALK (PHASE II)

MATCHLINE - SEE BELOW LEFT

CONSIDER RELOCATING SIDEWALK TO EDGE OF TRAVEL WAY OR WIDENING EXISTING SIDEWALK TO CREATE PARK/PATH FEEL, INCLUDE GREEN INFRASTRUCTURE

RIGHT-OF-WAY REQUIRED

INSTALL RRFBS,

MATCHLINE - SEE ABOVE RIGHT



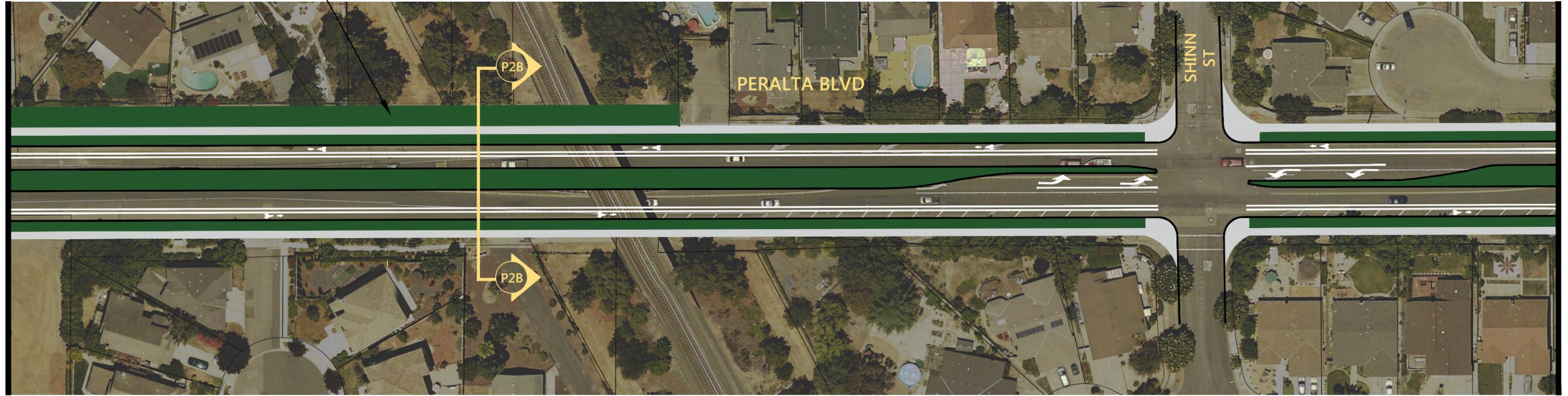
MATCHLINE - SEE FIGURE P3-D



Figure P3-C
Peralta Blvd
Paseo Padre Pkwy to Acacia St

INSTALL GREEN
INFRASTRUCTURE/LANDSCAPING

MATCHLINE - SEE FIGURE P3-C



MATCHLINE - SEE BELOW LEFT

MATCHLINE - SEE ABOVE RIGHT



LEGEND

Study Intersection

LEGEND:

 NEW OR WIDENED LANDSCAPING DESIGN AS GREEN INFRASTRUCTURE/BIORETENSION WHEREVER FEASIBLE. (PHASE II)

 NEW OR WIDENED SIDEWALK (PHASE II)

SEE MOWRY/PERALTA INTERSECTION CONCEPT FIGURES

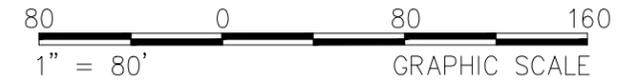
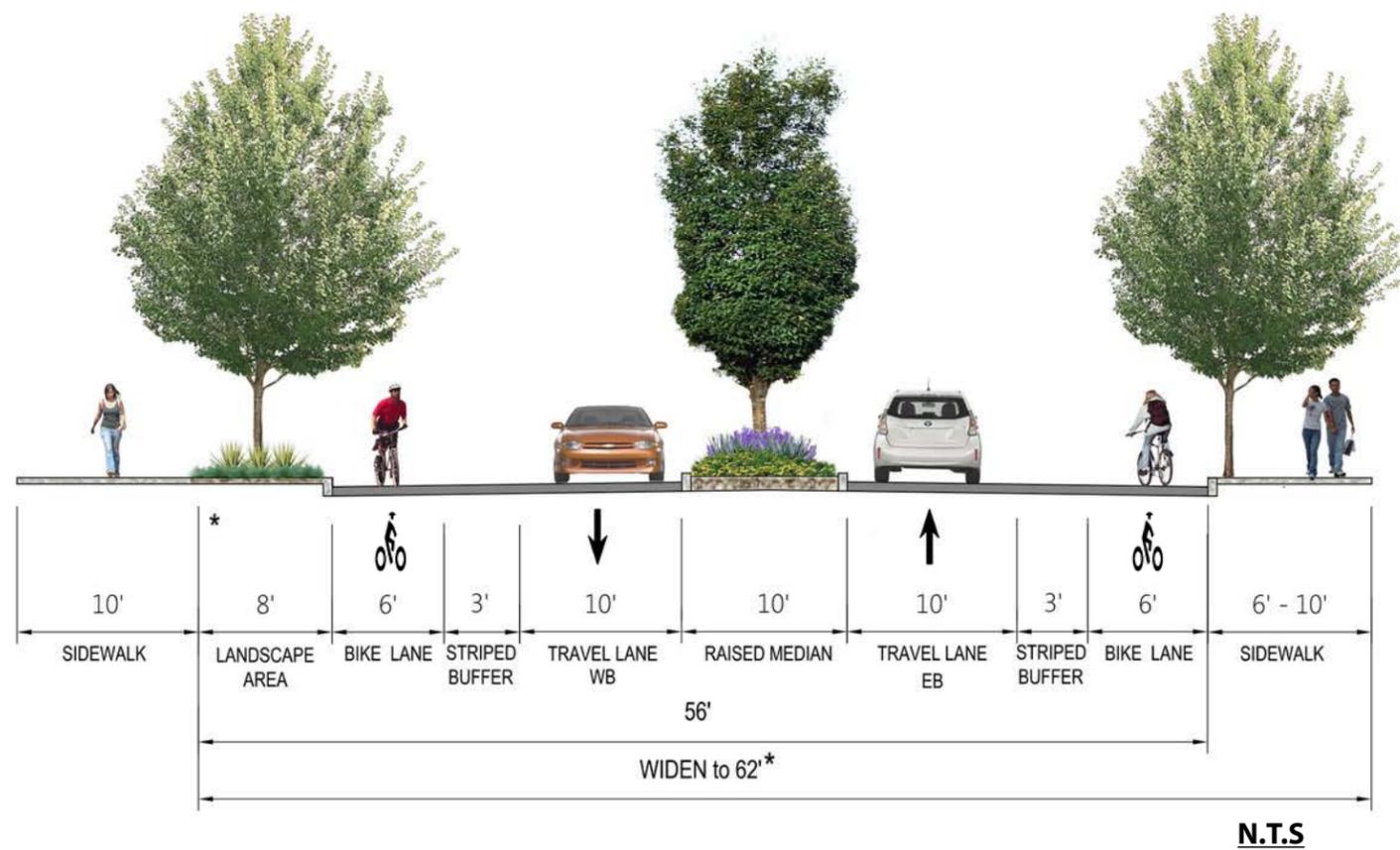
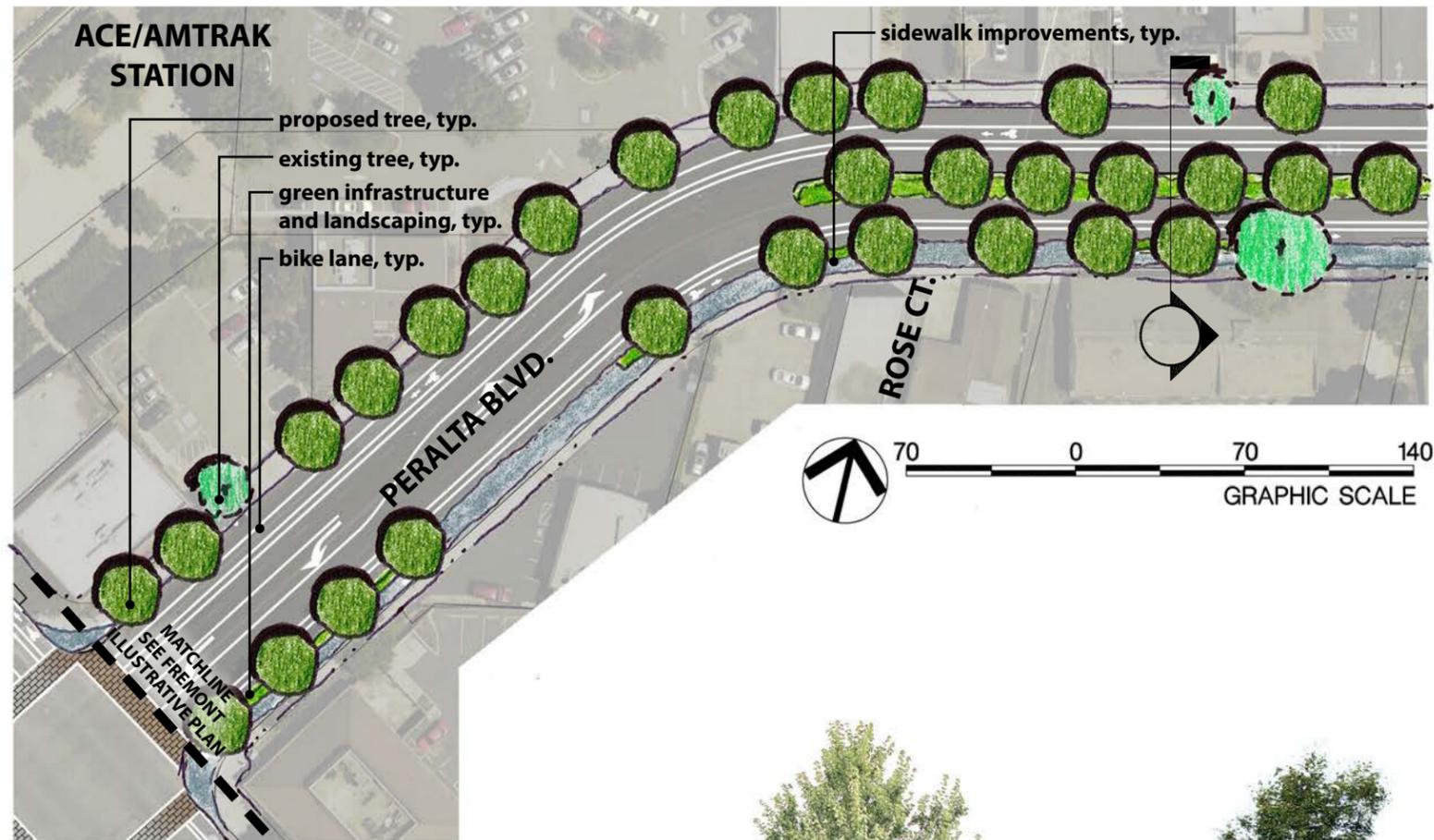


Figure P3-D
Peralta Blvd
Acacia St to Mowry Ave





* ONLY WIDEN WHERE SIDEWALK IS NOT CURRENTLY PROVIDED

* PARKING ALLOWED IN SOME SEGMENTS ON NORTH SIDE

PERALTA ILLUSTRATIVE PLAN AND SECTION
SR84 RELINQUISHMENT
 Fremont, California



pocket park

curvilinear pedestrian path

trees, typ.

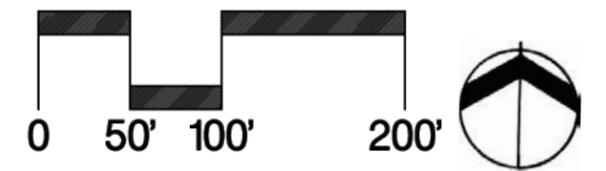
PERALTA BLVD

MOWRY AVE

MOWRY AVE

TYSON LN

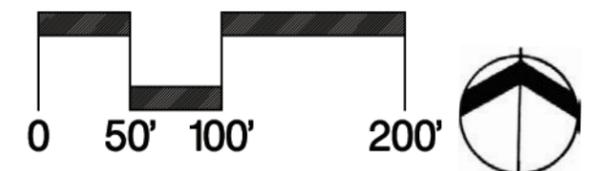
MOWRY AND PERALTA: Option 1
Figure P-5a





- pocket park
- curvilinear pedestrian path
- trees, typ.

M O W R Y A N D P E R A L T A : O p t i o n 2
 Figure P-5b



KEY CORRIDOR CONSIDERATIONS

- Existing railroad undercrossings is narrow with no width provided for shoulders, bikeways, or pedestrian facilities
- Large sidewalk gaps exist throughout the corridor
- Bike lanes exist on a short section of the corridor only and are not continuous
- Single travel lane in each direction between Overracker Avenue and Mission Boulevard (SR 238) creates traffic bottleneck and limits biking and walking access



Top: Mowry Avenue as it constricts to two lanes just before the southern railroad undercrossing.

Bottom: Mowry Avenue typical five-lane cross-section with streetscape improvements and sidewalk on the north side of the street.

Segment Overview

Mowry Avenue extends between Peralta Boulevard and Mission Boulevard (SR 238). The cross-section is typically five lanes, narrowing to two lanes north of Overacker Avenue. As a result, curb-to-curb dimensions range from 30 to 90 feet. This roadway acts as an arterial, providing access to single and multi-family residential neighborhoods. The cross-section changes substantially with shoulders, no curb, and sidewalk gaps, and fully built-out streetscape in other portions. North of Overacker Avenue, no pedestrian facilities are provided and the road narrows substantially through the two railroad undercrossings. AC Transit operates lines 625, which serves local schools, and 216, which serves Union City, Fremont BART, and Ohlone College's Newark campus.

Existing Conditions

- Posted speed limit is 40 MPH south of and 35 MPH north of Cherry Lane
- Where it exists, sidewalks are typically 4' width with 6' landscape buffer or 10' with no landscaping
- Class II bike lanes exist between Cherry Lane and Thane Street
- On street parking is not permitted
- Poor asphalt pavement conditions in many places
- Two railroad overcrossings are present between Overacker Avenue and Mission Boulevard
- Overhead utilities present in portions
- Lane widths are wide and vary from 14-20'

Needs and Opportunities

Figure M1 identifies the existing needs and opportunities:

- Utilize existing excess lane width to enhance walking and biking facilities
- Close sidewalk gaps to create continuous sidewalks
- Close bicycle lane gaps and examine opportunity to enhance bicycle lane for bicyclists safety and comfort
- Narrow travel lanes
- Consider feasibility and relative cost/benefit of widening the two railroad overcrossings to accommodate bicycle and pedestrian access between Overracker Avenue and Mission Boulevard (SR 238)



Mowry Avenue

SEGMENTATION

- Peralta Boulevard/Mowry Avenue Intersection (**Figure P-5a and P-5b**)
- Peralta Boulevard to Overracker Avenue (**Figure M2-A**)
- Overracker Avenue to Mission Boulevard (SR 238) (**Figure M2-B**)

Mowry Avenue has two proposed cross-sections based on right-of-way constraints. The first is between Peralta Boulevard and Overracker Avenue. This would maintain the existing five-lane cross-section, close sidewalk gaps, widen existing sidewalk and bioretention/landscape areas, and stripe continuous buffered bicycle lanes.

Between Overracker Avenue and Mission Boulevard (SR 238), the right-of-way is constrained by the two existing railroad overcrossings. However, even if Mowry Avenue was four lanes, there are significant eastbound capacity constraints on Mission Boulevard and Niles Canyon that would limit the congestion benefits of a widened Mowry. As a result, the interim condition maintains the single travel lane in each direction, striping the travel lanes consistently at 11' with an edgeline shoulder stripe. In the long-term, widening these two structures may be cost prohibitive. As a result, such a major investment should be considered in a broader context of bicycle and pedestrian connectivity and safety enhancement projects in Fremont.

Proposed Phase 0 Improvements

General Improvements

- Bring pavement up to state of green repair through LATIP funds

Proposed Phase 1 Improvements

General Improvements

- Reduce travel lanes to 10 or 11'
- Maintain truck route designation on this segment of Mowry Avenue
- Stripe continuous buffered bike lanes with 3' buffer and 6' bicycle lane up to Overracker Avenue
- Install bicycle detection at all signals
- Modify all existing signals to include pedestrian countdown heads, accessible pushbuttons, and two directional curb ramps per intersection corner

Peralta Boulevard to Overracker Avenue Improvements

- Reduce travel lanes to 10' inside and 11' outside
- Stripe buffered bike lanes
- Close sidewalk gap on south side of Mowry Ave

Overracker Avenue to Mission Boulevard (SR 238) Improvements

- Narrow travel lanes to 11' and stripe edgeline
- Stripe second westbound travel lane
- Reduce curb radii, straighten crosswalks, and mark all crosswalks at intersection with Mission Blvd (SR 238)

Proposed Improvements Phase 2 Improvements

Peralta Boulevard to Overracker Avenue Improvements

- Install sidewalk widening and green infrastructure/landscaping improvements
- Install third crosswalk with countdown signals at Guardino intersection and tighten SW and SE corner radii

Overracker Avenue to Mission Boulevard (SR 238) Improvements

- At Overracker Avenue, redesign intersection to "T" Overracker Avenue into Mowry Avenue. Also "T" Thane Street into Overracker Avenue.



Proposed Improvements Phase 3 Improvements

Overracker Avenue to Mission Boulevard (SR 238) Improvements

Consider preferred gap closure alignment:

1. Widen the two Mowry Avenue railroad undercrossings
OR
2. Provide a separate bicycle/pedestrian tunnel on either or both sides of the street OR
3. Bicycle/pedestrian undercrossing at Overracker Avenue, connecting to Mission Boulevard (SR 238) mid-block between Orchard Drive and Pickering Avenue

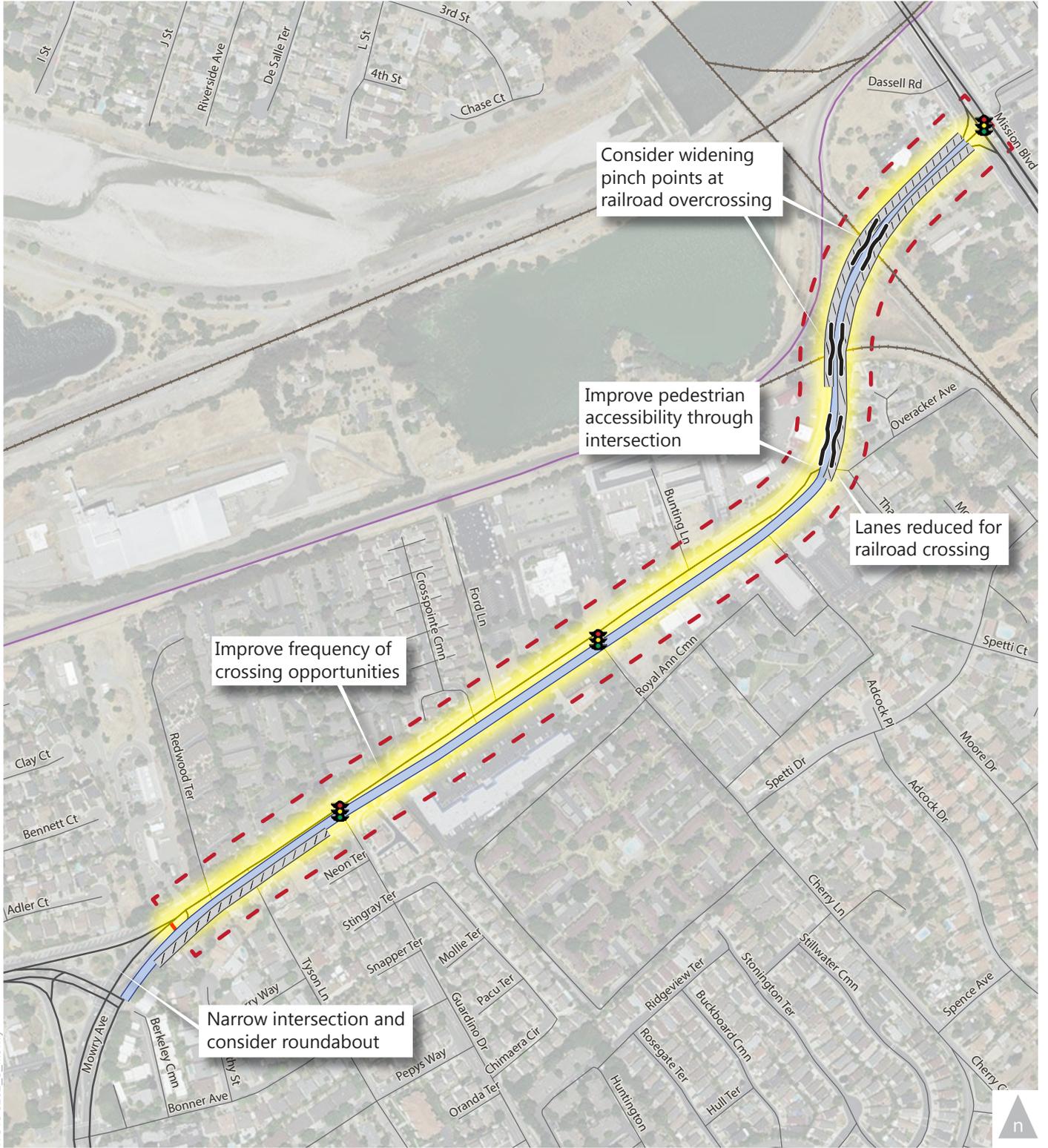
Figures M3-A, 3-B, and 3-C present the full build out of Phases 1 and 2 in plan view. The preliminary cost of the Mowry Avenue **Phase 1** improvements is estimated as follows:

- Preliminary Engineering/Environmental: \$120,000
- Final Design: \$248,000
- Right-of-way: \$1,336,000
- Construction: \$1,898,000
- **Total Cost: \$3,601,000**

The preliminary cost of the Mowry Avenue **Phase 2** improvements is estimated as follows:

- Preliminary Engineering/Environmental: \$158,000
- Final Design: \$326,000
- Construction: \$2,766,000
- **Total Cost: \$3,250,000**

The preliminary cost of the Mowry Avenue **Phase 3** improvements is estimated to be between \$8,000,000 and \$15,000,000 depending on if a bicycle/pedestrian undercrossing is constructed on either one side or two sides of Mowry Avenue, respectively. **Figures M4-A** and **M4-B** present options for the undercrossings.



LEGEND

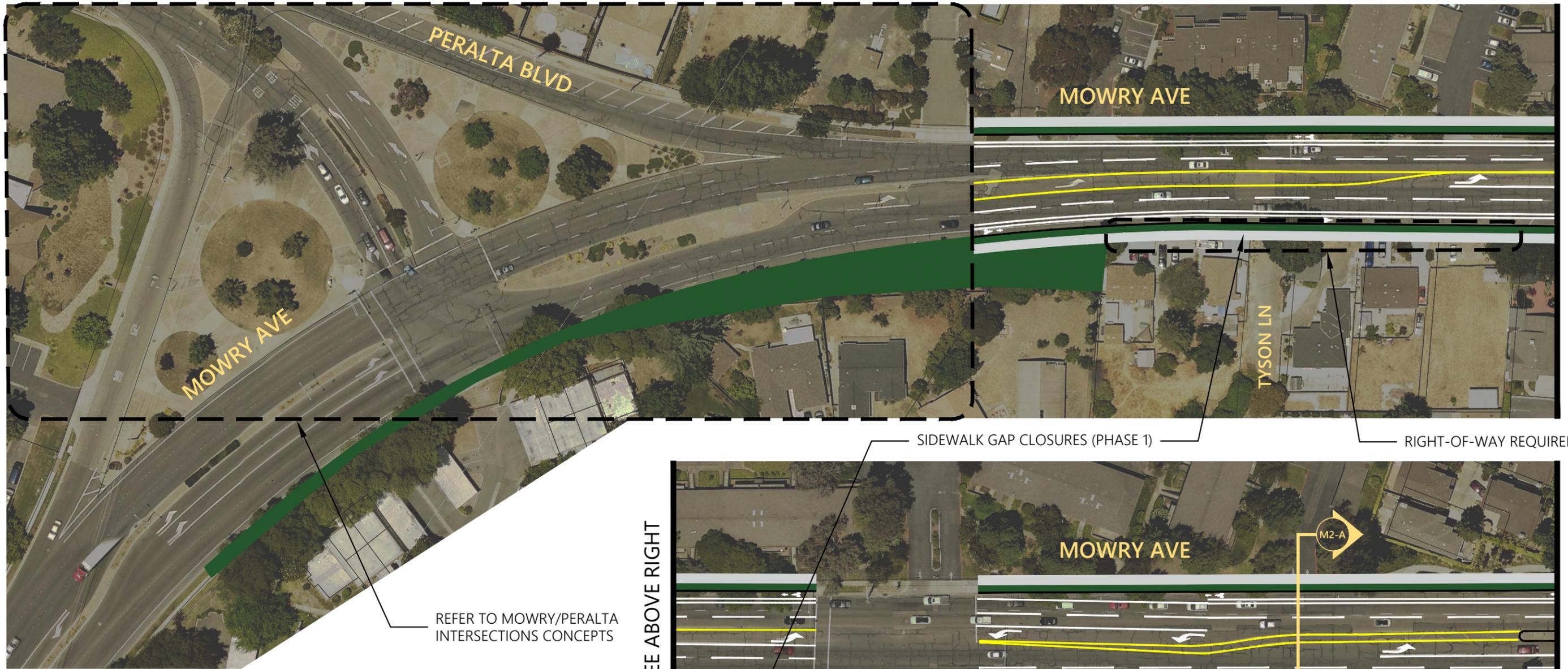
- Enhance Existing Bike Lane as Buffered Bike Lane or Separated Bikeway (Both Sides) and Narrow Travel Lanes to Reduce Speeds
- Improve Frequency of Crossing Opportunities where Warranted Based on Adjacent Land Uses throughout Corridor
- Potential Signal Improvements
 - Reduce Curb Radii
 - Stripe All Crosswalks
 - Install Pedestrian Countdown Heads
- Study Segment
- Close Existing Sidewalk Gap
- Pinch Point



Figure M1

Mowry Avenue Existing Issues and Opportunities

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Jun 23, 2016



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REFER TO MOWRY/PERALTA INTERSECTIONS CONCEPTS

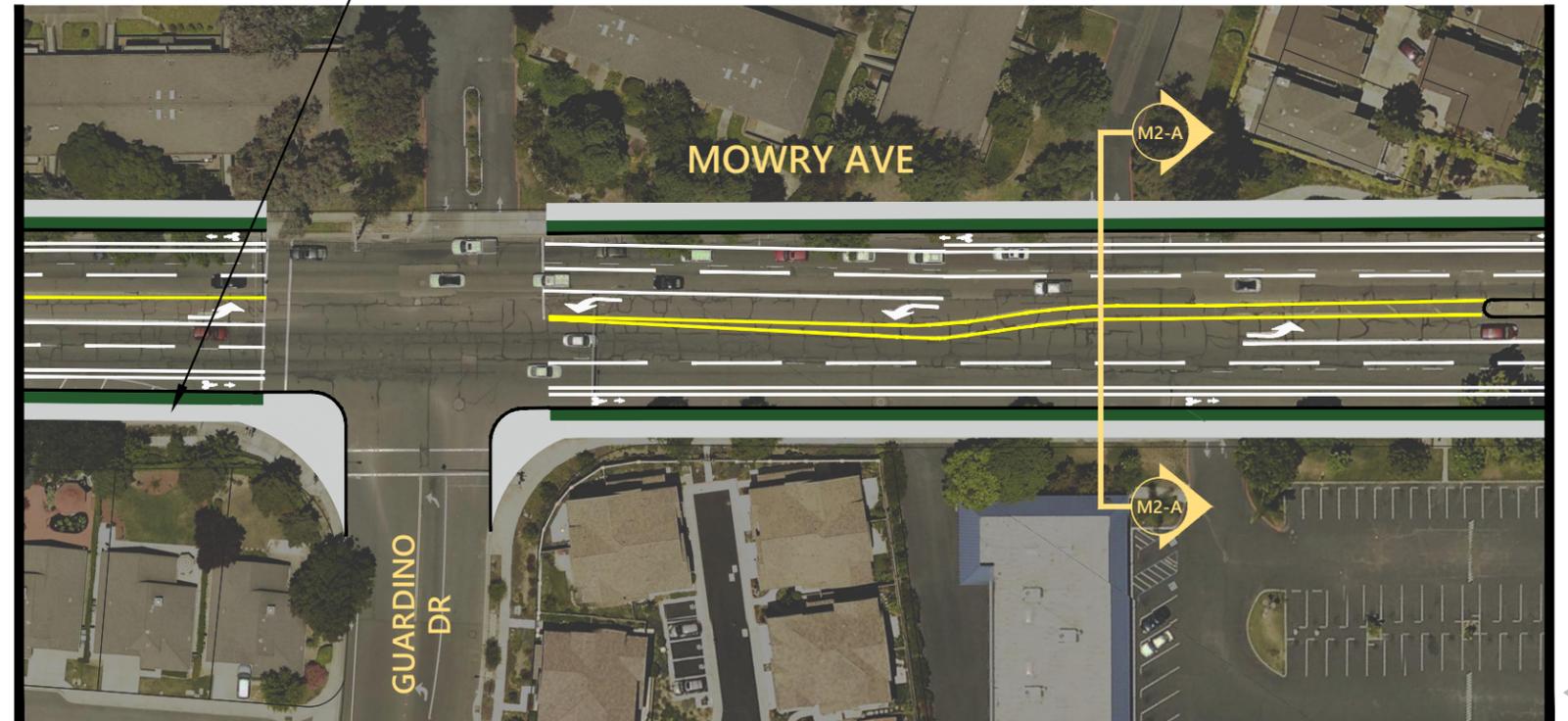
LEGEND:

- NEW OR WIDENED LANDSCAPING DESIGN AS GREEN INFRASTRUCTURE/BIORETENSION WHEREVER FEASIBLE. (PHASE 2)
- NEW OR WIDENED SIDEWALK (PHASE 2, EXCEPT AS NOTED)

GENERAL NOTES:

1. REFRESH ALL CROSSWALK STRIPING UNLESS OTHERWISE NOTED.
2. CONSIDERING MARKING CROSSWALKS ACROSS MOWRY AVE IF WARRANTED BASED ON PEDESTRIAN DESIRE LINES AND AS LAND USES GENERATE PEDESTRIAN TRAFFIC.
3. MARK CROSSWALKS AT ALL SIDE STREET STOPS AND RELOCATE STOP BAR, LEGEND, AND NEW INTERSECTION EDGE.
4. AT SIGNALS, INSTALL BICYCLE DETECTION, COUNTDOWN SIGNALS, AND ACCESSIBLE PUSHBUTTONS UNLESS ALREADY INSTALLED.
5. INSTALL DIRECTIONAL CURB RAMPS AT ALL INTERSECTION CORNERS.

MATCHLINE - SEE ABOVE RIGHT



MATCHLINE - SEE FIGURE M3-B

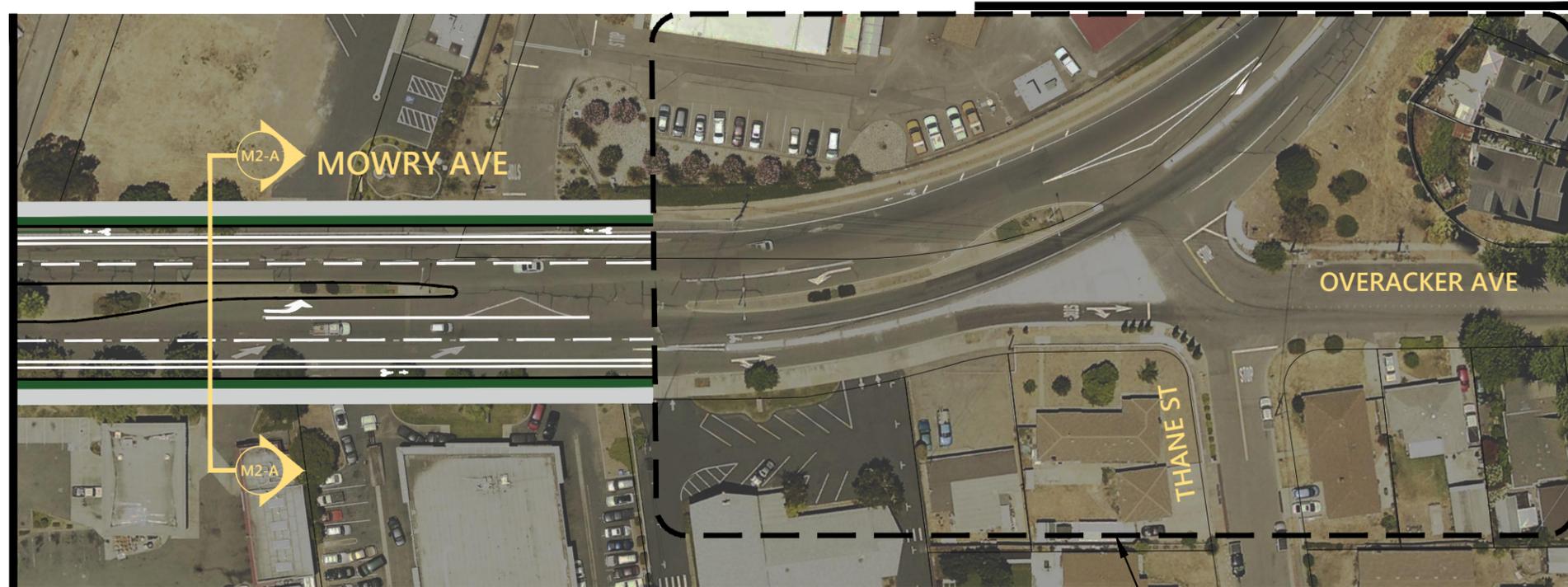


Figure M3-A
Mowry Ave
Peralta Blvd to Guardino Dr

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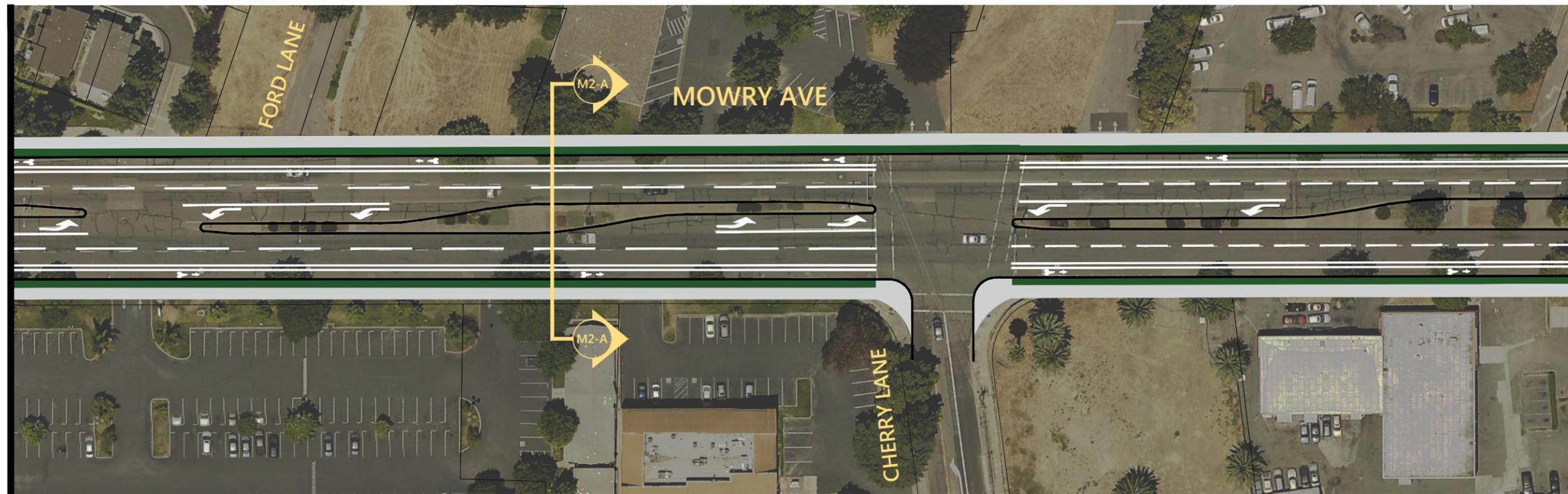
MATCHLINE - SEE ABOVE RIGHT



MATCHLINE - SEE FIGURE M3-C

TRANSITION MOWRY FROM FOUR-LANE TO TWO-LANE.
 DROP BUFFERED BIKE LANE AT OVERACKER.
 REMOVE CHANNELIZATION AT OVERACKER AND THANE.
 "T" THANE STREET INTO OVERACKER

MATCHLINE - SEE FIGURE M3-A



MATCHLINE - SEE BELOW LEFT

Figure M3-B
 Mowry Ave
 Guardino Dr to Thane St

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MATCHLINE - SEE FIGURE M3-B

TRANSITION MOWRY FROM FOUR-LANE TO TWO-LANE.
DROP BUFFERED BIKE LANE AT OVERACKER.
REMOVE CHANNELIZATION AT OVERACKER AND THANE.
"T" THANE STREET INTO OVERACKER

MARK THIRD CROSSWALK LEG
MOVE STOP BAR FORWARD ON
SOUTHBOUND MISSION BOULEVARD
STRAIGHTEN CROSSWALKS



Figure M3-C
Mowry Ave
Thane St to Mission Blvd (CA-238)

With the SR 84 Relinquishment Scoping Study in place, the City is ready to move forward to collaborating with Caltrans, Alameda CTC, and other stakeholders to begin project implementation. This section outlines the proposed Delivery Strategy for the relinquishment of SR 84, reaching agreement with Caltrans on improvements needed to bring SR 84 to a “State of Good Repair”, implementation phases, key steps for each phase, proposed time frames, and a funding plan for each segment of the project.

Defining the State of Good Repair

As part of the SR 84 Relinquishment, the City and Caltrans should work together to define the State of Good Repair for each roadway segment. The State of Good Repair is anticipated to be:

- Repair pavement to bring to state of good repair. Specific treatment required will depend on segment by segment pavement analysis
- Upgrading all curb ramps that are not ADA compliant
- Replacing/refreshing existing roadway striping
- After the roads are repaved, the City anticipates replacing the existing roadway striping with the Phase 1 complete streets improvements described in this Scoping Study where further improvements are not required (e.g. Thornton Avenue). In other areas, pavement work will be done with Phase 1 improvements.

Implementation Next Steps

Table 1 presents the phased implementation strategy for the relinquishment of SR 84 and subsequent complete streets, safe routes to transit, safe routes to school improvements, and PDA access improvements.

Table 2 presents the project segmentation with a breakdown of phase and anticipated funding source.

Table 3 summarizes the timeline of the relinquishment process and completion of Phase 1 of each segment. **Table 4** summarizes the total design and construction costs by fiscal year and segment.

Appendix A presents the cost estimates by segment.

Funding Plan

The City will be seeking Alameda CTC funding for all of the unfunded Phase 1 improvements, which total \$17,891,000. The 2014 Alameda County Transportation Expenditure Plan for Measure BB calls out several funding categories for these types of projects:

- Within Local Streets Maintenance and Safety Improvements Category, the Congestion Relief, Local Bridge Seismic Safety Category, which has \$639 million in programmed funding (2014\$)
- Bicycle and Pedestrian Direct Allocation to Cities and Alameda County, which has \$232 million in programmed funding (2014\$)
- Community Development Investments that Improve Transit Connections to Jobs and School, which has \$300 million in programmed funding (2014\$)
- Within BART, Bus, Senior, and Youth Transit, the Major Transit Corridor Enhancements and Rail Connections Category, which has \$120 million in programmed funding (2014\$)

Therefore, the City of Fremont is requesting funding for all unfunded Phase 1 work in the ACTC CIP between FY16/17 and FY21/22 using some combination of the above funding categories, or other resources available to ACTC.

Complementary to that request is the LATIP funding associated with relinquishment.



TABLE 1: IMPLEMENTATION STRATEGY

Implementation Phases	Task	Coordinating Agencies	Time Frame
Phase 0	Agree on State of Good Repair improvements and finalize Relinquishment Plan	City, Caltrans	Year 1
Phase 0	Secure Measure BB funds for Phase 1 improvements on Fremont Boulevard and Peralta Boulevard	City, Alameda CTC	Year 1
Phase 0	Implement slurry seal or overlay on Thornton Avenue segment, including signing and striping	Caltrans	Year 1-2
Phase 1	Prepare PS&E and environmental for Phase 1 improvements	City, Alameda CTC	Year 2
Phase 1	Construction of Fremont Boulevard Phase 1 and Peralta Boulevard Phase 1, including pavement state of good repair	City	Year 3
Phase 1	Fremont Boulevard, Peralta Boulevard, and Mowry Avenue Phase 1 Improvements	City	Year 3
Phase 2	Design and construct sidewalk widening and green infrastructure Phase 2 improvements on Thornton Avenue, Fremont Boulevard, Peralta Boulevard, and Mowry Avenue	City	Years 4-6
Phase 3	Identify, design, and construct preferred alternative for Mowry Avenue between Ovracker Avenue and Mission Boulevard (SR 238), including pavement state of good repair	City	Year 6+

TABLE 2: PROJECT SEGMENTATION

Roadway	Segment	Improvements	Phase - Funding
Existing SR 84 Alignment	Thornton Avenue, Fremont Boulevard, Peralta Boulevard, Mowry Avenue	Slurry Seal and Overlay	Phase 0 –Caltrans LA TIP
Thornton Avenue	Dondero Way to Thornton Avenue	Buffered Bicycle Lanes, Crosswalk and Intersection Improvements between Dusterberry Way to Thornton Avenue	Phase 1 – 2 Year CIP
		Sidewalk Widening, Green Infrastructure	Phase 3 – Future*
Fremont Boulevard	Alder Avenue to Thornton Avenue	Buffered Bicycle Lanes, Close NB #3 Travel Lane	Phase 1 – 2 Year CIP
		Sidewalk Widening, Green Infrastructure	Phase 2 – TBD*
	Thornton Avenue to Central Avenue	Buffered Bicycle Lanes, Sidewalk and Crosswalk Improvements, Intersection Improvements	Phase 1 – 2 Year CIP
		Central Avenue to Mattos Drive	Buffered Bicycle Lanes, Crosswalk Improvements	Phase 1 – 2 Year CIP
	Sidewalk Widening, Green Infrastructure	Phase 2 – TBD*	
Peralta Boulevard	Fremont Boulevard to Sequoia Avenue	Buffered Bicycle Lanes, Landscaped Median and Street Trees, Sidewalk Improvements, Intersection Improvements	Phase 1 – 2 Year CIP
	Sequoia Avenue to Canterbury Avenue	Buffered Bicycle Lanes	Phase 1 – 2 Year CIP
		Green Infrastructure, Possible Sidewalk Widening or Relocation	Phase 2 – TBD*
	Canterbury Avenue to Mowry Avenue	Buffered Bicycle Lanes, Crosswalk Improvement, Mowry Avenue Intersection improvements	Phase 1 – 2 Year CIP
Green Infrastructure, Possible Sidewalk Widening or Relocation		Phase 3 – Future*	
Mowry Avenue	Peralta Boulevard/Mowry Avenue Intersection	Intersection Redesign (Roundabout or Narrowed Intersection with Signal)	Phase 1
	Peralta Boulevard to Ovracker Avenue	Buffered Bicycle Lanes, Including Sidewalk Gap Closure	Phase 1 – 2 Year CIP
		Sidewalk Widening, Green Infrastructure, Intersection and Crosswalk Improvements	Phase 3 – Future*
	Ovracker Avenue to Mission Boulevard (SR 238)	Improve Bicycle and Pedestrian Connections through either: (1) Adding Bicycle/Pedestrian Tunnels, (2) Undercrossing at Ovracker, or (3) Alameda Creek Trail Bridge	Phase 3 – Future*

*Not expected to be requested in the next five-year ACTC CIP.



TABLE 3: PROJECT PHASING TIMELINE							
	2016	2017	2018	2019	2020	2021	2022
RELINQUISHMENT PROCESS							
Caltrans		***					
City of Fremont	**						
LATIP							
DESIGN & CONSTRUCTION							
Thornton Avenue		State of Good Repair ¹ PE/Environmental for Phase 1 \$141,000	Final Design \$292,000		Construction \$2,360,000		
Fremont Boulevard Phase 1		PE/Environmental for Phase 1 \$259,000	Final Design \$535,000		Construction \$4,381,000		
Peralta Boulevard Phase 1		PE/Environmental for Phase 1 \$529,000	Final Design \$1,093,000 Right of Way \$866,000		Construction \$8,837,000		
Mowry Avenue Phase 1		PE/Environmental for Phase 1 \$120,000	Final Design \$248,000 Right of Way \$1,336,000		Construction \$1,898,000		
NOTES: *Caltrans relinquishment process includes negotiating with City on state-of-good-repair scope and cost and completing a PSSR once relinquishment legislation is passed. **City relinquishment process includes initiating and passing state legislation, analyzing and estimating cost of state of good repair work, negotiating with Caltrans, and right-of-way mapping. ***LATIP process excludes: possible Union City zoning changes, preparing excess land mapping, appraising excess land, selling excess land, and reimbursing project via CTC action. 1. Begin as soon as relinquishment is done if funding is advanced.							

TABLE 4: TOTAL DESIGN AND CONSTRUCTION COSTS						
	17/18	18/19	19/20	20/21	21/22	Total
Thornton Avenue	\$141,000	\$195,000	\$569,000	\$944,000	\$944,000	\$2,793,000
Fremont Boulevard Phase 1	\$259,000	\$357,000	\$1,055,000	\$1,752,000	\$1,752,000	\$5,175,000
Peralta Boulevard Phase 1	\$529,000	\$1,595,000	\$2,132,000	\$3,535,000	\$3,535,000	\$11,325,000
Mowry Avenue Phase 1	\$120,000	\$1,501,000	\$462,000	\$759,000	\$759,000	\$3,601,000
Total	\$1,049,000	\$3,647,000	\$4,218,000	\$6,990,000	\$6,990,000	\$22,895,000

Appendix A: Cost Estimates by Phase

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Thornton Avenue Phase 1
 Project location and brief description:
 Thornton Avenue from Dondero Way to Fremont Boulevard. Pedestrian crossing enhancements, pedestrian/bicycle intersection improvements.

DATE: June 23, 2016
 REV: 0

TYPE OF ESTIMATE: Initial
 PREPARED BY: Fehr & Peers

Indicates Inputs from Detailed Cost Estimate Form

SUMMARY OF PROJECT OUTLAY COSTS BY PHASE

	I. TOTAL CONSTRUCTION COSTS (TCC).....		\$ 1,650,726
	II. ESCALATED TOTAL CONSTRUCTION COSTS (ETCC).....		\$ 1,734,504
	III. RISK BASED ALLOWANCES (RBA).....		\$ 232,255
CONSTRUCTION PHASE	IV. DESIGN SERVICES DURING CONSTRUCTION 1.5% OF TCC)..	1.5%	\$ 24,761
	V. CONSTRUCTION STAKING (2.5% OF TCC).....	2.5%	\$ 41,268
	VI. CONSTRUCTION MANAGEMENT (13% OF TCC).....	13.0%	\$ 214,594
	VII. CITY ADMINISTRATION (6% OF TCC+RBA).....	6.0%	\$ 112,979
	TOTAL CONSTRUCTION PHASE (ETCC+ITEMS III THROUGH VII)		\$ 2,360,361
RIGHT OF WAY	VIII. RIGHT OF WAY		\$ -
PE/ ENVIRONMENTAL PHASE	IX. CONCEPTUAL ENGINEERING STUDIES (3% OF TCC+RBA).....	3.0%	\$ 56,489
	X. ENVIRONMENTAL STUDIES (3% OF TCC+RBA).....	3.0%	\$ 56,489
	XI. CITY ADMINISTRATION (1.5% OF TCC+RBA).....	1.5%	\$ 28,245
	TOTAL PRELIMINARY ENGINEERING/ENVIRONMENTAL		\$ 141,224
DESIGN PHASE	XII. DESIGN ENGINEERING (13% OF TCC+RBA).....	13.0%	\$ 244,787
	XIII. CITY ADMINISTRATION (2.5% OF TCC+RBA).....	2.5%	\$ 47,075
	TOTAL FINAL DESIGN		\$ 291,862
TOTAL PROJECT COSTS			\$ 2,793,447

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Fremont Boulevard Phase 1
 Project location and brief description:

DATE: June 23, 2016
 REV: 0

Fremont Boulevard from Alder Avenue to Mattos Drive. Complete streets improvements including improved sidewalks, bike lanes, enhanced pedestrian crossings, landscaping, and green infrastructure, and updated railroad crossing gates (including pedestrian control).

TYPE OF ESTIMATE: Initial
 PREPARED BY: Fehr & Peers

Indicates Inputs from Detailed Cost Estimate Form

SUMMARY OF PROJECT OUTLAY COSTS BY PHASE

	I. TOTAL CONSTRUCTION COSTS (TCC).....		\$ 2,991,604
	II. ESCALATED TOTAL CONSTRUCTION COSTS (ETCC).....		\$ 3,206,304
	III. RISK BASED ALLOWANCES (RBA).....		\$ 459,193
CONSTRUCTION PHASE	IV. DESIGN SERVICES DURING CONSTRUCTION.....	1.5%	\$ 44,874
	V. CONSTRUCTION STAKING.....	2.5%	\$ 74,790
	VI. CONSTRUCTION MANAGEMENT	13.0%	\$ 388,909
	VII. CITY ADMINISTRATION.....	6.0%	\$ 207,048
	TOTAL CONSTRUCTION PHASE (ETCC+ITEMS III THROUGH VII)		\$ 4,381,118
RIGHT OF WAY	VIII. RIGHT OF WAY		\$ -
	IX. CONCEPTUAL ENGINEERING STUDIES (3% OF TCC+RBA)...	3.0%	\$ 103,524
PE/ ENVIRONMENTAL PHASE	X. ENVIRONMENTAL STUDIES (3% OF TCC+RBA).....	3.0%	\$ 103,524
	XI. CITY ADMINISTRATION (1.5% OF TCC+RBA).....	1.5%	\$ 51,762
	TOTAL PRELIMINARY ENGINEERING/ENVIRONMENTAL		\$ 258,810
	XII. DESIGN ENGINEERING (13% OF TCC+RBA).....	13.0%	\$ 448,604
DESIGN PHASE	XIII. CITY ADMINISTRATION (2.5% OF TCC+RBA).....	2.5%	\$ 86,270
	TOTAL FINAL DESIGN		\$ 534,874
	TOTAL PROJECT COSTS		\$ 5,174,801

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Peralta Boulevard Phase 1

DATE: June 23, 2016
 REV: 0

Project location and brief description:

Peralta Boulevard from Fremont Avenue to Camden Street: Complete streets improvements including improved sidewalks, landscaping, and green infrastructure. Camden Street to Mowry Avenue: RRFBs and reduced curb radii at Acacia Street. Roundabout at Peralta Avenue/Mowry Avenue intersection. Includes pedestrian hybrid beacons at multilane approaches to roundabout.

TYPE OF ESTIMATE: Initial
 PREPARED BY: Fehr & Peers

Indicates Inputs from Detailed Cost Estimate Form

SUMMARY OF PROJECT OUTLAY COSTS BY PHASE

	I. TOTAL CONSTRUCTION COSTS (TCC).....		\$ 5,635,553
	II. ESCALATED TOTAL CONSTRUCTION COSTS (ETCC).....		\$ 6,040,003
	III. RISK BASED ALLOWANCES (RBA).....		\$ 1,415,566
CONSTRUCTION PHASE	IV. DESIGN SERVICES DURING CONSTRUCTION.....	1.5%	\$ 84,533
	V. CONSTRUCTION STAKING.....	2.5%	\$ 140,889
	VI. CONSTRUCTION MANAGEMENT	13.0%	\$ 732,622
	VII. CITY ADMINISTRATION.....	6.0%	\$ 423,067
	TOTAL CONSTRUCTION PHASE (ETCC+ITEMS III THROUGH VII)		\$ 8,836,679
RIGHT OF WAY	VIII. RIGHT OF WAY		\$ 866,435
	IX. CONCEPTUAL ENGINEERING STUDIES (3% OF TCC+RBA)...	3.0%	\$ 211,534
PE/ ENVIRONMENTAL PHASE	X. ENVIRONMENTAL STUDIES (3% OF TCC+RBA).....	3.0%	\$ 211,534
	XI. CITY ADMINISTRATION (1.5% OF TCC+RBA).....	1.5%	\$ 105,767
	TOTAL PRELIMINARY ENGINEERING/ENVIRONMENTAL		\$ 528,834
	XII. DESIGN ENGINEERING (13% OF TCC+RBA).....	13.0%	\$ 916,645
DESIGN PHASE	XIII. CITY ADMINISTRATION (2.5% OF TCC+RBA).....	2.5%	\$ 176,278
	TOTAL FINAL DESIGN		\$ 1,092,923
	TOTAL PROJECT COSTS		\$ 11,324,872

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Mowry Avenue Phase 1
 Project location and brief description:
 Mowry Avenue from Peralta Boulevard to Overacker Avenue: Complete streets improvements including sidewalk and green infrastructure.

DATE: June 23, 2016
 REV: 0

TYPE OF ESTIMATE: Initial
 PREPARED BY: Fehr & Peers

Indicates Inputs from Detailed Cost Estimate Form

SUMMARY OF PROJECT OUTLAY COSTS BY PHASE

	I. TOTAL CONSTRUCTION COSTS (TCC).....		\$ 834,526
	II. ESCALATED TOTAL CONSTRUCTION COSTS (ETCC).....		\$ 894,418
	III. RISK BASED ALLOWANCES (RBA).....		\$ 765,322
CONSTRUCTION PHASE	IV. DESIGN SERVICES DURING CONSTRUCTION.....	1.5%	\$ 12,518
	V. CONSTRUCTION STAKING.....	2.5%	\$ 20,863
	VI. CONSTRUCTION MANAGEMENT	13.0%	\$ 108,488
	VII. CITY ADMINISTRATION.....	6.0%	\$ 95,991
	TOTAL CONSTRUCTION PHASE (ETCC+ITEMS III THROUGH VII)		\$ 1,897,600
RIGHT OF WAY	VIII. RIGHT OF WAY		\$ 1,335,706
	IX. CONCEPTUAL ENGINEERING STUDIES (3% OF TCC+RBA)...	3.0%	\$ 47,995
PE/ ENVIRONMENTAL PHASE	X. ENVIRONMENTAL STUDIES (3% OF TCC+RBA).....	3.0%	\$ 47,995
	XI. CITY ADMINISTRATION (1.5% OF TCC+RBA).....	1.5%	\$ 23,998
	TOTAL PRELIMINARY ENGINEERING/ENVIRONMENTAL		\$ 119,989
	XII. DESIGN ENGINEERING (13% OF TCC+RBA).....	13.0%	\$ 207,980
DESIGN PHASE	XIII. CITY ADMINISTRATION (2.5% OF TCC+RBA).....	2.5%	\$ 39,996
	TOTAL FINAL DESIGN		\$ 247,976
	TOTAL PROJECT COSTS		\$ 3,601,271

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Thornton Avenue

DATE: June 8, 2016
 REV: 0

Project location and brief description:
 Thornton Avenue from Dondero Way to Fremont Boulevard. Pedestrian crossing enhancements, pedestrian/bicycle intersection improvements.

In addition to the below costs, an additional amount \$165,072 (10% of total construction cost TCC) is needed for City of Fremont staff time for project administration. This results in Total Project Costs of \$2,726,092.

TYPE OF ESTIMATE Initial
 PREPARED BY: Fehr & Peers

Indicates Sponsor Input

SUMMARY OF PROJECT OUTLAY COSTS

I. ROADWAY	}	.....	ETCC	\$	1,734,504
II. STRUCTURES					
III. RIGHT OF WAY		.....		\$	-
IV. CONCEPTUAL ENGINEERING STUDIES		.....		\$	49,522
V. ENVIRONMENTAL STUDIES		.....		\$	49,522
VI. DESIGN ENGINEERING		.....		\$	214,594
VII. DESIGN SERVICES DURING CONSTRUCTION		.....		\$	24,761
VIII. CONSTRUCTION STAKING		.....		\$	41,268
IX. CONSTRUCTION MANAGEMENT		.....		\$	214,594
X. RISK BASED ALLOWANCES		.....		\$	232,255
TOTAL PROJECT COSTS				\$	2,561,020
(Sum of ETCC and sections III through X)					

Project Cost Estimate Summary, Sections I through X

SPONSOR City of Fremont DATE: June 8, 2016
 PROJECT Thornton Avenue REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 18,400	\$ 18,400
I.2 Total Pavement Structural Section	LS	N/A	\$ 223,500	\$ 223,500
I.3 Total Drainage	LS	N/A	\$ 10,000	\$ 10,000
I.4 Total Specialty Items	LS	N/A	\$ -	\$ -
I.5 Total Traffic Items	LS	N/A	\$ 820,000	\$ 820,000
I.6 Total Planting and Irrigation	LS	N/A	\$ -	\$ -
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 107,190
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 117,909
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 117,909
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 235,818
				=====
TOTAL FOR SECTION I. ROADWAY				\$ 1,650,726

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
					=====
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 1,650,726

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPONENT PRICE	TOTAL COST
III.1 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
				=====
TOTAL FOR SECTION III. RIGHT OF WAY				\$ -

ENGINEERING AND MANAGEMENT COSTS	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 1,650,726	\$ 49,522
V. ENVIRONMENTAL STUDIES	3%	\$ 1,650,726	\$ 49,522
VI. DESIGN ENGINEERING	13%	\$ 1,650,726	\$ 214,594
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 1,650,726	\$ 24,761
VIII. CONSTRUCTION STAKING	2.5%	\$ 1,650,726	\$ 41,268
IX. CONSTRUCTION MANAGEMENT	13%	\$ 1,650,726	\$ 214,594

X. RISK BASED ALLOWANCES	RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)	Low 10%	\$ 223,500	\$ 22,350	
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)	Low 5%	\$ 251,900	\$ 12,595	
X.3 Environmental (section I.4, I.6, III, IV, V)	Low 10%	\$ 99,044	\$ 9,904	
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)	Med 15%	\$ 956,309	\$ 143,446	
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)	Low 5%	\$ 251,900	\$ 12,595	
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)	Low 10%	\$ 313,638	\$ 31,364	
X.7 Other Issues (sponsor defined allowance and sections)	0%	\$ -	\$ -	
				=====
TOTAL FOR SECTION X. RISK BASED ALLOWANCES				\$ 232,255

ESCALATION	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2018	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	2.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 1,650,726	
6. Total Escalation	1.05	
		=====
ESCALATED TOTAL CONSTRUCTION COST (ETCC)	\$ 1,734,504	\$ 1,734,504

To escalate the TCC to midpoint of construction:

Total Escalation =

where:

ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

*1. Anticipated year to begin construction 2020
 *2. Estimated construction duration 1

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 2,561,020

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Fremont Boulevard Phase 1

DATE: June 8, 2016
 REV: 0

Project location and brief description:

Fremont Boulevard from Alder Avenue to Mattos Drive. Complete streets improvements including improved sidewalks, bike lanes, enhanced pedestrian crossings, landscaping, and green infrastructure.

In addition to the below costs, an additional amount \$299,160 (10% of total construction cost TCC) is needed for City of Fremont staff time for project administration. This results in Total Project Costs of \$5,041,635.

TYPE OF ESTIMATE Initial
 PREPARED BY: Fehr & Peers

Indicates Sponsor Input

SUMMARY OF PROJECT OUTLAY COSTS

I. ROADWAY	}		ETCC	\$	3,206,304
II. STRUCTURES					
III. RIGHT OF WAY				\$	-
IV. CONCEPTUAL ENGINEERING STUDIES				\$	89,748
V. ENVIRONMENTAL STUDIES				\$	89,748
VI. DESIGN ENGINEERING				\$	388,909
VII. DESIGN SERVICES DURING CONSTRUCTION				\$	44,874
VIII. CONSTRUCTION STAKING				\$	74,790
IX. CONSTRUCTION MANAGEMENT				\$	388,909
X. RISK BASED ALLOWANCES				\$	459,193
TOTAL PROJECT COSTS				\$	4,742,475
(Sum of ETCC and sections III through X)					

Project Cost Estimate Summary, Sections I through X

SPONSOR City of Fremont DATE: June 8, 2016
 PROJECT Fremont Boulevard Phase 1 REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 14,600	\$ 14,600
I.2 Total Pavement Structural Section	LS	N/A	\$ 258,000	\$ 258,000
I.3 Total Drainage	LS	N/A	\$ 50,000	\$ 50,000
I.4 Total Specialty Items	LS	N/A	\$ -	\$ -
I.5 Total Traffic Items	LS	N/A	\$ 1,570,000	\$ 1,570,000
I.6 Total Planting and Irrigation	LS	N/A	\$ 50,000	\$ 50,000
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 194,260
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 213,686
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 213,686
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 427,372
				=====
TOTAL FOR SECTION I. ROADWAY				\$ 2,991,604

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPOONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
					=====
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 2,991,604

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
III.1 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
				=====
TOTAL FOR SECTION III. RIGHT OF WAY				\$ -

ENGINEERING AND MANAGEMENT COSTS	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 2,991,604	\$ 89,748
V. ENVIRONMENTAL STUDIES	3%	\$ 2,991,604	\$ 89,748
VI. DESIGN ENGINEERING	13%	\$ 2,991,604	\$ 388,909
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 2,991,604	\$ 44,874
VIII. CONSTRUCTION STAKING	2.5%	\$ 2,991,604	\$ 74,790
IX. CONSTRUCTION MANAGEMENT	13%	\$ 2,991,604	\$ 388,909

X. RISK BASED ALLOWANCES	RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)	Med 30%	\$ 258,000	\$ 77,400	
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)	Low 5%	\$ 322,600	\$ 16,130	
X.3 Environmental (section I.4, I.6, III, IV, V)	Low 10%	\$ 229,496	\$ 22,950	
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)	Med 15%	\$ 1,798,286	\$ 269,743	
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)	Low 5%	\$ 322,600	\$ 16,130	
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)	Low 10%	\$ 568,405	\$ 56,840	
X.7 Other Issues (sponsor defined allowance and sections)	0%	\$ -	\$ -	
				=====
TOTAL FOR SECTION X. RISK BASED ALLOWANCES				\$ 459,193

ESCALATION	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2019	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	3.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 2,991,604	
6. Total Escalation	1.07	
		=====
ESCALATED TOTAL CONSTRUCTION COST (ETCC)	\$ 3,206,304	\$ 3,206,304

To escalate the TCC to midpoint of construction:
 Total Escalation =
 where:

ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

*1. Anticipated year to begin construction 2020
 *2. Estimated construction duration 1

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 4,742,475

Project Cost Estimate Section I. Roadway, Subsections 1-7

SPONSOR: City of Fremont DATE: June 8, 2016
 PROJECT: Fremont Boulevard Phase 1 REV: 0

GROUP CODE	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	TOTAL COST
01 EARTHWORK					
01	Roadway Excavation	CY	\$20.00	730	\$14,600
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
SUBTOTAL FOR ITEM 01 EARTHWORK					\$14,600
02 PAVEMENT STRUCTURAL SECTION					
02	Asphalt Pavement	SF	\$10.00	8,000	\$80,000
02	Concrete Curb & Gutter	LF	\$40.00	1,100	\$44,000
02	Concrete Sidewalk	SF	\$10.00	5,000	\$50,000
02	Curb Ramp	EA	\$3,500.00	24	\$84,000
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
SUBTOTAL FOR ITEM 02 PAVEMENT STRUCTURAL SECTION					\$258,000
03 DRAINAGE					
03	Storm Drain Modifications	LS	\$50,000.00	1	\$50,000
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
SUBTOTAL FOR ITEM 03 DRAINAGE					\$50,000
04 SPECIALTY ITEMS					
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
SUBTOTAL FOR ITEM 04 SPECIALTY ITEMS					\$0
05 TRAFFIC ITEMS					
05	Striping	LS	\$30,000.00	1	\$30,000
05			\$0.00		\$0
05	Thornton Ave Signal Modification	LS	\$300,000.00	1	\$300,000
05	Peralta Blvd Signal Modification	LS	\$150,000.00	1	\$150,000
05	Central Ave Signal Modification	LS	\$150,000.00	1	\$150,000
05	Pedestrian Gates at Railroad Crossing	LS	\$800,000.00	1	\$800,000
05			\$0.00		\$0
05			\$0.00		\$0
05	Rectangular Rapid Flash Beacon Crossing	EA	\$20,000.00	7	\$140,000
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
SUBTOTAL FOR ITEM 05 TRAFFIC ITEMS					\$1,570,000
06 PLANTING AND IRRIGATION					
06			\$0.00		\$0
06	Tree Wells	LS	\$50,000.00	1	\$50,000
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
SUBTOTAL FOR ITEM 06 PLANTING AND IRRIGATION					\$50,000
07 ROADSIDE MANAGEMENT AND SAFETY SECTION					
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
SUBTOTAL FOR ITEM 07 ROADSIDE MANAGEMENT AND SAFETY SECTION					\$0
TOTAL FOR SECTIONS I.1 THROUGH I.7 =					\$1,942,600

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Fremont Boulevard Phase 2

DATE: June 8, 2016
 REV: 0

Project location and brief description:

Fremont Boulevard from Alder Avenue to Mattos Drive. Complete streets improvements including improved sidewalks, bike lanes, enhanced pedestrian crossings, landscaping, and green infrastructure.

In addition to the below costs, an additional amount \$193,116 (10% of total construction cost TCC) is needed for City of Fremont staff time for project administration. This results in Total Project Costs of \$5,222,241.

TYPE OF ESTIMATE Initial
 PREPARED BY: Fehr & Peers

Indicates Sponsor Input

SUMMARY OF PROJECT OUTLAY COSTS

I. ROADWAY	}	ETCC	\$	2,196,440
II. STRUCTURES				
III. RIGHT OF WAY			\$	1,253,067
IV. CONCEPTUAL ENGINEERING STUDIES			\$	57,935
V. ENVIRONMENTAL STUDIES			\$	57,935
VI. DESIGN ENGINEERING			\$	251,051
VII. DESIGN SERVICES DURING CONSTRUCTION			\$	28,967
VIII. CONSTRUCTION STAKING			\$	48,279
IX. CONSTRUCTION MANAGEMENT			\$	251,051
X. RISK BASED ALLOWANCES			\$	884,400
TOTAL PROJECT COSTS			\$	5,029,125
(Sum of ETCC and sections III through X)				

Project Cost Estimate Summary, Sections I through X

SPONSOR City of Fremont DATE: June 8, 2016
 PROJECT Fremont Boulevard Phase 2 REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 45,000	\$ 45,000
I.2 Total Pavement Structural Section	LS	N/A	\$ 323,000	\$ 323,000
I.3 Total Drainage	LS	N/A	\$ 100,000	\$ 100,000
I.4 Total Specialty Items	LS	N/A	\$ 150,000	\$ 150,000
I.5 Total Traffic Items	LS	N/A	\$ 150,000	\$ 150,000
I.6 Total Planting and Irrigation	LS	N/A	\$ 486,000	\$ 486,000
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 125,400
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 137,940
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 137,940
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 275,880
				=====
TOTAL FOR SECTION I. ROADWAY				\$ 1,931,160

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPOONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
					=====
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 1,931,160

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
III.1 Multiple Parcels along Fremont Boulevard	LS	N/A	\$ 1,253,067	\$ 1,253,067
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
				=====
TOTAL FOR SECTION III. RIGHT OF WAY				\$ 1,253,067

ENGINEERING AND MANAGEMENT COSTS	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 1,931,160	\$ 57,935
V. ENVIRONMENTAL STUDIES	3%	\$ 1,931,160	\$ 57,935
VI. DESIGN ENGINEERING	13%	\$ 1,931,160	\$ 251,051
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 1,931,160	\$ 28,967
VIII. CONSTRUCTION STAKING	2.5%	\$ 1,931,160	\$ 48,279
IX. CONSTRUCTION MANAGEMENT	13%	\$ 1,931,160	\$ 251,051

X. RISK BASED ALLOWANCES	RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)	Med 30%	\$ 1,576,067	\$ 472,820	
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)	Low 5%	\$ 618,000	\$ 30,900	
X.3 Environmental (section I.4, I.6, III, IV, V)	Low 10%	\$ 2,004,937	\$ 200,494	
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)	Med 15%	\$ 332,940	\$ 49,941	
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)	Low 5%	\$ 1,871,067	\$ 93,553	
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)	Low 10%	\$ 366,920	\$ 36,692	
X.7 Other Issues (sponsor defined allowance and sections)	0%	\$ -	\$ -	
				=====
TOTAL FOR SECTION X. RISK BASED ALLOWANCES				\$ 884,400

ESCALATION	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2022	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	6.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 1,931,160	
6. Total Escalation	1.14	
		=====
ESCALATED TOTAL CONSTRUCTION COST (ETCC)	\$ 2,196,440	\$ 2,196,440

To escalate the TCC to midpoint of construction:
 Total Escalation =
 where:

ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

¹. Anticipated year to begin construction 2020
². Estimated construction duration

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 5,029,125

Project Cost Estimate Summary, Sections I through X

SPONSOR City of Fremont DATE: June 8, 2016
 PROJECT Peralta Boulevard Phase 1 REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 109,200	\$ 109,200
I.2 Total Pavement Structural Section	LS	N/A	\$ 798,000	\$ 798,000
I.3 Total Drainage	LS	N/A	\$ 100,000	\$ 100,000
I.4 Total Specialty Items	LS	N/A	\$ -	\$ -
I.5 Total Traffic Items	LS	N/A	\$ 40,000	\$ 40,000
I.6 Total Planting and Irrigation	LS	N/A	\$ 758,000	\$ 758,000
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 180,520
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 198,572
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 198,572
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 397,144
				=====
TOTAL FOR SECTION I. ROADWAY				\$ 2,780,008

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPOONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
					=====
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 2,780,008

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
III.1 Multiple Parcels along Peralta Boulevard	LS	N/A	\$ 866,435	\$ 866,435
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
				=====
TOTAL FOR SECTION III. RIGHT OF WAY				\$ 866,435

ENGINEERING AND MANAGEMENT COSTS	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 2,780,008	\$ 83,400
V. ENVIRONMENTAL STUDIES	3%	\$ 2,780,008	\$ 83,400
VI. DESIGN ENGINEERING	13%	\$ 2,780,008	\$ 381,401
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 2,780,008	\$ 41,700
VIII. CONSTRUCTION STAKING	2.5%	\$ 2,780,008	\$ 69,500
IX. CONSTRUCTION MANAGEMENT	13%	\$ 2,780,008	\$ 361,401

X. RISK BASED ALLOWANCES	RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)		Med 30%	\$ 1,664,435	\$ 499,331
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)		Low 5%	\$ 1,007,200	\$ 50,360
X.3 Environmental (section I.4, I.6, III, IV, V)		Low 10%	\$ 1,791,235	\$ 179,124
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)		Med 15%	\$ 347,772	\$ 52,166
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)		Low 5%	\$ 1,873,635	\$ 93,682
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)		Low 10%	\$ 528,202	\$ 52,820
X.7 Other Issues (sponsor defined allowance and sections)		0%	\$ -	\$ -
				=====
TOTAL FOR SECTION X. RISK BASED ALLOWANCES				\$ 927,482

ESCALATION	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2019	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	3.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 2,780,008	
6. Total Escalation	1.07	
		=====
ESCALATED TOTAL CONSTRUCTION COST (ETCC)	\$ 2,979,522	\$ 2,979,522

To escalate the TCC to midpoint of construction:
 Total Escalation =
 where:
 ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

*1. Anticipated year to begin construction 2020
 *2. Estimated construction duration 1

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 5,774,242

Project Cost Estimate Summary, Sections I through X

SPONSOR City of Fremont DATE: June 8, 2016
 PROJECT Peralta Boulevard Phase 2 REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 200,000	\$ 200,000
I.2 Total Pavement Structural Section	LS	N/A	\$ 1,555,000	\$ 1,555,000
I.3 Total Drainage	LS	N/A	\$ 250,000	\$ 250,000
I.4 Total Specialty Items	LS	N/A	\$ -	\$ -
I.5 Total Traffic Items	LS	N/A	\$ 2,184,250	\$ 2,184,250
I.6 Total Planting and Irrigation	LS	N/A	\$ 1,620,000	\$ 1,620,000
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 580,925
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 639,018
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 639,018
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 1,278,035
TOTAL FOR SECTION I. ROADWAY				\$ 8,946,245

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPOONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 8,946,245

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
III.1 Multiple Parcels along Boulevard	LS	N/A	\$ 1,289,201	\$ 1,289,201
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
TOTAL FOR SECTION III. RIGHT OF WAY				\$ 1,289,201

ENGINEERING AND MANAGEMENT COSTS	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 8,946,245	\$ 268,387
V. ENVIRONMENTAL STUDIES	3%	\$ 8,946,245	\$ 268,387
VI. DESIGN ENGINEERING	13%	\$ 8,946,245	\$ 1,163,012
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 8,946,245	\$ 134,194
VIII. CONSTRUCTION STAKING	2.5%	\$ 8,946,245	\$ 223,656
IX. CONSTRUCTION MANAGEMENT	13%	\$ 8,946,245	\$ 1,163,012

X. RISK BASED ALLOWANCES	RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)	Med 30%	\$ 2,844,201	\$ 853,260	
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)	Low 5%	\$ 2,005,000	\$ 100,250	
X.3 Environmental (section I.4, I.6, III, IV, V)	Low 10%	\$ 3,445,976	\$ 344,598	
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)	Med 15%	\$ 3,023,268	\$ 453,490	
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)	Low 5%	\$ 3,294,201	\$ 164,710	
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)	Low 10%	\$ 1,699,787	\$ 169,979	
X.7 Other Issues (sponsor defined allowance and sections)	0%	\$ -	\$ -	
TOTAL FOR SECTION X. RISK BASED ALLOWANCES				\$ 2,086,287

ESCALATION	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2022	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	6.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 8,946,245	
6. Total Escalation	1.14	
ESCALATED TOTAL CONSTRUCTION COST (ETCC)	\$ 10,175,175	\$ 10,175,175

To escalate the TCC to midpoint of construction:

Total Escalation =

where:

ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

¹. Anticipated year to begin construction 2020
². Estimated construction duration

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 16,771,311

Project Cost Estimate Section I. Roadway, Subsections 1-7

SPONSOR: City of Fremont DATE: June 8, 2016
 PROJECT: Peralta Boulevard Phase 2 REV: 0

GROUP CODE	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	TOTAL COST
01 EARTHWORK					
01	Grading	LS	\$200,000.00	1	\$200,000
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
01			\$0.00		\$0
SUBTOTAL FOR ITEM 01 EARTHWORK					=====
					\$200,000
02 PAVEMENT STRUCTURAL SECTION					
02	Asphalt Pavement	SF	\$10.00	20,000	\$200,000
02	Concrete Curb & Gutter	LF	\$40.00	10,000	\$400,000
02	Concrete Sidewalk	SF	\$10.00	60,000	\$600,000
02	Curb Ramp	EA	\$3,500.00	30	\$105,000
02	Concrete Curb (Median)	LF	\$25.00	10,000	\$250,000
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
02			\$0.00		\$0
SUBTOTAL FOR ITEM 02 PAVEMENT STRUCTURAL SECTION					=====
					\$1,555,000
03 DRAINAGE					
03	Storm Drain Modifications (Not including green infrastr	LS	\$250,000.00	1	\$250,000
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
03			\$0.00		\$0
SUBTOTAL FOR ITEM 03 DRAINAGE					=====
					\$250,000
04 SPECIALTY ITEMS					
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
04			\$0.00		\$0
SUBTOTAL FOR ITEM 04 SPECIALTY ITEMS					=====
					\$0
05 TRAFFIC ITEMS					
05	Striping	LS	\$30,000.00	1	\$30,000
05	Paseo Padre Signal Modification	LS	\$300,000.00	1	\$300,000
05	Mowry/Peralta Roundabout	LS	\$1,854,250.00	1	\$1,854,250
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
05			\$0.00		\$0
SUBTOTAL FOR ITEM 05 TRAFFIC ITEMS					=====
					\$2,184,250
06 PLANTING AND IRRIGATION					
06	Planting Areas with Green Infrastructure	SF	\$15.00	60,000	\$900,000
06	Median Landscaping	SF	\$10.00	72,000	\$720,000
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
06			\$0.00		\$0
SUBTOTAL FOR ITEM 06 PLANTING AND IRRIGATION					=====
					\$1,620,000
07 ROADSIDE MANAGEMENT AND SAFETY SECTION					
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
07			\$0.00		\$0
SUBTOTAL FOR ITEM 07 ROADSIDE MANAGEMENT AND SAFETY SECTION					=====
					\$0
TOTAL FOR SECTIONS I.1 THROUGH I.7 =					\$5,809,250

Project Cost Estimate Summary, Sections I through X

SPONSOR: City of Fremont
PROJECT: Peralta Boulevard/Mowry Avenue

DATE: June 23, 2016
REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPRONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 140,000	\$ 140,000
I.2 Total Pavement Structural Section	LS	N/A	\$ 527,250	\$ 527,250
I.3 Total Drainage	LS	N/A	\$ 50,000	\$ 50,000
I.4 Total Specialty Items	LS	N/A	\$ -	\$ -
I.5 Total Traffic Items	LS	N/A	\$ 430,000	\$ 430,000
I.6 Total Planting and Irrigation	LS	N/A	\$ 707,000	\$ 707,000
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 185,425
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 203,968
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 203,968
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 407,935
TOTAL FOR SECTION I. ROADWAY				\$ 2,855,545

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPRONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 2,855,545

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPRONENT PRICE	TOTAL COST
III.1 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
TOTAL FOR SECTION III. RIGHT OF WAY				\$ -

ENGINEERING AND MANAGEMENT COSTS

Note: Depending on the project's level of development, Sections IV through VI may not be applicable.

	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 2,855,545	\$ 85,666
V. ENVIRONMENTAL STUDIES	3%	\$ 2,855,545	\$ 85,666
VI. DESIGN ENGINEERING	13%	\$ 2,855,545	\$ 371,221
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 2,855,545	\$ 42,833
VIII. CONSTRUCTION STAKING	2.5%	\$ 2,855,545	\$ 71,389
IX. CONSTRUCTION MANAGEMENT	13%	\$ 2,855,545	\$ 371,221

X. RISK BASED ALLOWANCES

RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)	Med 30%	\$ 527,250	\$ 158,175
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)	Low 5%	\$ 717,250	\$ 35,863
X.3 Environmental (section I.4, I.6, III, IV, V)	Low 10%	\$ 878,333	\$ 87,833
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)	Med 15%	\$ 773,968	\$ 116,095
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)	Low 5%	\$ 717,250	\$ 35,863
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)	Low 10%	\$ 542,554	\$ 54,255
X.7 Other Issues (sponsor defined allowance and sections)	0%	\$ -	\$ -
TOTAL FOR SECTION X. RISK BASED ALLOWANCES			\$ 488,084

ESCALATION

	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2019	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	3.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 2,855,545	
6. Total Escalation	1.07	
ESCALATED TOTAL CONSTRUCTION COST (ETCC)		\$ 3,060,480

To escalate the TCC to midpoint of construction:

Total Escalation =

where:

ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

- *1. Anticipated year to begin construction 2020
- *2. Estimated construction duration

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 4,576,560

Project Cost Estimate Section I. Roadway, Subsections 1-7

SPONSOR: City of Fremont DATE: June 23, 2016
 PROJECT: Peralta Boulevard/Mowry Avenue REV: 0

GROUP CODE	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	TOTAL COST	
01 EARTHWORK						
01	Clearing & Grubbing	SF	\$1.00	90,000	\$90,000	
01	Grading	LS	\$50,000.00	1	\$50,000	
01			\$0.00		\$0	
01			\$0.00		\$0	
01			\$0.00		\$0	
01			\$0.00		\$0	
01			\$0.00		\$0	
01			\$0.00		\$0	
01			\$0.00		\$0	
01			\$0.00		\$0	
01			\$0.00		\$0	
SUBTOTAL FOR ITEM 01 EARTHWORK					=====	\$140,000
02 PAVEMENT STRUCTURAL SECTION						
02	Asphalt Pavement	SF	\$10.00	25,000	\$250,000	
02	Concrete Curb & Gutter	LF	\$40.00	2,500	\$100,000	
02	Concrete Sidewalk	SF	\$10.00	12,000	\$120,000	
02	Curb Ramp	EA	\$3,500.00	6	\$21,000	
02	Concrete Curb (Median)	LF	\$25.00	1,450	\$36,250	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
02			\$0.00		\$0	
SUBTOTAL FOR ITEM 02 PAVEMENT STRUCTURAL SECTION					=====	\$527,250
03 DRAINAGE						
03	Storm Drain Modifications (Not including green infrastruc	LS	\$50,000.00	1	\$50,000	
03			\$0.00		\$0	
03			\$0.00		\$0	
03			\$0.00		\$0	
03			\$0.00		\$0	
03			\$0.00		\$0	
03			\$0.00		\$0	
03			\$0.00		\$0	
03			\$0.00		\$0	
SUBTOTAL FOR ITEM 03 DRAINAGE					=====	\$50,000
04 SPECIALTY ITEMS						
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
04			\$0.00		\$0	
SUBTOTAL FOR ITEM 04 SPECIALTY ITEMS					=====	\$0
05 TRAFFIC ITEMS						
05	Peralta/Mowry Intersection Striping	LS	\$30,000.00	1	\$30,000	
05	Pedestrian Hybrid Beacon	EA	\$100,000.00	4	\$400,000	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
05			\$0.00		\$0	
SUBTOTAL FOR ITEM 05 TRAFFIC ITEMS					=====	\$430,000
06 PLANTING AND IRRIGATION						
06	Planting Areas with Green Infrastructure	SF	\$15.00	20,000	\$300,000	
06	Median Landscaping	SF	\$10.00	10,700	\$107,000	
06	Other landscaping treatment	SF	\$10.00	30,000	\$300,000	
06			\$0.00		\$0	
06			\$0.00		\$0	
06			\$0.00		\$0	
06			\$0.00		\$0	
06			\$0.00		\$0	
06			\$0.00		\$0	
06			\$0.00		\$0	
06			\$0.00		\$0	
SUBTOTAL FOR ITEM 06 PLANTING AND IRRIGATION					=====	\$707,000
07 ROADSIDE MANAGEMENT AND SAFETY SECTION						
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
07			\$0.00		\$0	
SUBTOTAL FOR ITEM 07 ROADSIDE MANAGEMENT AND SAFETY SECTION					=====	\$0
TOTAL FOR SECTIONS I.1 THROUGH I.7 =						\$1,854,250

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Mowry Avenue Phase 1

DATE: June 8, 2016
 REV: 0

Project location and brief description:
 Mowry Avenue from Peralta Boulevard to Overacker Avenue: Complete streets improvements including sidewalk and green infrastructure.

In addition to the below costs, an additional amount \$83,452 (10% of total construction cost TCC) is needed for City of Fremont staff time for project administration. This results in Total Project Costs of \$3,379,327.

TYPE OF ESTIMATE Initial
 PREPARED BY: Fehr & Peers

Indicates Sponsor Input

SUMMARY OF PROJECT OUTLAY COSTS

I. ROADWAY	}	ETCC	\$	894,418
II. STRUCTURES				
III. RIGHT OF WAY			\$	1,335,706
IV. CONCEPTUAL ENGINEERING STUDIES			\$	25,036
V. ENVIRONMENTAL STUDIES			\$	25,036
VI. DESIGN ENGINEERING			\$	108,488
VII. DESIGN SERVICES DURING CONSTRUCTION			\$	12,518
VIII. CONSTRUCTION STAKING			\$	20,863
IX. CONSTRUCTION MANAGEMENT			\$	108,488
X. RISK BASED ALLOWANCES			\$	765,322
TOTAL PROJECT COSTS			\$	3,295,875
(Sum of ETCC and sections III through X)				

Project Cost Estimate Summary, Sections I through X

SPONSOR City of Fremont DATE: June 8, 2016
 PROJECT Mowry Avenue Phase 1 REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 15,400	\$ 15,400
I.2 Total Pavement Structural Section	LS	N/A	\$ 206,500	\$ 206,500
I.3 Total Drainage	LS	N/A	\$ -	\$ -
I.4 Total Specialty Items	LS	N/A	\$ -	\$ -
I.5 Total Traffic Items	LS	N/A	\$ 320,000	\$ 320,000
I.6 Total Planting and Irrigation	LS	N/A	\$ -	\$ -
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 54,190
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 59,609
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 59,609
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 119,218
				=====
TOTAL FOR SECTION I. ROADWAY				\$ 834,526

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
					=====
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 834,526

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPONENT PRICE	TOTAL COST
III.1 Multiple parcels along Mowry Avenue	LS	N/A	\$ 1,335,706	\$ 1,335,706
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
				=====
TOTAL FOR SECTION III. RIGHT OF WAY				\$ 1,335,706

ENGINEERING AND MANAGEMENT COSTS	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 834,526	\$ 25,036
V. ENVIRONMENTAL STUDIES	3%	\$ 834,526	\$ 25,036
VI. DESIGN ENGINEERING	13%	\$ 834,526	\$ 108,488
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 834,526	\$ 12,518
VIII. CONSTRUCTION STAKING	2.5%	\$ 834,526	\$ 20,863
IX. CONSTRUCTION MANAGEMENT	13%	\$ 834,526	\$ 108,488

X. RISK BASED ALLOWANCES	RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)	Med 30%	\$ 1,542,206	\$ 462,662	
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)	Low 5%	\$ 221,900	\$ 11,095	
X.3 Environmental (section I.4, I.6, III, IV, V)	Low 10%	\$ 1,385,778	\$ 138,578	
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)	Med 15%	\$ 395,009	\$ 59,251	
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)	Low 5%	\$ 1,557,606	\$ 77,880	
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)	Low 10%	\$ 158,560	\$ 15,856	
X.7 Other Issues (sponsor defined allowance and sections)	0%	\$ -	\$ -	
				=====
TOTAL FOR SECTION X. RISK BASED ALLOWANCES				\$ 765,322

ESCALATION	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2019	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	3.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 834,526	
6. Total Escalation	1.07	
		=====
ESCALATED TOTAL CONSTRUCTION COST (ETCC)	\$ 894,418	\$ 894,418

To escalate the TCC to midpoint of construction:

Total Escalation =

where:

ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

*1. Anticipated year to begin construction 2020
 *2. Estimated construction duration 1

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 3,295,875

Project Cost Estimate Summary

Project Sponsor: City of Fremont
 Project Name: Mowry Avenue Phase 2

DATE: June 8, 2016
 REV: 0

Project location and brief description:
 Mowry Avenue from Peralta Boulevard to Overacker Avenue: Complete streets improvements including sidewalk and green infrastructure.

In addition to the below costs, an additional amount \$174,944 (10% of total construction cost TCC) is needed for City of Fremont staff time for project administration. This results in Total Project Costs of \$3,147,480.

TYPE OF ESTIMATE Initial
 PREPARED BY: Fehr & Peers Indicates Sponsor Input

SUMMARY OF PROJECT OUTLAY COSTS

I. ROADWAY	}		ETCC	\$	1,989,758
II. STRUCTURES					
III. RIGHT OF WAY				\$	-
IV. CONCEPTUAL ENGINEERING STUDIES				\$	52,483
V. ENVIRONMENTAL STUDIES				\$	52,483
VI. DESIGN ENGINEERING				\$	227,427
VII. DESIGN SERVICES DURING CONSTRUCTION				\$	26,242
VIII. CONSTRUCTION STAKING				\$	43,736
IX. CONSTRUCTION MANAGEMENT				\$	227,427
X. RISK BASED ALLOWANCES				\$	352,980
TOTAL PROJECT COSTS				\$	2,972,536
(Sum of ETCC and sections III through X)					

Project Cost Estimate Summary, Sections I through X

SPONSOR City of Fremont DATE: June 8, 2016
 PROJECT Mowry Avenue Phase 2 REV: 0

Indicates Sponsor Input

I. ROADWAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
I.1 Total Earthwork	LS	N/A	\$ 76,000	\$ 76,000
I.2 Total Pavement Structural Section	LS	N/A	\$ 550,000	\$ 550,000
I.3 Total Drainage	LS	N/A	\$ 50,000	\$ 50,000
I.4 Total Specialty Items	LS	N/A	\$ -	\$ -
I.5 Total Traffic Items	LS	N/A	\$ 10,000	\$ 10,000
I.6 Total Planting and Irrigation	LS	N/A	\$ 450,000	\$ 450,000
I.7 Total Roadside Management	LS	N/A	\$ -	\$ -
I.8 Minor Items (5-10% of total cost of items I.1 thru I.7)	LS	10%	--	\$ 113,600
I.9 Roadway Mobilization (10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 124,960
I.10 Roadway Additions				
Supplemental Work (5-10% of total cost of items I.1 thru I.8)	LS	10%	--	\$ 124,960
Roadway Contingency (5-20% of total cost of items I.1 thru I.8)	LS	20%	--	\$ 249,920
				=====
TOTAL FOR SECTION I. ROADWAY				\$ 1,749,440

II. STRUCTURES	STRUCTURE TYPE	UNIT	TOTAL AREA	PROPOONENT UNIT PRICE	TOTAL COST
II.1		SF	0	\$ -	\$ -
II.2		SF	0	\$ -	\$ -
II.3		SF	0	\$ -	\$ -
II.4		SF	0	\$ -	\$ -
					=====
TOTAL FOR SECTION II. STRUCTURES					\$ -

TCC TOTAL CONSTRUCTION COST (TCC) - SUM OF SECTIONS I. ROADWAY AND II. STRUCTURES \$ 1,749,440

III. RIGHT OF WAY	UNIT	ALLOWANCE	PROPOONENT PRICE	TOTAL COST
III.1 Multiple Parcels along Mowry Avenue	LS	N/A	\$ -	\$ -
III.2 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.3 PARCEL NO. _____	LS	N/A	\$ -	\$ -
III.4 PARCEL NO. _____	LS	N/A	\$ -	\$ -
				=====
TOTAL FOR SECTION III. RIGHT OF WAY				\$ -

ENGINEERING AND MANAGEMENT COSTS	ALLOWANCE	TCC	TOTAL COST
IV. CONCEPTUAL ENGINEERING STUDIES	3%	\$ 1,749,440	\$ 52,483
V. ENVIRONMENTAL STUDIES	3%	\$ 1,749,440	\$ 52,483
VI. DESIGN ENGINEERING	13%	\$ 1,749,440	\$ 227,427
VII. DESIGN SERVICES DURING CONSTRUCTION (DSDC)	1.5%	\$ 1,749,440	\$ 26,242
VIII. CONSTRUCTION STAKING	2.5%	\$ 1,749,440	\$ 43,736
IX. CONSTRUCTION MANAGEMENT	13%	\$ 1,749,440	\$ 227,427

X. RISK BASED ALLOWANCES	RISK CATEGORY	ALLOWANCE (APP. A)	APPLICABLE COSTS	TOTAL COST
X.1 Utilities (sum sections I.2, III)	Med 30%	\$ 550,000	\$ 165,000	
X.2 Geotechnical and/or Seismic (sum sections I.1 thru I.4, II)	Low 5%	\$ 676,000	\$ 33,800	
X.3 Environmental (section I.4, I.6, III, IV, V)	Low 10%	\$ 554,966	\$ 55,497	
X.4 Site Access and Traffic Control (sum sections I.1, I.5, I.7, I.9, II)	Med 15%	\$ 210,960	\$ 31,644	
X.5 Hazardous Materials (sum sections I.1 thru I.4, III)	Low 5%	\$ 676,000	\$ 33,800	
X.6 Controversy and/or Environmental Justice (sum sections IV, V, VI)	Low 10%	\$ 332,394	\$ 33,239	
X.7 Other Issues (sponsor defined allowance and sections)	0%	\$ -	\$ -	
				=====
TOTAL FOR SECTION X. RISK BASED ALLOWANCES				\$ 352,980

ESCALATION	VALUE	ESCALATED TCC
1. Anticipated year to begin construction, N_{start} :	2022	
2. Estimated construction duration (in years)	1	
3. Number of years to midpoint of construction, N_{Δ}	6.50	
4. Annual Escalation Rate, AER (percentage)	2.0%	
5. Total Construction Cost (TCC)	\$ 1,749,440	
6. Total Escalation	1.14	
		=====
ESCALATED TOTAL CONSTRUCTION COST (ETCC)	\$ 1,989,758	\$ 1,989,758

To escalate the TCC to midpoint of construction:
 Total Escalation =
 where:

ESCALATED TOTAL CONSTRUCTION COST (ETCC) = TCC x Total Escalation

Example: Determine N_{Δ} , number of years to midpoint of construction.

¹. Anticipated year to begin construction 2020
². Estimated construction duration 1

TOTAL PROJECT COSTS = SUM OF ETCC AND SECTIONS III THROUGH X = \$ 2,972,536

