

## Appendix D. Walking Audit Memo

A walking audit is a walking workshop that examines a focused cluster of intersections in a neighborhood or along a corridor, typically in areas where traffic calming is being considered, near activities centers like schools, or in major pedestrian nodes like downtown areas. Walking audits are typically conducted as an initial step to improve the pedestrian environment within a selected area. Many individuals can participate: community residents, stakeholders, and affiliated individuals. During a walking audit, positive practices are observed and issues and opportunity areas are noted. Observations are based on how motorists are behaving around pedestrians and how pedestrians are behaving, especially at intersections (for example, if pedestrians are crossing at unmarked locations to avoid certain intersections). At specific locations along the route, participants discuss potential recommendations to address pedestrian safety concerns. Walking audits are highly interactive, with many observations explored during the walk. They are a means to observing and learning how to “see through the eyes of the pedestrian.”

Three daylong walking audits were conducted with City of San Mateo staff and key stakeholders on March 8, 9, and 10, 2011. A participant list is attached as an appendix. The City of San Mateo selected the following three walking routes (shown in Figures 1, 2, and 3):

**Route 1: Hillsdale Station Area** – Edison Street, W 39th Avenue, El Camino Real, and Hillsdale Boulevard

**Route 2: Downtown** – El Camino Real, Tilton Avenue, B Street, W 4th Avenue

**Route 3: North Central** – Monte Diablo Avenue, Delaware Street, E 3rd Avenue, Fremont Street

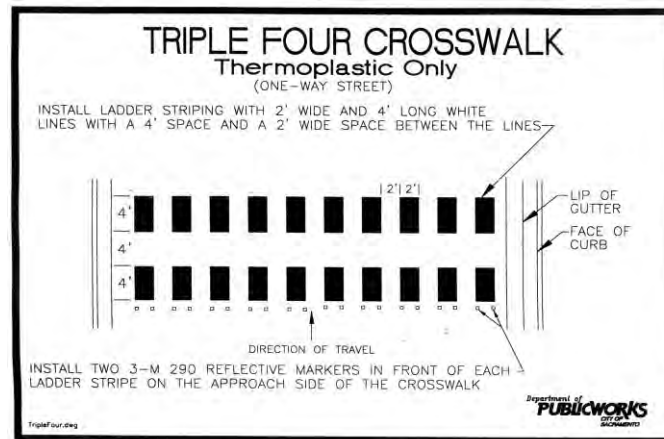
The City selected these three routes because they represent areas of the City with higher numbers of pedestrian-involved collisions over the most recent 10 years and also allowed the participants to focus on prototypical pedestrian conditions around the City. This memo summarizes the discussions that occurred during each walking audit and includes the site specific recommendations that the participant group identified at the end of each day.

Recommendations are based on field observations and best practices in pedestrian design and safety. Conditions may exist in the focus areas that were not observed and are not compatible with recommendations in this report. Before recommendations are implemented, City staff should conduct further analysis to ensure that the recommendations are contextually appropriate and do not inappropriately impact pedestrian safety or accessibility from issues including, but not limited to, vehicular traffic, physical characteristics, unsafe conditions, or improper implementation.

## GENERAL OBSERVATIONS AND RECOMMENDATIONS

The following general recommendations and themes were noted as appropriate for citywide implementation. In many cases these practices may be documented in the City's crosswalk policy:

- Use a high visibility crosswalk striping pattern at uncontrolled crosswalks and at high priority locations, such as schools and senior centers (the “triple four” is recommended).



- Ensure signal timings are adequate for pedestrians, especially seniors (a crossing speed of 2.8 feet per second is recommended in areas with a substantial number of senior or child pedestrians).
- Consider leading pedestrian intervals at signals with permitted left turns where protected left turns or split phasing are not feasible.
- Add advanced stop bars for controlled crossings.
- Add advanced yield lines, striped 20 to 40 feet in advance of the crosswalk, for multi-lane uncontrolled crossings.
- Install pedestrian countdown signal heads at all signalized intersections based upon priority process (most of the City has these already).
- Continue to provide a buffer between vehicles and pedestrians by separating sidewalks from the curb with landscaping.
- Prioritize traffic calming in residential neighborhoods through a neighborhood traffic management plan (update).
- Strive for “pedestrian-friendly” medians, which are wide enough (at least 6') for pedestrian refuge.
- Maintain ADA-compliant crossings (truncated domes, cross slopes, audible signals, etc.).
- Provide directional curb ramps, rather than diagonal ramps, where feasible.
- Enforce existing laws prohibiting sidewalk parking.
- Consider community benefit or business benefit parking districts to fund streetscape enhancements.
- Provide pedestrian accommodations during any construction project that requires sidewalk closures.
- Develop and use a checklist for pedestrian accommodation when reviewing transit station and bus stop plans and land use site plans.

## ROUTE 1: HILLSDALE STATION AREA

The Hillsdale Station route, shown in figure **Route 1**, is located in the southern portion of the City, west of El Camino Real and near the Hillsdale Shopping Center, Hillsdale Caltrain Station, and San Mateo County Hospital. The audit group started at the intersection of Hillsdale Boulevard/Edison Street, continued south along Edison Street to W 39th Avenue (near the San Mateo County Hospital), walked easterly along W 39th Avenue to El Camino Real, then walked north along El Camino Real to Hillsdale Caltrain Station.

The land uses in the area are primarily mixed-use commercial retail and medium- to high-density residential buildings. The San Mateo County Medical Center is a major employer and destination in the area. The Hillsdale Shopping Center is a regional shopping destination. The Hillsdale Caltrain Station and Hillsdale Shopping Center are major transit hubs for both local and regional transit, including Samtrans, AC Transit, and Caltrain.

The following corridor-wide themes emerged during the walking audit:

### Edison Street

- Edison Street is a two-lane residential collector roadway with moderately high vehicle and pedestrian volumes. The roadway runs from Hillsdale Shopping Center, to the north, to 42nd Avenue, to the south.
- Edison Street is a major pedestrian connection between the transit stops on Hillsdale Boulevard and the San Mateo County Medical Center.
- Sidewalk parking, made easy with a rolled curb, is a substantial barrier to walking in this corridor.
- Edison Street is narrow in some areas, and removal of raised centerline pavement markers (also known as “Botts’ Dots”) and enforcement of sidewalk parking could encourage more of a shared (“yield”) street concept by requiring vehicles to yield to on-coming traffic in narrow sections of the roadway. This type of operation is common in other residential areas of the City, especially where vertical curb, instead of rolled curb, is present.
- Transit vehicle maneuverability must be maintained along Edison Street between Hillsdale Boulevard and 37th Avenue. A yield street would not be recommended for portions of Edison Street that have transit service.

### W 39th Avenue

- W 39th Avenue is a two-lane collector roadway between El Camino Real and Alameda De Las Pulgas, and is one of two primary vehicle access points for the San Mateo County Medical Center.
- Vehicle speeds tended to be higher, and traffic calming could benefit local residents along the roadway as well as pedestrians walking between the Medical Center and bus stops on El Camino Real.

### El Camino Real

- El Camino Real is a major, six-lane arterial roadway through San Mateo County. The segment between Hillsdale Boulevard and W 39th Avenue is fronted by commercial uses.
- The property to the east of El Camino Real in this segment is owned by the Joint Powers Authority, which maintains short-term commercial leases for the properties.

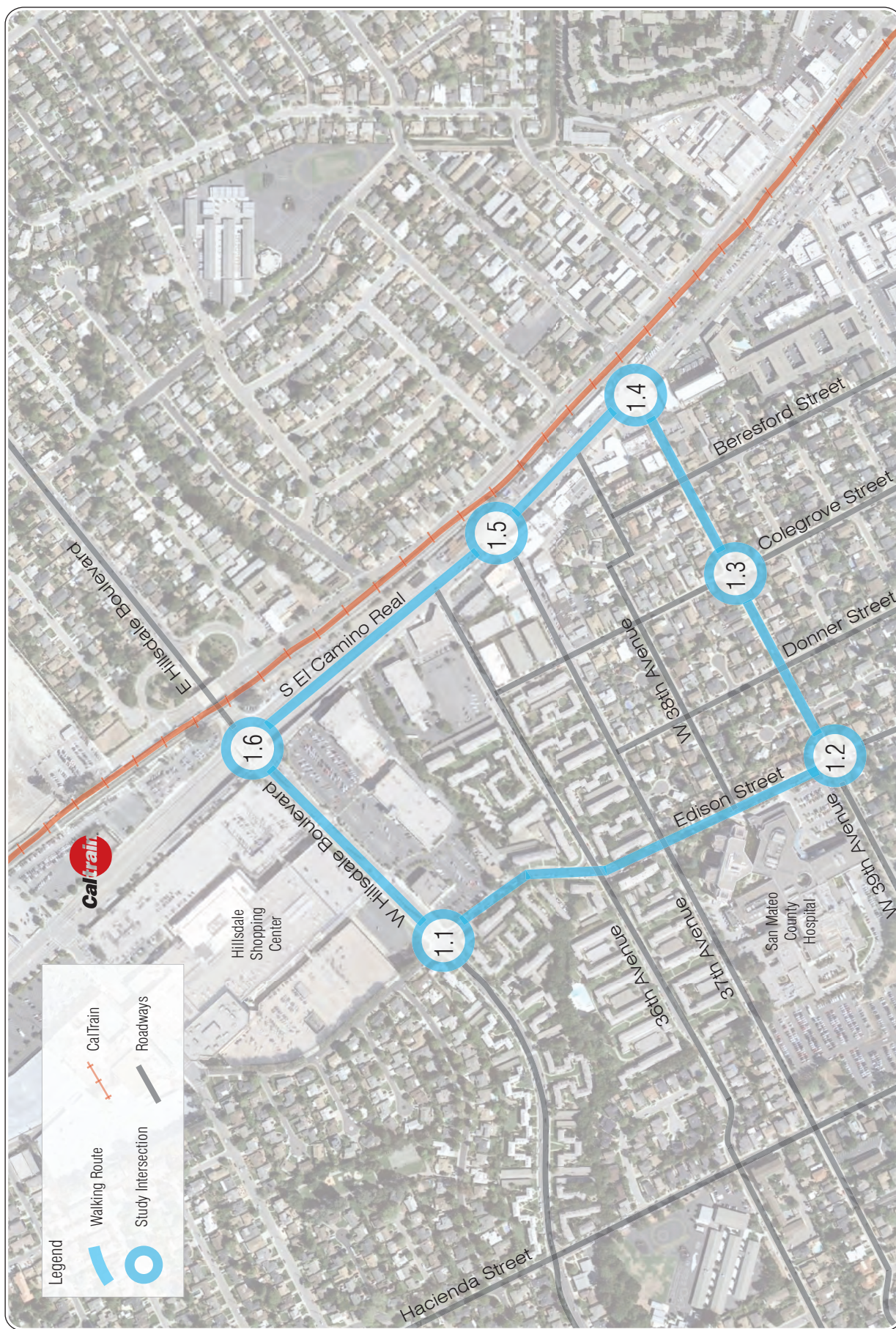
- The sidewalk along the east side of El Camino Real in this segment is missing, even though Samtrans bus stops are present.
- Pedestrians were observed crossing at uncontrolled and unmarked locations to access businesses on the east side of the road.

The following six intersections were focus areas for the walking audit participants:

- 1.1. Edison Street/Hillsdale Boulevard
- 1.2. Edison Street/W 39th Avenue
- 1.3. Colegrove Street/W 39th Avenue
- 1.4. El Camino Real/W 39th Avenue
- 1.5. El Camino Real/37th Avenue
- 1.6. El Camino Real/Hillsdale Boulevard

A discussion of each of these areas follows the Route 1 figure.





Not to Scale



Route 1. Hillsdale Station Area

Figure 1



## ROUTE 1 SITE SPECIFIC RECOMMENDATIONS

The follow sections summarize the potential improvements and recommendations developed during the walking audits.

### Location 1.1 W Hillsdale Boulevard and Edison Street

General Considerations: W Hillsdale Boulevard is an east-west four to two lane, arterial roadway between Foster City and CA-92. Edison Street is a two-lane collector roadway between the Hillsdale Shopping Center and 42nd Avenue. In general, Hillsdale Boulevard experiences substantial traffic east of Edison, between El Camino Real and US 101. East of Edison Street, Hillsdale serves commercial uses; west of Edison, the street primarily serves residential areas and has Class II bicycle lanes. Edison Street is primarily a residential collector, with lower traffic volumes. This intersection is located adjacent to the Hillsdale Shopping Center and north of the San Mateo County Medical Center.



W Hillsdale Blvd and Edison St, looking northwest.

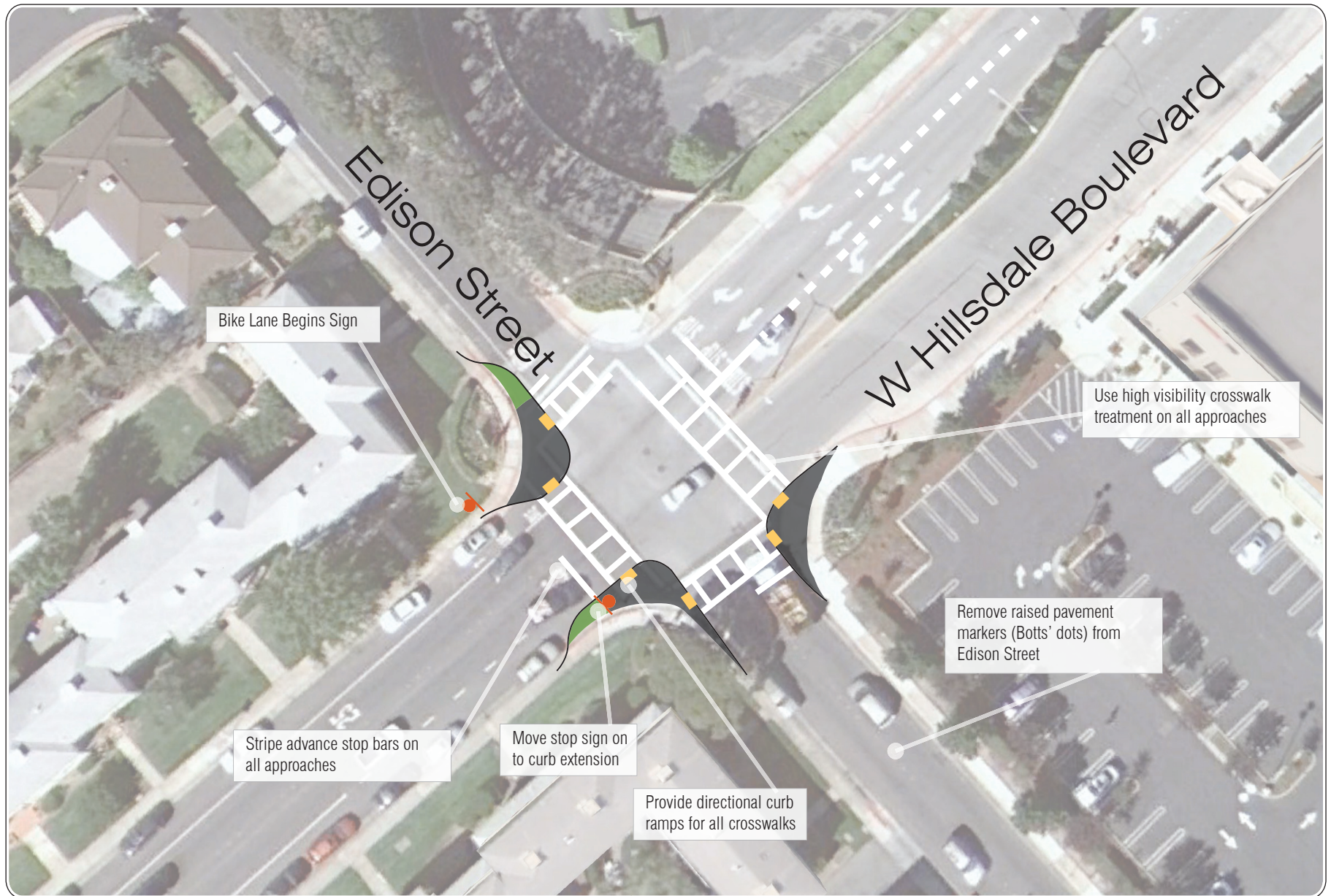
As a transition point between the commercial section of W Hillsdale Boulevard to the east and the residential section of Hillsdale Boulevard to the west, the walking audit participants in the group felt that this location should more effectively communicate the change in land uses.

*Specific Recommendations (shown on the following page):*

- Extend existing southeastern curb extension to reduce turning radius on corner.
- Construct curb extensions into Edison Street and W Hillsdale Boulevard on the northwestern corner and into Hillsdale Boulevard only on the southwestern corner. Ensure an adequate bus turning radius is provided.
- Relocate the southwestern stop sign into the curb extension
- Provide high-visibility crosswalks on all approaches.
- Provide advance stop bars on all approaches.
- Provide directional curb ramps on all corners.
- Consider removing raised pavement markers (Botts' dots) on Edison Street.



Botts Dots as a roadway centerline.



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Study Location 1.1: Edison Street at W Hillsdale Boulevard

Route 1. Hillsdale Station Area



## Location 1.2 West 39th Avenue and Edison Street

General Considerations: W 39th Avenue and Edison Street are both two-lane collector roadways that serve a predominately residential area of San Mateo. This intersection is located at the southeastern corner of the County Medical Center. This intersection was the site of a pedestrian fatality.

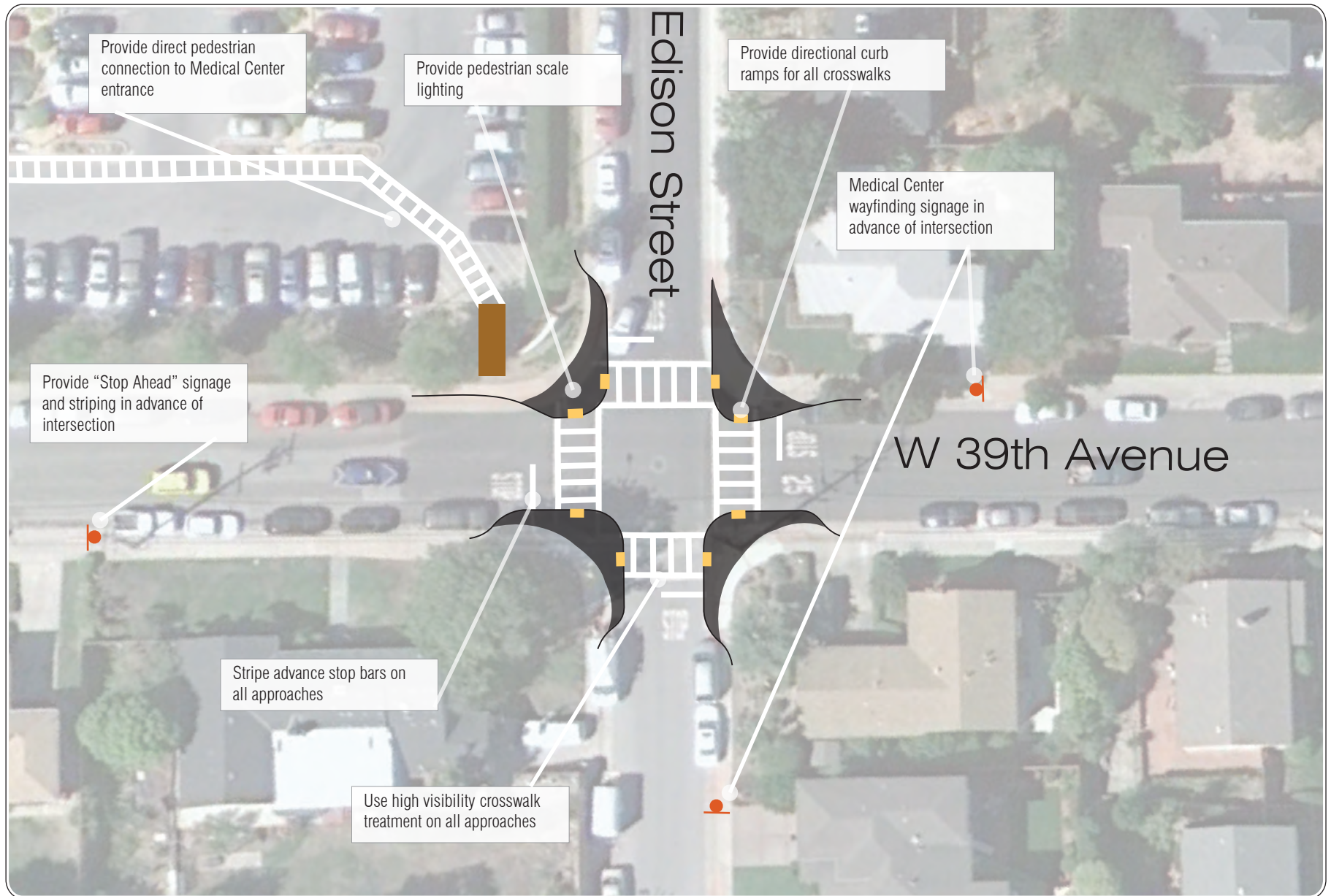
Two general themes emerged at this location. First, the intersection is located in a hilly area, which makes the eastbound stop sign difficult for drivers to see, particularly when larger vehicles park on the southwest corner. Both Edison Street and W 39th Avenue primarily serve residential uses besides the Medical Center. The lack of wayfinding to the Medical Center might be challenging for people unfamiliar with the area.



Looking northwest at West 39<sup>th</sup> Avenue and Edison Street

### *Specific Recommendations (shown on the following page):*

- Provide a direct pedestrian path from intersection to hospital entrance through the parking lot.
- Provide additional wayfinding signage in advance to the intersection to allow drivers to decide movements before they get to the intersection.
- Construct a curb extension into both W 39th Avenue and Edison Street on the southwest corner to improve sight distance. In the interim: paint a red curb 10-15' in advance of the intersection and raise the stop sign.
- Construct curb extensions into both streets on the southeast, northwest, and northeast corners (as a lower priority).
- Provide advance stop bars on all approaches.
- Stripe/Sign "STOP AHEAD" on the eastbound approach.
- Provide pedestrian-scale lighting.
- Investigate an opportunity to provide a raised crosswalk on the eastbound approach if other improvements do not address safety concerns adequately.



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Study Location 1.2: Edison Street at W 39th Avenue

Route 1. Hillsdale Station Area

### Location 1.3 Colegrove Street and W 39th Avenue

General Considerations: W 39th Avenue and Colegrove Street are local residential streets east of the Medical Center. This segment of W 39th Avenue is a primary vehicle route to and from the Medical Center. The group observed speeding along W 39th Avenue, which is encourage by design with few stops between El Camino Real and Edison Street.

*Specific Recommendations (shown on the following page):*

Basic:

- Stripe crosswalks on all approaches.
- Provide advance stop bars on all approaches.

Advanced:

- Install curb extensions on all corners.
- Conduct speed surveys at other intersections along W 39th Avenue to determine if they qualify for additional traffic calming improvements. Improvements may include neighborhood curb extensions, medians, or traffic circles.



Looking northwest at Colegrove Street and West 39<sup>th</sup> Avenue





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Study Location 1.3: Colegrove Street at W 39th Avenue

Route 1. Hillsdale Station Area

#### Location 1.4 W 39<sup>th</sup> Avenue and El Camino Real

General Considerations: El Camino Real is a state highway (SR 82) through San Mateo County; this section of El Camino Real is six lanes wide, with a center left-turn lane and turn pockets at intersections. This three-legged unsignalized intersection is located approximately 800 feet from, and half way between, adjacent signalized intersections along El Camino Real. The intersection has a marked crosswalk on the south side that leads to a northbound Samtrans bus stop. No sidewalk (other than a short stretch at the bus stop) is present on the east side of El Camino Real. A southbound left-turn lane leads to a closed driveway (currently serving u-turns). Caltrans recently repaved El Camino Real and striped a continental crosswalk in place of the previous basic parallel line crosswalk.



Looking east across El Camino Real at W 39<sup>th</sup> Avenue

*Specific Recommendations (shown on the following page):*

##### Option A

- Work with Caltrans and Joint Powers Authority to determine feasibility of a signal.

##### Option B

- Relocate marked crosswalk to north side of intersection and install a pedestrian hybrid beacon (note: this device is included in the 2009 MUTCD and is anticipated to be approved for use in California in the near term).
- Relocate southbound left-turn and provide a median refuge for the marked crosswalk.
- Extend sidewalk on the east side of the intersection.
- Restrict southbound u-turns and left-turns.
- If business needs a turn pocket, provide the pocket north of the crosswalk.
- Relocate bus stops to far sides of the crosswalk.
- Provide advance limit lines.
- Stripe a crosswalk across W 39<sup>th</sup> Avenue.





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Route 1. Hillsdale Station Area

### Location 1.5 37th Avenue and El Camino Real

**General Considerations:** This intersection is located immediately south of the El Camino Real on-and off-ramps from Hillsdale Boulevard. 37th Avenue is a collector street serving residential areas west of El Camino Real and is a primary access route to and from the County Medical Center. The eastbound approach at this intersection is a six-lane driveway for a carwash. Bus stops are present on the southbound and northbound approaches to the intersection. Marked crosswalks are provided on the west and south legs of the intersection.



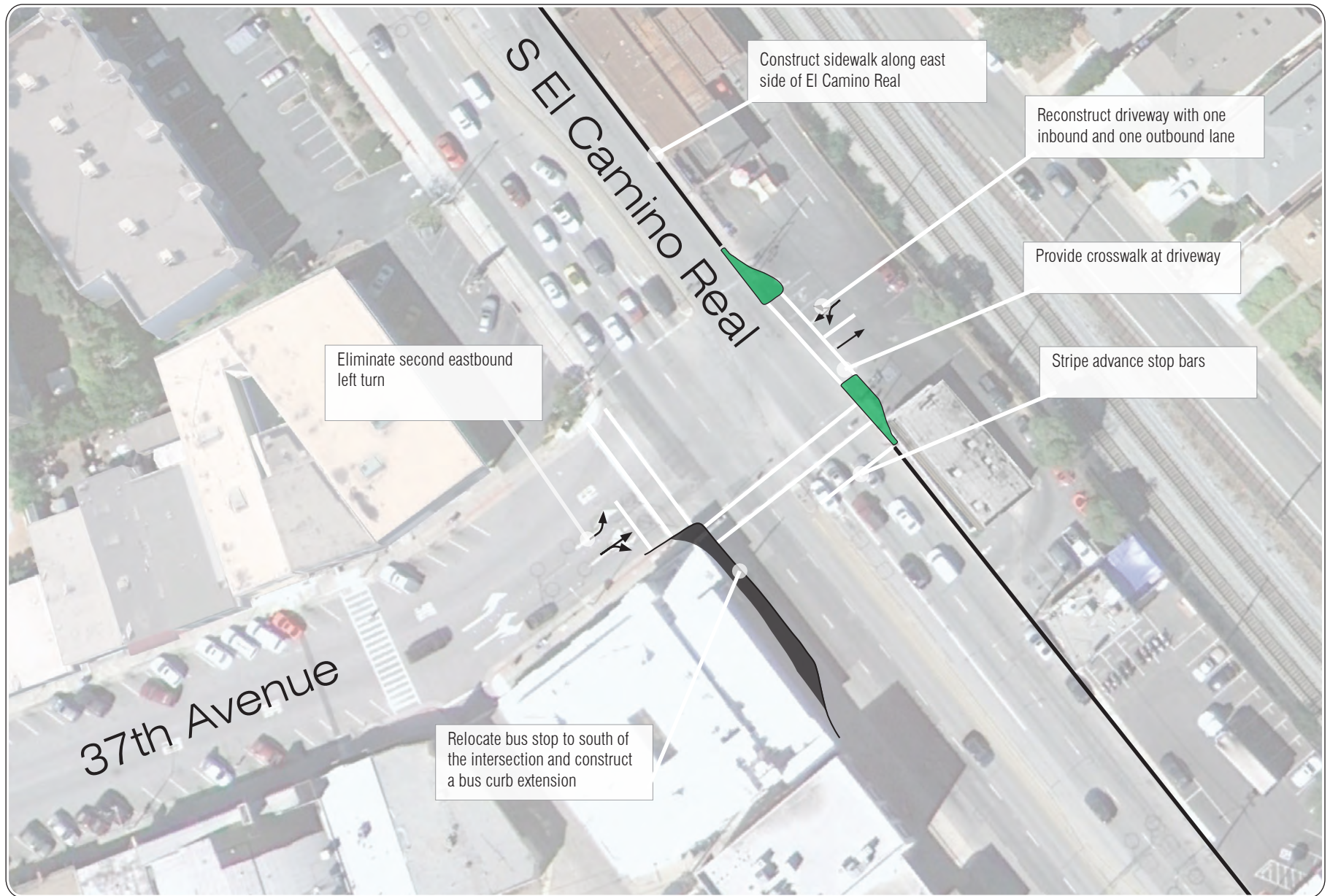
Looking east across El Camino Real at 37<sup>th</sup> Avenue

General recommendations for this location include narrowing and enhancing the eastbound approach to the intersection and providing better pedestrian facilities along the eastern edge of El Camino Real, particularly as parcels redevelop as part of the Hillsdale Station Area Plan.

*Specific Recommendations (shown on the following page):*

- Relocate the southbound bus stop to south of 37th Avenue.
- Consider constructing a bus bulb to accommodate bus stop furniture and shelter.
- Narrow eastbound approach to one-lane in and one lane out and stripe a crosswalk.
- Eliminate second westbound left turn by reconfiguring lane usage.
- Coordinate with the Hillsdale Station Area Plan to provide a new sidewalk to the Station east side of El Camino Real.





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Study Location 1.5: S El Camino Real at 37th Avenue

Route 1. Hillsdale Station Area

### Location 1.6 W Hillsdale Boulevard and El Camino Real

General Considerations: W Hillsdale Boulevard and El Camino Real is a grade-separated intersection, with El Camino Real passing under W Hillsdale Boulevard. Ramps to and from El Camino Real are signalized. The Hillsdale Caltrain Station is located immediately to the east of the intersection.

The group identified three key concerns during the walking audit. First, the northbound and westbound right turn lanes are unsignalized, and vehicles tended to make the turn at high speeds. Next, the western signal, which controls the northbound off-ramp from El Camino and the westbound approach of W Hillsdale Boulevard, does not have crosswalks for pedestrians wanting to cross Hillsdale Boulevard. Pedestrians are required to use the pedestrian overpass adjacent to the train tracks or walk up a hook ramp/interchange of Hillsdale Boulevard/Pacific Boulevard. Third, the northbound right-turn lane has limited sight distance and vehicles may not be able to see a pedestrian entering the crosswalk.

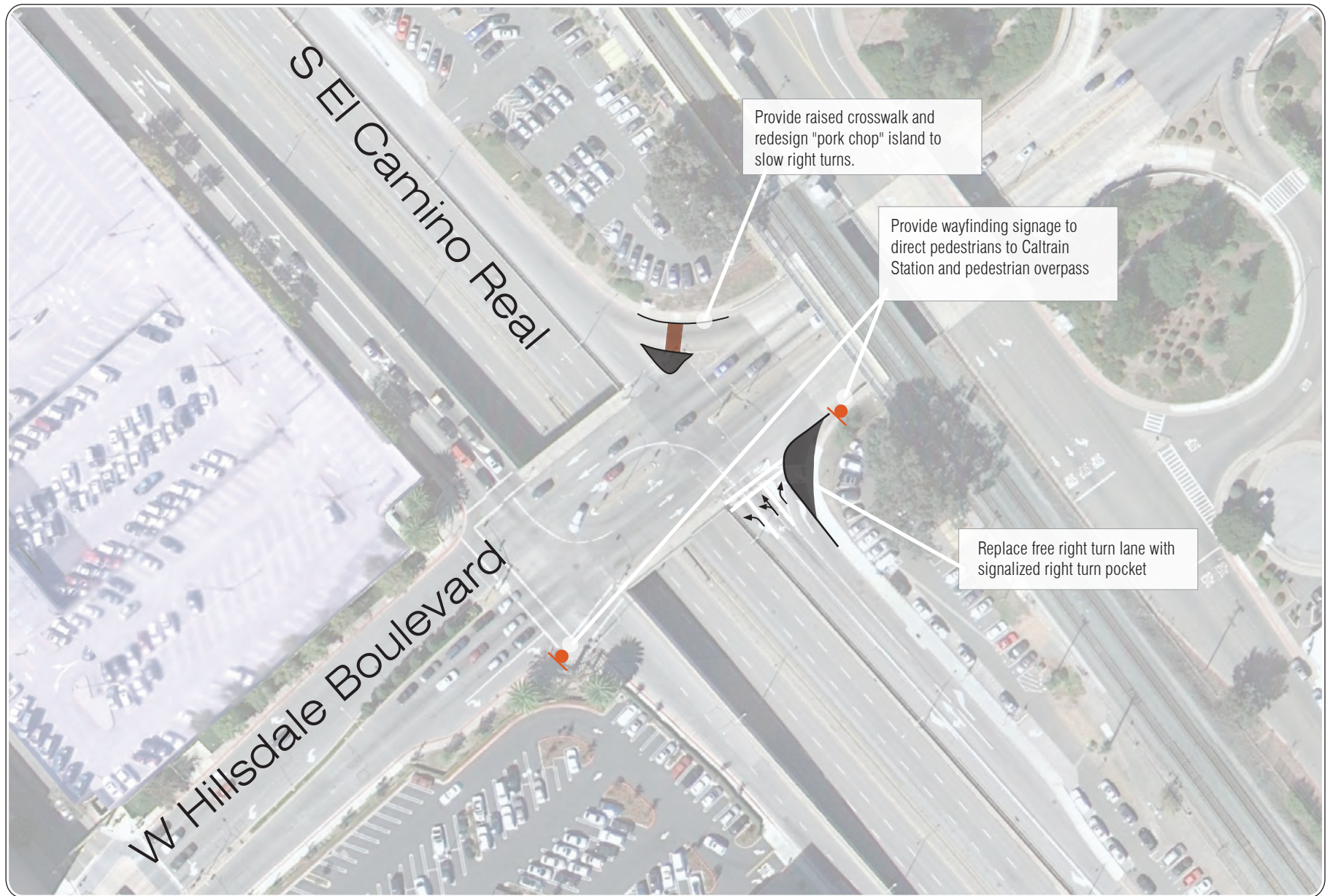


Looking east towards the Caltrain pedestrian overpass at W Hillsdale Blvd.

#### *Specific Recommendations (shown on the following page):*

- Install wayfinding signage to direct pedestrians to the Hillsdale Station entrances.
- Provide pedestrian-scale lighting.
- Study options to redesign intersection, including the feasibility of removing channelized right turns and replacing with standard right-turn pockets.
- If right-turn channels are needed, enhance channelized crosswalks and “pork chop” islands by enlarging islands, providing raised crosswalks, and/or signalizing the crosswalks. The recommendation figure illustrates a candidate improvement scenario.
- Coordinate improvements with Hillsdale Station Area Plan and High-Speed Rail planning efforts.





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Study Location 1.6: S El Camino Real at W Hillside Boulevard

Route 1. Hillside Station Area

## ROUTE 2: DOWNTOWN

The Downtown route, shown in figure Route 2 on the following page, is located west of El Camino Real and east of the Caltrain tracks. The audit group started at the intersection of El Camino Real/2nd Avenue, continued northerly along El Camino Real to Tilton Avenue, then easterly along Tilton Avenue to B Street, then walked westerly along W 4th Avenue to El Camino Real. The group also observed the intersection of San Mateo Drive/2nd Avenue.

San Mateo's Downtown is primarily mixed-use commercial retail and office buildings. Several age-restricted senior housing facilities are located along El Camino Real between 2nd Avenue and Tilton Avenue. The San Mateo Caltrain Station is the major transit hub in the area, with Samtrans bus routes also present.

The following corridor-wide themes emerged during the walking audit:

### El Camino Real

- Senior housing along this section of El Camino Real may justify using a 2.8 feet per second walking speed when retiming traffic signals. This is consistent with the 2009 Federal Manual on Uniform Traffic Control Devices (MUTCD) update.
- At locations with permitted left-turns, protected left-turn or split phases should be considered, with leading pedestrian intervals provided where this is not feasible.
- El Camino Real transitions from a six-lane cross-section to a four-lane cross-section in this segment, and an edge line stripe could be an effective tool to reduce sidewalk parking by delineating the parking lane from the travel lane through the transition. The edge line stripe could also be a traffic calming tool, since it would visually narrow the roadway for drivers.
- Consider capacity reductions in portions of El Camino Real through the City that have excess capacity. These should be coordinated with the Grand Boulevard Initiative Transportation Study.

### B Street

- Leading pedestrian intervals should be applied throughout the Downtown area where permissive left turns are present.
- At high-volume intersections, consider using all-pedestrian phases to reduce conflicts and provide for diagonal pedestrian crossings.
- Bollards should be used on curb extensions with non-directional (full-corner) curb ramps to prevent vehicles from driving onto the sidewalk.
- Develop a routine treatment for mid-block crosswalks.
- Reduce the number of sidewalk obstructions, including signs, parking meters, and utility poles and boxes.
- Convert two parking spaces on each block to bicycle parking to reduce conflicts between vehicles exiting a parking space and backing into a crosswalk.

W 4th Avenue

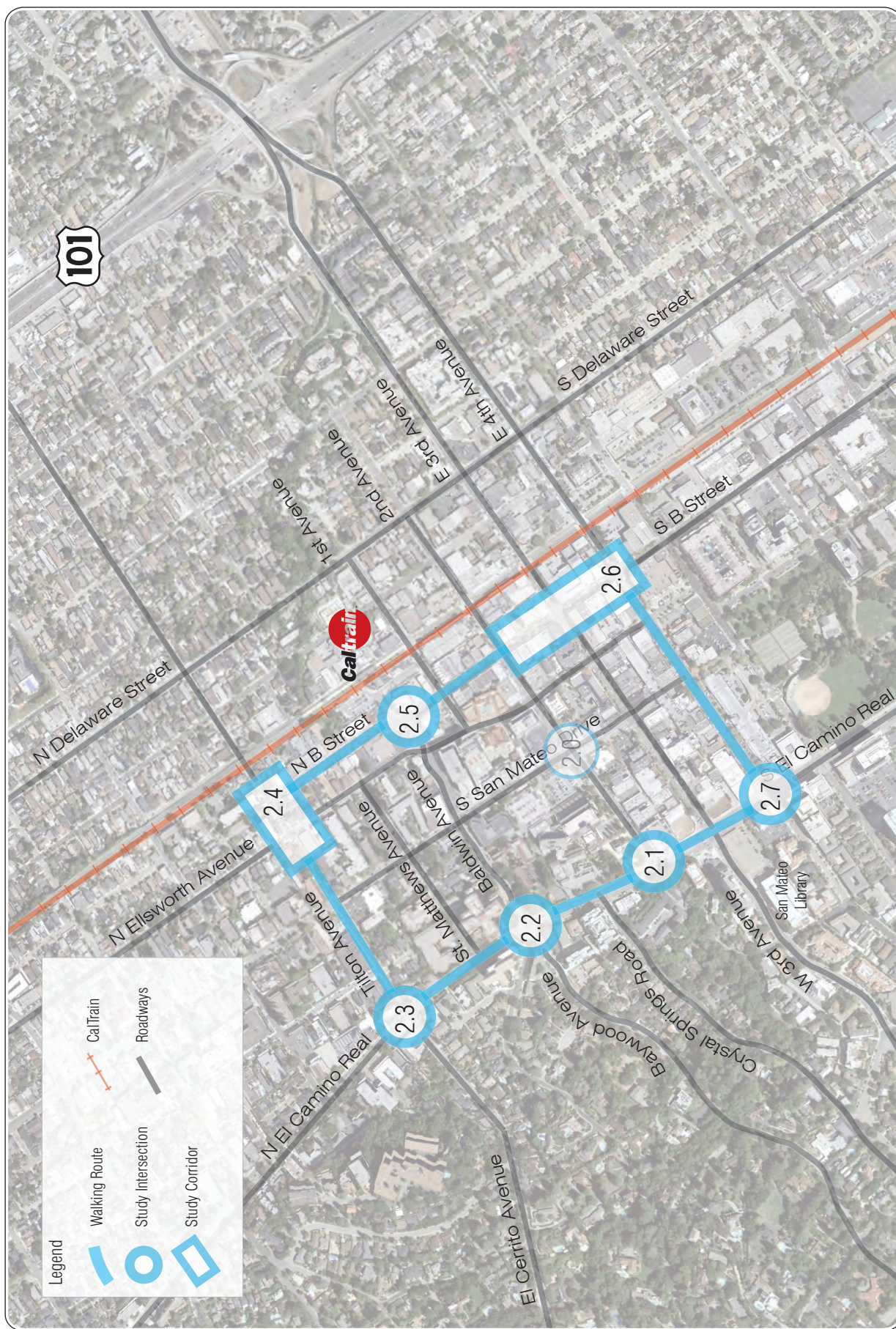
- Consider a road diet to change the existing four-lane cross-section to a three-lane or two-lane cross-section.
- Use leading pedestrian intervals at intersections with permitted left-turns.

The following eight intersections/corridors were focus areas for the group:

- 2.1 El Camino Real/2nd Avenue
- 2.2 El Camino Real/Baldwin Street-Baywood Avenue
- 2.3 El Camino Real/Tilton Avenue-El Cerrito Avenue
- 2.4 Ellsworth-B Street/Tilton Avenue
- 2.5 B Street/Baldwin Street
- 2.6 B Street (2nd Avenue to W 4th Avenue)
- 2.7 4th Avenue/El Camino Real
- 2.0 San Mateo Drive/2nd Avenue

These locations are discussed in more detail after the Route 2 figure.





Route 2. Downtown San Mateo

Figure 2



## ROUTE 2 SITE SPECIFIC RECOMMENDATIONS

The follow sections summarize the potential improvements and recommendations developed during the walking audits.

### Location 2.1 2nd Avenue and El Camino Real

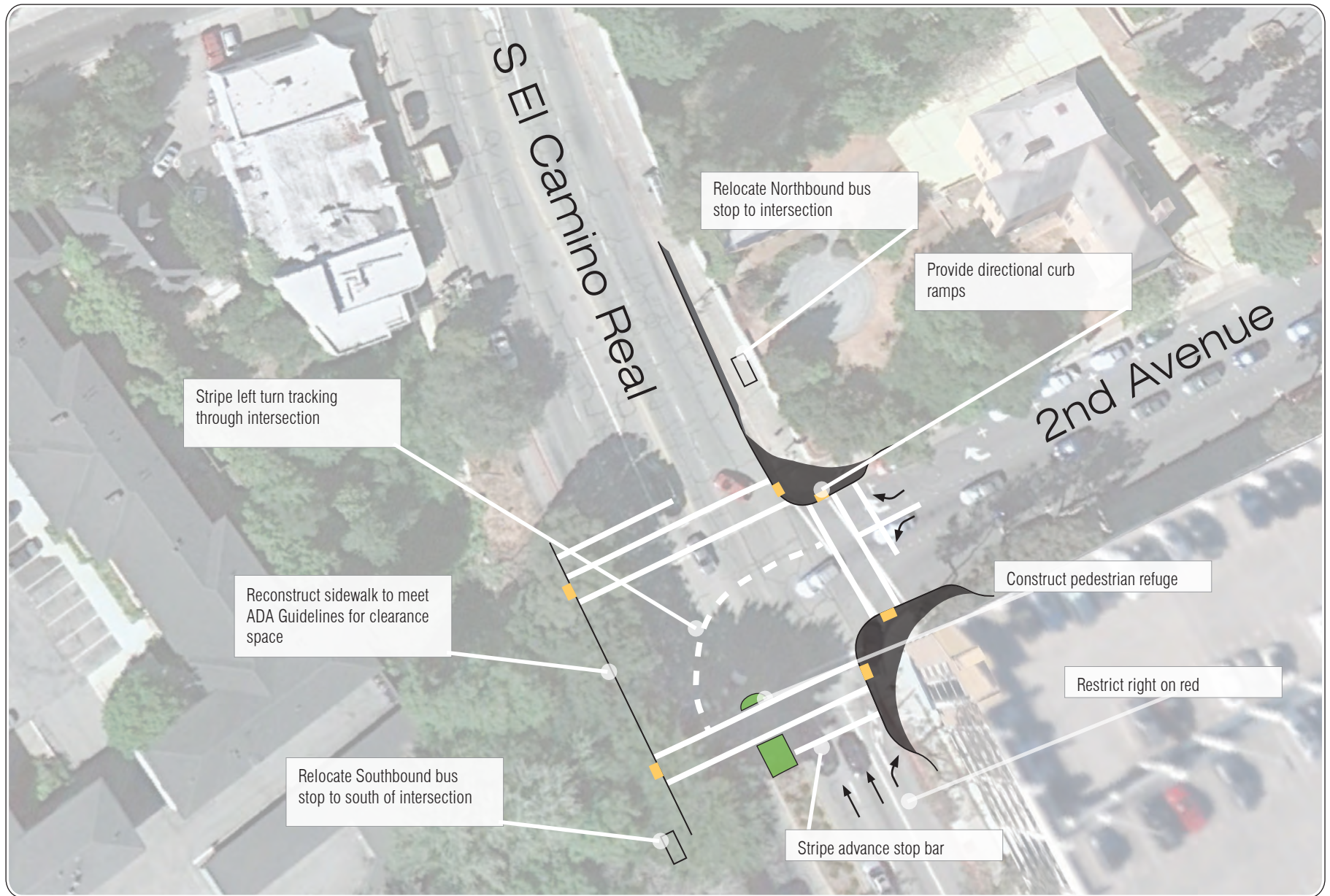
General Considerations: El Camino Real, north of W 3rd Avenue, has two lanes in each direction. 2nd Avenue is a collector roadway leading to downtown San Mateo. Bus stops are located on El Camino Real, immediately north of the intersection. The area is generally higher-density mixed use, similar to Downtown. The group made two key observations at this location. First, pedestrians in the south crosswalk conflicted with permitted left-turns from 2nd Avenue. Second, this location could be a good place to clearly indicate a transition between the six-lane and four-lane segments of El Camino Real.



Looking east across El Camino Real at 2<sup>nd</sup> Avenue

*Specific Recommendations (shown on the following page):*

- Relocate the southbound bus stop to south of the intersection.
- Relocate the northbound bus stop nearer to the intersection.
- Restripe the east leg crosswalk to create a 90-degree angle on southeast corner.
- Construct curb extensions on the east leg of intersection into 2nd Avenue.
- Construct thumbnail islands on El Camino Real.
- Paint track lines for westbound to southbound left turn movement.
- Reconstruct sidewalk along the west side of El Camino Real.
- Construct bus bulb on northbound side north of intersection.
- Restrict northbound right turn on red.
- Provide leading pedestrian interval for pedestrian crossing El Camino Real.



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Study Location 2.1: S El Camino Real at 2nd Avenue

Route 2. Downtown San Mateo

## Location 2.2 Baywood Avenue and El Camino Real

General Considerations: This intersection is a five-legged intersection surrounded by senior residential buildings and a school. Baywood Avenue is generally a two-lane local roadway between downtown and residential neighborhoods west of El Camino Real. The fifth leg of the intersection, De Sabla Road, is a local two-lane residential street. De Sabla Road technically meets Baywood Avenue and is stop-controlled; however, the configuration of the intersection, and the wide paved west leg, creates the sense that it is part of the signal at El Camino Real. The group discussed the need to accommodate seniors in particular at this intersection.



Looking east across El Camino Real at Baywood Avenue

*Specific Recommendations (shown on the following page):*

- Provide protected left turns on El Camino Real with left-turn pockets, if feasible.
- Construct extension on the northwest corner to make De Sabla Road meet Baywood Avenue at a 90-degree angle.
- Provide an edge line stripe along El Camino Real (and consider this throughout the City) to delineate the parking lane.
- Construct a curb extension on the southeast corner of the intersection into Baldwin Avenue.
- Construct a curb extension into El Camino Real on the southwest corner.
- Provide a “keep clear” zone on Baywood Avenue adjacent to the existing driveway on southwest corner.
- Retime the signal to accommodate a walking speed of 2.8 feet per second in the pedestrian clearance interval for seniors.





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Study Location 2.2: N El Camino Real at Baldwin Avenue-Baywood Avenue

Route 2. Downtown San Mateo

### Location 2.3 Tilton-El Cerrito Avenue and El Camino Real

**General Considerations:** This intersection is located in a predominately residential area north of Downtown San Mateo. Tilton Avenue is a two-lane collector roadway that runs from US 101 to El Camino Real. West of El Camino Real, Tilton Avenue becomes El Cerrito Avenue and provides access to Hillsborough. Bus stops are present on both sides of El Camino on the north side of the intersection.

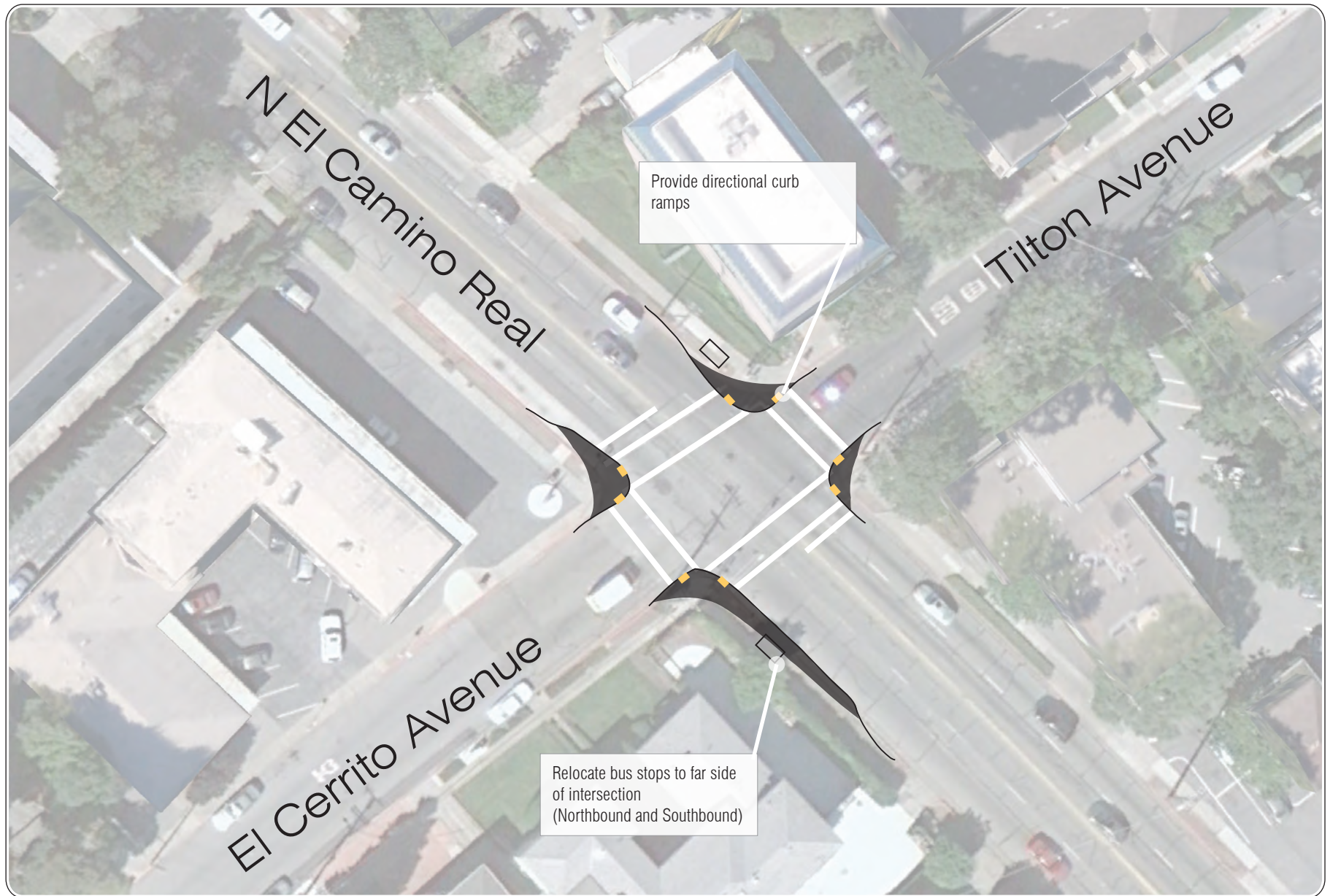
*Specific Recommendations (shown on the following page):*

- Relocate bus stops to the far sides of the intersection. Provide bus bulbs.
- Construct curb extensions on corners without bus stops.
- Add countdown signal timers (may be installed as of March 2011 – DPW to confirm).
- Add a leading pedestrian interval (basic) or add a split phase on Tilton/El Cerrito Avenue approaches to address pedestrian/left turning vehicle conflict.



Looking west across El Camino Real at Tilton Avenue





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Study Location 2.3: N El Camino Real at Tilton Avenue-El Cerrito Avenue

Route 2. Downtown San Mateo

## Location 2.4 N Ellsworth Avenue/B Street and Tilton Avenue

**General Considerations:** This segment of Tilton Avenue is located on the northern edge of Downtown San Mateo and in a primarily residential area. A religious institution is located west of N Ellsworth Avenue and commercial storefronts are present on B Street. The group noted potential speed issues along Tilton Avenue. The intersection of Ellsworth Street/Tilton Avenue is all-way stop controlled. The intersection of B Street/Tilton Avenue is side-street stop controlled, with the northbound approach of B Street stopping for traffic on Tilton Avenue.



Looking east across B Street at Tilton Avenue

*Specific Recommendations (shown on the following page):*

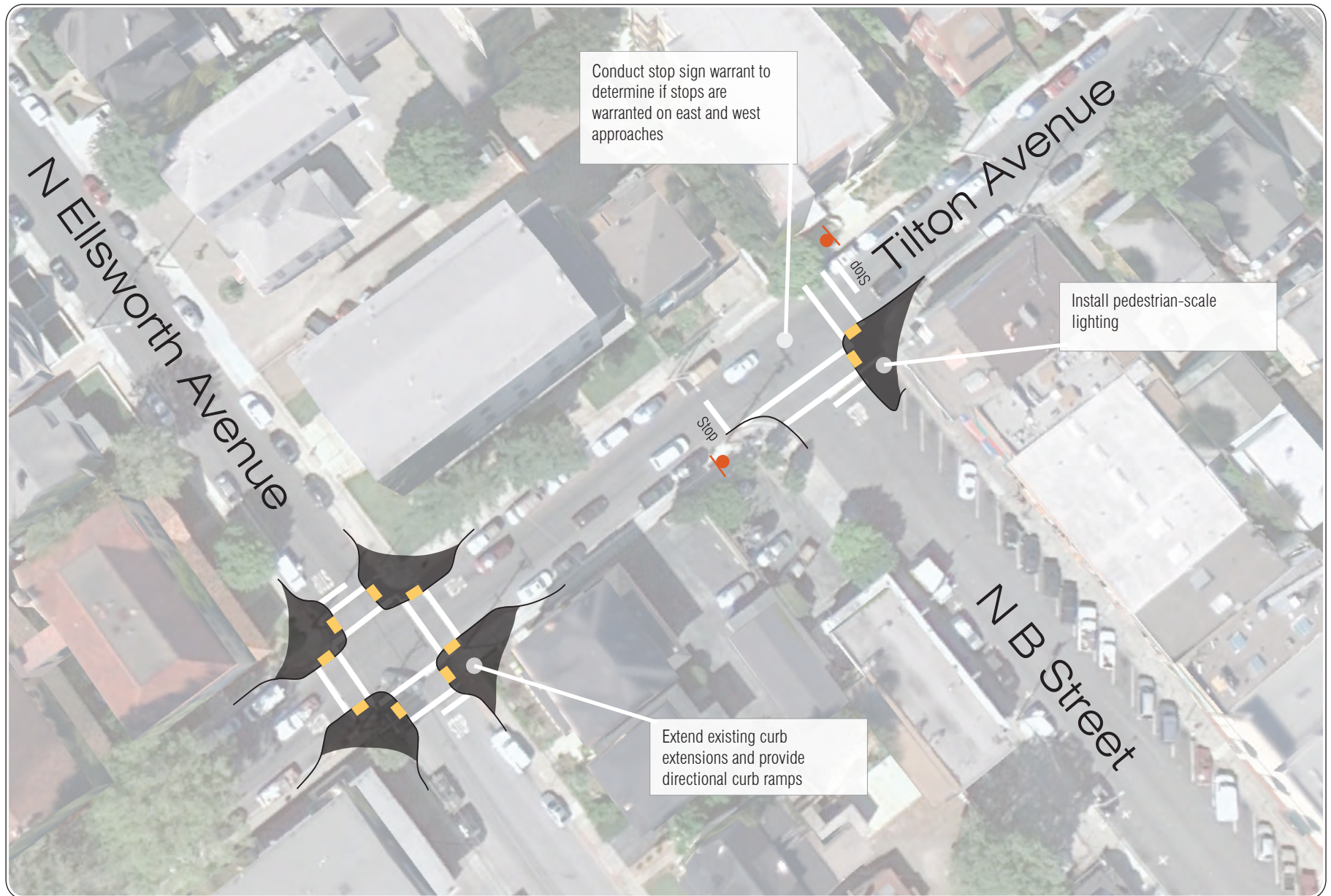
### N Ellsworth Avenue

- Reconstruct curb extensions on all corners of N Ellsworth Avenue/Tilton Avenue to improve visibility of stop signs.
- Provide advance stop bars on all approaches.

### B Street

- Construct curb extensions on the southeast corner into B Street.
- Stripe a crosswalk across the south leg.
- Provide pedestrian-scale street lighting.
- Study feasibility of an all-way stop sign.
- If stop signs are warranted on all approaches:
  - o Stripe crosswalks on south leg and east leg pending traffic study to determine turning movements at the intersection.





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Study Location 2.4: Tilton Avenue Corridor (N B Street to N Ellsworth Avenue)

Route 2. Downtown San Mateo



### Location 2.5 Baldwin Avenue and B Street

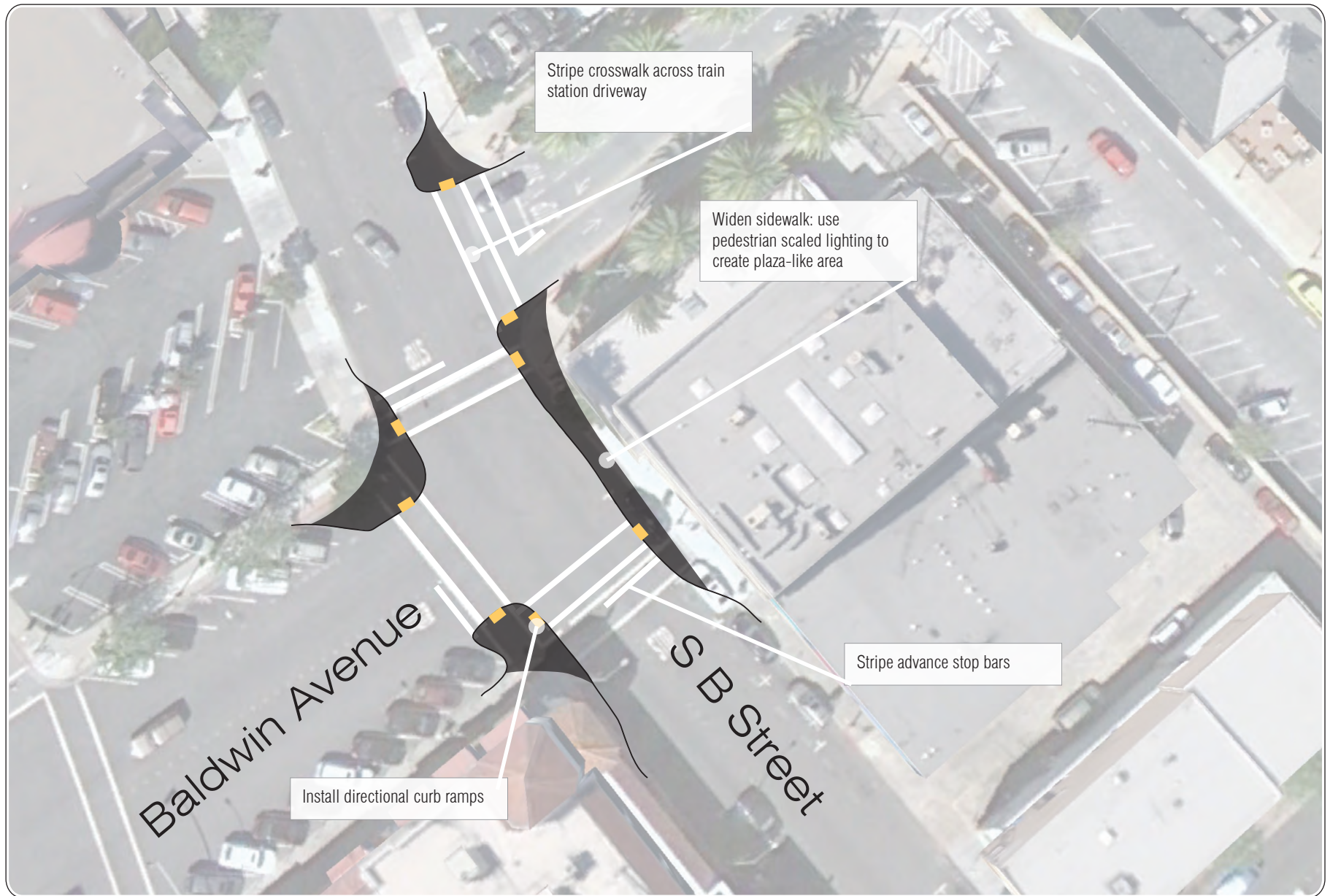
**General Considerations:** This intersection is located at the northern end of the commercial shopping district along B Street and approximately 25 feet south of the main driveway to the Downtown San Mateo Caltrain Station. In general, the intersection is very wide on all approaches. Participants noted that the exit from the Caltrain Station experiences congestion during the PM peak hour.



Looking north along B Street at Baldwin Avenue

*Specific Recommendations (shown on the following page):*

- Construct curb extensions into both Baldwin Avenue and B Street on western corners.
- Construct curb extension along east side of intersection between train entrance and southern crosswalk.
- Construct curb extension into B Street on northeast corner of train station driveway.
- Provide advance stop bars.
- Stripe crosswalk across Caltrain driveway.
- Study the feasibility for reconfiguring train station driveway to right in/ right out.
- Develop a potential long-term solution for intersection configuration when Trag's is redeveloped.
- Restrict parking near crosswalks with red curb paint.
- Consider signalization.



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Study Location 2.5: S B Street at Baldwin Avenue

Route 2. Downtown San Mateo

### Location 2.6 B Street (2nd Avenue to W 4th Avenue)

General Considerations: B Street is one of the primary commercial streets in Downtown San Mateo. Between 2nd Avenue and W 4th Avenue, streetscape enhancements have already been constructed, including corner curb extensions, mid-block crosswalks at key destinations, and street trees. While these enhance the pedestrian experience Downtown, the area still has sidewalks that are effectively narrowed because of parking meters, utility poles, and trees. Several pedestrian-involved collisions have occurred in this area in recent years. During peak times of day, the area has substantial vehicle and pedestrian traffic, and signal timing coordinated with the Caltrain tracks is a limiting factor when considering signal modifications, including pedestrian-only phases (scrambles) and leading pedestrian intervals.



Looking east across B Street at W 3<sup>rd</sup> Avenue

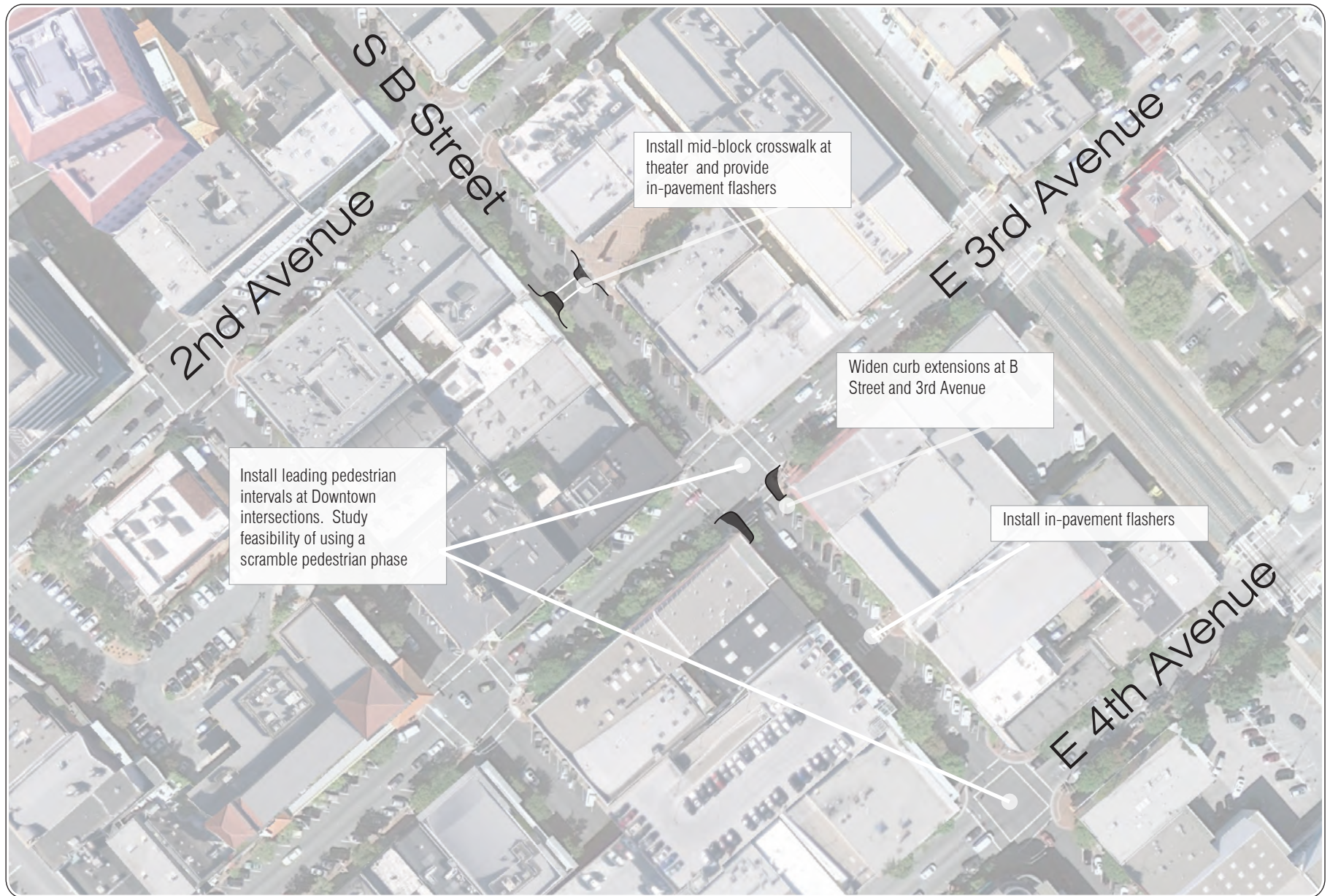
*Specific Recommendations (shown on the following page):*

- Provide some protection (bollards) for pedestrians in the diagonal curb ramp.
- Provide a mid-block crosswalk in front of the theater on B Street with curb extensions.
- Provide a passenger loading zone adjacent to the theater on B Street if drop off problems develop in front of theater with the new crosswalk.
- At W 3rd Avenue/B Street, provide curb extensions on the southeast and southwest corners.
- Provide a leading pedestrian interval or scramble, or consider split phases at signals.
- Install in-pavement flashers at existing mid-block crosswalk between W 3rd Avenue and W 4th Avenue and the new crosswalk at the theater.
- Remove diagonal parking spaces that cause vehicles to back into crosswalks and replace with bicycle parking.



Sidewalk café seating in Downtown San Mateo





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Study Location 2.6: S B Street Corridor (E 4th Avenue to 2nd Avenue)

Route 2. Downtown San Mateo

## Location 2.7 E 4th Avenue/El Camino Real

General Considerations: This intersection is one of the gateways into Downtown. The street and pedestrian environment has already been enhanced along E 4th Avenue, including a mid-block crosswalk and corner curb extensions. Although the street environment is improved, pedestrian safety concerns remain at many intersections along W 4th Avenue because of left-turn conflicts and long crossing distances.



Looking east across El Camino Real at E 4<sup>th</sup> Avenue

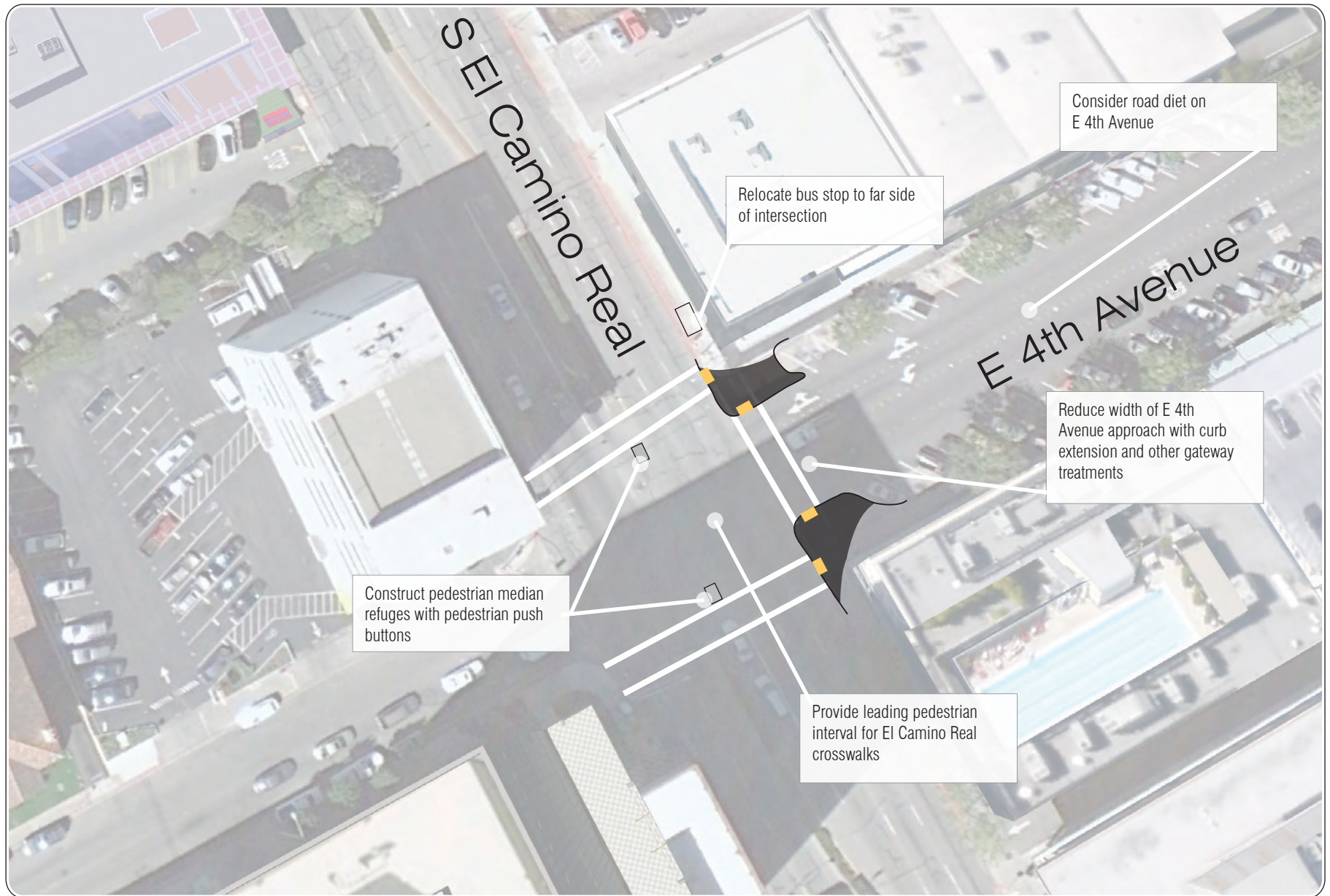
*Specific Recommendations (shown on the following page):*

- Complete a road diet (lane number reduction) on E 4th Avenue to provide a three-lane cross section.
- Construct curb extensions into E 4th Avenue and El Camino Real.
- Relocate bus stops on El Camino Real to far sides of the intersection.
- Provide leading pedestrian intervals.
- Construct thumbnail median noses with pedestrian push buttons.



Mid-block crosswalk on E 4<sup>th</sup> Avenue





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Study Location 2.7: S El Camino Real at E 4th Avenue

Route 2. Downtown San Mateo

### Location 2.0 2nd Avenue/San Mateo Drive

General Considerations: This intersection is located in Downtown San Mateo adjacent to the Medical Center. This intersection is slightly offset and wide. In particular, sight distance is limited for motorists making a northbound right turn to the eastern crosswalk. The wide angles at the intersection also encourage high speed turns.

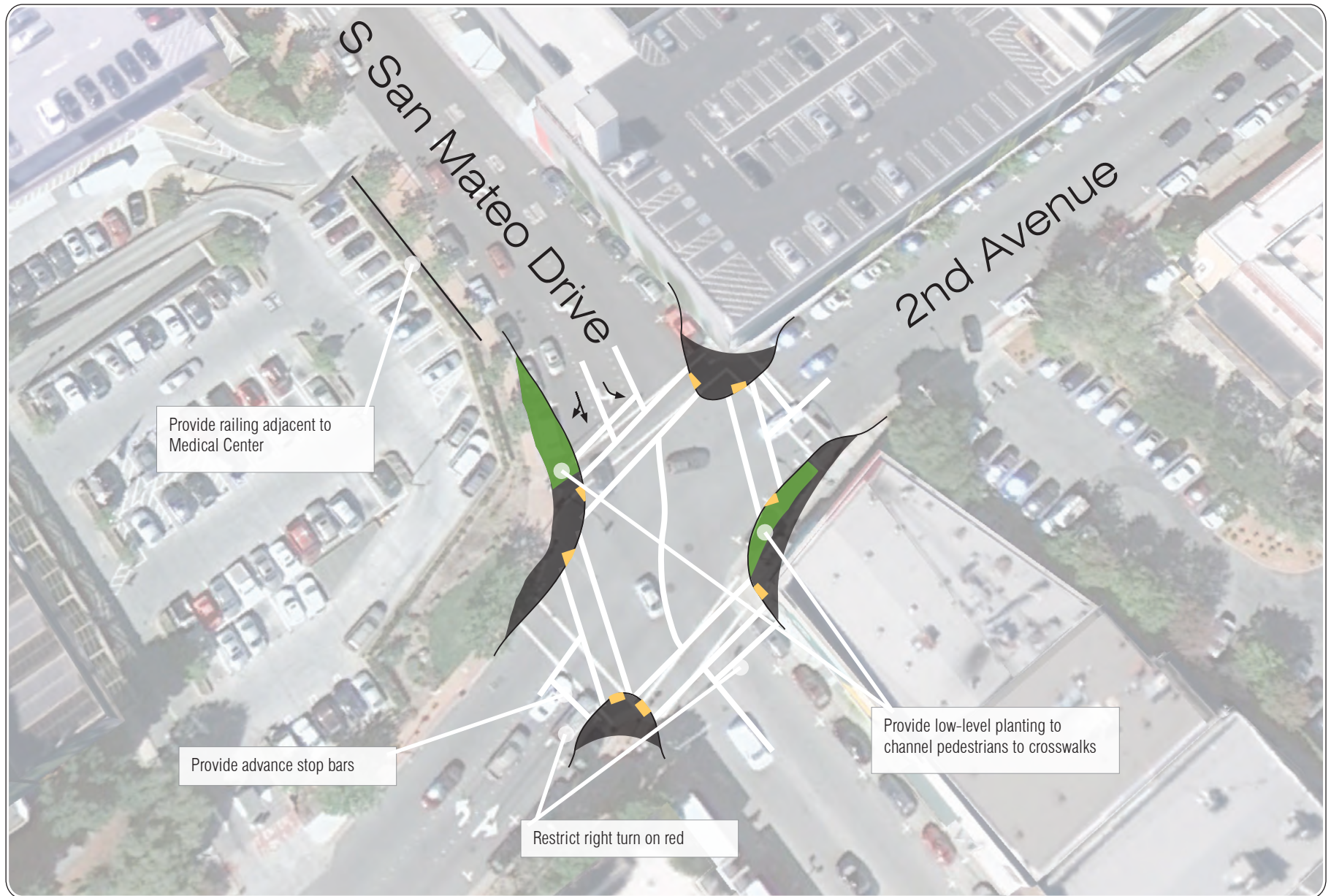


Looking east across 2<sup>nd</sup> Avenue at San Mateo Drive

*Specific Recommendations (shown on the following page):*

- Near-term (not shown): remove two parking spaces on the southeast corner of the intersection.
- Construct curb extensions on the northwest and northeast corners to reduce the intersection skew.
- Construct curb extensions on the southeast and southwest corners to shorten crossing distances.
- Install a railing on the northwestern sidewalk adjacent to the medical center to prevent falls.
- Provide protected left-turn phasing.





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Optional Location 2.0: S San Mateo Drive at 2nd Avenue

Route 2. Downtown San Mateo



## ROUTE 3: NORTH CENTRAL

The North Central route, shown in the Route 3 figure on the following page, is located east of Downtown and the Caltrain tracks. The audit group started at the intersection of Delaware Street/Monte Diablo Avenue, continued southerly along Delaware Street to E 3rd Avenue, then easterly along E 3rd Avenue to Fremont Street, and northerly along Fremont Street to Monte Diablo Avenue/King Recreation Center. The North Central area is comprised primarily of single family or low-rise multifamily residential buildings. The area was noted for having a large Spanish-speaking population. One member of the walking group noted that illegal dumping is a problem in this area at the creekside locations.

The following corridor-wide themes emerged during the walking audit:

### Delaware Street

- Delaware Street is an arterial street, with transit service, which limits the traffic calming tools that can be used on the street.
- The block between 1st Avenue and Tilton Avenue is long and had higher vehicle speeds.
- North of 1st Avenue, the four-lane cross-section drops to a two-lane cross-section. This creates a bottleneck. Consider a road-diet on Delaware Street south of 1st Avenue to remove this bottleneck, shorten pedestrian crossings, and slow vehicle speeds. This strategy requires further engineering analysis before implementation.

### E 3rd Avenue

- E 3rd Avenue has many pedestrian enhancements due to newer development; however, the roadway still serves as an arterial between US 101 and Downtown, leading to frequent pedestrian/vehicle conflicts.
- Consider expanding the streetscape features along this portion of E 3rd Avenue for the length of the corridor, including street lighting and landscaping features.

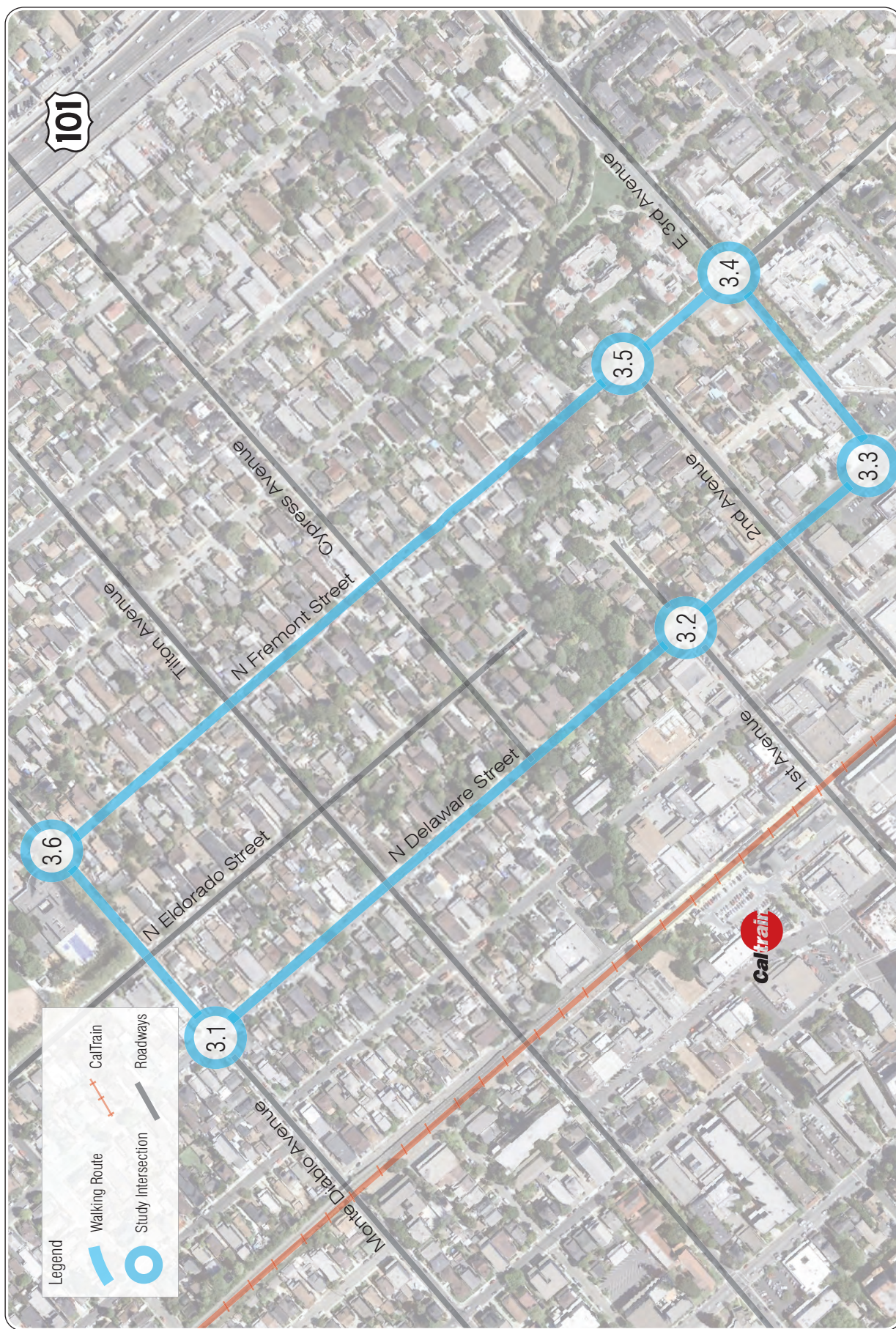
### Fremont Street

- Fremont Street is a local residential street that could benefit from neighborhood traffic calming.

The following six intersections were focus areas for the group:

- 3.1 Delaware Street/Monte Diablo Avenue
- 3.2 Delaware Street/1st Avenue
- 3.3 Delaware Street/3rd Avenue
- 3.4 Fremont Street/3rd Avenue
- 3.5 Fremont Street/2nd Avenue
- 3.6 Fremont Street/Monte Diablo Avenue

Each of these locations is discussed in more detail after the Route 3 figure on the following page.



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Route 3. North Central

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Figure 3



## ROUTE 3 SITE SPECIFIC RECOMMENDATIONS

The follow sections summarize the potential improvements and recommendations developed during the walking audits.

### Location 3.1 Delaware Street and Monte Diablo Avenue

**General Considerations:** This intersection is located in the North Central residential neighborhood, immediately east and north of Downtown San Mateo. Delaware Street is a north-south arterial with transit service. Monte Diablo Avenue is a local roadway. Both streets have two-lanes with on-street parking generally permitted. Bus stops are located on the north side of the intersection. In general, traffic volumes and speeds along Delaware Street tended to be higher than Monte Diablo Avenue. This was particularly noteworthy, since Delaware Street is fronted by residential buildings north of 1st Avenue.

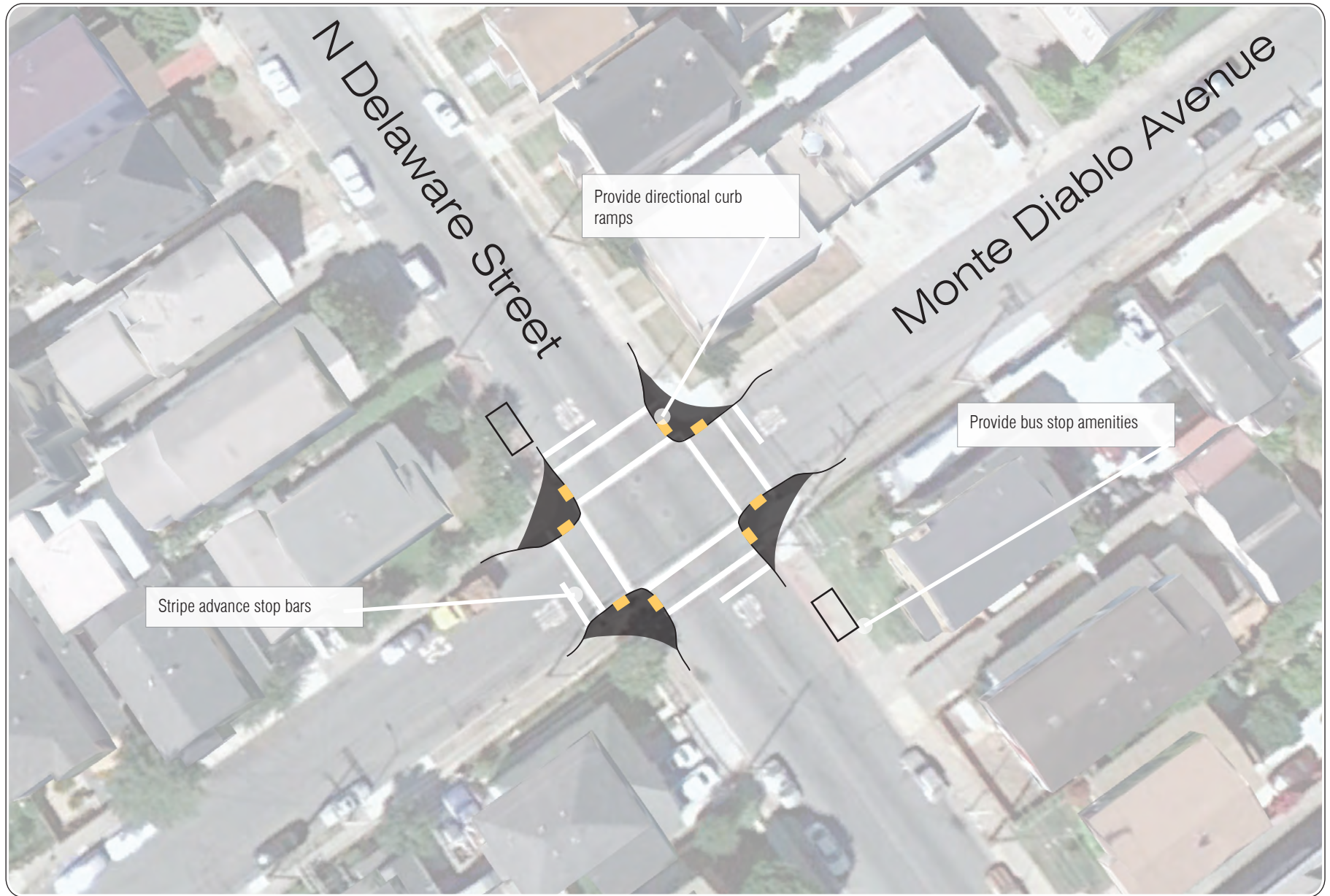


Looking north along Delaware Street at Monte Diablo Avenue

*Specific Recommendations (shown on the following page):*

- Construct curb extensions into both streets on northeast and southwest corners.
- Construct curb extensions into Monte Diablo Avenue on southeast and northwest corners.
- Stripe advance stop bars on all approaches.
- Enhance the lighting at the intersection.
- Reconstruct all curb ramps.
- Consider bus bulbs and provide bus stop amenities.





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Study Location 3.1: N Delaware Street at Monte Diablo Avenue

Route 3. North Central

### Location 3.2 Delaware Street and 1st Avenue

**General Considerations:** This intersection is located east of Downtown and the Caltrain Station. North of 1st Avenue, Delaware Street is predominately residential. The areas south and west of the intersection are generally commercial. The intersection was recently signalized and has a high volume of northbound left turns onto 1st Avenue. Samtrans buses make an eastbound left turn and a northbound left turn at this intersection; however, the nearest bus stop is located approximately 400 feet north of the intersection.



Looking south along Delaware Street at 1<sup>st</sup> Avenue

*Specific Recommendations (shown on the following page):*

- Construct a full curb extension on all four corners.
- Relocate existing bus stop between 1st Avenue and Cypress Avenue to this intersection pending redevelopment and access management opportunities.
- Install leading pedestrian intervals.
- Consider additional gateway treatments to visually indicate the transition of Delaware Street from commercial to residential.

At bus stop to the north:

- Install curb extensions and median island at bus stop as a traffic calming feature.
- Consider installing a mid-block, high visibility crosswalk pending the completion of an engineering study focused on speed and crossing demand at the location.





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### Location 3.3 Delaware Street and 3rd Avenue

General Considerations: South of 1st Avenue at 3rd Avenue, Delaware Street widens to become a four-lane roadway. 3rd Avenue is a main route from US 101 to Downtown San Mateo and is one-way westbound east of this intersection. West of Delaware Street, 3rd Avenue is a two-way street with two lanes in each direction. During peak times, this area becomes congested, particularly with vehicles traveling to and from the freeway. Due to signal timing constraints, the southern crosswalk is given WALK time at the same time as westbound left turns from 3rd Avenue. Gas stations are present on both north side corners; a commercial strip development is located on the southeast corner.

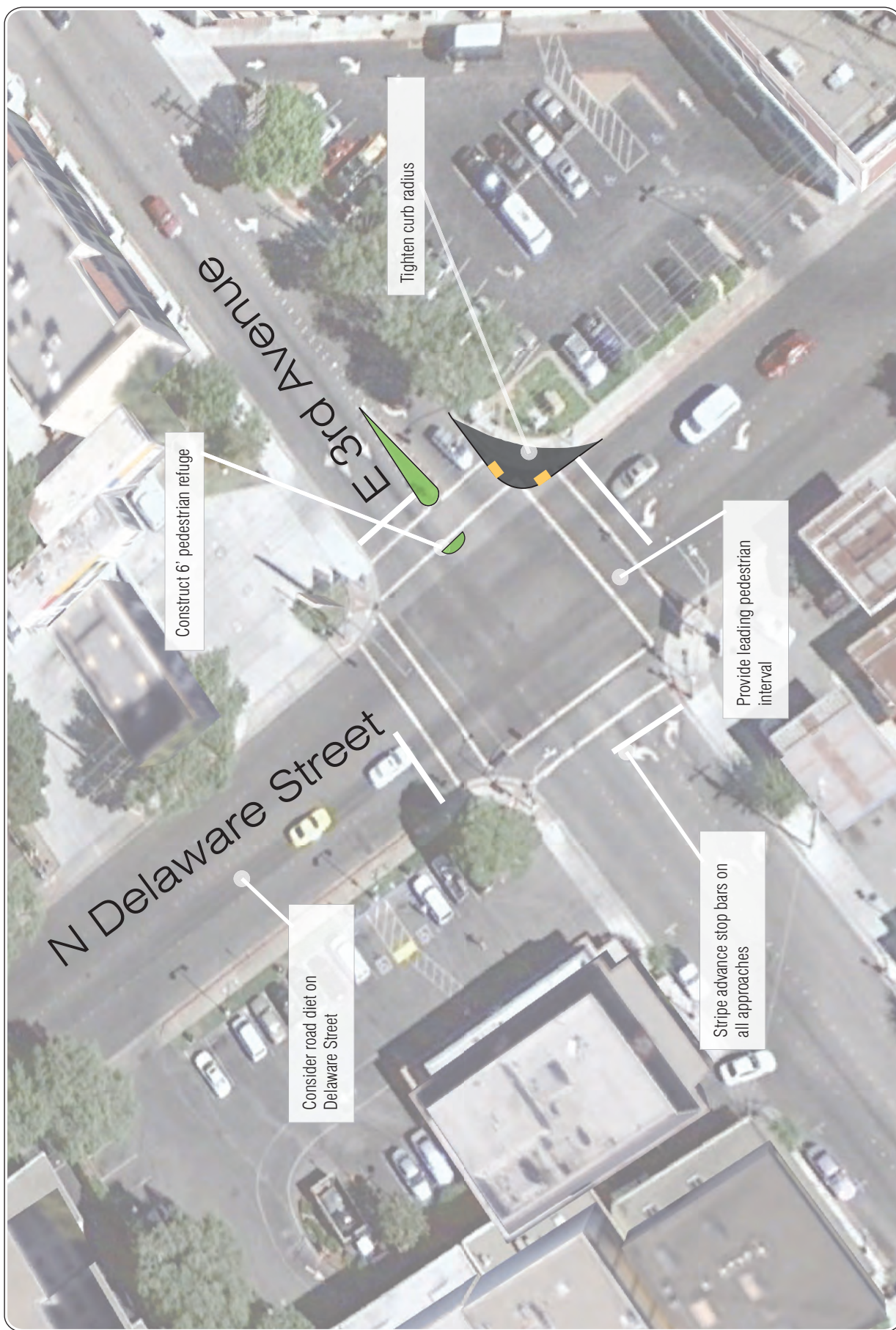


Looking south along Delaware Street at 3<sup>rd</sup> Avenue

*Specific Recommendations (shown on the following page):*

- Study feasibility for a road diet on Delaware Street between 2nd Avenue and 5th Avenue.
- Construct a curb extension into 3rd Avenue on the southeast corner.
- Construct a pedestrian median thumbnail on the westbound approach.
- Stripe tracking lines through the intersection.
- Install a leading pedestrian interval for the south crosswalk.





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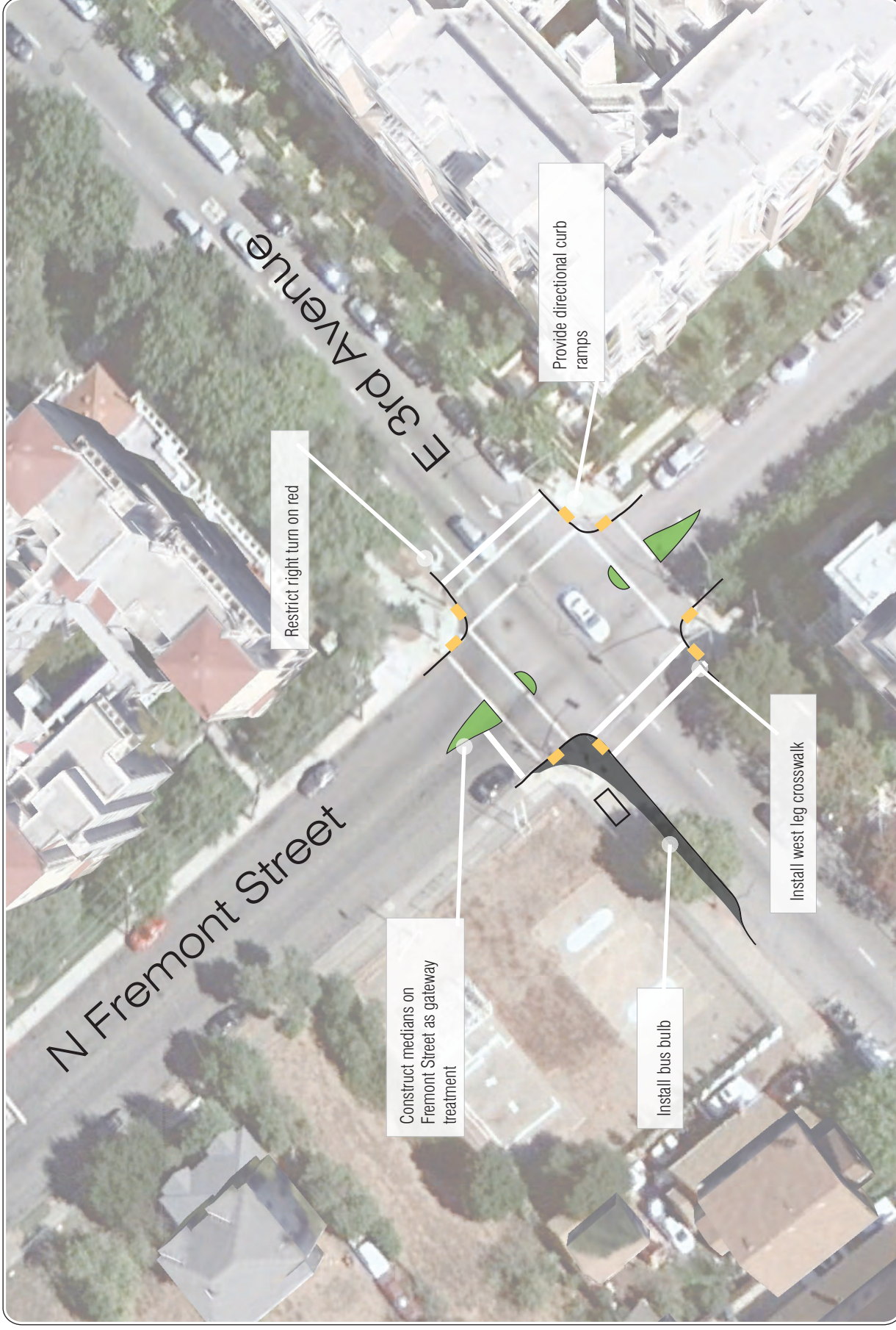
### Location 3.4 Fremont Street and 3rd Avenue

General Considerations: Fremont Street is a residential local street. The section of 3rd Avenue east of Delaware Street has been improved with streetscape enhancements part of residential development projects, including a planted buffer between the roadway and the sidewalk. A bus stop is located on the northwest corner of the intersection; however, the western crosswalk is not striped at this intersection.

*Specific Recommendations (shown on the following page):*

- Construct ramps and crosswalks on west leg of intersection.
- Provide advance stop bars on all approaches.
- As redevelopment occurs on the northwest parcel, reduce or eliminate all curb cuts.
- Construct medians on north and south legs of intersection (of Fremont Street).
- Consider restricting westbound right turn on red.





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### Location 3.5 2nd Avenue and Fremont

General Considerations: Both 2nd Avenue and Fremont Street are local residential streets. The intersection is offset at Fremont, with the eastern portion of 2nd Avenue slightly north of the western segment. Some members of the group noted that 2nd Avenue is a cut-through route in the neighborhood. The southern intersection is all-way stop controlled. The northern intersection is side-street stop controlled. Anecdotally, vehicle speeds on the eastern portion of 2nd Avenue were high for a local street. The western segment of 2nd Avenue is excessively wide.



Looking north across Fremont Street at 2<sup>nd</sup> Avenue

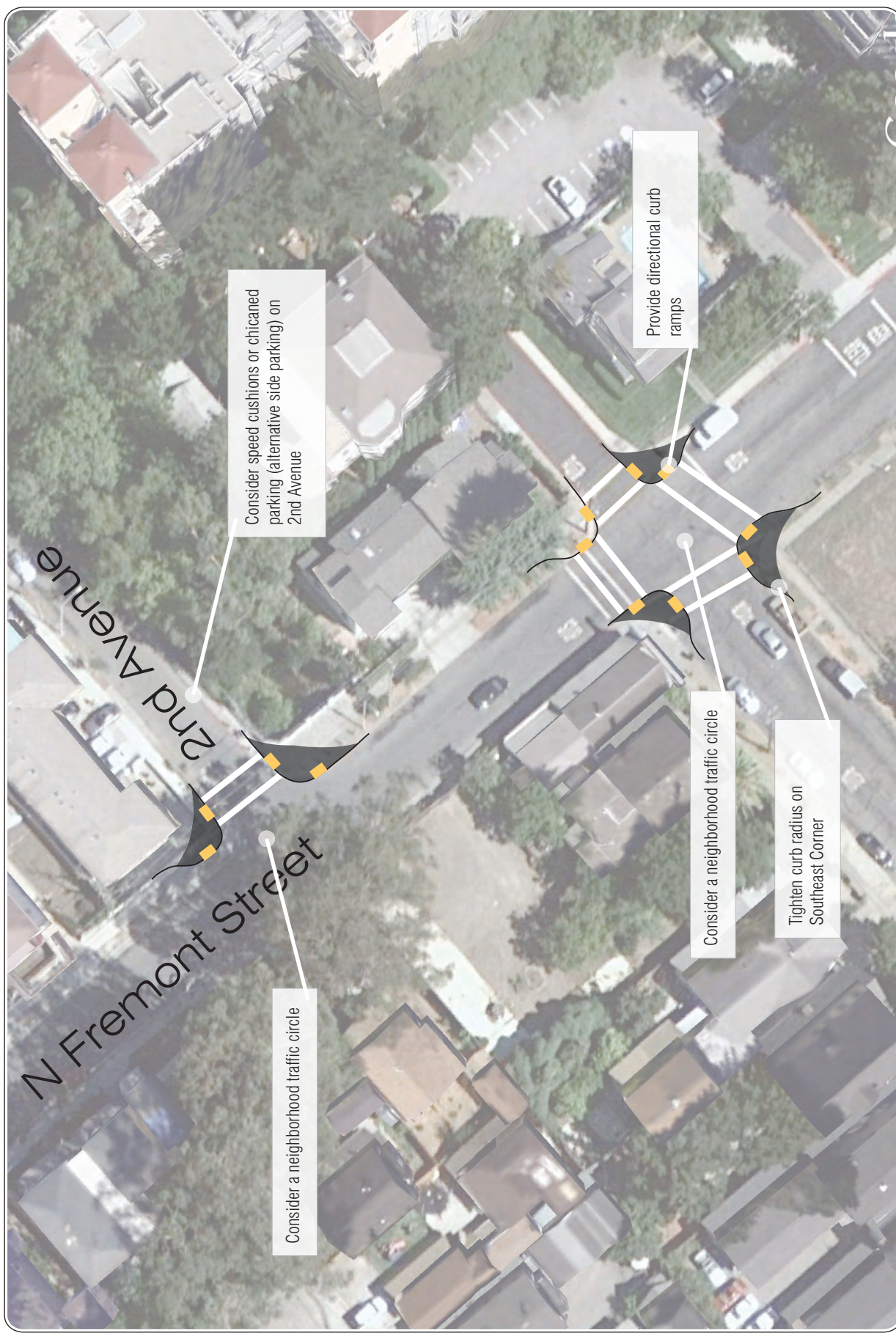
*Specific Recommendations (shown on the following page):*

- Provide a tighter turn radius on the southeast corner of intersection.
- Conduct a speed survey on 2nd Avenue. Consider a speed cushion or use alternating parking sides to create a chicane (traffic calming) effect on 2nd Avenue between Fremont Avenue and Humboldt Avenue.
- Consider curb extensions into 2nd Avenue on the western corners of the intersection.
- For corridor-wide traffic calming, consider a neighborhood traffic circle at the north and south intersections.



Looking east along 2<sup>nd</sup> Avenue at Fremont





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### Location 3.6 Monte Diablo Avenue and Fremont Street

General Considerations: This intersection is a three-way stop controlled intersection primarily surrounded by residential uses. The King Recreation Center is a major destination and is located on the north side of the intersection. Although curb ramps are provided on the north side of the intersection next to the Recreation Center, no crosswalks are striped at the intersection.

*Specific Recommendations (shown on the following page):*

- Stripe crosswalks on all approaches.
- Provide directional curb ramps for all crosswalks.
- Improve pedestrian lighting at intersection.
- Provide advance stop bars.
- Consider a curb extension along Recreation Center.
- Consider high-visibility crosswalks.





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Study Location 3.6: N Fremont Street at Monte Diablo Avenue

Route 3. North Central