



## Appendix C: Walk Audit Summary



## TASMAN DRIVE COMPLETE STREETS CORRIDOR STUDY WALK AUDIT SUMMARY

### Background and Purpose

This memo summarizes the findings of four walk audits at representative locations in Milpitas, Santa Clara, Sunnyvale, and San Jose. The audits were conducted on April 27 and 28, 2017 as part of the existing conditions analysis for the Tasman Drive Complete Streets Corridor Study. These audits had multiple purposes:

1. Identify specific issues impacting the pedestrian and bicycle environment and travel along the walk audit routes;
2. Catalog issues within each city along Tasman Drive for presentation in the Existing Conditions Report;
3. Create a shared understanding of infrastructure and behavioral issues that create a challenging, uncomfortable, or unsafe pedestrian and bicycling environments; and
4. Discuss potential countermeasures and/or policy and programmatic changes that can address identified issues.

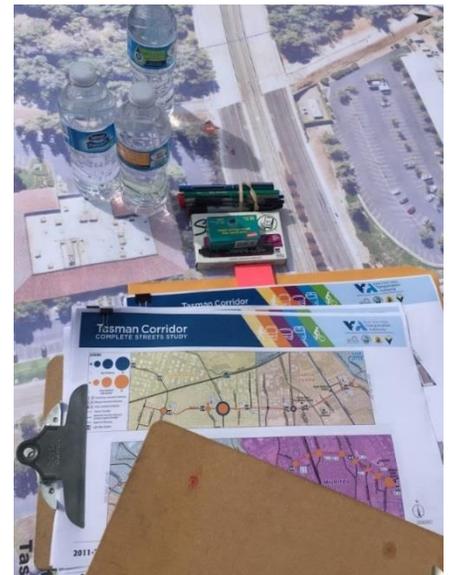


Photo 1: Walk audit materials

VTA staff, local municipality staff, and key stakeholders accompanied the consultant team on the respective walk audits and answered questions about specific existing and planned infrastructure within the walk audit areas, as well as general practices with respect to complete streets projects and policies. The group stopped at designated points along the route to note observations about roadway geometry, lane markings, signage, and other issues that affect transportation. Identified issues and opportunities from the walk audits are summarized by location below.

### Corridor-wide Observations

Walking and bicycling along Tasman Drive is reasonably comfortable and safe for some segments of the corridor. However, several gaps, conflicts, and constraints exist along the corridor that may discourage people from walking or biking. Common themes along the block lengths and intersections of Tasman Drive include the following:

- Signal timing is oriented to minimize vehicle delay and results in long wait times for both bicyclists and pedestrians.
- Large intersections with wide curb radii results in long exposure periods for bicyclists and pedestrians traveling through the intersections and encourages higher vehicle speeds during turning movements.
- Sidewalk gaps along several sections of the corridor interrupt the pedestrian network.



- Bike lanes are not consistently marked throughout the corridor, and conflict areas are not always highlighted.
- Lack of consistent wayfinding and transit signage makes it challenging to locate destinations and identify the most direct, comfortable routes.
- The lack of mid-block crossings over the VTA light rail tracks result in longer more circuitous routes for pedestrians.
- The streetscape elements are inconsistent throughout the corridor, and certain sections would benefit from additional buffers and landscaping.

## Walk Audit Routes

Walk audit routes reflected typical walking and bicycling conditions within each city along the corridor. The routes were:

- Sunnyvale: Calabazas Creek Trailhead to Fair Oaks Station
- Santa Clara: Calabazas Creek Trailhead to Lick Mill Boulevard (Lick Mill Station)
- San Jose: Guadalupe River Trailhead to Cisco Way
- Milpitas: McCarthy Boulevard to the Montague Expressway

## Summary Observations

### Sunnyvale: Calabazas Creek Trailhead to Fair Oaks Station

The Sunnyvale walk audit began at the Calabazas Creek Trailhead (eastern point) and ended at the Fair Oaks Light Rail Station (western point). The walk audit group included representatives from VTA, City staff, and Sunnyvale Bicycle and Pedestrian Advisory Committee (BPAC) members.

This section of Tasman Drive, through the City of Sunnyvale, is mainly residential with some office destinations and a shopping center at Tasman Drive and Lawrence Expressway. The group noted the following conditions.

### Sidewalks

- Large segments of sidewalk are missing along Tasman Drive, including:
  - On the south side of Tasman Drive:
    - East of Fair Oaks Avenue to Vienna Drive
  - On the north side of Tasman Drive:
    - East of Fair Oaks to Lawrence Expressway
    - East of Lawrence Expressway to west of Reamwood Avenue
    - Reamwood Avenue to the Calabazas Creek Trail



Photo 2: Obstacles such as fire hydrants block the sidewalk on Tasman Drive, east of the Lawrence Expressway.



- Gaps in the sidewalk, especially between Fair Oaks Avenue and Vienna Drive, occur in a constrained right-of-way situation where the corridor contains median-running light rail, two lanes of vehicular traffic, mature trees, and a sound barrier wall.
- Some sidewalk sections have barriers to people walking, such as utility poles and fire hydrants, particularly from Reamwood Station to Lawrence Expressway.

### Bike Facilities

- Bike lanes are marked from Patrick Henry Drive, but drop at the bridge crossing over Calabazas Creek and then resume on Reamwood Avenue. The rest of the corridor has no striped bike lanes.

### Trail Access

- The Calabazas Creek Trail does not have a formal crossing over Tasman Drive, and many people use an unpaved dirt trail undercrossing.
- A marked, signalized crossing is at the Reamwood Station. However, the pedestrian wait time is long, resulting in people crossing against the red light.
- Bicyclists who exit the Calabazas Creek Trail must walk their bike on the sidewalk to cross at the Reamwood Station and walk their bike back on the sidewalk to continue back on the trail.

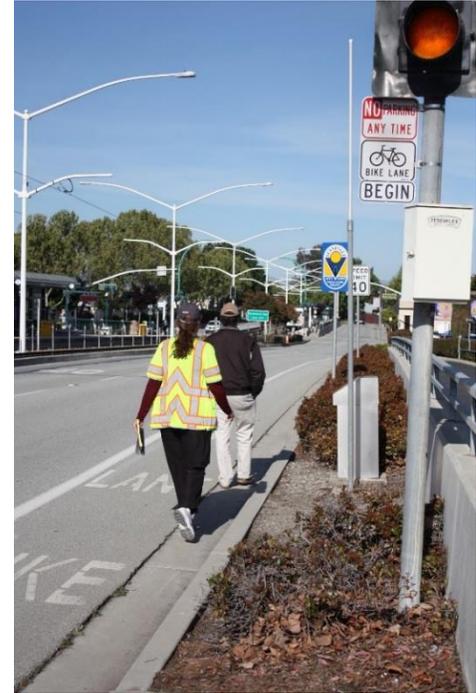


Photo 3: Missing sidewalk along Tasman Drive, west of Calabazas Creek Bridge

### Intersections

- Marked pedestrian crossings are inconsistent in this area, and some intersections lack pedestrian accommodation, such as Tasman Drive and the west entrance to the Casa De Amigos neighborhood. Pedestrian crossings are provided to cross Adobe Wells Street; however, a pedestrian barrier prohibits people from crossing Tasman Drive at this location.
- The Lawrence Expressway and Tasman Drive intersection is wide, and pedestrians and bicyclists must cross three travel lanes in each direction on the Lawrence Expressway. Also, pedestrian wait times at this intersection are very long. Vehicles exiting off the Expressway approach and cross Tasman Drive at high speeds due to the wide turning radii.
- The signage and pedestrian count-down signal heads are inconsistent in this area, particularly at Tasman Drive and Adobe Wells Street.



Photo 4: Wide intersections and lack of bicyclist infrastructure were noted at Lawrence Expressway and Tasman Drive.



Figure 1: Hand-written comments from the Walk Audit Maps at Station #2 Lawrence Expressway in Sunnyvale.

### Transit Stops

- Pedestrian activity in this area is generated by several townhomes and apartment buildings on the north and south side on Tasman Drive at Fair Oaks Avenue, and a shopping center on the north side of Tasman Drive across from the Fair Oaks Station.
- Throughout this corridor, the light rail tracks pose a barrier for mid-block crossings, and fencing along the tracks channelizes people to cross at Fair Oaks Avenue at the signalized crossing.
- A trail is planned along the Creek that runs behind the shopping center at Fair Oaks Ave on the east side.



Photo 5: Potential trail location at the Fair Oaks LRT Station



## Santa Clara: Calabazas Creek Trailhead to Lick Mill Station

The Santa Clara walk audit began at the Calabazas Creek Trailhead (western point) and ended at the Lick Mill Light Rail Station (eastern point). The walk audit was attended by City of Santa Clara staff and members of the City's BPAC and VTA BPAC.

This section of Tasman Drive through the City of Santa Clara includes major regional destinations such as the Santa Clara Convention Center and Levi's Stadium, recreational amenities such as the Santa Clara Golf and Tennis Club and the Santa Clara Youth Soccer Park, and the Great America Amtrak/ACE Station. The group noted the following conditions.

### Sidewalks

- The sidewalk surface quality is in good condition and of a comfortable width in most sections along the walk audit route. In some sections a landscaped strip between the roadway and sidewalk provide additional buffer and shade.



Photo 6: Start of audit at Calabazas Creek Trailhead

### Bike Facilities

- Some bike lanes are present along the Santa Clara corridor of Tasman Drive, especially on the western and eastern ends.
- On the north side of Tasman Drive, a bike lane exists between Patrick Henry Drive and Old Ironsides Drive; however, it is disconnected from other facilities.
- Gaps in the bike network occur at the following locations:
  - On the north side of Tasman Drive:
    - Between Calabazas Creek Trail and Patrick Henry Drive
    - Between Old Ironsides Drive and Great America Parkway
    - Between Marie P DeBartolo Way and Lick Mill Boulevard
  - On the south side of Tasman Drive:
    - Between Calabazas Creek Trail and Great America Parkway
    - Between Marie P DeBartolo Way and Lick Mill Boulevard
- The City of Santa Clara has plans to enhance the existing bike lanes with painted buffers and green paint at conflict areas. These improvements will contribute to a more comfortable and safe conditions for bicyclists.

### Trail Access

- The Calabazas Creek Trail, San Tomas Aquino Creek Trail, and Guadalupe River Trail are integral components of the regional pedestrian and bicycle network, and they all intersect with Tasman Drive.
- Stronger connections between the trails and Tasman Drive and enhanced wayfinding will help users access the trails.



## Intersections

- Wide intersections present challenges for both bicyclists and pedestrians within the Tasman Drive corridor because of the increased distance for pedestrian and bicyclists to travel and the increased speed of cars due to the wide turning radii.

## Transit Stops

- VTA is initiating a program to provide real-time arrival information at priority stops throughout their service area.
- Several opportunities exist to enhance bus stops, light, and heavy rail stations along the corridor. Bus stops along Tasman Drive would benefit from better informational signage, expanded bus stops, and upgraded shelters.
- At Levi's Stadium, wayfinding is needed to the Amtrak station, and installation of real-time transit information in front of the stadium would benefit transit riders.
- At the Old Ironsides Light Rail Station, a fence or gate should be installed to prevent mid-block crossings, and the platform should be extended to Great America Parkway to improve access.
- Access to the Great America Amtrak/ACE Station is limited from Tasman Drive. The staircase that connects to the platform is not ADA-accessible nor is it intuitive for bicyclists. An accessible ramp is needed to facilitate access for all users.
- New wayfinding signage on Tasman Drive, as well as down on the platform level will help direct passengers to and from destinations along Tasman Drive.

## Wayfinding

- During games at Levi's Stadium, San Tomas Aquino Creek Trail is closed near the stadium and people are directed through a well-signed detour through the neighborhoods on the south side of the stadium.



Photo 7: Group discussion and wayfinding signage at Great America Station



Figure 2: Hand-written comments from the Walk Audit Maps at Station #3 Centennial Boulevard in Santa Clara.



## San Jose: Guadalupe River Trailhead to Cisco Way

The San Jose walk audit began at the Guadalupe River Trailhead (western point) and ended at Cisco Way (eastern point). The walk audit was attended by City staff, VTA staff, and VTA Bicycle Pedestrian Advisory Committee (BPAC) representatives.

This section of Tasman Drive through the City of San Jose includes major office destinations, such as Samsung and Cisco headquarters. The group noted the following conditions.

### Sidewalks

- The sidewalk is in good condition in this part of the corridor. A few barriers such as traffic signal poles and utility boxes reduce the amount of clear space for wheelchair access and pedestrians.
- City staff noted the City of San Jose right-of-way extends beyond the sidewalk, which could provide an opportunity to widen the sidewalk or expand the width of the bike lane. A wider sidewalk particularly near the office buildings will create a more pleasant pedestrian environment because this will increase the distance between the cars and the pedestrians.

### Bike Facilities

- San Jose has some of the highest quality bicycle facilities along the Tasman corridor. The bike lanes are striped with a buffer and green paint marking conflict zones on the approach to intersections along the corridor.
- Challenges such as high speed traffic and conflict areas still exist, and the City of San Jose would like to implement Class IV protected bike lanes as a low stress facility, whenever possible.
- At North 1<sup>st</sup> Street and Tasman Drive (on the north side), vehicles were parked in the bike lane in front of the Samsung building. Vehicles were also observed blocking the VTA bus stop.

### Trail Access

- A formal crossing from the Guadalupe River Trail under Tasman Drive provides a smooth transition between the north and south segments of the trail, and signage at the



Photo 8: Traffic signal blocking the sidewalk on at Vista Montana



Photo 9: Green lanes dashed on the approach to Zanker Road



trailhead noting the entrance helps users find the trail. Additional signage in advance of the trailhead would further enhance wayfinding.

- The bicycle entrance to the trail on Tasman Drive has a high lip between the sidewalk and pavement that is challenging for bicyclists to mount. This lip could be ground down between the edge of the pavement and sidewalk to provide a level surface and smoother transition.



Photo 10: Cars parked in the bike lane at Tasman Drive and N. First Street

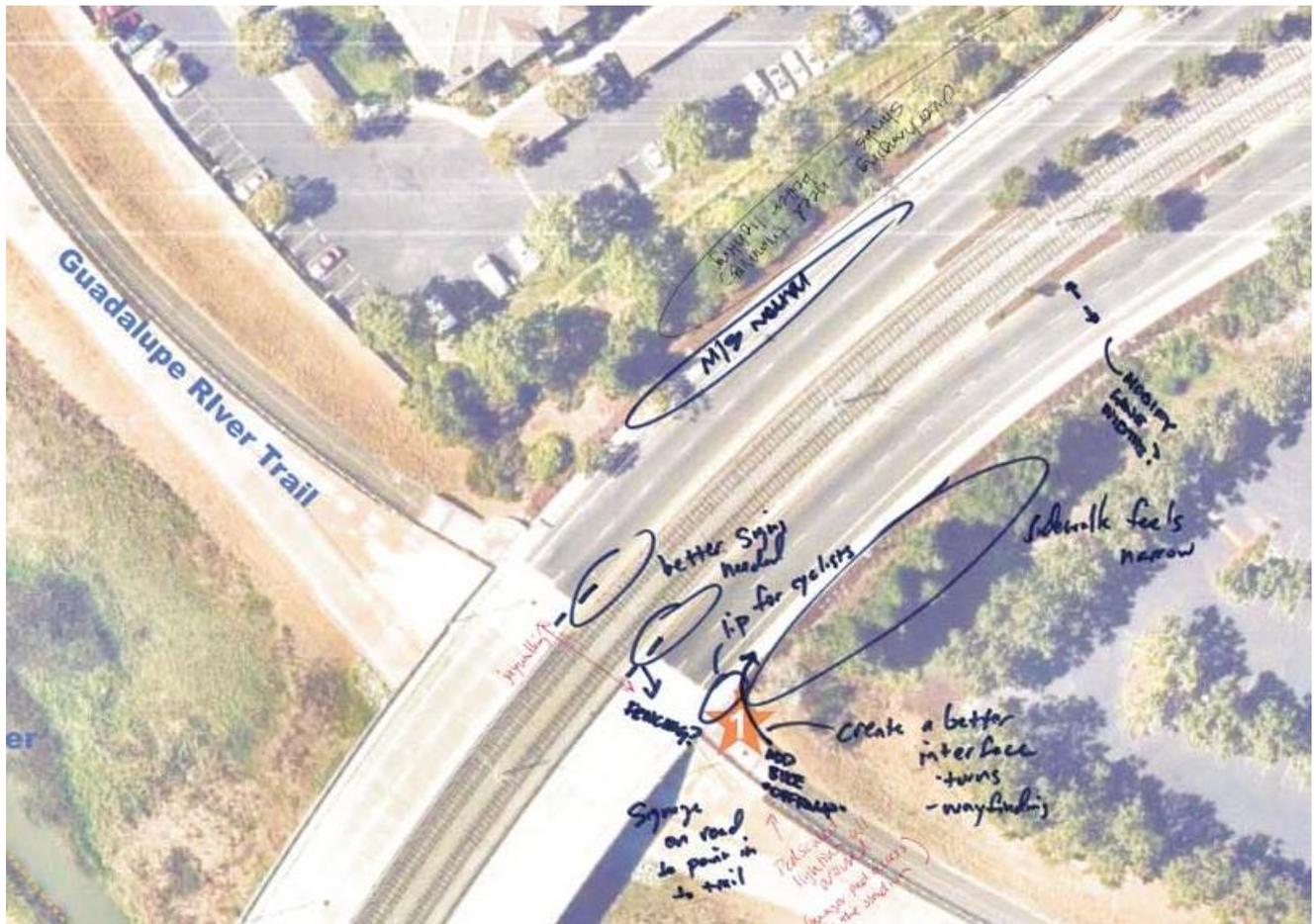


Figure 3: Hand-written comments from the Walk Audit Maps at Station #1 Guadalupe River Trailhead in San Jose.



## Intersections

- Similar to other areas in the Tasman corridor, wide intersections are a challenge in San Jose. Participants noted the wide intersection at North 1<sup>st</sup> Street and Tasman Drive and suggested bulb-outs to reduce the turning radius on the northwest and northeast side of North 1<sup>st</sup> Street.

## Transit Stops

- Participants noted challenges with pedestrians exiting the train at the Champion Station and crossing east of the station rather than crossing at the signalized intersection at Champion Court. People who are going to the office buildings, such as Cisco Systems Building 8, were seen illegally crossing at the back of the platform and making an unprotected crossing of two travel lanes into the driveway of the buildings. VTA is examining additional railings or directing the train drivers to pull closer the intersection to discourage this behavior.



Photo 21: The pedestrian refuge from the Cisco Way Station does not connect to the marked crosswalk

## Wayfinding

- There is a general lack of wayfinding signage directing people to and from the Champion, Tasman, and Lick Mill stations from the office buildings in the area. The City of San Jose is about to develop a wayfinding program and should work with VTA to integrate the program with station access.

### Milpitas: McCarthy Boulevard to the Montague Expressway

The Milpitas walk audit began at the intersection of McCarthy Boulevard (western point) and extended east to Montague Expressway, at the gateway to the future Milpitas BART station (eastern point).

The section of Tasman Drive through the City of Milpitas includes several major employers and retail destinations, rapidly expanding residential areas, and major transit hubs to the east. The group attending the audit noted the following conditions.



## Sidewalks

- Sidewalks are in good condition and of a comfortable width in most sections along the walk audit route. However, from Abel Street to I-880 on the south side of Tasman Drive, the existing landscaping is overgrown and encroaches on the sidewalk. At this location, the sidewalk turns sharply before continuing, and to pedestrians, it appears that the sidewalk ends and that they cannot use the sidewalk to cross the interchange.
- Gaps in the sidewalk include:
  - On the south side of Tasman Drive:
    - Between McCarthy Boulevard and Alder Drive
    - East of South Main Street due to ongoing construction (City of Milpitas Conditions of Approval require that the developments install sidewalks along Tasman Drive.)
- In some locations, overgrown landscaping encroaches upon the sidewalk.
- Walk audit members noted that a prison is located on the east side of the I-880 interchange. Crosswalks in this area are heavily used because when detainees are released, most use the sidewalks along Tasman Drive to access their destinations away from the prison.



Photo 12: Pedestrian crossing button behind barrier

## Bike Facilities

- The on-street bike lanes are located adjacent to traffic, and bicyclists may not feel comfortable riding in these bike lanes.
- In some locations, debris and weeds obstruct the bike lanes.
- At the intersection with McCarthy Boulevard, walk audit members observed east-bound bicyclists turning north-bound on McCarthy Boulevard; due to the long signal timing, a two-phase left turn is not highly used because of the delay.
- When approaching intersections and freeway ramps, the bike lanes drop or are placed between a through-travel lane and right-turn lane for extended distances. Cars were observed lining up in the bike lane at peak times for turning movements.
- At the intersection of Tasman Drive and I-880, signage that warns vehicles of bicycle traffic could be beneficial.
- Participants discussed enhancements to the existing bike lanes that would increase the safety, comfort, and appeal to a wider range of cyclists. Such improvements included:
  - Painted buffers and green paint through conflict areas; and
  - Raised barriers and realignment of lanes along the curb.



## Intersections

- Marked crosswalks at the signalized intersections are difficult for drivers to see, particularly when traveling at higher speeds. High visibility crosswalks (e.g. continental style) would improve the visibility of crossing locations and draw attention to pedestrian areas. Advanced stop bars will also discourage drivers from encroaching on pedestrian crossing areas. In particular, the intersection of Tasman Drive and Montague Expressway should be enhanced with high visibility markings, curb-extended pedestrian refuges, and signage and green paint within the bike lanes.
- Once the BART station near the intersection of Tasman Drive and Montague Expressway is complete, creating safe and accessible crossings for pedestrians and bicyclists will be very important to allow easy access between the station and the corridor.
- At the intersection with Mustang Drive, walk audit members noted that the turning radius on the northeast corner could be tightened. Also, the short yellow signal could benefit from additional time.
- Turning movements for vehicles, especially at the intersection with Main Street, are long and somewhat confusing to drivers.
- Both crossing distances and signal timing cycles are very long toward the east side of Tasman Drive. The amount of time it takes for pedestrians to wait for the walk light and cross the street is excessive and discourages walking trips. Curb extensions at appropriate locations will reduce the crossing distance and exposure time for pedestrians in the crosswalk.
- At the intersection of Tasman Drive and South Main Street, the skewed roadway geometry and current placement of marked crosswalks results in long walking distances to access the light rail station. As a result, people were observed crossing mid-block. Restriping and expanding the crosswalks to meet desire lines will greatly help to facilitate access in and out of the station and to communicate to drivers that pedestrians are present. Wayfinding, public art, and other plaza elements will also contribute as gateway features and station-identifiers.
- Median refuge islands are frequently shaved back to facilitate higher speed vehicle turns. Expanding the refuge islands will improve comfort and safety for pedestrians, particularly at light rail stations where passengers are boarding and alighting in the median. Median tips will also improve comfort and safety at appropriate locations.



Photo 13: Mid-block pedestrian desire lines at the light rail tracks

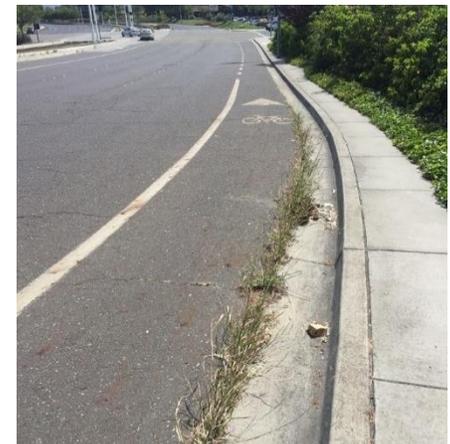


Photo 14: Weeds and debris in bike lane

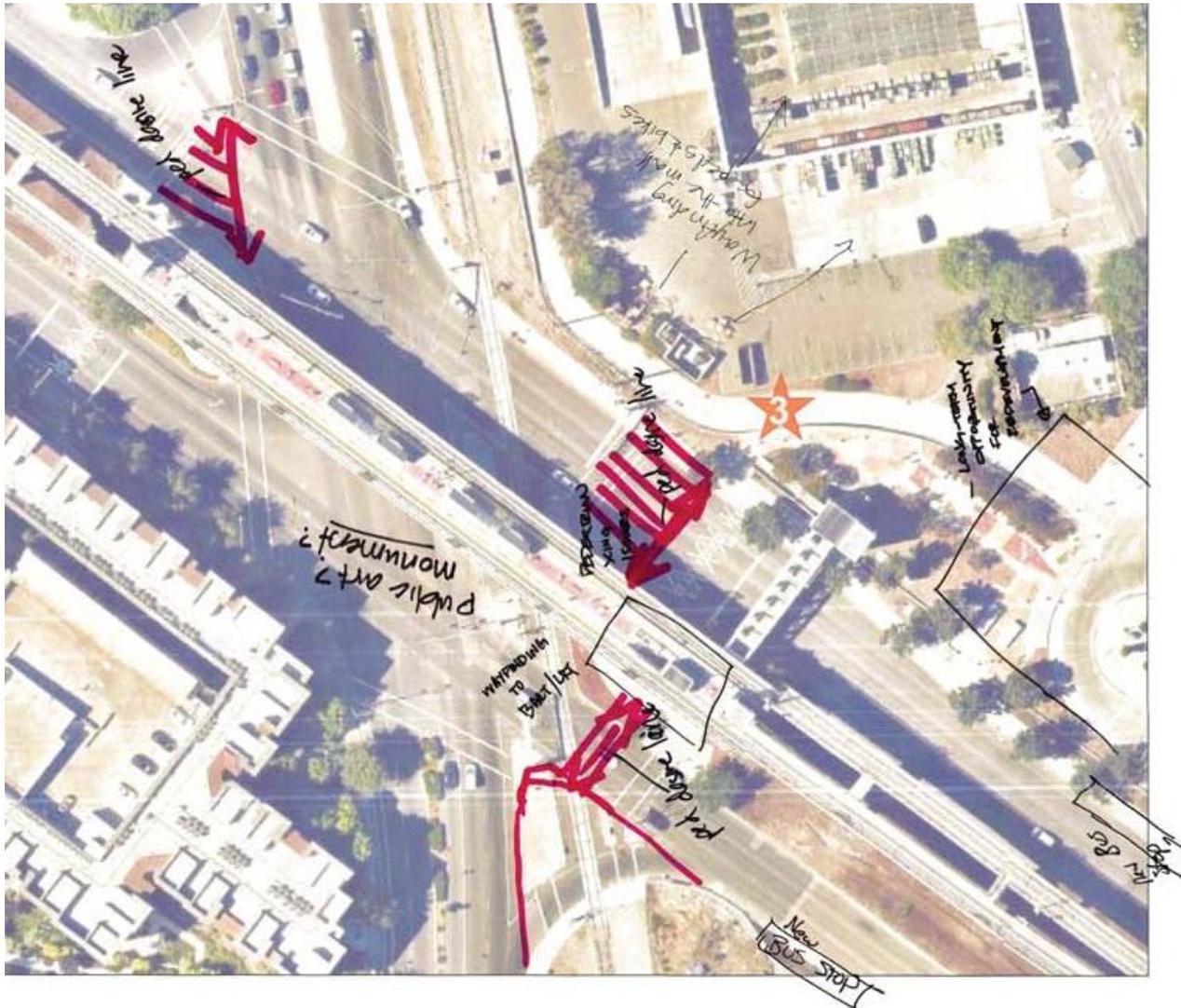


Figure 4: Hand-written comments from the Walk Audit Maps at Station #3 South Main Street in Milpitas.

### I-880 Interchange

- The interchange at I-880 presents specific pedestrian and bicycle safety and access issues.
  - At the southbound on-ramp, the curb ramps do not meet current ADA standards, and push buttons are in inaccessible locations, far distances from the curb ramps.
  - At the northbound on-ramp from the eastbound approach of Tasman Drive, the slope of the roadway and location of the crosswalk across the on-ramp limit sightlines and visibility.



## Transit Stops

- Future planned bus locations were identified along the corridor. Potential locations were discussed based on observed pedestrian movements; for example, near the east intersection of Tasman Drive and I-880 where prison detainees are released.
- At the intersection with the Great Mall, walk audit participants indicated a desire for bus stops on the north and south sides of the intersection.

## Wayfinding

- Signage at the intersection of Tasman and South Main Street acts as wayfinding for pedestrians and bicycles crossing the corridor to reach the LRT Station and/or the Great Mall area.
- The intersection with McCarthy Boulevard does not have any signage indicating its connection to the Coyote Creek Trail. The trailheads are easy to miss and could benefit from enhanced signage as well.
- When the BART station is completed, wayfinding signage to and from this station will be critical to help orient users to neighboring amenities and other key destinations.
- Wayfinding with directions and distances to key destinations such as trails, light rail, bus, and BART stations and other amenities would help orient all users along the corridor and contribute to a sense of place.