

APPENDIX A



TECHNICAL ANALYSIS

SUMMARY



FREEPORT BOULEVARD TRANSPORTATION PLAN

INTRODUCTION

RECENT AND CONCURRENT PLANNING PROCESSES

Numerous previous and current planning projects are being used to inform the Freeport Boulevard Transportation Plan. These efforts include citywide planning efforts as well as visions created by the community. Refer to Appendix A for a complete summary of all recent and concurrent planning processes. Key efforts reviewed include:

Citywide Plans

- Sacramento General Plan 2035, City of Sacramento, 2015
- Land Park Community Plan, 2015 (part of General Plan)
- Vision Zero Sacramento Action Plan, City of Sacramento, 2018
- City of Sacramento Bicycle Master Plan, City of Sacramento, 2018
- Pedestrian Crossing Guidelines, 2021
- Sacramento General Plan Update 2040, City of Sacramento, Ongoing

Partner Agency Plan

- SacRT Forward Alternatives Report, 2018
- Freeport Boulevard Walk Audit Report, WALK Sacramento, 2019

Sacramento General Plan 2035, City of Sacramento, 2015

The General Plan's Mobility Chapter addresses the infrastructure and service needs of various modes of transport. The plan calls for the creation of a balanced, multimodal network that meets the needs of all road users.

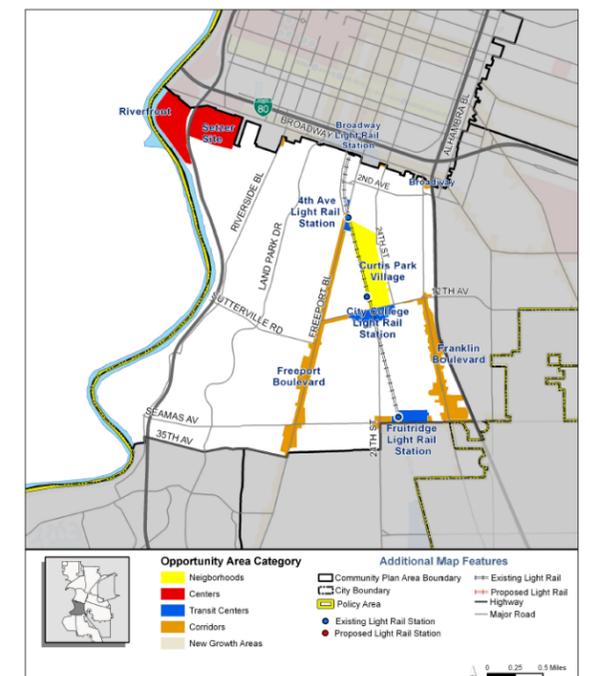
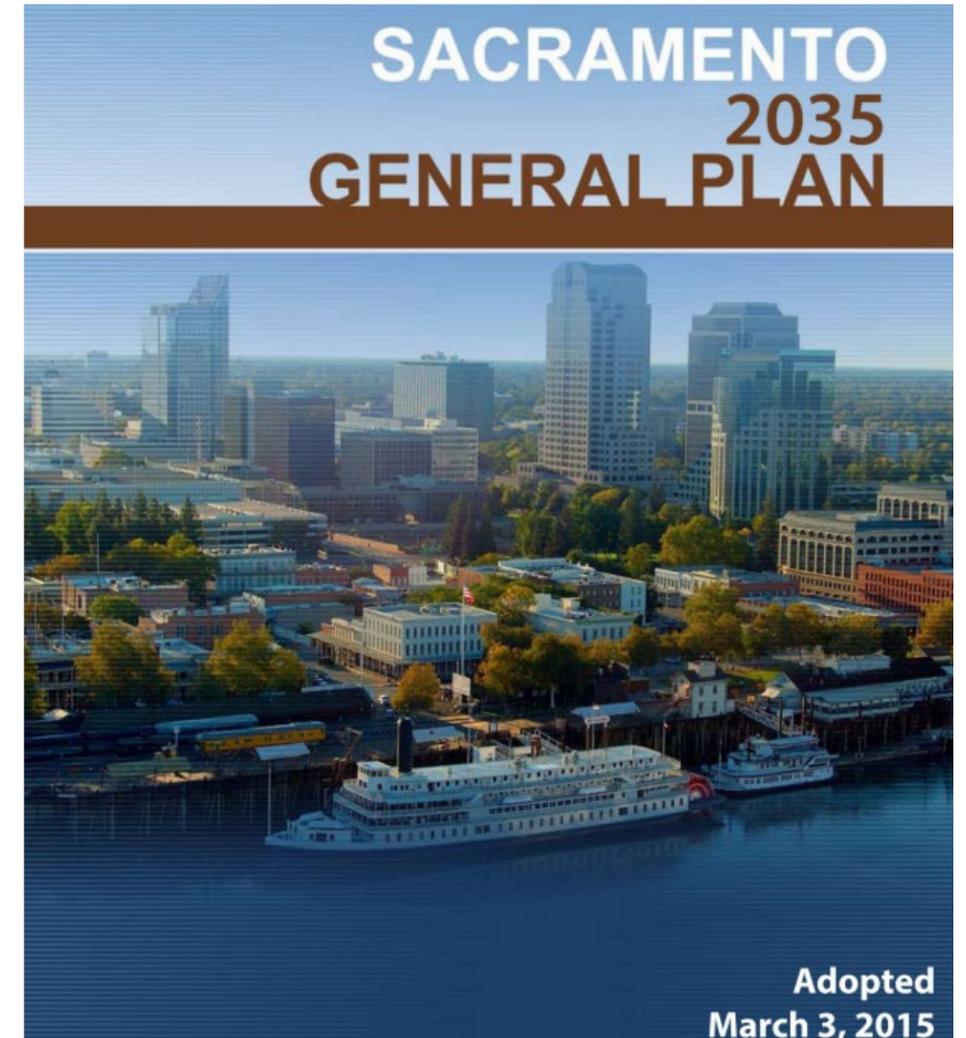
Relevant Goals:

- Provide a multimodal transportation system that supports the social, economic and environmental vision, goals, and objectives of the City.
- Increase multimodal accessibility throughout the city and region with an emphasis on walking, bicycling, and riding transit.
- Improve accessibility and system connectivity by removing physical and operational barriers to safe travel
- Design, construct, and maintain a universally accessible, safe, convenient, integrated and well-connected pedestrian system that promotes walking.
- The City shall plan, design, operate and maintain all streets and roadways to accommodate and promote safe and convenient travel for all users.

Land Park Community Plan, 2015

The Land Park Community Plan provides an overview of the community's development and planning history

The Plan provides information about opportunity areas. Freeport Boulevard is a Commercial Corridor Revitalization opportunity area.



INTRODUCTION

Vision Zero Sacramento Action Plan, City of Sacramento, 2018

The City of Sacramento developed a Vision Zero Action Plan to prioritize safety improvements and make progress toward eliminating all traffic fatalities. The Action Plan found that 79% of collisions resulting in death or serious injury occurred on 14% of the street network. Freeport Boulevard was classified as a High Injury Network street.

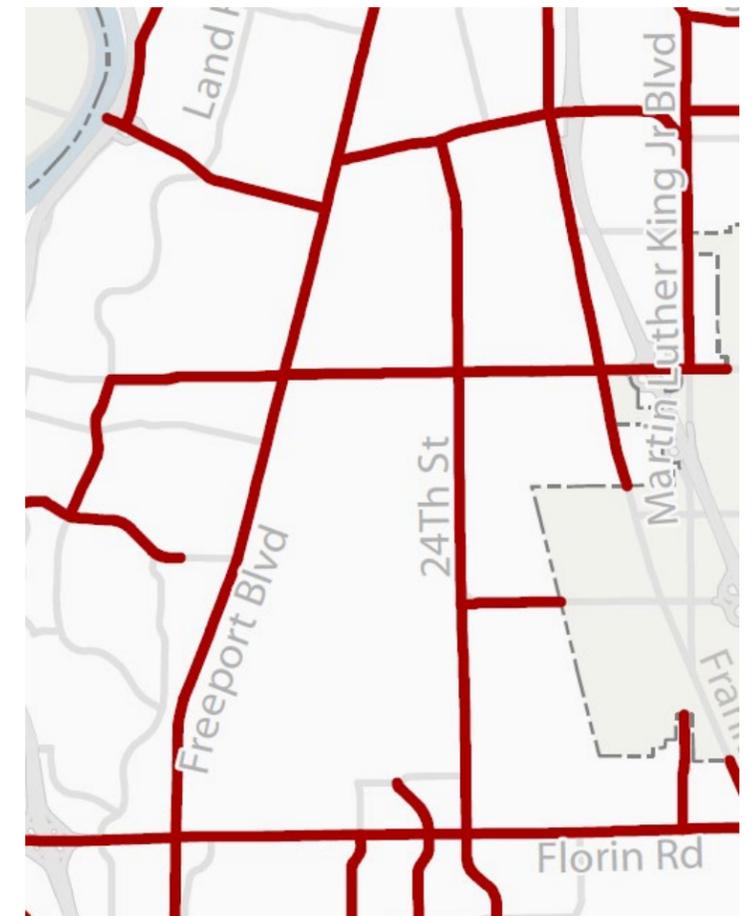
The Action Plan includes a crash typology and a series of countermeasures to reduce those crashes. Countermeasures tackle crash reduction from multiple angles: street design, enforcement, and education.

The Action Plan outlines short-term and long-term actions to reach desired Vision Zero outcomes including the following strategies:

- Incorporate Vision Zero safety principles into all future City plans and design documents.
- Provide ongoing safety-related training and support to City staff responsible for street design and enforcement activities.
- Enhance street lighting to improve visibility throughout the HIN.
- Revisit pedestrian crossing guidelines for signalized and unsignalized intersections.
- Continue building the enhanced bikeway network consistent with the Bicycle Master Plan.

Key Findings:

- Crash victims who walk are **10 times more likely** to be killed or seriously injured in Sacramento than crash victims who drive.
- Between 2009 and 2015, collisions where someone was killed or seriously injured while biking or walking **increased 63%**.
- Unsafe speed is the leading cause of crashes. **2/3 of fatal crashes** occur on streets with a posted speed of 40 mph or higher.
- **About 44% of fatal crashes** and half of pedestrian KSI crashes occur in the City's Disadvantaged Communities, which account for only 25% of the roadway network.



*High Injury Network (HIN)
Freeport Boulevard is part of the High Injury Network*

INTRODUCTION

City of Sacramento Bicycle Master Plan, City of Sacramento, 2018

The City of Sacramento's Bicycle Master Plan provides a blueprint for developing a bicycle network that is safe and accessible for residents of all ages and abilities.

Goals:

- **Increase Ridership:** 7% bicycle mode share for commuting by 2020
- **Increase Safety:** Zero bicyclist fatalities by 2020
- **Increase Connectivity:** Double the percentage of residents that can conveniently reach a continuous low-traffic-stress bikeway network* by 2025
- **Increase Equity :** Equitable investments in bicycling facilities and programs for all neighborhoods by 2020

The Bicycle Master Plan does not recommend changes to Freeport Boulevard's existing bike lanes; however, the plan's bikeway facility selection guidelines show a separated bikeway is warranted based on traffic volumes and the posted speed limit.

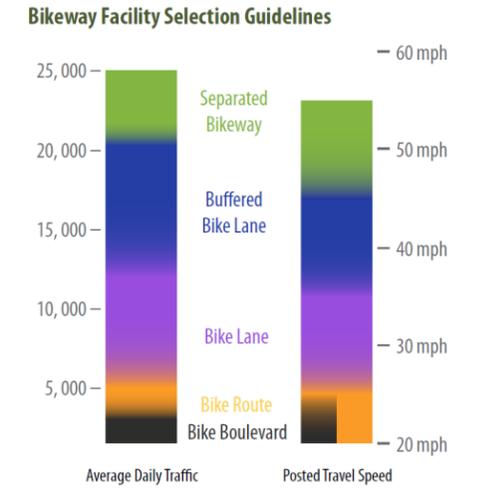
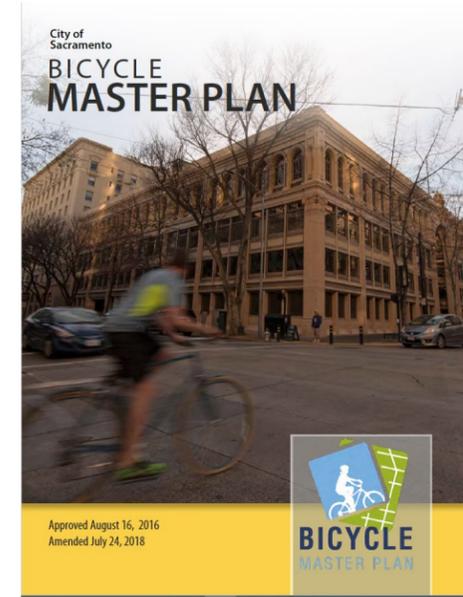
Pedestrian Crossing Guidelines, City of Sacramento 2021

The City of Sacramento's Pedestrian Crossing Guidelines provide information on the siting and design of crossings.

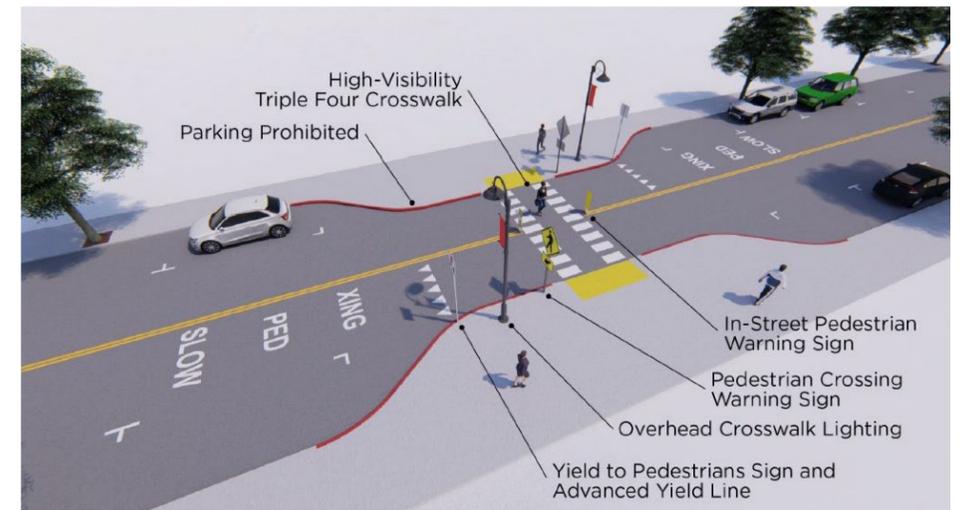
A critical element is recommending different types of crossings based on vehicle Average Daily Traffic, number of lanes per direction, presence of a median, and posted speed. The bigger the road and the faster and heavier the traffic, greater protection is needed to create an appropriate crossing.

Based on Freeport Boulevard street characteristics, crossing design should include a Pedestrian Hybrid Beacon (PHB), a pedestrian refuge island, advance warning signage, and high-visibility crosswalk markings

The guidelines provide a definition, considerations, and example design renderings to communicate safety improvements.



City of Sacramento Bicycle Master Plan, 2018



Example Crosswalk Visibility Enhancements

Freeport Boulevard Walk Audit Report, WALK Sacramento, 2019

The Freeport Boulevard Transportation Safety Committee partnered with WALK Sacramento to conduct a community walk audit after a pedestrian fatality at Oregon Drive.

Recommendations Included:

- Either extend the planned road diet from Sutterville Road south to Fruitridge Road or narrow travel lanes and install planted median islands with buffered bicycle lanes and curb extensions.
- Install crossing improvements at Oregon Drive and Potrero Way.
- Install Leading Pedestrian Internals at key locations such as Sutterville Road and Fruitridge Road.
- Consolidate driveways.
- Widen median islands to plant trees.
- Upgrade bus stops with shade, benches, trash receptacles, and crossing improvements.”

INTRODUCTION

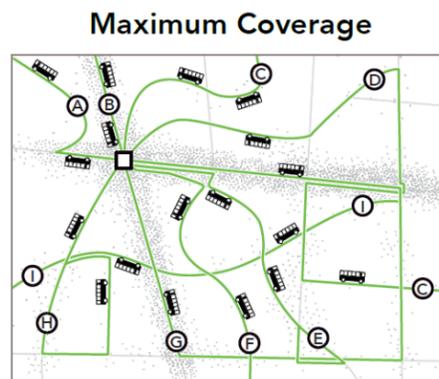
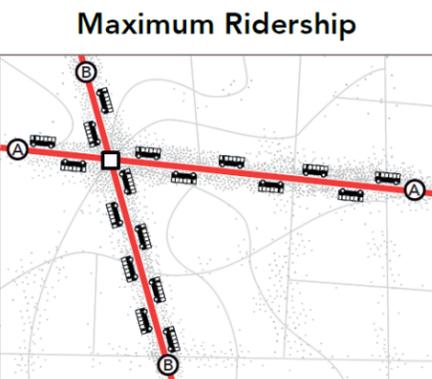
SacRT Forward, 2018

The Sacramento Regional Transit District, known as SacRT, runs buses and light rail throughout the city.

SacRT commissioned a study in 2018 to understand how service might evolve to meet two different alternatives:

- “High Coverage” or lots of routes covering most areas of the city, but with low frequencies and a short daily schedule
- “High Frequency, High Ridership” meaning service would be concentrated on major roads and buses would run more frequently and for more hours of the day

This study focused on laying out the tradeoffs of these two alternatives. For example, high coverage means a person does not have to walk far to a bus stop, but since buses must cover so many streets, it might only run every 45 minutes to an hour. Service focused on major roads means a person might have to walk farther to the bus stop, but service could run every 15 or 20 minutes.



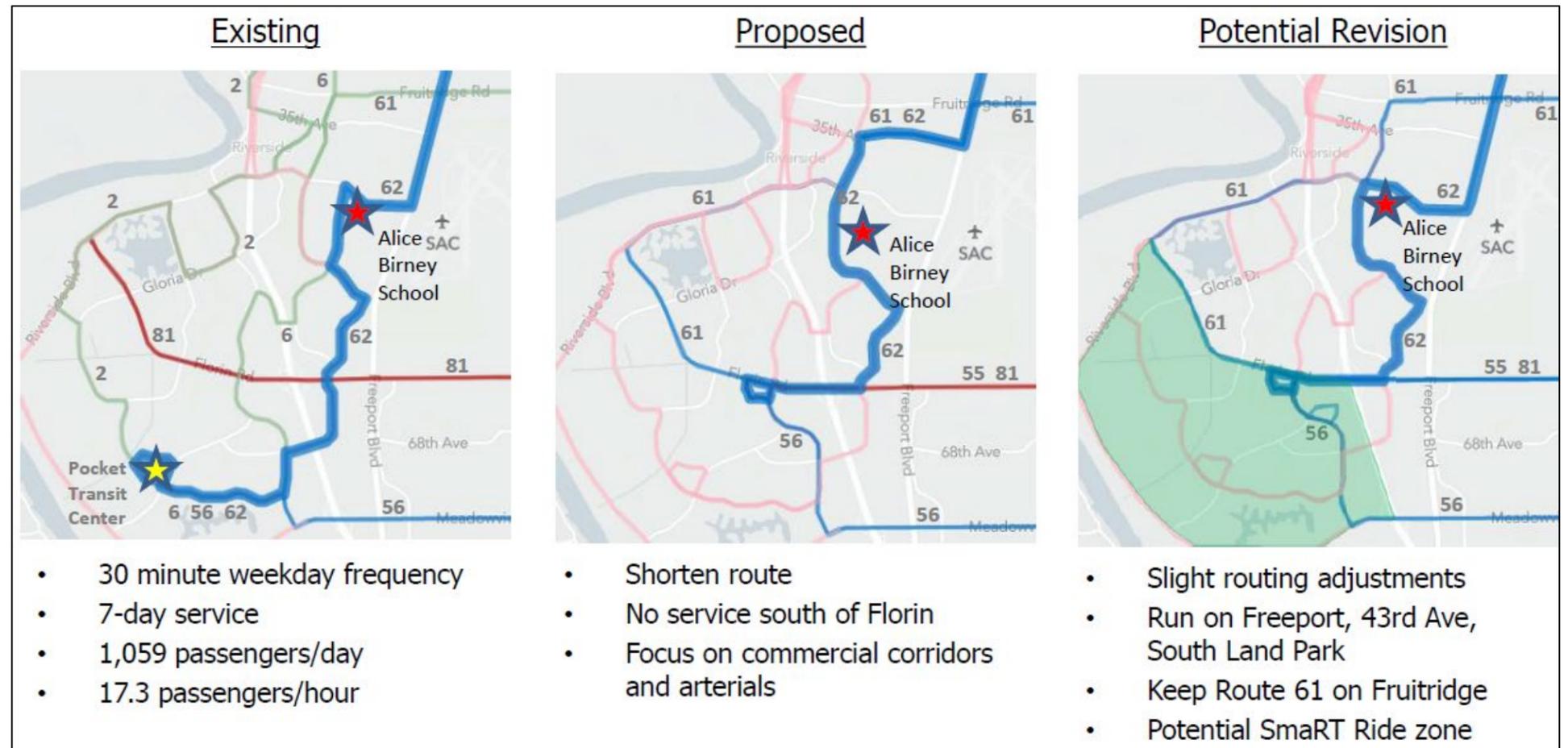
Plan Implementation

SacRT took the study recommendations, conducted route-by-route recommendations, and conducted public outreach. Key elements:

- Simpler network (from 41 to 26 regular routes)
- 7-day service on all routes
- No hourly service (45 minutes or better)

Route 62 Changes

Route 62 serves Freeport Boulevard. Routing changes south of the Freeport Boulevard Transportation Plan study area were evaluated but not yet implemented.



Sacramento General Plan Update 2040, City of Sacramento, Ongoing

In 2019, the City initiated an update to the General Plan. A Draft Land Use Map, Proposed Roadway Changes, and 10 Key Strategies were approved by City Council in January 2021. Plan production is currently underway and should be complete in Spring 2022.

Relevant Key Strategies:

- Facilitate compact mixed-use development in key commercial corridors to create vibrant walkable and transit-supportive neighborhoods. As a key commercial corridor in the city, Freeport Boulevard will be planned for a variety of new development with more walkable environments and more frequent transit service.
- Use an equity framework to prioritize and fund infrastructure improvements in historically disinvested and underserved neighborhoods.
- Right-size streets to fit today's mobility needs to prioritize walking, biking, and transit over automobile use.
- Eliminate City-mandated parking minimums citywide and introduce parking maximums.

EXISTING CONDITIONS

TRAFFIC

Intersection Movements

Volumes of through and turn movements at intersections reveal opportunities to rethink use of street space.

Turning counts were available at several locations along the corridor. In addition, 2021 counts were collected at Oregon Drive, which has emerged as a high priority for analysis.

Sutterville Road North

At this T-intersection, volumes of turns are very heavy.

Sutterville Road South

Volumes on the east leg of the intersection are very low. Northbound U-turn volumes show fairly high demand for this movement.

Meer Way

Northbound U-turn volumes are higher than left turn volumes. There is high demand for turnarounds at Sutterville Road South and Meer Way.

Wentworth Avenue

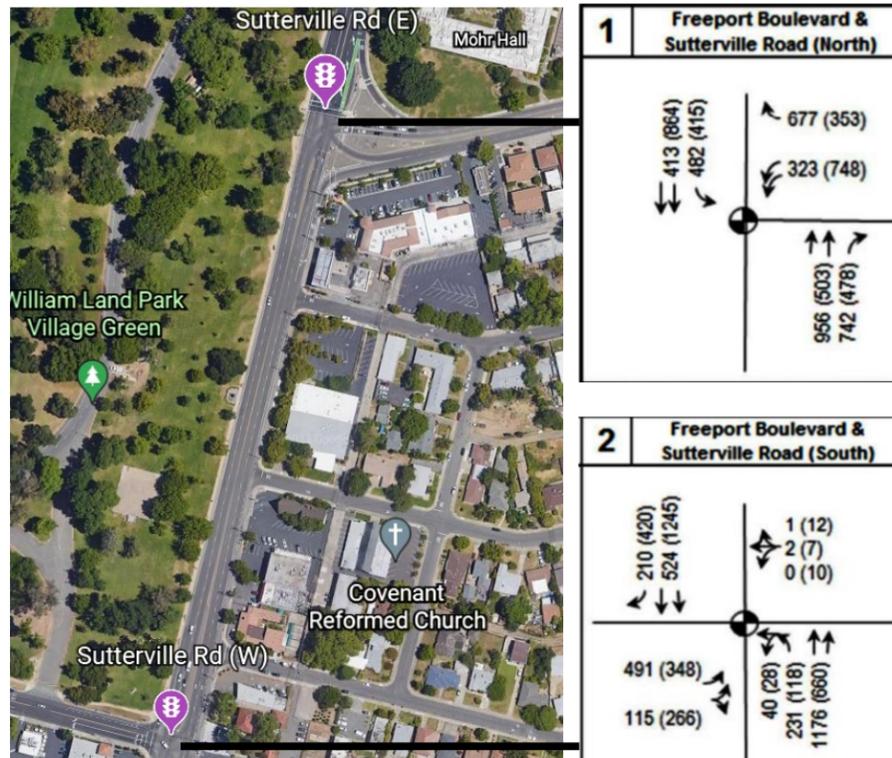
Volumes on the east-west street are very low. Turn volumes are lower than what is seen farther north.

Oregon Drive

Turn volumes are very low from Freeport Boulevard onto Oregon Drive. Volumes on Oregon Drive are less than 60 cars at the highest peak time, or one car per minute.

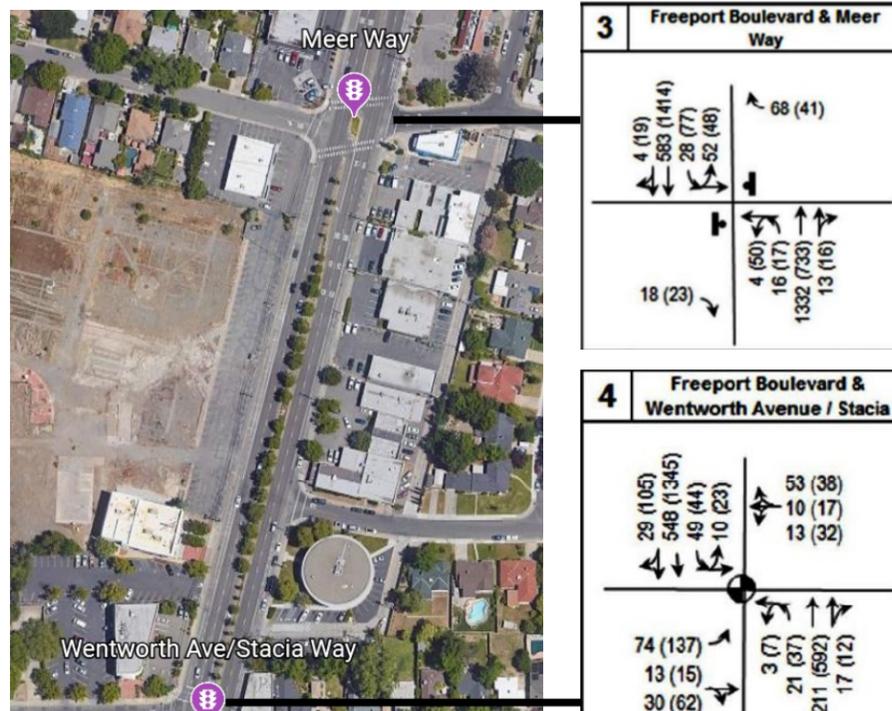
Additional turn movement information for Oregon Drive can be found in Appendix F

Sutterville Road North and South



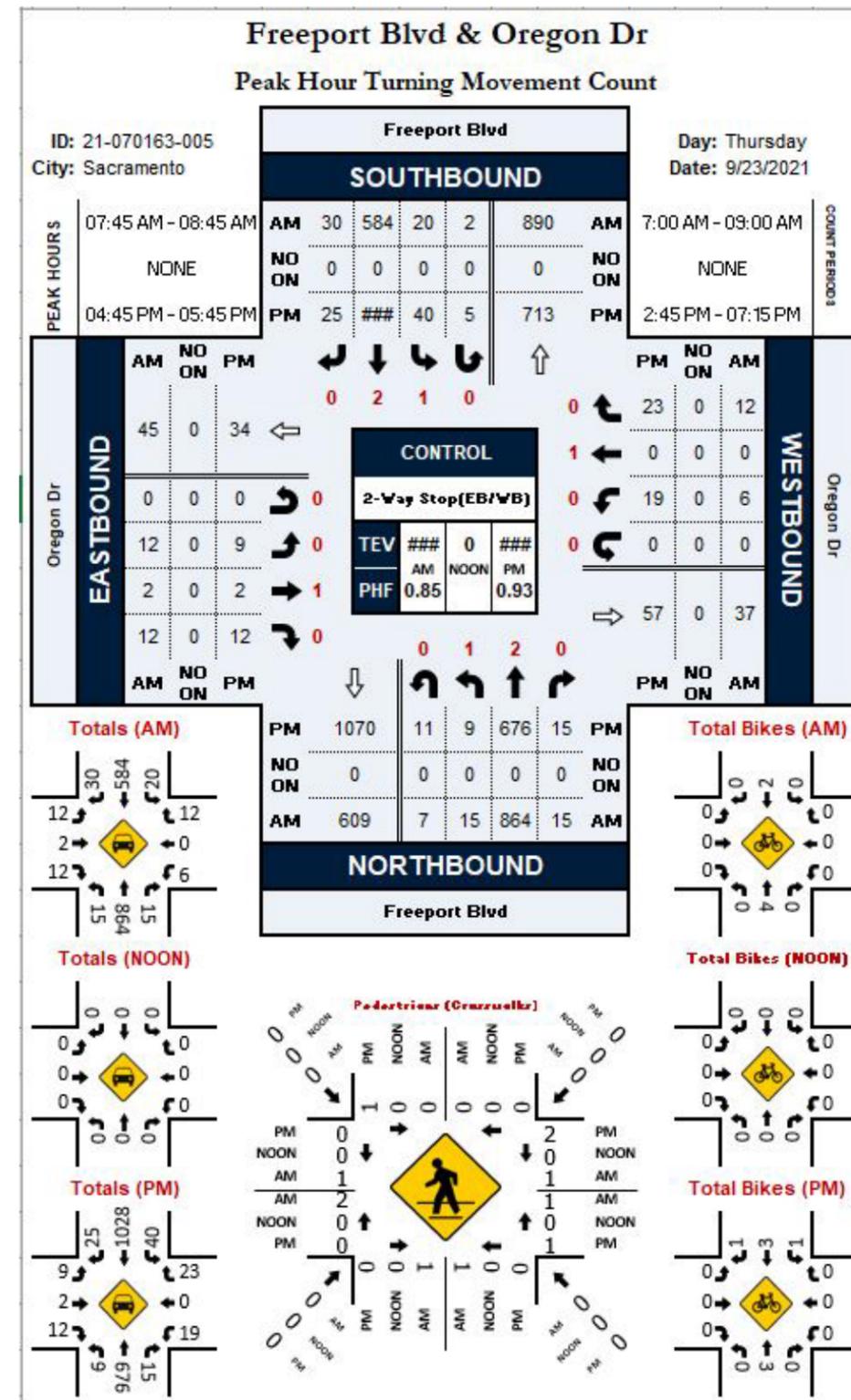
Turning movement counts at Sutterville Road North and South

Meer Way / Wentworth



Turning movement counts at Meer Way/Wentworth

Oregon Drive



Turning movement counts at Oregon Drive

EXISTING CONDITIONS

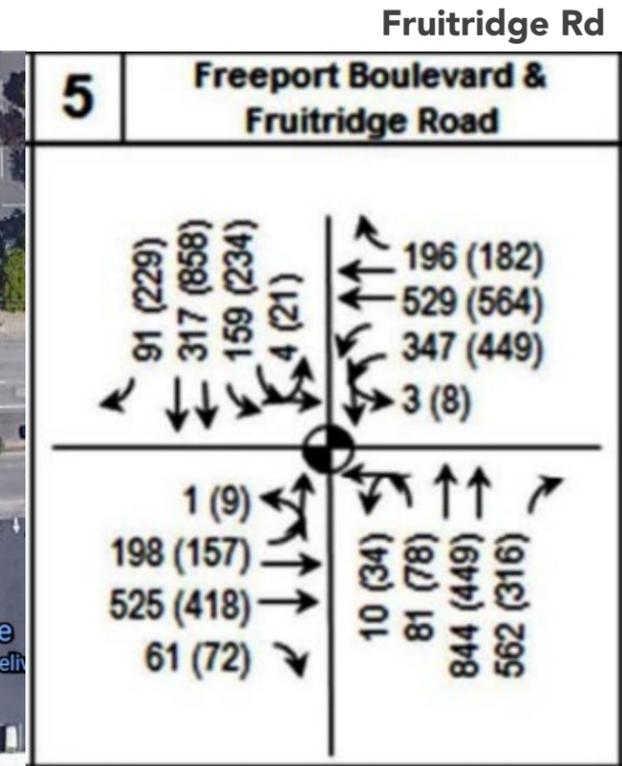
Intersection Movements

Fruitridge Road

The left turn from Freeport Boulevard to Fruitridge Road includes two left turn lanes, which may not be needed given the turn volumes. U-turns are moderately used at this location.

Blair Avenue

There is a strong travel pattern from Freeport Boulevard to Blair Avenue's west leg. There are high volumes of southbound drivers turning right onto Blair Avenue and eastbound Blair Avenue drivers turning left onto Freeport Boulevard.



Turning movement counts at Fruitridge Road



Turning movement counts at Blair Avenue

Parking Utilization Background

PARKING UTILIZATION

Data collected

- Counts on both sides of Freeport Blvd
- Conducted
 - Thursday, 9/23/2021 from 7:00 to 8:30 AM and 4:00 to 5:30 PM
 - Friday, 5/13/2022 from 8:00 PM to 10:00 PM (3 block faces adjacent to commercial strip malls)
 - Weekend, 5/14/2022 11:00 AM (3 block faces adjacent to commercial strip malls)
- Also noted curb type, restrictions, block length, approximate spaces by block
- 37 block faces
- Total supply: 366 spaces *
- Regulation: mostly unregulated
 - 4 block faces have a time restriction
 - 0% AM occupancy
 - 5% PM occupancy (1 parked car)
 - 5 block faces are No Parking Anytime

**Assumes one space is 20 feet.*

Parking Utilization

PARKING UTILIZATION

Parking occupancy, or the percent of parking spaces with a car parked in it, was counted on a Fall weekday from 7-8:30 AM and 4-5:30 PM.

In total, there are a total of 37 block faces on Freeport Boulevard and a total supply of 366 spaces.*

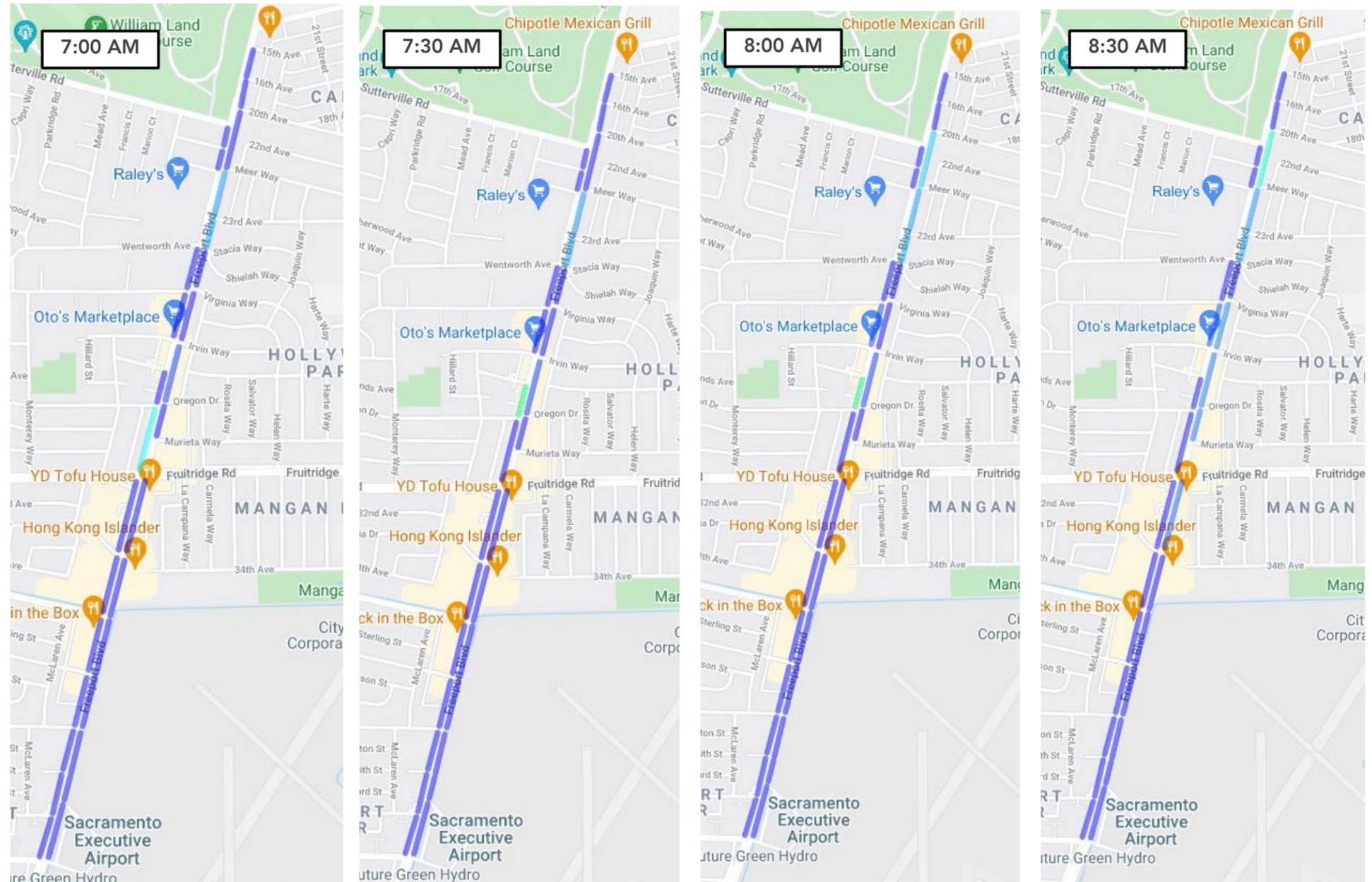
The parking spaces are mostly unregulated, meaning anyone can park, anytime. Four block faces have a time restriction. None of the parking requires payment.

*Assumes one space is 20 feet. Individual parking spaces are not marked.

**85% utilization is the typical target for on-street parking as it provides a reasonable balance between majority of spaces being used while leaving enough spaces open and available.

AM Peak Occupancy

In the morning, on average 3% of parking spaces were parked in. 60% have 0% utilization during AM peak.



AM Peak Parking Occupancy Along Freeport Boulevard

Parking Utilization

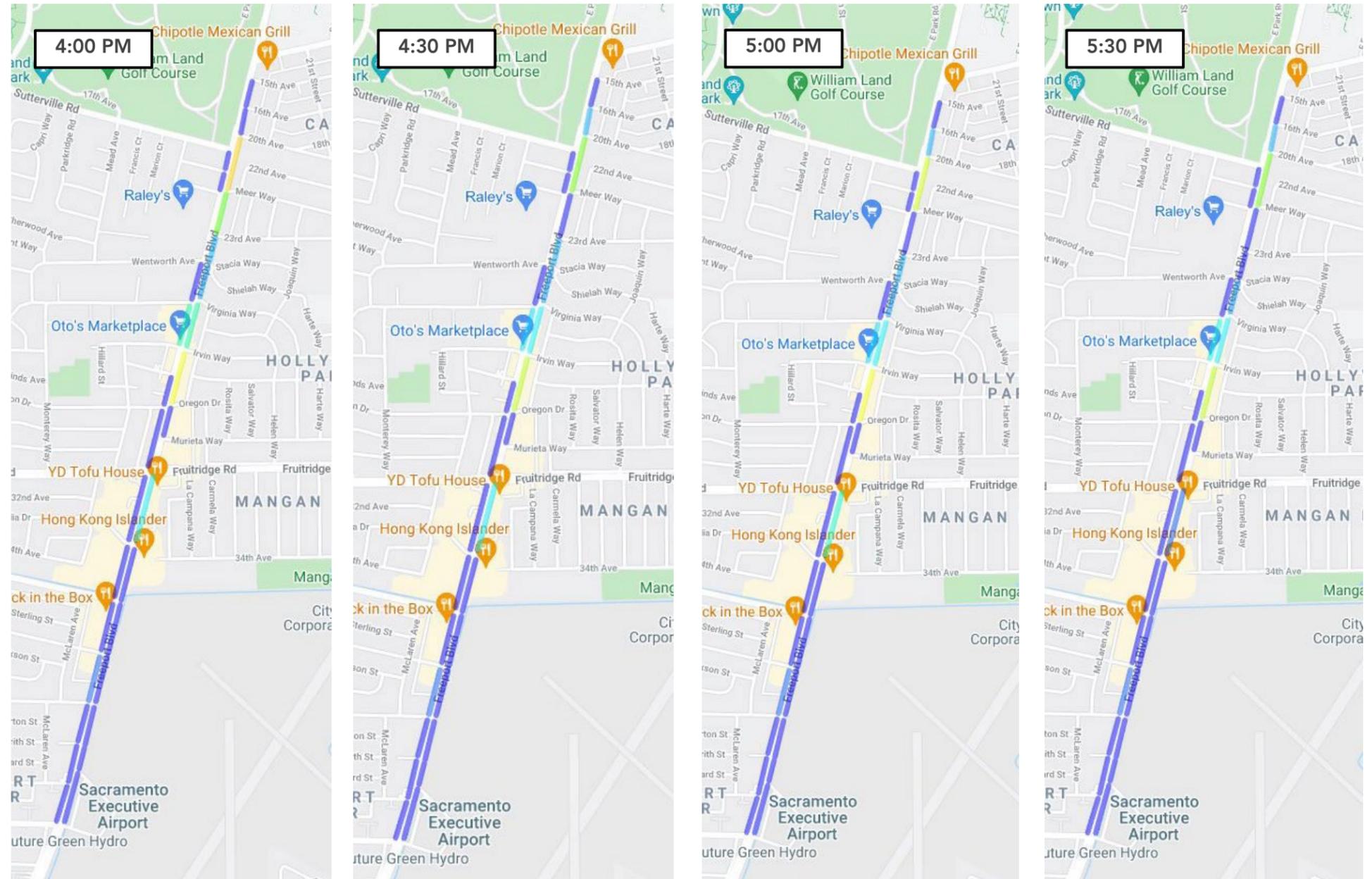
PARKING UTILIZATION

- No block faces reach 85% utilization*
- 59% had zero occupancy during AM & PM peaks
- Parking is more utilized during PM peak compared to AM peak

*85% utilization is the typical target for on-street parking as it provides a reasonable balance between majority of spaces being used while leaving enough spaces open and available.

PM Peak

In the afternoon, on average 10% of parking spaces were parking in. 65% have 0% utilization during PM peak



PM Peak Parking Occupancy Along Freeport Boulevard

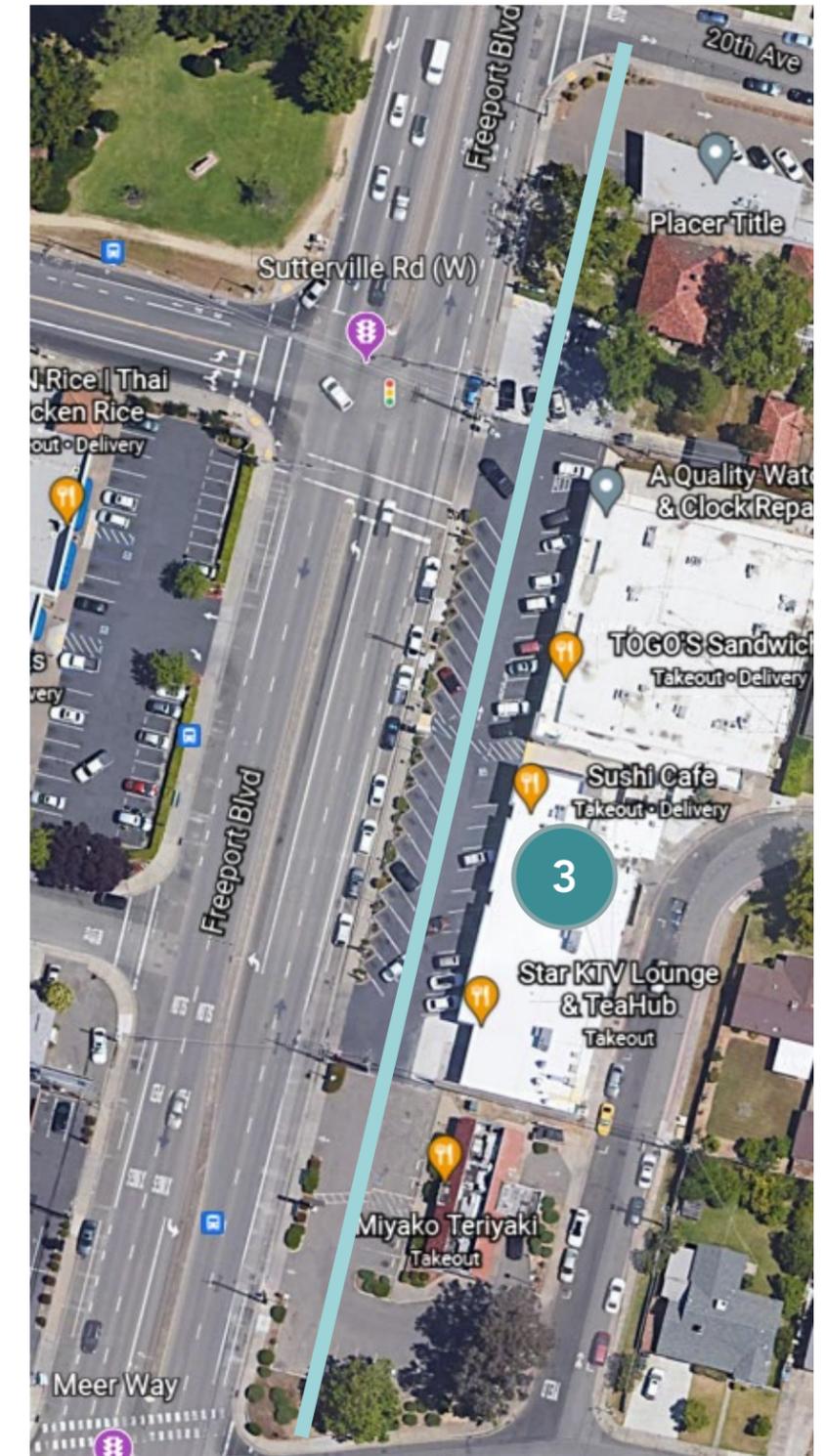
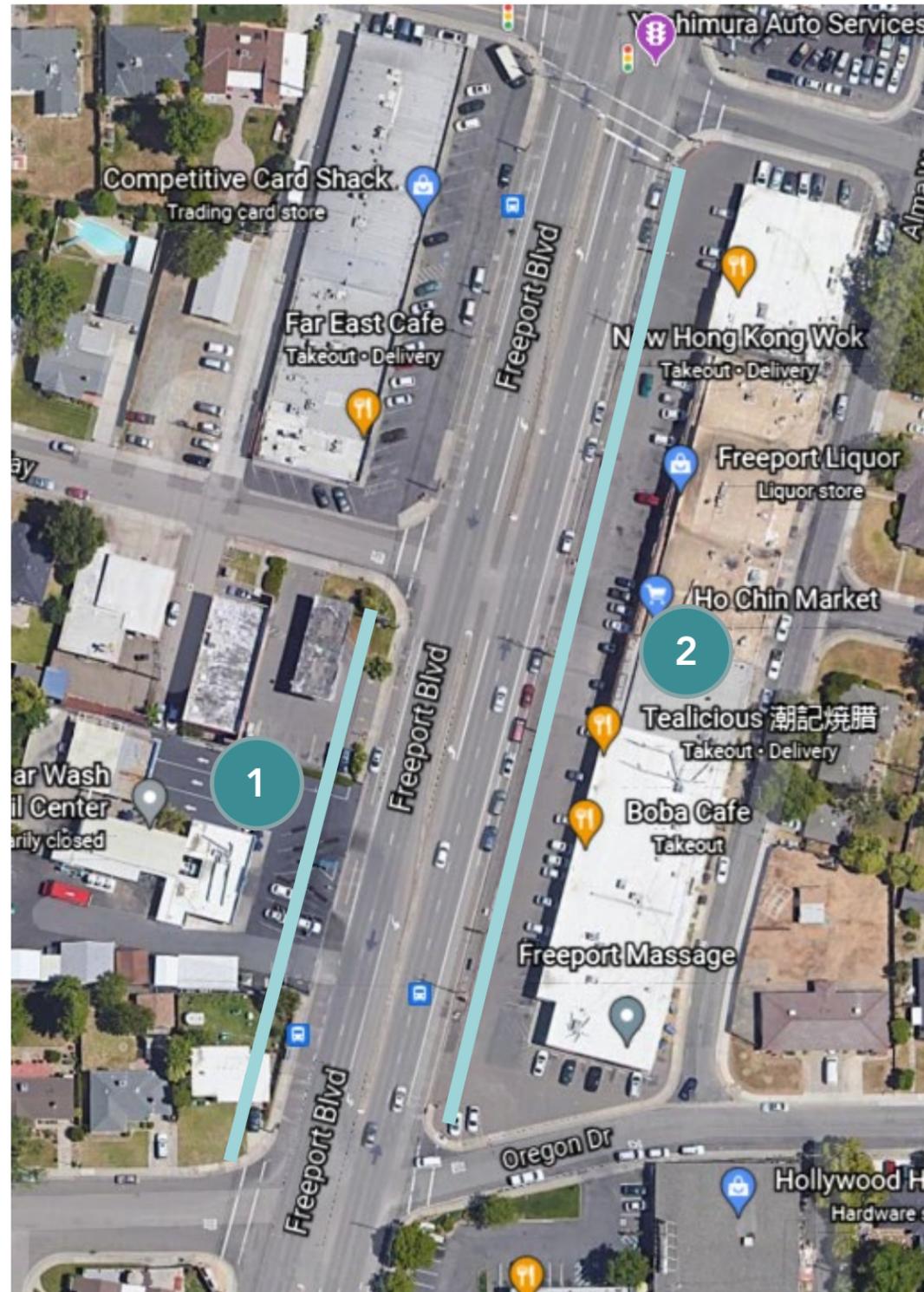
Parking Utilization

PARKING UTILIZATION

Segments with the highest utilization are **adjacent to commercial strip malls with off-street parking**:

- 1 Arica Way and Oregon Dr (west side)
 - AM peak 7:30 to 8:30 AM – 40%
 - Fri 8:00 PM – 0%
 - Fri 10:00 PM – 0%
 - Sat 11:00 AM – 0%
 - Sun 11:00 AM – 0%
- 2 Oregon Dr and Irvin Way (east side)
 - PM peak – 68 to 74%
 - Fri 8:00 PM – 50%
 - Fri 10:00 PM – 5%
 - Sat 11:00 AM – 5%
 - Sun 11:00 AM – 65%
- 3 Meer Way and 20th Ave (east side)
 - PM peak – 60 to 80%
 - Fri 8:00 PM – 43%
 - Fri 10:00 PM – 50%
 - Sat 11:00 AM – 29%
 - Sun 11:00 AM – 7%

All of these locations have off-street parking available; however, stakeholders and the community have voiced concerns about the physical safety of using these narrow parking areas.



Segments with highest utilization

EXISTING CONDITIONS

SAFETY

What Causes Killed or Seriously Injured (KSI) Crashes?

Police reports from crashes typically report a Primary Crash Factor (PCF). The PCF is the "best describes the primary or main cause of the collision,"* according to the reporting officer.

The top three PCF for crashes occurring along Freeport Boulevard are:

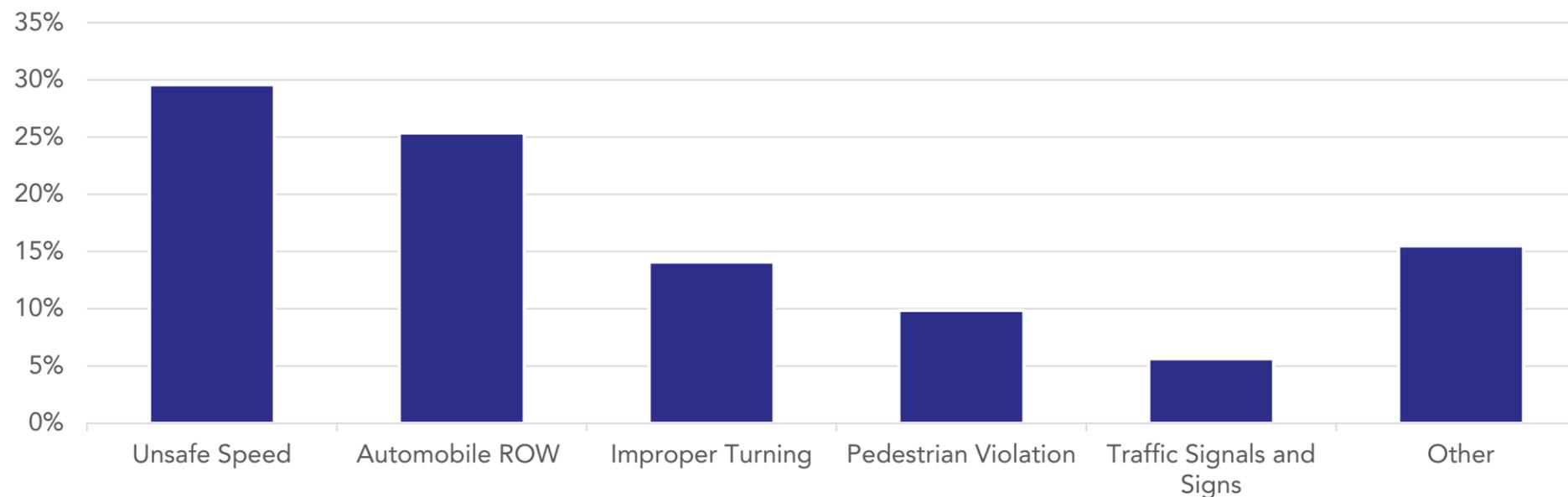
- **Unsafe Speed**
- **Automobile Right of Way (ROW)****
- **Improper Turning**

*California Highway Patrol. Collision Investigation Manual. Revised February 2003.

**Driver had the right of way and that was infringed upon by another traveler (driver, pedestrian, or cyclist)

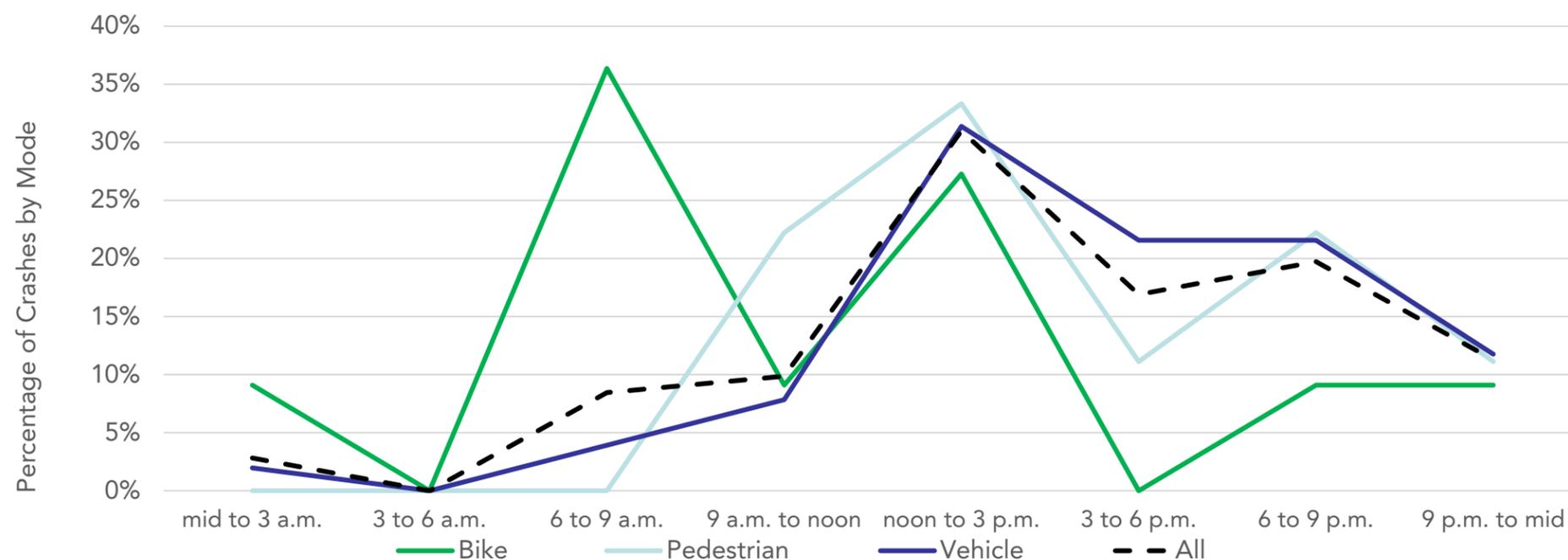
When Do Crashes Occur?

Crashes were examined by mode of travel involved in the crash and the time of day the crash occurred. 36% of bicycle-involved crashes on Freeport Boulevard occur between **6 and 9 a.m.**, while 33% of pedestrian-involved crashes occur between **noon to 3 p.m.**



Other includes Pedestrian ROW, Driving or Bicycling Under the Influence of Alcohol or Drug, Unknown, Other Hazardous Violation, Unsafe Lane Change

Total Primary Crash Factors (PCF) Along Freeport Boulevard



Sources: (1) Statewide Integrated Traffic Records System (SWITRS), January 2016 to December 2021 and (2) Crossroads, March 2020 to March 2021*

Crashes by Mode

EXISTING CONDITIONS

Are Crashes More Common At Intersections Or Midblock?

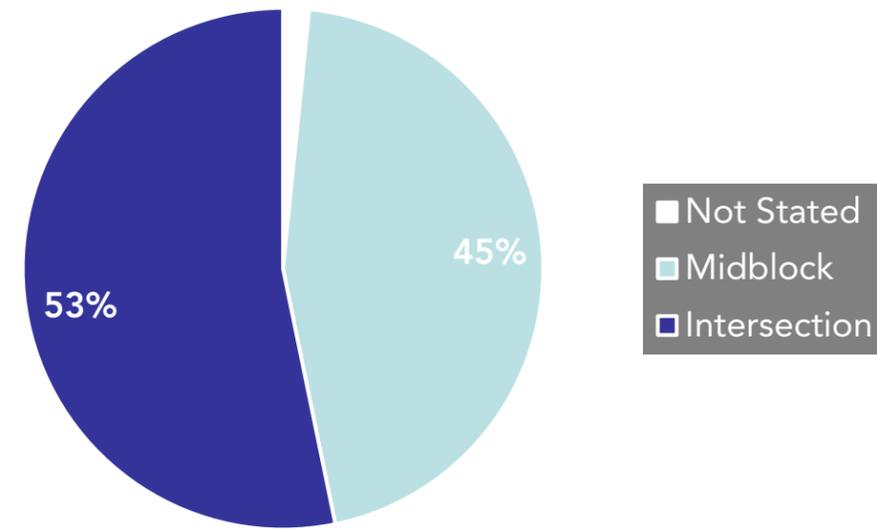
Crashes on Freeport Boulevard were **more likely to occur at an intersection** (53%) versus not at an intersection (45%) (police reports classify these as midblock, though they don't necessarily occur at the midblock point of an intersection).

Most Common Movements Preceding Collisions

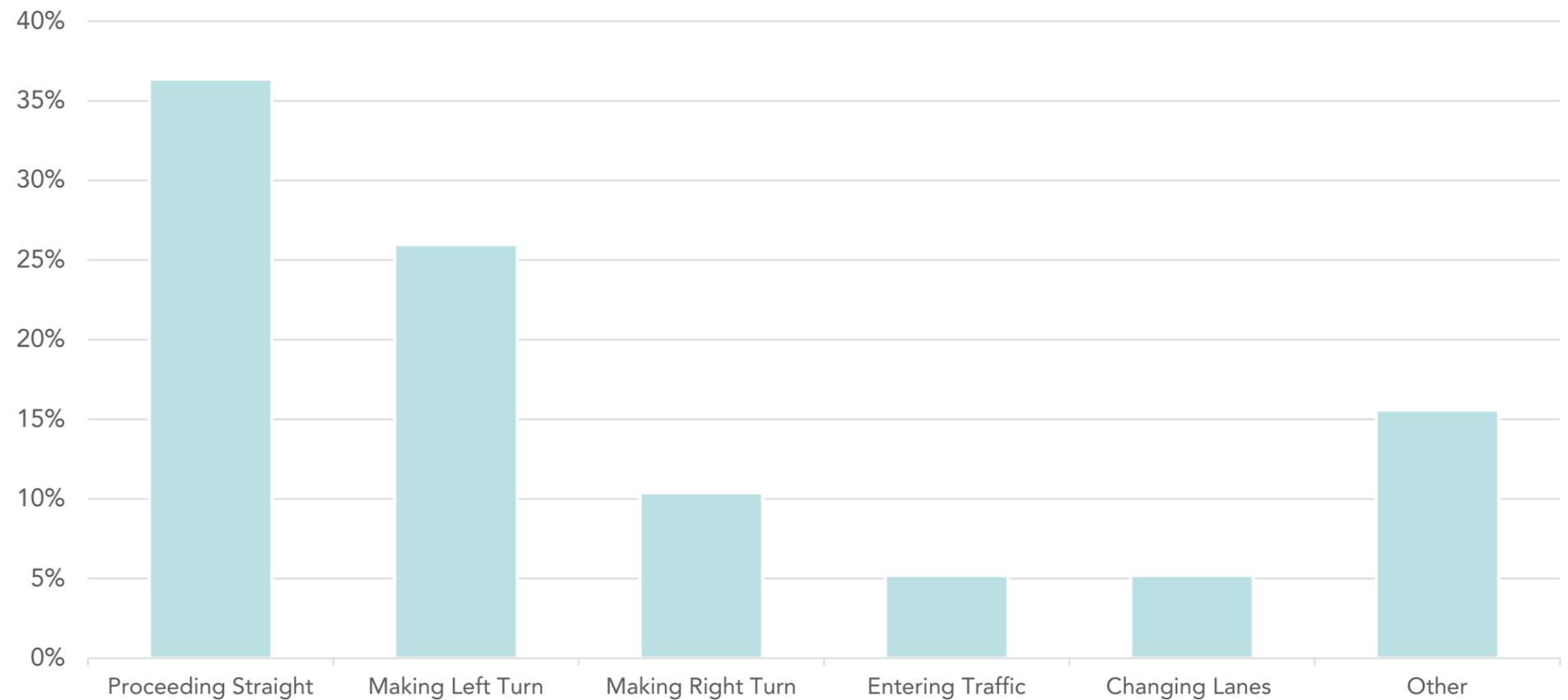
What movement were travelers making just prior to the collision? Examining the movement preceding a crash can help in identifying potential countermeasures to reduce the frequency and severity of crashes. **The top five movements** preceding collisions for *all modes and all injury crashes* on Freeport Boulevard were:

- Proceeding straight
- Making a left turn
- Making a right turn
- Entering traffic, or
- Changing Lanes

Sources: (1) Statewide Integrated Traffic Records System (SWITRS), January 2016 to December 2021 and (2) Crossroads, March 2020 to March 2021*



Location of Crashes Along Freeport Boulevard



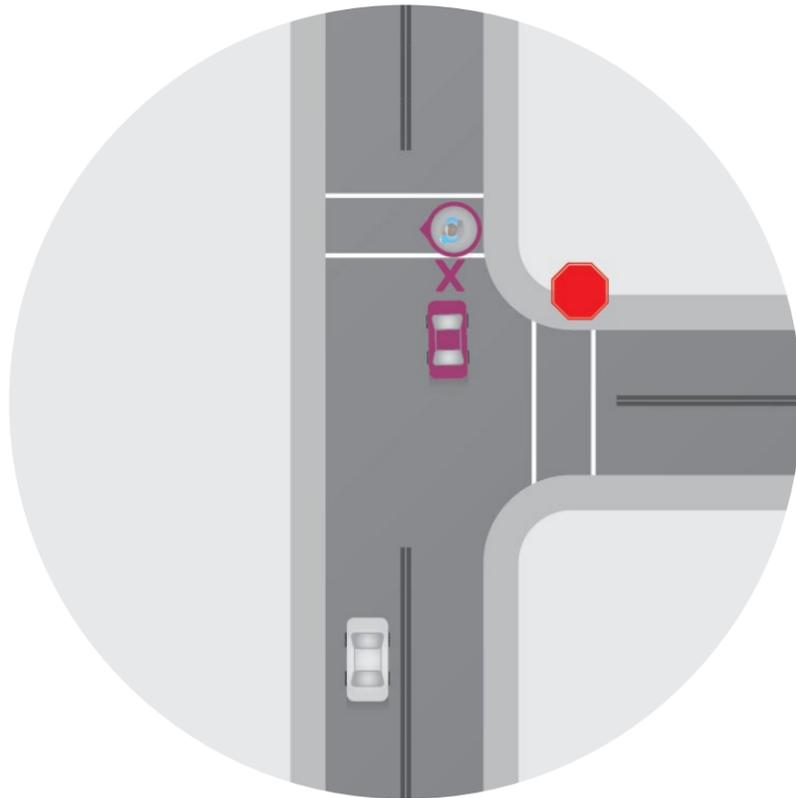
Other includes Ran Off Road, Slowing/Stopping, Other Unsafe Turning, Crossed Into Opposing Lane, Traveling Wrong Way
Total Movements Before Crashes Along Freeport Boulevard

EXISTING CONDITIONS

Crashes Involving People Walking

From January 2016 to March 2021, nine (9) crashes along Freeport Boulevard involved people walking. **The most common types of crashes were:**

- Motor vehicle proceeding straight; pedestrian crossing in crosswalk at intersection (22%)
- Motor vehicle entering traffic; pedestrian crossing not in a crosswalk (22%)



One of the most common crash types involving people walking occur when vehicles are proceeding straight, and pedestrians are in the crosswalk at the intersection of a local street.

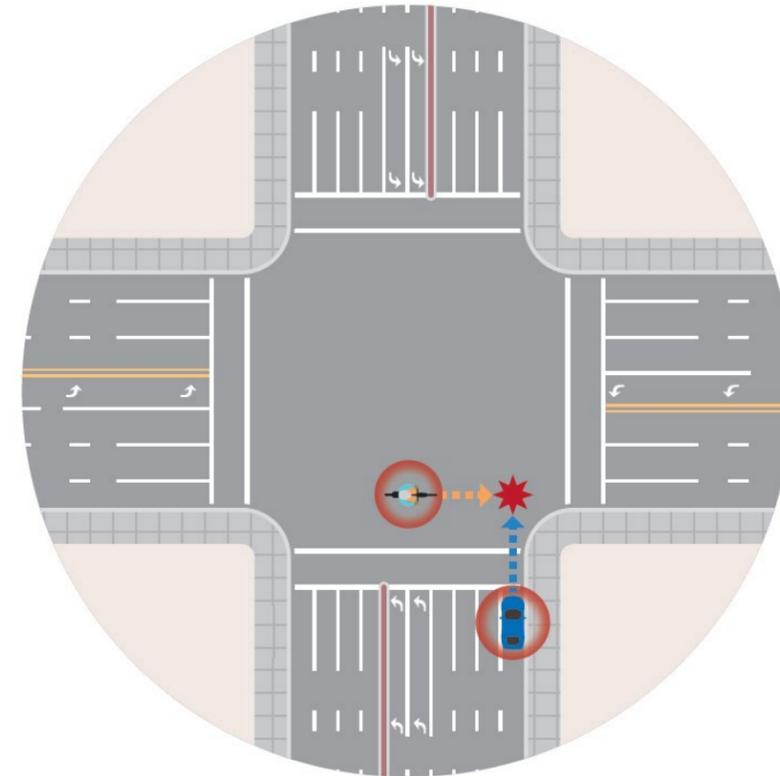
Potential countermeasures that could be considered to reduce this crash risk are:

- Curb extensions
- Four-way stop

Crashes Involving People Biking

From January 2016 to March 2021, eleven (11) crashes along Freeport Boulevard involved people riding bikes. **The most common types of crashes were:**

- Motor vehicle proceeding straight; bicyclist proceeding straight (27%)
- Motor vehicle making left turn; bicyclist proceeding straight (27%)
- Motor vehicle making right turn; bicyclist proceeding straight (27%)



One of the most common crash types involving people biking (motor vehicle proceeding straight and bicyclist proceeding straight) occurs at signalized and unsignalized intersections along Freeport Boulevard.

Potential countermeasures that could be considered to reduce this crash risk are:

- Bicycle Signal Phase
- New traffic signal at previously unsignalized intersection
- Education and enforcement

EXISTING CONDITIONS

Top 10 Vision Zero Action Plan Crash Profiles On Freeport

The 2018 Vision Zero Action Plan identified the ten most frequently seen KSI crash profiles seen in the City of Sacramento. The table below highlights the degree to which the Top 10 crash profiles occur on Freeport Boulevard, both overall and as KSI crashes. Crashes may fall under multiple crash profiles (e.g., broadside crashes involving a bicyclist also occurred in a commercial area), therefore column totals may exceed 100%.

Top 10 KSI Crash Profiles	Percent of crashes on Freeport	Percent of KSI crashes on Freeport	Percent of citywide KSI crashes*
Unsafe Speed on Non-Local Streets – <i>Freeport is an arterial</i>	--	--	10
Alcohol Involved	7	0	25
35+ MPH Streets – <i>Freeport is 40 mph south of Fruitridge</i>	27	27	65
30+ MPH Streets – Bicycle Involved – <i>Freeport is > 30 mph throughout study area</i>	15	27	85
Broadside Crashes – Bicycle Involved	11	9	44
Driver Making Left or Right Turn – Bicycle/Pedestrian Involved	7	9	8
Crashes in Commercial Areas	76	64	26
60+ Year Old Pedestrians	31	27	9
Pedestrian Crossing Outside of an Intersection or Crosswalk	7	18	7
Pedestrian Crashes Near Transit Stops	87	90	17

Sources: (1) Statewide Integrated Traffic Records System (SWITRS), January 2016 to December 2021 and (2) Crossroads, March 2020 to March 2021

*City of Sacramento's Vision Zero Action Plan analyzed 2009 to 2015 crash data

There are several KSI crash profiles that occur more frequently on Freeport Boulevard than city-wide that are important to point out, for example pedestrian crashes near transit stops (90% of KSI crashes on Freeport) and crashes in commercial areas (64% of KSI crashes on Freeport). As noted earlier, Route 62 is a well-performing route that travels the Freeport Boulevard study area end to end. Freeport also has commercial properties in several locations throughout the study area. In addition, it is important to note the high percent of KSI crashes on Freeport Boulevard involving pedestrians 60 and older (27%) and those involving pedestrians outside of an intersection or crosswalk (18%). These findings highlight important areas to focus on for infrastructure improvements, awareness and education along the corridor.

TRANSIT OPPORTUNITIES

TRANSIT OPPORTUNITIES

Methodology

- An interview was conducted with SacRT facilities staff to understand opportunities to improve access to stops along Freeport Boulevard.
- This *appendix* details stop-by-stop discussions
- Each page shows the existing stops (in red) and proposed relocation, if applicable (in blue).

Route	Hours of Operation	Service Area	Major Destinations	Frequency (min)
62 - Freeport	Mon – Fri 5:41 a.m. - 9:30 p.m.	Pocket Transit Center to Downtown J & 4th	Freeport Square Shopping Center, Courtyard Shopping Center, Sacramento Executive Airport	30
	Sat – Sun 7:13 a.m. - 10:04 p.m.	Downtown J & 4th to Pocket Transit		60
11 – Natomas/Land Park	Mon – Fri 6:06 a.m. - 8:02 p.m.	Club Center & Natomas to City College	Target at Riverside and Broadway, Sacramento City College	30
	Sat – Sun 7:10 a.m. - 8:04 p.m.	Club Center & Natomas to City College		45

Freeport Boulevard Service Summary

TRANSIT OPPORTUNITIES

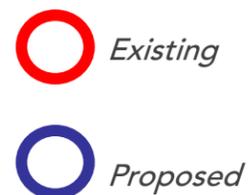
Blair Ave. / McAllister Ave.

- Northbound
 - Not compliant – shelter in path of travel.
Prefer shelter at curb. Location good – close to Blair
 - Bus cannot stop in turn lane
- Southbound
 - Far from Blair. Bus turns right onto Blair.
 - Bus cannot stop in right turn lane.

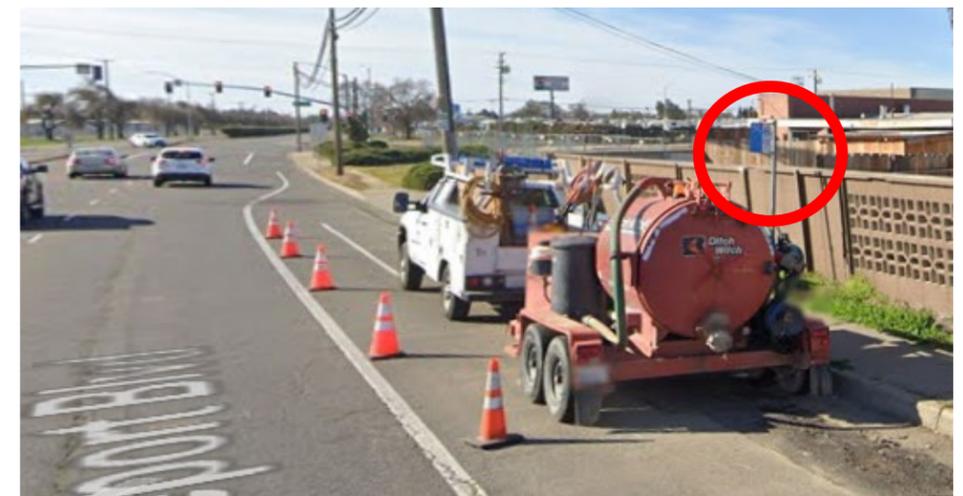
NOTE: Google maps
Northbound stop location
incorrect. Stop is just north of



Location Map



Northbound



Southbound

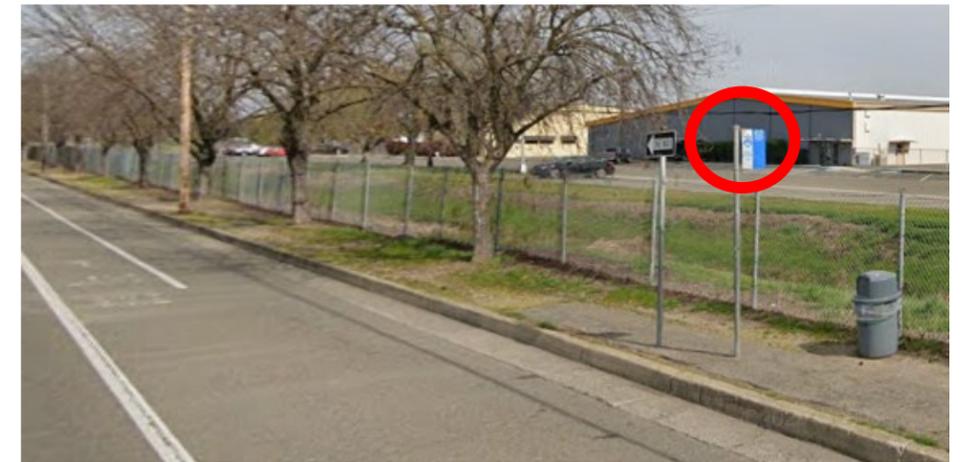
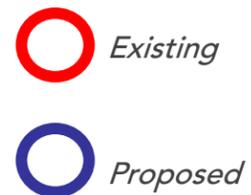
TRANSIT OPPORTUNITIES

Kitchner Rd.

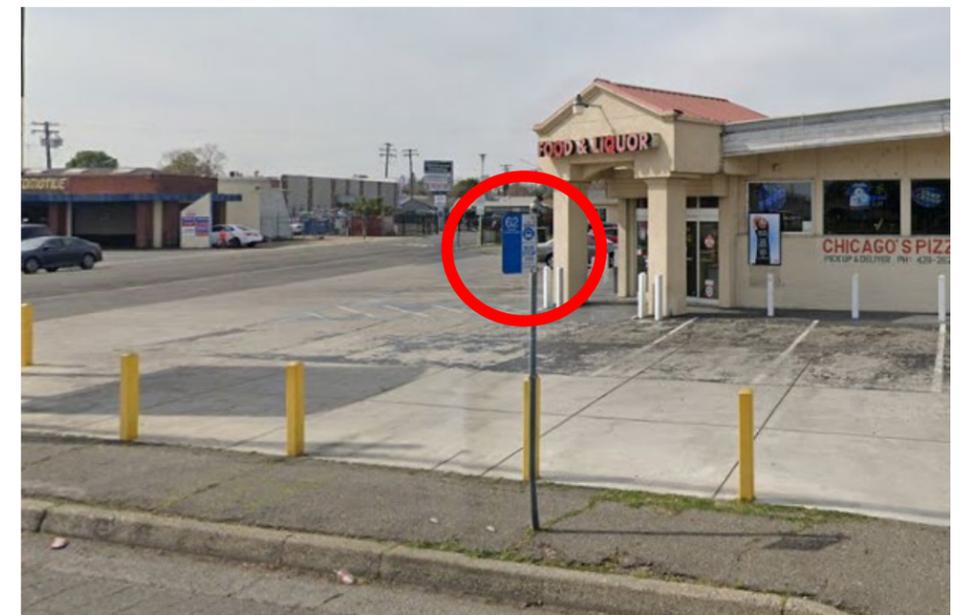
- Northbound
 - No sidewalk
- Southbound
 - Asphalt sidewalk
 - Work with business owner to remove bollards – can achieve 5' x 8' landing if asphalt space combined with concrete area



Location Map



Northbound

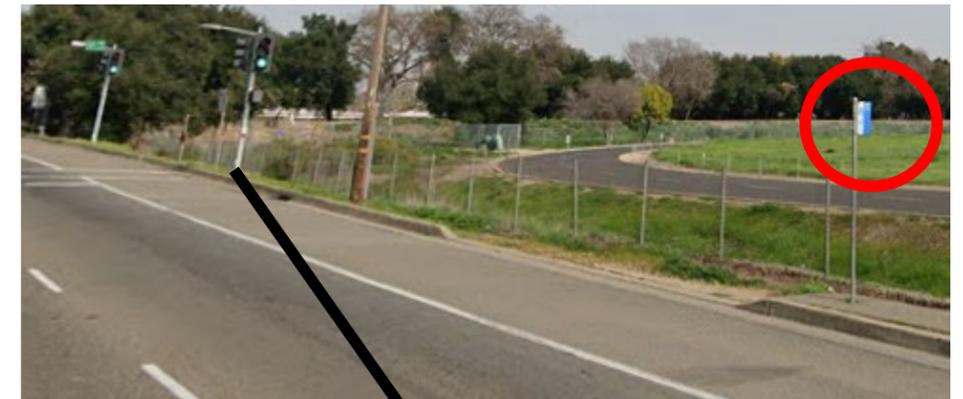


Southbound

TRANSIT OPPORTUNITIES

35th Ave.

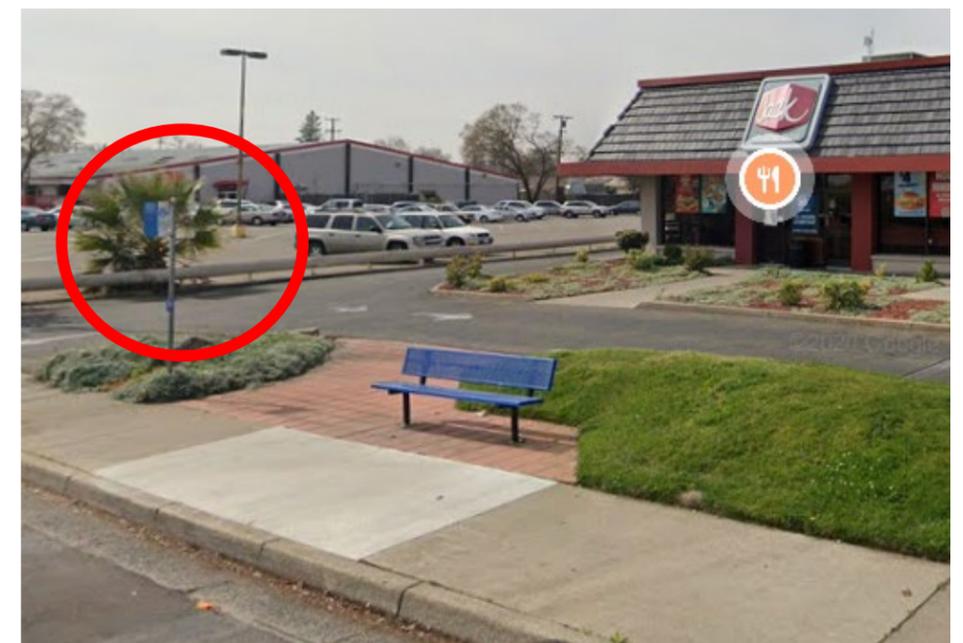
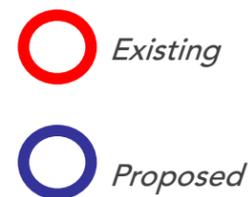
- Northbound
 - No sidewalk
 - Fence and culvert mean people must walk in the road (no goat path)
- Southbound
 - Stop is in good shape. Compliant.



Northbound



Location Map



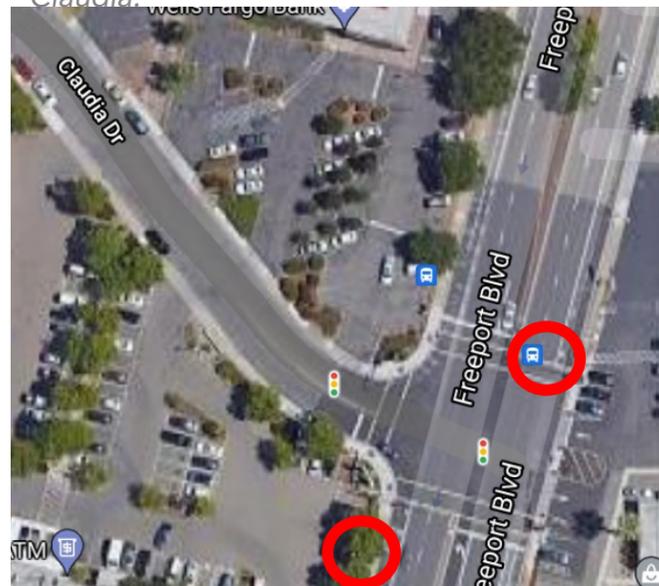
Southbound

TRANSIT OPPORTUNITIES

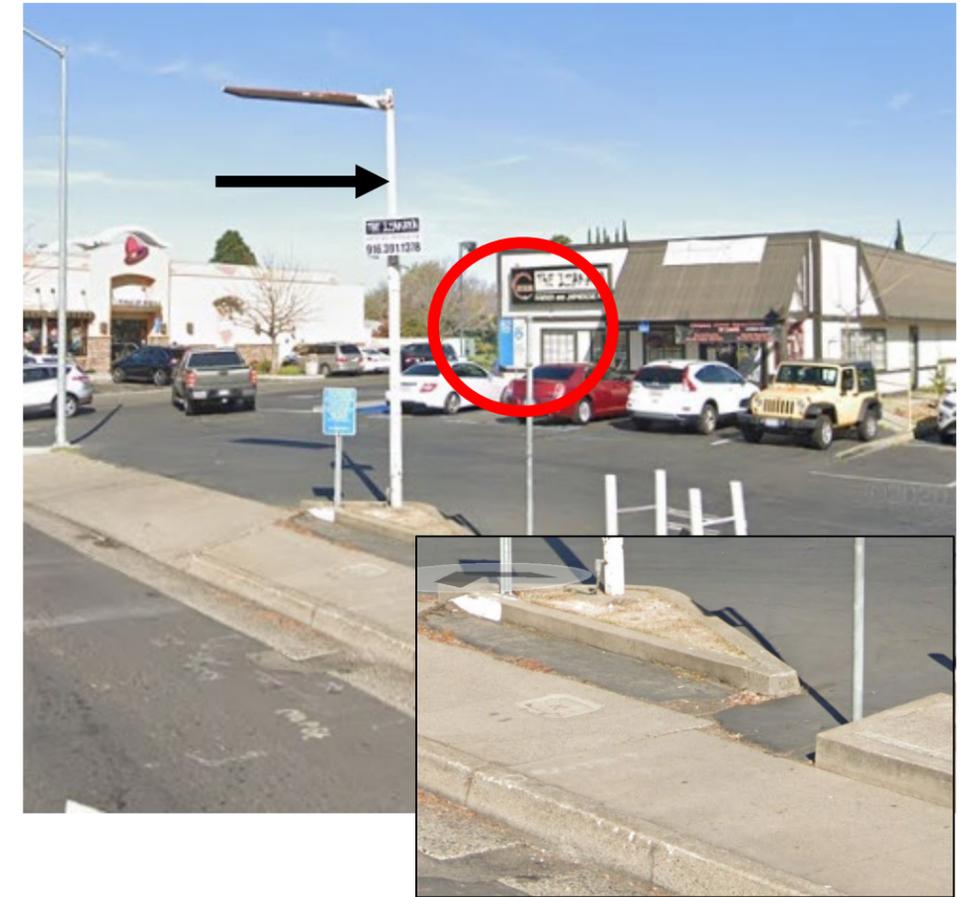
Claudia Dr.

- Northbound
 - Multiple edges/grade changes
 - Old lamp post (sign attached) – could be removed to level out landing area
- Southbound
 - Walkway into parking lot likely non-compliant (too narrow)

NOTE: Google maps
Southbound stop location
incorrect. Stop is south of
Claudia.



Location Map



Northbound



Southbound

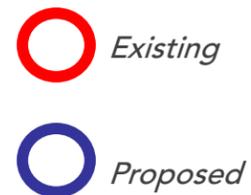
TRANSIT OPPORTUNITIES

Fruitridge Rd.

- Northbound
 - Stop is in good shape
- Southbound
 - Near intersection, between driveways
 - Benches block sidewalk



Location Map



Northbound



Southbound

TRANSIT OPPORTUNITIES

Oregon Dr.

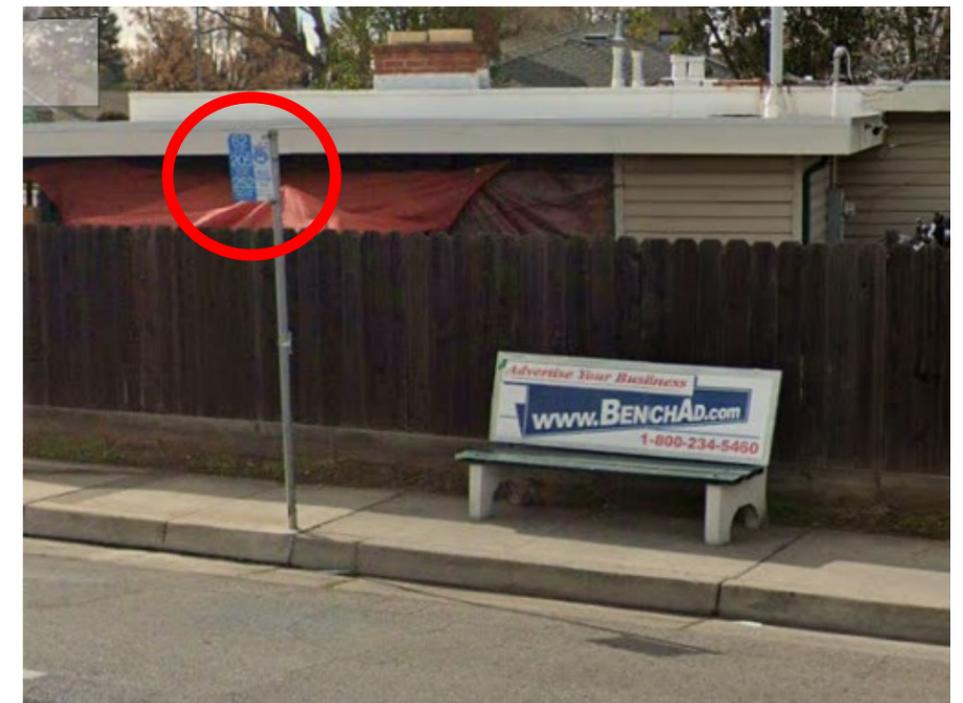
- Northbound
 - Asphalt sidewalk
 - No crossing – should remove stop
 - Bench blocks walkway
- Southbound
 - No crossing - should remove stop
 - Bench blocks sidewalk



Northbound



Location Map



Southbound

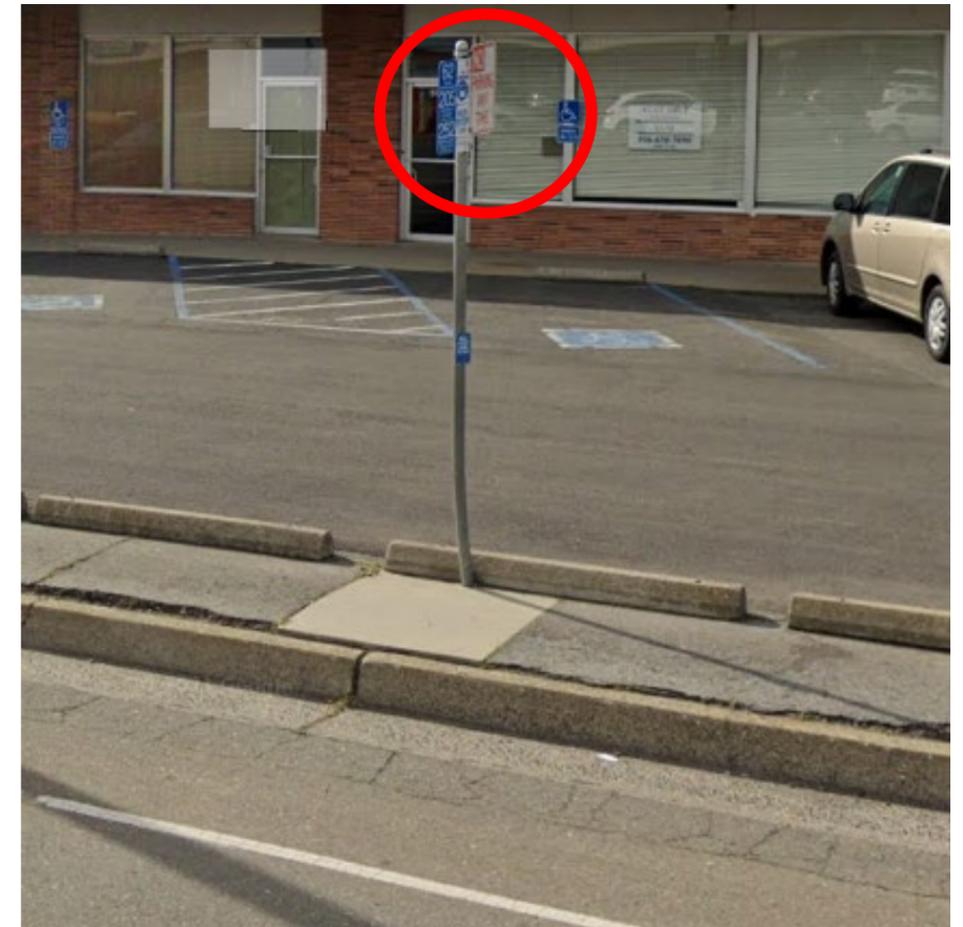
TRANSIT OPPORTUNITIES

Irvine Way

- Northbound
 - Far from intersection; sidewalk closer to intersection very narrow; driveways
 - Stop is close to Oregon
- Southbound
 - Little that can be changed
 - Stop is close to Oregon



Northbound



Southbound



Location Map



Existing



Proposed

TRANSIT OPPORTUNITIES

Wentworth Ave.

- Northbound
 - New stop
 - Move garbage can
 - Near side – but keep location since new infrastructure added
- Southbound
 - Has shelter
 - Far from intersection – but in front of retail



Northbound



Location Map

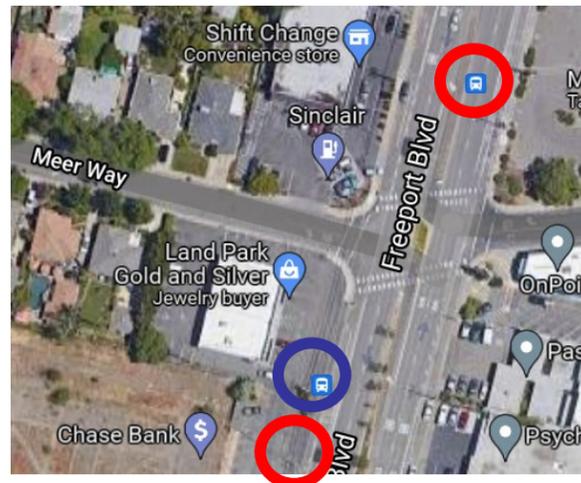


Southbound

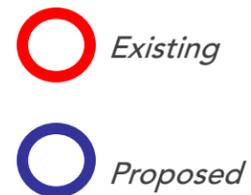
TRANSIT OPPORTUNITIES

Meer Way

- Northbound
 - Not a great location, but cannot move
- Southbound
 - Stop is in landscaping strip
 - Move stop closer to Meer, connect to Chase Bank access



Location Map



Northbound



Southbound

TRANSIT OPPORTUNITIES

Sutterville Rd. (South/West)

- Northbound
 - Far from intersection
 - Move south of 20th if space
- Southbound
 - No other good location closer to intersection due to driveways



Location Map



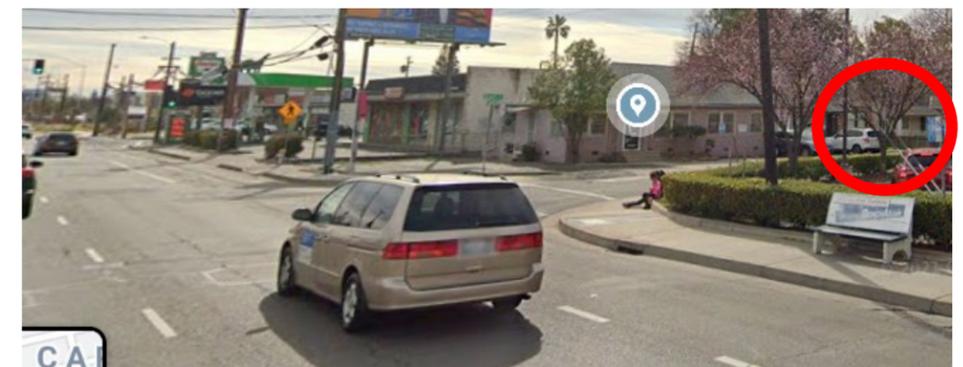
Existing



Proposed



Northbound



Southbound

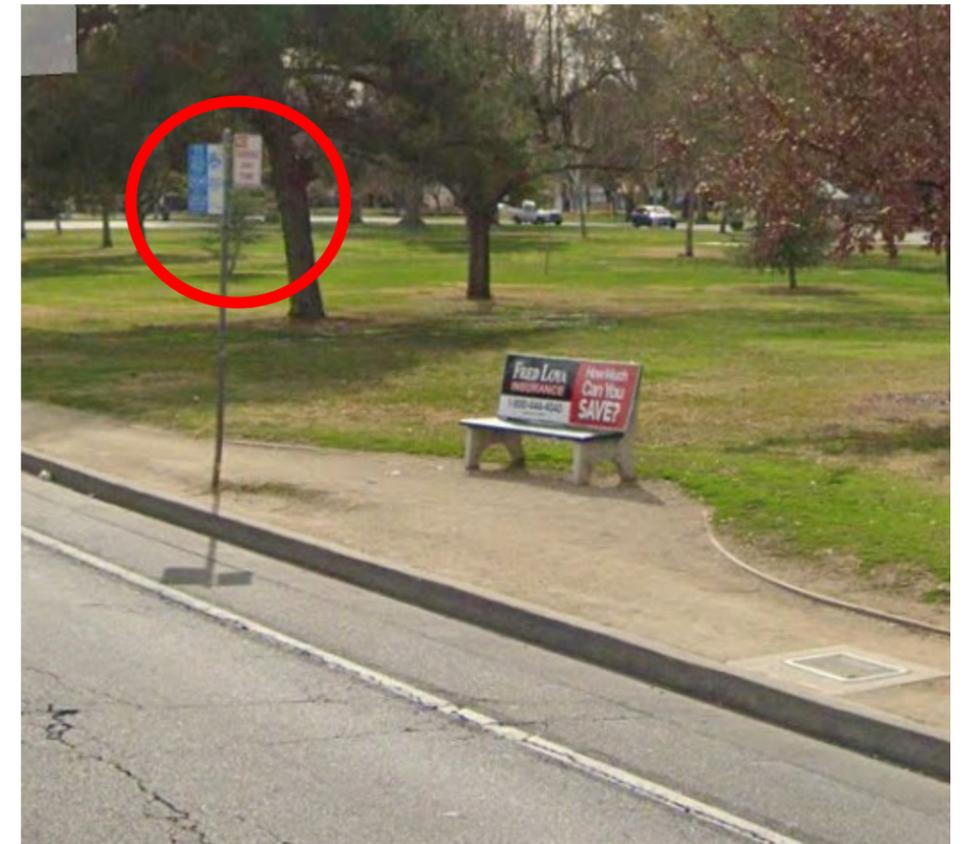
TRANSIT OPPORTUNITIES

Sutterville Rd. (North/East)

- Northbound
 - Always has been a strange stop; most ridership going to City College
 - Hash the bike lane so it's clear the bus can enter
- Southbound
 - Stop is far from intersection/crosswalk
 - No sidewalk (hard packed)
 - Maybe move closer to Sutterville



Northbound



Southbound



Location Map



Existing



Proposed