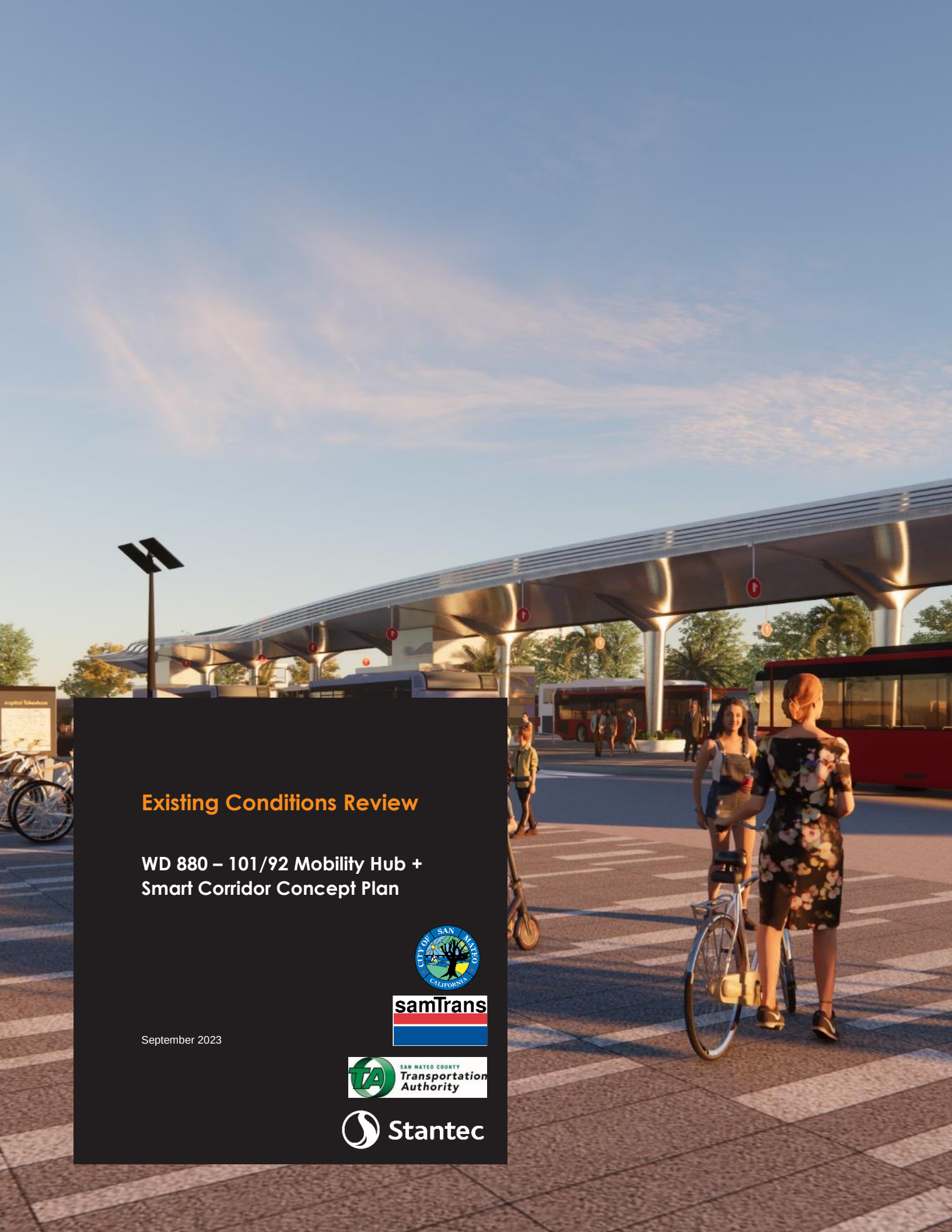


Existing Conditions Review

WD 880 – 101/92 Mobility Hub + Smart Corridor Concept Plan

September 2023

Stantec

Existing Conditions Review

WD 880 – 101/92 Mobility Hub + Smart Corridor Concept Plan

September 30, 2023

Prepared for:

San Mateo County Transportation Authority

Prepared by:

Stantec Consulting Services Inc.

EXISTING CONDITIONS REVIEW

Release Version

Rev.	Description	Date
0	Draft Report Issued to SMCTA	03/24/2023
	Comments received	04/11/2023
1	Revised Report Issued to SMCTA	07/10/2023
2	Final Report Issued to SMCTA	09/30/2023

Project Team

Stantec Consulting Services Inc.
801 South Figueroa Street Suite 300
Los Angeles CA 90017-3007

Table of Contents

LIST OF TABLES

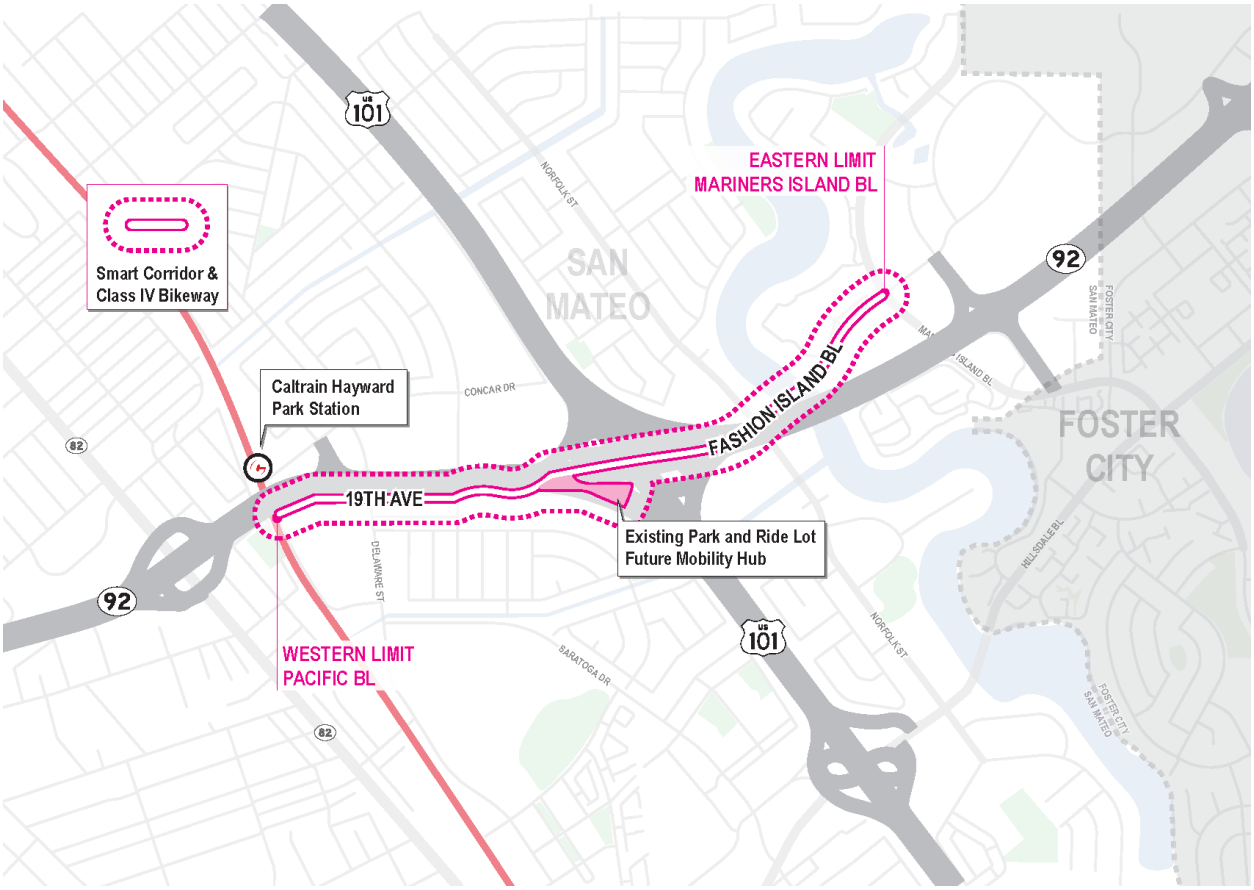
LIST OF FIGURES

Abbreviations

ACS	American Community Survey
ATP	Active Transportation Program
C/CAG	City/County Association of Governments
Caltrans	California Department of Transportation
COA	Comprehensive Operational Analysis
EV	Electric vehicles
GHG	Greenhouse gas emissions
LBS	Location-based services
LEHD	Longitudinal Employer-Household Dynamics
MTC	Metropolitan Transportation Commission
OBAG	One Bay Area Grant
OD	Origin-destination
PDA	Priority Development Area
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
SamTrans	San Mateo County Transit District
SMCTA	San Mateo County Transportation Authority
SR	State Route
TAZ	Transportation analysis zone
TNC	Transportation network company
TOD	Transit-oriented development

EXECUTIVE SUMMARY

The US 101/SR 92 Mobility Hub and Smart Corridor Concept Plan is a joint planning effort between the City of San Mateo, the San Mateo County Transit District (SamTrans), and the San Mateo County Transportation Authority (SMCTA) to bring multimodal mobility and accessibility enhancements to a key city corridor. The project area spans 19th Avenue and Fashion Island Boulevard. From Pacific Boulevard/Hayward Park Caltrain Station to Mariners Island Boulevard, including the Caltrans Park and Ride lot beneath the US 101/SR 92 interchange (below).



The purpose of this project is to determine a preferred design alternative for the Class IV separated bikeway and mobility hub, two separate but related projects. The Class IV bikeway will be developed with Complete Streets elements and incorporate technology-forward “smart corridor” features such as public Wi-Fi, traffic signal detection enhancements, and real-time arrival information for transit services, along the 1.2-mile segment of 19th Avenue and Fashion Island Boulevard. The mobility hub will be constructed at the Caltrans-owned Park and Ride lot below the US 101/SR 92 interchange. This project launched in spring 2023 and the final plan including preferred design alternatives and implementation plan is scheduled to be completed by winter 2023. Project goals are shown in the table below.

Active Transportation	Transit
Increase the number of people walking and biking. Provide safe, convenient, and accessible infrastructure. Minimize conflicts between bicyclists, pedestrians, vehicles and other road users. Eliminate gaps in the local and countywide priority bicycle network. Improve access to local destinations like schools, offices, retail and civic areas. Encourage multimodal trips.	Support affordable and equitable long-distance transit options. Improve underserved communities' access to transit and other mobility options. Promote the use of public transportation through increased safety, security, and convenience. Strengthen connectivity to jobs and housing hubs throughout the region. Reduce greenhouse gas (GHG) and improve air quality through use of zero-emission buses. Enhance connectivity between active transportation and transit.

This Existing Conditions Memo provides an overview of the project site, including both the existing Park and Ride lot and smart corridor spanning 19th Ave. and Fashion Island Blvd. and existing transportation infrastructure and services. The memo also includes an inventory of related plans, studies, and projects and a demographic review of the site to understand who is living and working in and around the study area. A travel behavior analysis was completed using StreetLight data which is derived from navigation-based GPS data and location-based services (LBS) data. Major findings, implications, and considerations from the Existing Conditions memo.

There are a number of related plans, studies, and projects from regional entities such as the Metropolitan Transportation Commission (MTC), SamTrans, the City/County Association of Governments (C/CAG), and Caltrain. The future mobility hub site is located in an MTC Priority Development Area, meaning that the area is a priority for development due to existing transit infrastructure, so new developments can encourage people to reduce their car dependency in favor of other options such as cycling and transit. The Park and Ride lot is also identified as a Mobility Hub under MTC's Mobility Hubs program. SamTrans projects, including Reimagine SamTrans and the SamTrans Express Bus Feasibility Study, may bring more robust bus transit services to the future mobility hub site, making the mobility hub an important stop in the SamTrans network.

WHAT IS A COMPETE STREET/SMART CORRIDOR?

Complete streets are streets that are designed for everyone of all ages and abilities, traveling by all modes with infrastructure and green infrastructure to support pedestrians, cyclists, micromobility users, motorists, transit, and the environment. The planning, design and operation needs to minimize conflict between modes so travelers can comfortably move throughout their journey. This project also features a Class IV separated bikeway as a feature of the smart corridor.

WHAT IS A CLASS IV SEPARATED BIKEWAY?

A Class IV separated bikeway helps to achieve the goal of enhanced safety through separating users traveling different modes at different speeds, and providing protection through this physical separation (such as through physical barriers or grade separation). A Class IV separated bikeway is defined by Caltrans as "a bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking. " It is notable that as transportation solutions and practices change a Class IV separated bikeway may be actively serving other options that are more compatible with bikes than cars or pedestrians, currently this discussion is dominated by the place for micromobility. Variables that may influence a bikeway design include the presence of on-street parking, connectivity through intersections, and the speed of adjacent modes of travel.

There are local City plans, studies, and initiatives that directly relate to and complement this project. For example, San Mateo adopted a Citywide Bicycle Master Plan in 2020 that recommends a Class IV separated bike lane through the study area, which will be implemented through this plan. The City's Delaware Street bike lane project will construct 0.75 miles of Class IV separated bike lanes and 0.35 miles of Class III bicycle boulevards along Delaware Street, which will connect with the Class IV bikeway on 19th Ave. Integrating the design between the two projects will be necessary for enhancing connectivity of the citywide bike lane network. The City's recently-updated Circulation Plan element also has numerous plans and policies directly related to multimodal transportation, bicycles and mobility, and transit and mobility services.

There are complex challenges and opportunities associated with the site of the future mobility hub. Located underneath a freeway interchange, design will need to ensure that the mobility hub is inviting and comfortable, and is a safe environment where people want to spend time. Opportunities include that the space is currently underutilized and underperforming, and there are opportunities to transform the space into something that is more usable and a useable place. As a mobility hub, the site can provide benefits to the transportation network by improving fist/last mile connectivity and providing more sustainable transportation options that help support climate, sustainability, and equity goals, such as potentially becoming a hub and transfer center for SamTrans service. The mobility hub also presents an opportunity to create a more attractive and positive public transit experience, which can encourage transit use and decrease car dependency. Finally, much of the area surrounding the mobility hub is currently zoned for transit-oriented development (TOD). The mobility hub can act as an anchor to encourage TOD and sustainable development.

WHAT IS A MOBILITY HUB?

A mobility hub serves as a transportation anchor in a community and is a welcoming environment that brings together multiple modes (such as transit, biking, walking, ridesharing, and micromobility) which enables travelers of all backgrounds to access multiple transportation options and supportive amenities. Mobility hubs offer a safe, comfortable, convenient, and accessible space to seamlessly transfer across different travel modes.

The goal of a mobility hub is to use technology to improve local access to the community and provide seamless transfers between modes, serving people who are walking, cycling, taking public transit, using ride-hailing or ride-sharing applications, or driving; they can also act as places where people want to linger. To be effective, a mobility hub needs to reduce the interaction of all these forms, where drivers inhibit the use of the facility by cyclists or visa versa, to be successful Mobility Hubs provide appropriate infrastructure for each mode to support the potential users in the area limiting the conflicts between each.

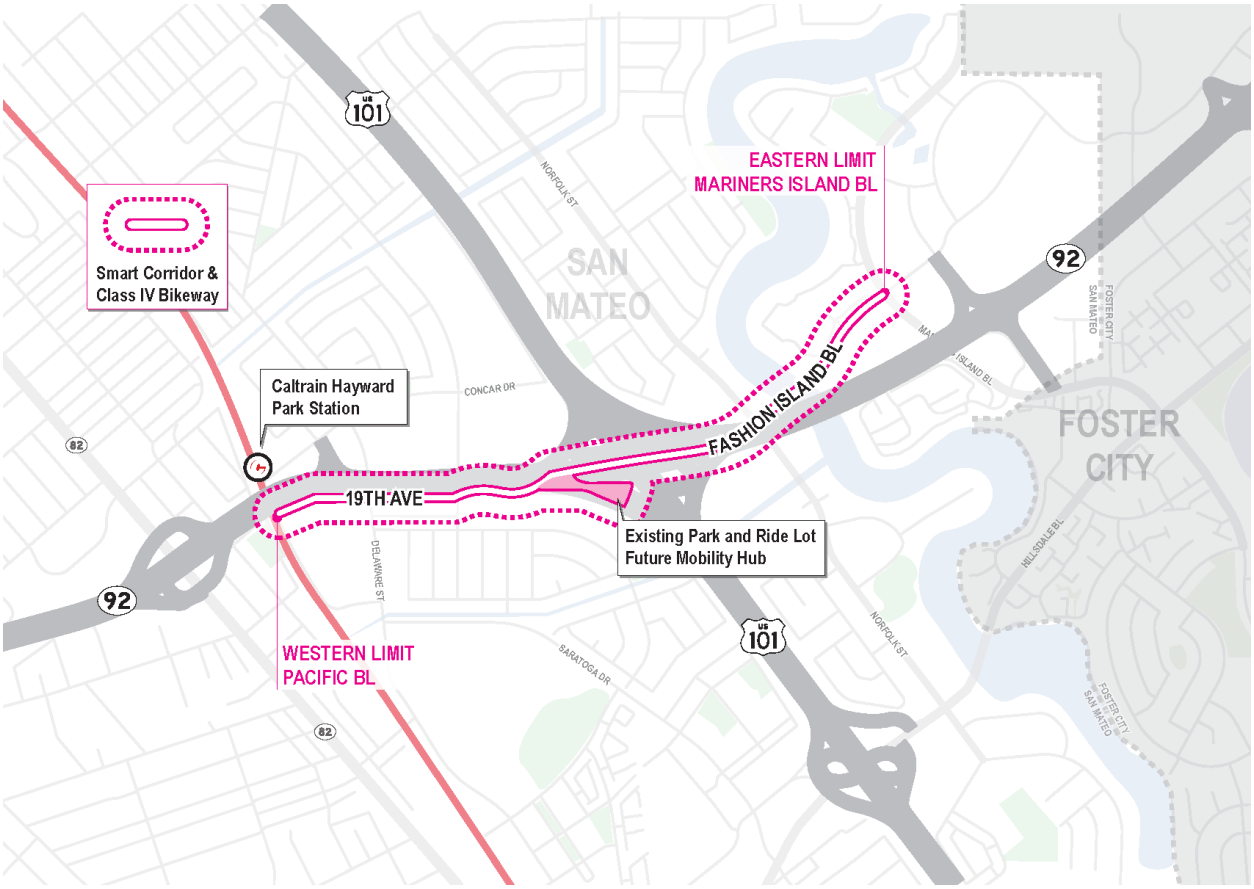
Travel behavior and demographics analysis: location-based services data (from GPS and connected devices) has been analyzed which provides greater insight and depth in understanding the demographics of the people making trips in the area as well as their travel patterns.

- Demographics
    - Analysis shows the high-income status of people traveling through this area with 60% of trips made by those who have a household income above $100,000. 60% of trips were made by people with two or more cars. These statistics indicate an increased likelihood to be able to pay for alternative transportation services particularly an ability to pay for services that provide higher levels of speed, comfort, or convenience.
    - It is important to make sure the mobility hub is available for accessible usage, providing compliance with ADA standards, and that wayfinding and signage are clear to all potential users by making use of graphics and pictures as much as possible to communicate clearly with those who may not have English as a first language
- Travel Patterns
    - There are limited walking trips beyond the mobility hub area to other areas.
    - Vehicle trips from the mobility hub area spread to a wide range of destinations well beyond the immediate vicinity.
    - Cycling trips are heavily impacted by the Seal Slough which acts as a barrier for east and west travel.
    - Traffic volumes and travel patterns have changed since 2019. The typical AM and PM peak profile is no longer present for weekday trips, instead, there is a slower gradual rise in trips towards a late afternoon / early evening peak before dropping off for the evening. This suggests a change in working patterns following the pandemic.
    - For trips traveling eastbound on 19th Ave., 25% of trips end in and around the mobility hub/Foster City area which suggests that there is a relatively strong demand for short trips from the mobility hub to nearby areas.

1.0 INTRODUCTION AND BACKGROUND

The US 101/SR 92 Mobility Hub and Smart Corridor Concept Plan is a joint planning effort between the City of San Mateo, the San Mateo County Transit District (SamTrans), and the San Mateo County Transportation Authority (SMCTA) to bring multimodal mobility and accessibility enhancements to a key city corridor. The project area spans 19th Avenue and Fashion Island Boulevard. From Pacific Boulevard/Hayward Park Caltrain Station to Mariners Island Boulevard, including the Caltrans Park and Ride lot beneath the US 101/SR 92 interchange (Figure 1-1).

Figure 1-1: Project study area



The purpose of this project is to determine a preferred design alternative for the Class IV separated bikeway and mobility hub, two separate but related projects. The Class IV bikeway will be developed with Complete Streets elements and incorporate technology-forward “smart corridor” features such as public Wi-Fi, traffic signal detection enhancements, and real-time arrival information for transit services, along the 1.2-mile segment of 19th Avenue and Fashion Island Boulevard. The mobility hub will be constructed at the Caltrans-owned Park and Ride lot below the US 101/SR 92 interchange.

The purpose of this Existing Conditions Memo is to establish a global understanding of the study area within the project team, including: the study area demographics, existing transportation infrastructure, existing uses of the Park and Ride lot, and current travel behavior within and around the project study area. The memo also inventories related studies, plans, and projects to contextualize the significance of the project and how it relates to the goals and objectives of other City, County, and regional plans.

1.1 PROJECT GOALS AND CONTEXT

Developing the smart corridor and mobility hub at the US 101/SR 92 interchange has several goals related to active transportation, public transit, and the overall mobility network. These goals are summarized in Table 1-1 below.

Table 1-1: Project goals

Active Transportation	Transit
Increase the number of people walking and biking. Provide safe, convenient, and accessible infrastructure. Minimize conflicts between bicyclists, pedestrians, vehicles and other road users. Eliminate gaps in the local and countywide priority bicycle network. Improve access to local destinations like schools, offices, retail and civic areas. Encourage multimodal trips.	Support affordable and equitable long-distance transit options. Improve underserved communities' access to transit and other mobility options. Promote the use of public transportation through increased safety, security, and convenience. Strengthen connectivity to jobs and housing hubs throughout the region. Reduce greenhouse gas (GHG) and improve air quality through use of zero-emission buses. Enhance connectivity between active transportation and transit.

The overall goal of this project is to determine a preferred design alternative for the mobility hub and smart corridor so that the project can move forward into the next phases including detailed design and construction as well as make the project more competitive when pursuing future grant funding. Further, these are two of several projects intended to improve overall mobility around the US 101/SR 92 interchange.

Other related projects include the US 101/SR 92 Interchange Area Improvement Project, which will include ramp modifications on the westbound SR 92 to southbound US 101 loop, modifying the merge conditions from US 101 to eastbound 92, and upgrading the Fashion Island Blvd. exit ramp and Hillsdale Blvd. ramp. The US 101/SR 92 Direct Connector Project involves the construction of new direct connectors from westbound SR 92 to the express lanes on US 101 in both northbound and southbound directions.

In April 2021, SMCTA prepared and submitted an application for $25 million in funding through the 2022 Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant program for the US 101/SR 92 Area Improvements and Multimodal Project, which envisions a complete streets Class IV separated bikeway and mobility hub to complement the other US 101/SR 92 area improvement projects. These projects focus on bringing multimodal improvements to the corridor and providing a direct connection to regional multimodal transportation options to reduce single occupancy vehicle dependency and congestion through this key corridor. SMCTA submitted a RAISE application in 2023 as well. The grant application requested approximately $6 million for bikeway construction and $9 million for construction of the mobility hub. If grant funding is awarded, it is estimated that construction will commence in 2025 or 2026, and the project may be tied to specific project requirements laid out in the grant application, such as a certain number of vehicle chargers or bicycle parking spaces.

In addition, SMCTA has received $3.375 million in funding for bikeway construction from the Metropolitan Transportation Commission (MTC) through its One Bay Area Grant (OBAG) program.

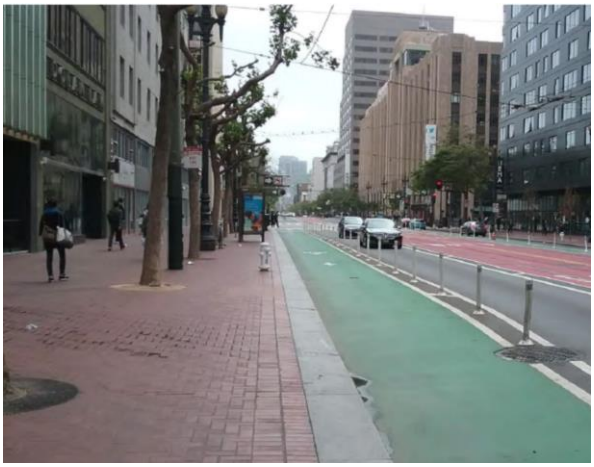
1.2 COMPLETE STREETS/SMART CORRIDOR FRAMEWORK

Complete streets are streets that are designed for everyone of all ages and abilities, traveling by all modes with infrastructure and green infrastructure to support pedestrians, cyclists, micromobility users, motorists, transit, and the environment. The planning, design and operation needs to minimize conflict between modes so travelers can comfortably move throughout their journey.

A Class IV separated bikeway helps to achieve the goal of enhanced safety through separating users traveling different modes at different speeds, and providing protection through this physical separation (such as through physical barriers or grade separation). A Class IV separated bikeway is defined by Caltrans as “a bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.[1]” It is notable that as transportation solutions and practices change a Class IV separated bikeway may be actively serving other options that are more compatible with bikes than cars or pedestrians, currently this discussion is dominated by the place for micromobility. Variables that may influence a bikeway design include the presence of on-street parking, connectivity through intersections, and the speed of adjacent modes of travel. Examples of Class IV separated bikeways in different configurations from the Caltrans Design Information Bulletin are shown in Figure 1-2.

[1] https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib-89-01_kf-a11y.pdf

Figure 1-2: Class IV Separated Bikeways (Caltrans)



Separated bikeway in San Francisco

Two-way separated bikeway in Redondo Beach

Separated bikeway with parking curbs and planter in Long Beach

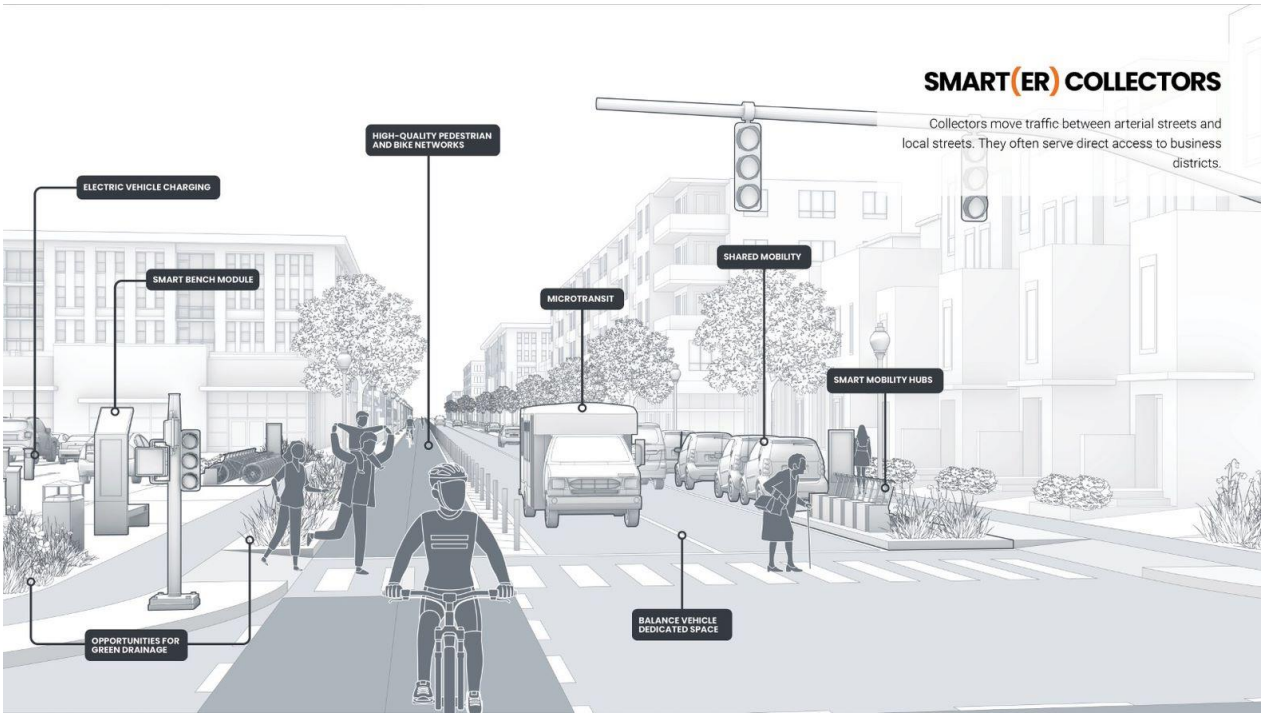
Separated bikeway with parking in Oakland

The integration of smart corridor features will allow for a technology-forward focus and innovative design of the corridor, to create opportunities for the users (the people) to have greater use through the corridor design. A smart corridor can include features such as public Wi-Fi, traffic signal detection enhancements, smart kiosks and digital bus stops with real-time arrival information for transit services, smart streetlights (streetlights which utilizes cameras and sensors to enable features like environmental and weather monitoring, and dynamic digital signage), smart parking (which utilizes cameras and sensors to dynamically monitor parking and aid in parking demand management), and other “smart” applications that leverage technology to improve urban conditions.

This project uses local precedence from the Middlefield Road Smart Street project in the North Fair Oaks neighborhood of Unincorporated San Mateo County, which is re-envisioning Middlefield Road as a smart corridor with benches featuring smartphone chargers, public Wi-Fi, electronic kiosks, linked streetlights,

digital bus displays, and smart parking sensors, which can tell drivers when parking spaces are available[2]. Figure 1-3 provides an illustration of how the components fit together to create a complete street cross section.

Figure 1-3: Smart Street project



1.3 MOBILITY HUB FRAMEWORK

A mobility hub serves as a transportation anchor in a community and is a welcoming environment that brings together multiple modes (such as transit, biking, walking, ridesharing, and micromobility) which enables travelers of all backgrounds to access multiple transportation options and supportive amenities. Mobility hubs offer a safe, comfortable, convenient, and accessible space to seamlessly transfer across different travel modes.

The goal of a mobility hub is to use technology to improve local access to the community and provide seamless transfers between modes, serving people who are walking, cycling, taking public transit, using ride-hailing or ride-sharing applications, or driving; they can also act as places where people want to linger. To be effective, a mobility hub needs to reduce the interaction of all these forms, where drivers inhibit the use of the facility by cyclists or visa versa, to be successful Mobility Hubs provide appropriate infrastructure for each mode to support the potential users in the area limiting the conflicts between each.

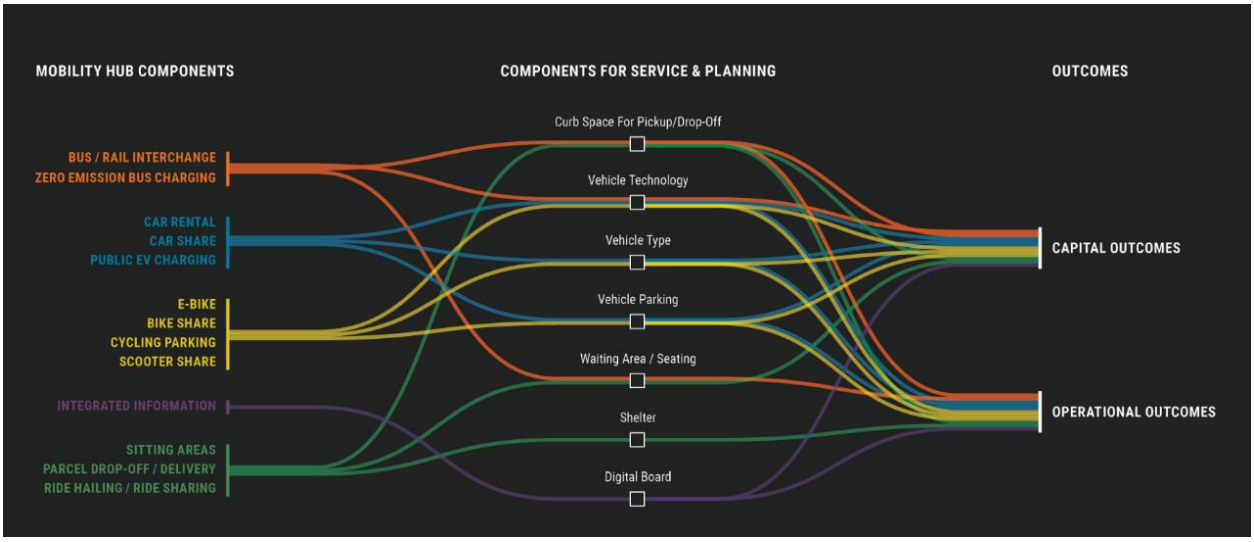
Mobility hubs contain a host of amenities:

[2] https://smcmaps.maps.arcgis.com/apps/Cascade/index.html?appid=d97b290eeb4f42d497ccddd9c8880145

- Transit and trip-making services: ride-hailing/microtransit passenger pick-up and drop-off areas, transit ticketing and integrated payment kiosks, transit stops, real-time arrival information, and loading/unloading areas.
- Parking and charging services: electric vehicle charging, short-term bike parking, long-term bike parking, bikeshare and scooter parking, and carshare parking and access points.
- Priority access: priority access for pedestrians, cyclists, micromobility users, and safe bicycle and pedestrian crossings. A priority for this project will be providing seamless connections between the mobility hub and Class IV separated bikeway.
- Amenities: community space, complementary retail, appropriate supportive infrastructure (lighting, seating, trash receptacles, etc.).

Potential mobility hub components are summarized in Figure 1-4. Future stages of this project will develop a toolkit of potential mobility hub components and narrow down those which are best suited for this project.

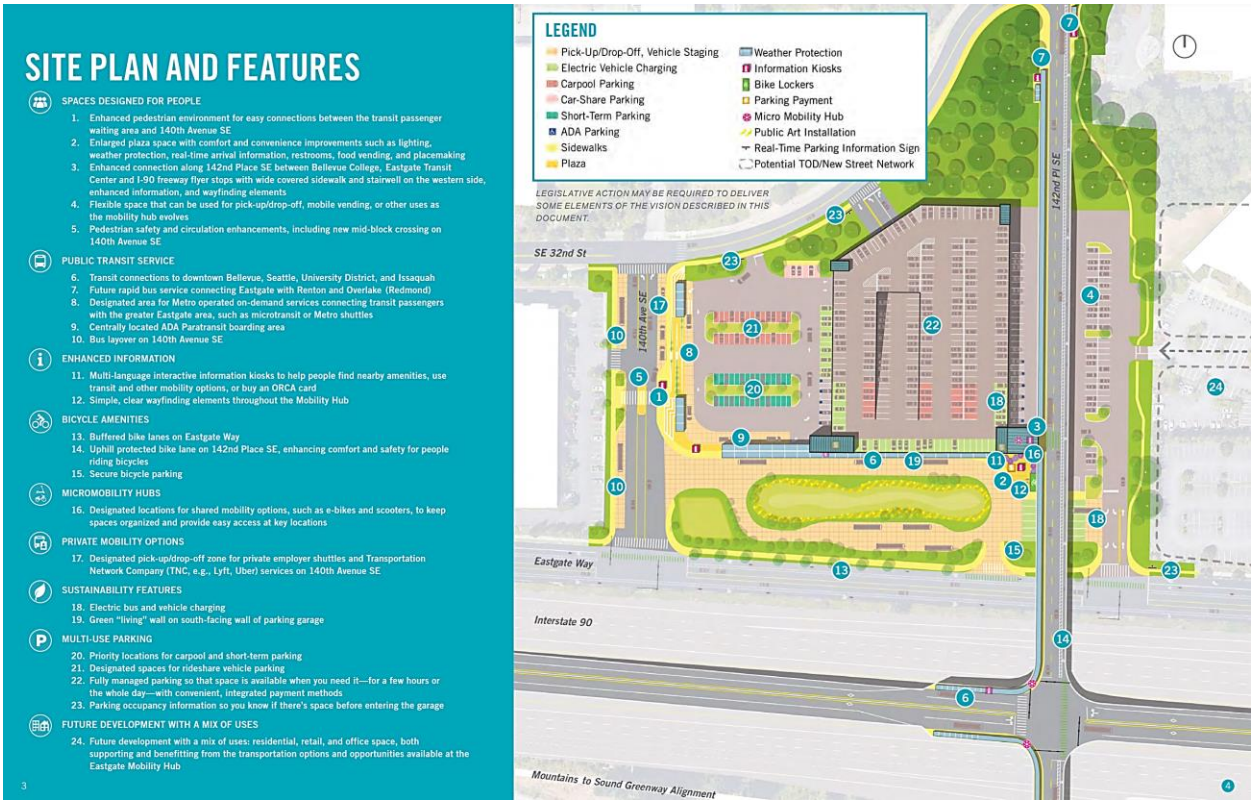
Figure 1-4: Mobility hub components



This project is modeled after King County Metro's Eastgate Mobility Hub Vision 2025, which is a project initiated in 2019 to transform the Eastgate Park and Ride facility into a regional mobility hub by 2025[3]. The mobility hub is designed to feature pedestrian enhancements, connections to fixed route and on-demand public transit services, enhanced information kiosks and wayfinding elements, bicycle amenities including secure bike parking and buffered bike lanes, micromobility hubs, private mobility options, electric vehicle charging, multi-use parking, and space for future mixed-use development. The mobility hub site plan is shown in Figure 1-5.

[3] https://bellevuewa.gov/sites/default/files/media/pdf_document/2020/Eastgate-Mobility-Hub-Brochure-2019-web.pdf

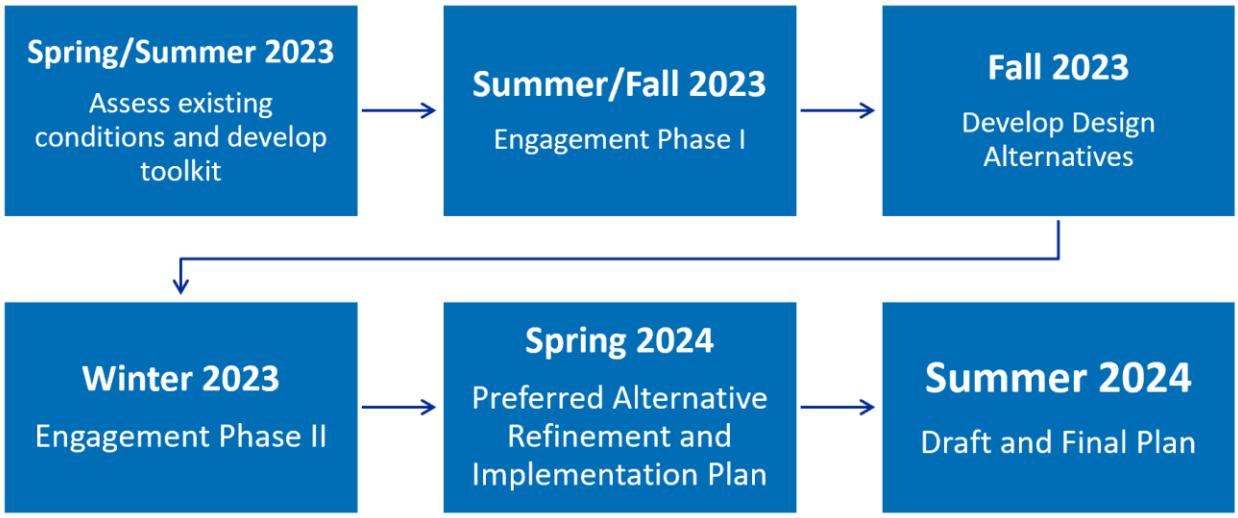
Figure 1-5: Eastgate Mobility Hub site plan



1.4 PROJECT TIMELINE

The project timeline is shown in Figure 1-6. The project commenced in early 2023 and the final plan is scheduled to be completed by winter 2023. Public and stakeholder engagement has been broken down into two phases, with the first phase (information collection and project awareness) scheduled to take place in early summer 2023 and the second phase (feedback collection on potential concepts) in late summer.

Figure 1-6: Project timeline



RELATED PLANS, STUDIES, AND PROJECTS

Across the region, plans and policies have had a recent focus and emphasis on enhancing multimodal transportation options, enabling more active transportation and transit trips, and ultimately creating more sustainable communities. The elements included in this project have been identified in local, countywide, and regional planning documents, and this planning phase and selection of a preferred design alternative is imperative in moving this corridor forward to full implementation. The following subsections identify related plans, studies, and projects, and highlight their significance and relation to this project.

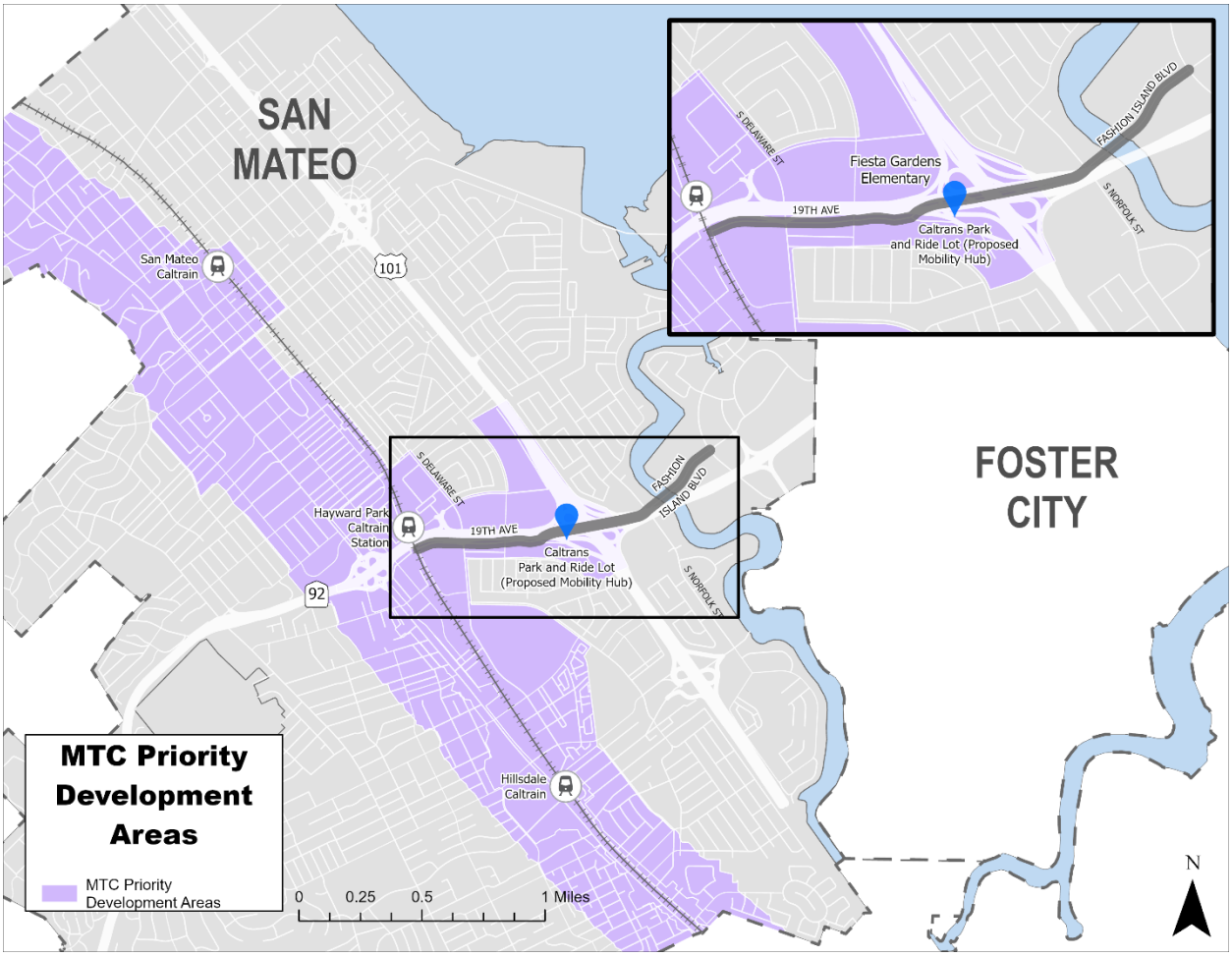
1.4.1 Metropolitan Transportation Commission (MTC) Priority Development Area

The Bay Area's growing population need to be accomplished and accounted for in regional planning and growth framework. To accommodate this growth the MTC maintains an inventory of Priority Development Areas (PDAs), which are places near public transit that are planned for new homes, jobs, and community amenities[4]. Because PDAs are located in places with existing transit infrastructure, they make the most out of public investments and limit development impacts on communities and the environment while encouraging and enabling people to reduce their dependency on cars for travel in favor of other options such as transit and active transportation.

MTC hosts a variety of assistance programs for PDAs, including planning and technical assistance for the development of Specific Plans for PDAs. PDAs are aligned with MTC's long-range regional plan and Transit-Oriented Communities policy. PDAs in the Cit of San Mateo are shown in Figure 1-7.

[4] https://mtc.ca.gov/planning/land-use/priority-development-areas-pdas

Figure 1-7: MTC Priority Development Areas



As this project is located in a PDA, the implementation of this project will help further the MTC's PDA goals by investing in active transportation and transit infrastructure throughout the corridor to reduce car dependency and make non-vehicular trips easier and more convenient as well as position the area for future growth and development.

1.4.2 Metropolitan Transportation Commission (MTC) Mobility Hubs

The Park and Ride lot is also identified as a Mobility Hub under the MTC's Mobility Hubs program[5]. MTC coordinates, funds, and provides technical assistance for new Mobility Hubs to support first and last mile connections through access to multiple travel options. Grant funding for construction, planning, and outreach for Mobility Hubs is also available through the Association of Bay Area Governments

[5] https://mtc.ca.gov/planning/transportation/mobility-hubs

1.4.3 C/CAG Comprehensive Bicycle and Pedestrian Plan

In 2021, the City/County Association of Governments of San Mateo County (C/CAG) released an update to its Comprehensive Bicycle and Pedestrian Plan with a vision to "strive to provide a safe, accessible, and comprehensive network of bicycle and pedestrian facilities for a diverse population in San Mateo County."[6] The plan identifies the following goals to achieve this vision:

- Connectivity: establish a connected network of facilities for bicyclists and pedestrians.
- Mode shift: promote more people bicycling and walking for transportation and recreation.
- Safety: improve safety for walking, bicycling, and accessing transit.
- Complete streets for all: advance complete streets principles and the accommodation of all roadway users.
- Equity: develop, prioritize, and fund projects to advance equity.
- Regional collaboration: promote collaboration and technical support.

This plan identifies the 19th Ave./ Fashion Island Blvd. corridor as a part of the countywide backbone bikeway network, a gap in the transit network, and a pedestrian focus area. Implementing the aspects of this project is imperative in achieving the goals and vision set forth in the Comprehensive Bicycle and Pedestrian Plan.

1.4.4 Reimagine SamTrans

Reimagine SamTrans is a comprehensive operational analysis (COA) project to evaluate and refresh the entire SamTrans bus system that began in Summer 2019. The project team conducted three rounds of public outreach, as well as existing conditions evaluation and market research. SamTrans also developed the Equity Priority Areas, which will be discussed in more details in Section 2.2.7. The project recommendations reflect changing travel patterns and transportation needs resulting from the COVID-19 pandemic, which were adopted by the SamTrans Board of Directors in March 2022[7].

The project was designed with three goals in mind:

- Improve the experience of existing SamTrans customers.
- Grow new and more frequent ridership on SamTrans.
- Build SamTrans' efficiency and effectiveness as a mobility provider.

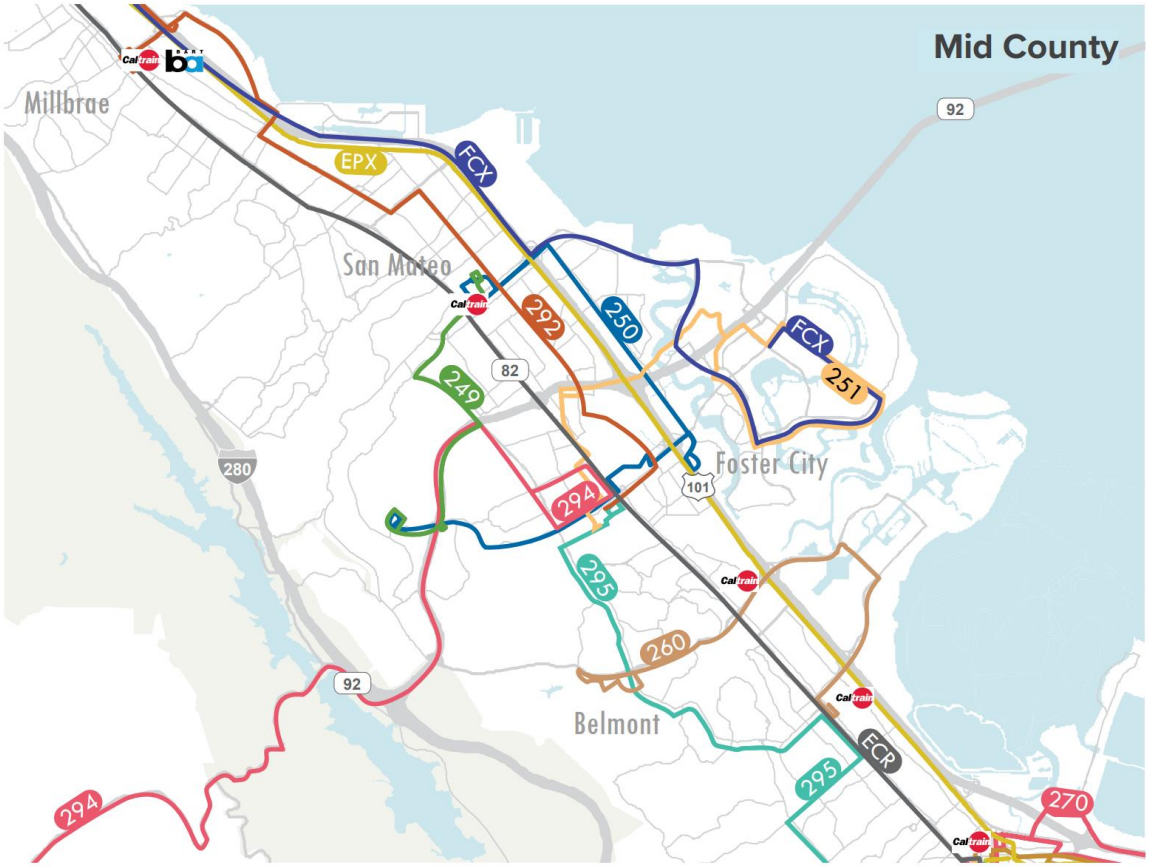
Following over three years of community engagement, technical analysis, and planning work, the final report was published in March 2022. The first set of changes to the SamTrans system were implemented

[6] https://ccag.ca.gov/wp-content/uploads/2021/06/San-Mateo-County-Comprehensive-Bicycle-and-Pedestrian-Plan-Update-Final-Plan.pdf
[7] https://www.samtrans.com/media/19711/

in August 2022, with the subsequent changes following shortly after. For the latest information on system changes, please refer to the SamTrans website[8].

Mid-county routes are shown in Figure 1-8.

Figure 1-8: Recommended Network Map: Mid-County



The recommended Route 250 will follow the current alignment along S. Norfolk St. at an improved frequency of every 15 to 30 minutes during most service hours. The recommended Route 251 would operate along the Smart Corridor at a frequency of every 60 minutes, seven days a week. The recommended Route 292 would run along S. Delaware St. and Saratoga Dr. at the same frequency as the current Route 292 (approximately every 30 minutes for most of the day). The existing FCX (Foster City Commuter Express) route between Foster City and San Francisco would not change in alignment or frequency, though the route will only operate into San Francisco in the morning and out of San Francisco in the afternoon. Finally, Route EPX would be a new, peak-time, limited-stop route between East Palo Alto to San Francisco International Airport, with some service continuing northward to Downtown San Francisco.

[8] https://www.samtrans.com/planning/reimaginesamtrans

Depending on the infrastructure at the proposed mobility hub, future routing changes may be required to connect to the hub. Additionally, the mobility hub can serve as an efficient layover location equipped with operator amenities and vehicle charging.

1.4.5 SamTrans Express Bus Feasibility Study

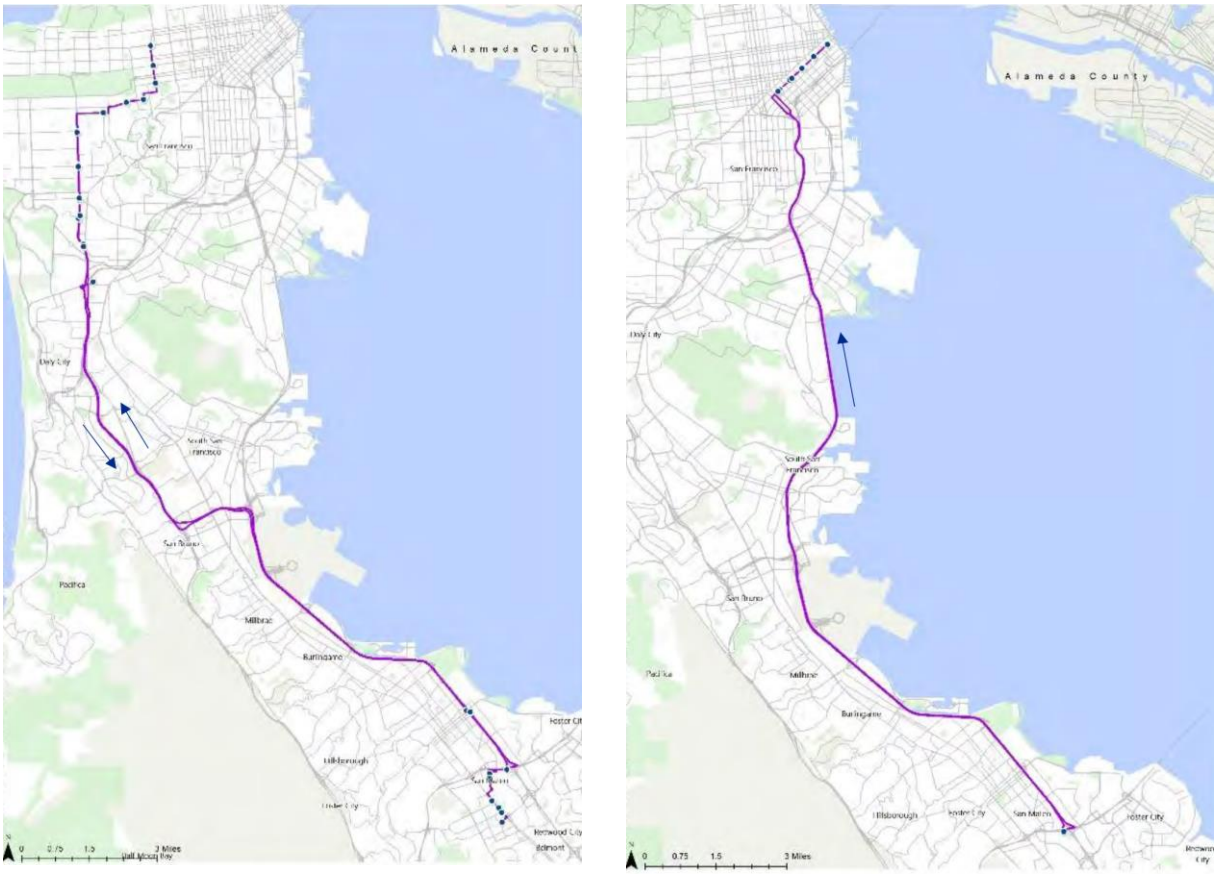
In 2017, SamTrans launched a study to assess the financial and operational feasibility of a network of long-distance express buses operating on the US 101 freeway through San Mateo County, one of the most congested freeways in the Bay Area[9]. The study assessed a number of different options for potential routes and identified potential transit-supportive facilities, including Park and Ride lots and multimodal access facilities of hubs to help close first/last mile gaps.

The study produced a set of 15 potential routes, of which the study is suggesting a phased implementation of six new express routes. Two routes have been identified that would utilize the Park and Ride lot, Route 8 and Route 12 (Figure 1-9). The study notes that these routes may rely on the expansion of the Park and Ride lot and/or introduction of other first mile/last mile strategies such as better pedestrian and bicycle infrastructure connecting to the parking facility.

Figure 1-9: SamTrans Express Bus Feasibility Study Routes 8 and 12

Route 8: Western San Francisco – San Mateo **Route 12: San Mateo – Downtown San Francisco**

[9] https://www.samtrans.com/media/5507/download?inline



While these routes are not currently planned for implementation, this could be revisited and accelerated in the near future, as the Mobility Hub could be a catalyst for starting the express bus service on a more accelerated timeline than currently planned. Regardless, it is important to future-proof the site for potential SamTrans operations, such as through the inclusion of operator restroom and break facilities in the planning.

1.4.6 Caltrain Business Plan

Caltrain provides commuter rail service along the San Francisco Peninsula. San Mateo County is served through several stations, including the Hayward Park station that connects to the study area. The Caltrain 2020 Business Plan, updated in 2022, produced Caltrain's first Long-Range Service Vision, and includes multiple goals directly related to this project[10]. These goals were developed through public outreach and input from community members:

- Goal F: better connecting bus service. Specifically, this goal calls for better first and last mile connections to and from Caltrain stations.

[10] https://www.caltrain.com/media/24042/download?inline

- Goal G: better bike and pedestrian connectivity. Specifically, this goal cites better bike facilities such as lockers and racks at stations, more separated grade crossings, and bike sharing opportunities at stations.

To plan for ridership and service through 2040, the moderate growth scenario was selected, which projects close to 200,000 daily riders (compared to 60,000 currently). The Plan also notes that the Hayward Park station would see significant increases in ridership due to station area land use growth and improved service; specifically, "ridership demand of about double or triple existing levels." The moderate growth scenario service plan also plans for increased service levels with Local and Express trains operating at 15-minute frequencies during peak period, and six trains per hour, per direction during off-peak times and weekends.

In addition, a proposed 191-unit apartment complex is planned to be constructed on the current Hayward Park Station parking lot[11]. The plan was approved by the Planning Commission in 2022. The complex will remove 225 parking spaces available to Caltrain commuters, though the City has asked for consideration of a shared parking program allowing up to 51 spaces for Caltrain users during business hours. This proposed development and removal of parking, combined with the increased service planned under the 2040 Business Plan, makes providing robust, seamless, multimodal access and connectivity to the Station a heightened priority.

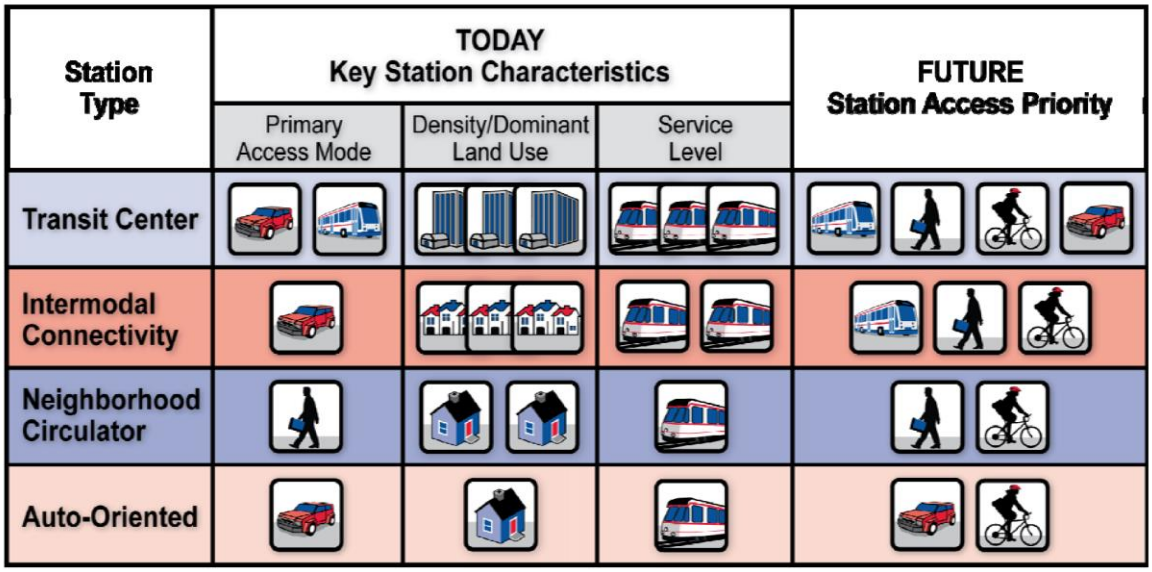
1.4.7 Caltrain Comprehensive Access Program Policy

Caltrain released their Comprehensive Access Program Policy in May 2010 to develop policies that focus investment decisions on enhancing non-auto (walking, transit, and bike) access to and from Caltrain stations.

The policy outlines the following systemwide access mode of transportation priorities as: 1) walk, 2) transit, 3) bike, and 4) auto. The policy notes that station-specific priorities are needed due to the variety of land uses and densities surrounding different Caltrain stations. Based on this, four different station types have been developed to produce context-sensitive solutions for each station. The different station types are shown in Figure 1-10.

[11] https://www.smdailyjournal.com/news/local/new-housing-at-san-mateo-train-station/article_f1805e5c-2dca-11ed-8952-df81d43a1065.html

Figure 1-10: Caltrain station types



The Hayward Park station is categorized as a Neighborhood Circulator station type, which is characterized by moderate density, low Caltrain service levels, and underused parking lots. This project can help expand pedestrian and cycling access to the Hayward Park station in accordance with this policy.

1.5 LOCAL SIGNIFICANCE

1.5.1 City of San Mateo

In addition to projects on a more regional scale, there are several local City plans that are related to this project, which are discussed in greater detail below.

1.5.1.1 Bicycle Master Plan

San Mateo adopted a Citywide Bicycle Master Plan in 2020, which serves as a blueprint for expanding and improving the City's bicycle and mobility network and update to the 2011 Master Plan[12]. Importantly, the development of this plan happened in conjunction with the City's General Plan update, whose Circulation Element will have a more multimodal focus.

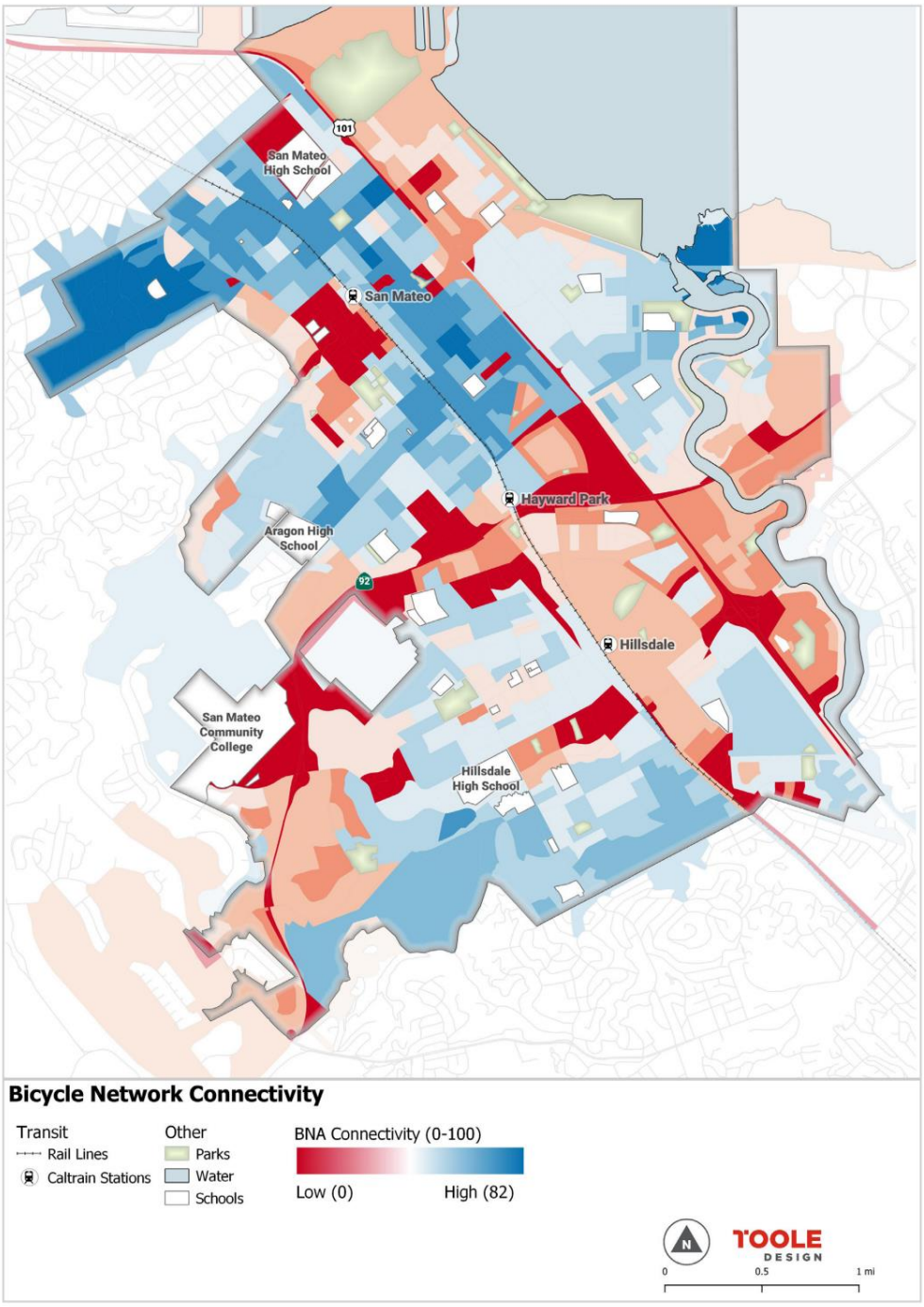
The City's existing bicycle network is currently comprised of approximately 56 miles of bike lanes, bike routes, and shared use paths as well as two bicycle and pedestrian bridges. The Master Plan recommends a Class IV separated bike lane to run along 19th Ave. beginning at the Hayward Park Caltrain station and extending east past Mariners Island Blvd., slightly east of the terminus of this project

[12] https://www.cityofsanmateo.org/DocumentCenter/View/85445/2020-Bike-Master-Plan_Final_Updated-62021?bidId=

study area (more information on existing and proposed bikeway infrastructure in relation to the study area can be found in Section 2.5).

As part of the planning process, the Master Plan assessed bicycle network connectivity. As seen in Figure 1-11, the corridor along 19th Ave. and Fashion Island Blvd. that is the focus of this project displays a low connectivity score. Implementation of the Class IV separated bikeway will help to improve connectivity thought a key corridor in the city.

Figure 1-11: Bicycle Network Connectivity (San Mateo Bicycle Master Plan)



As an identified corridor, this project is a key facility for east-west connectivity, and directly related to the goals of the Master Plan.

1.5.1.2 19th Ave./Fashion Island Study

The 19th Ave./Fashion Island Study, drafted in January 2022, was created to both assess congestion on Fashion Island Blvd. and to review the feasibility of implementing a westbound lane on 19th Ave. between Grant and Delaware, as this corridor is a priority corridor for the current City Council.

The project objectives were to determine the feasibility of the following interventions:

- Reconstruction of the Fashion Island Blvd./South Norfolk St. intersection to optimize vehicle throughput and progression.
- Creation of additional travel lanes on the bridge between South Norfolk St. and Mariners Island Blvd.; and
- Conversion of 19th Avenue between South Delaware St. and South Grant St.-Ginnever St. from eastbound one-way street to a bidirectional roadway.

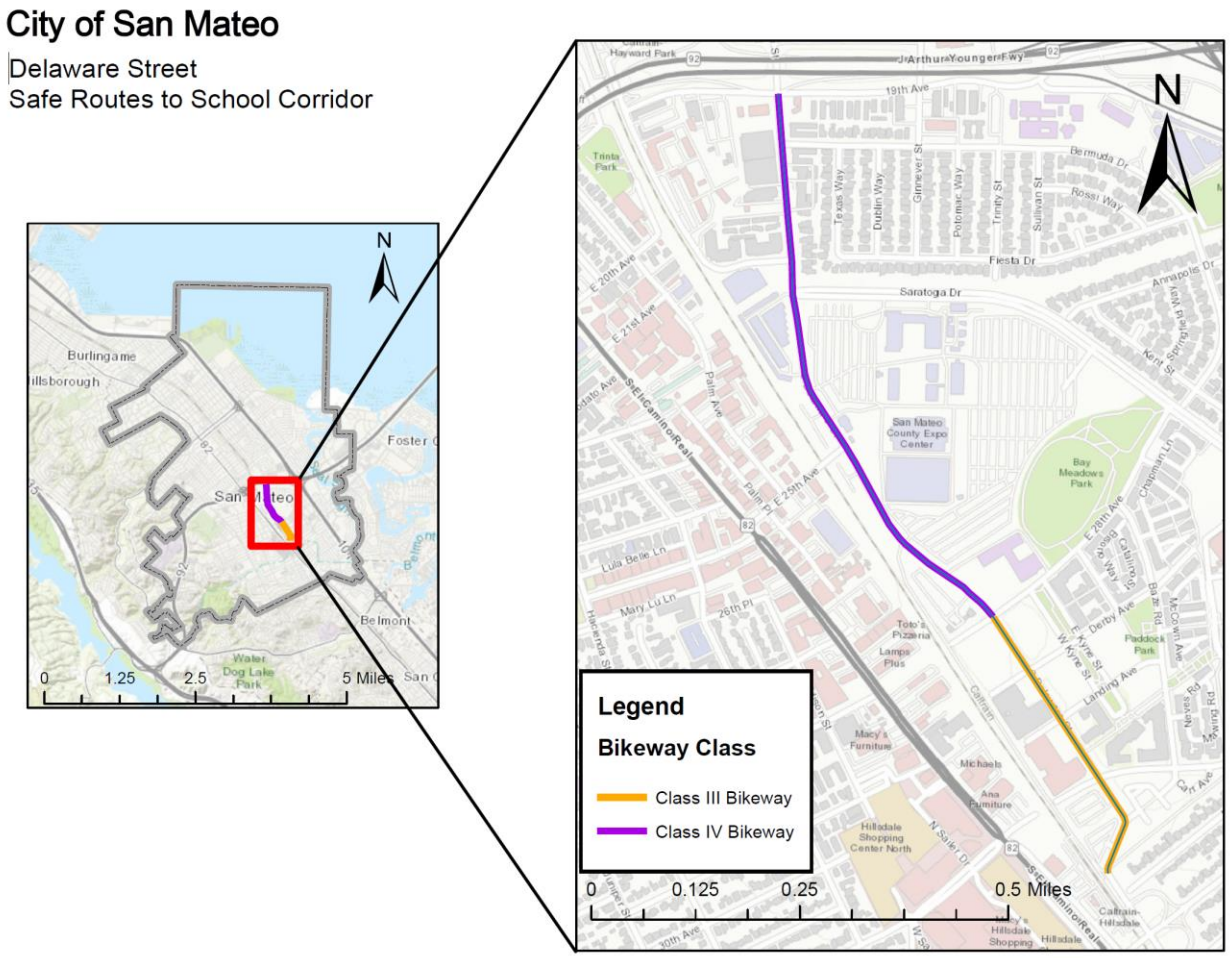
The report concludes that signal coordination, controlling throughput, implementing leading pedestrian intervals, and adding a general-purpose lane on US 101 Southbound on-ramp are all recommendations that should be prioritized. Other relevant recommendations include extending the eastbound left-turn lane at Fashion Island Blvd./Norfolk St., extending the westbound right-turn at the 19th Ave./US 101 northbound on-ramp, and restriping the existing Fashion Island Blvd. bridge configuration.

The report recommends different alternatives for Fashion Island Blvd. and 19th Ave. However, the City of San Mateo is currently planning to only move forward with the bridge restriping and the improvements in the vicinity of the Norfolk/Fashion Island Blvd. intersection. These include modifications to incorporate bike facilities and the modified bridge configuration, extend the eastbound left-turn lane by reducing the concrete median island width, and add a westbound right-turn lane onto northbound US 101. Consideration of the westbound lane on 19th Ave. from Grant to Delaware will require further analysis to determine the need for this improvement. The City in the process of drafting an RFP for PS&E and have requested funding for construction through the City's CIP process. Construction is anticipated to begin in fiscal year 2025-2026.

1.5.1.3 Delaware Street Bike Lane Project

The City of San Mateo received a fully funded Active Transportation Program (ATP) grant from Caltrans for design and construction of a Class IV separated bike lane and bicycle boulevard, upgraded pedestrian facilities, and connections to existing facilities along the Delaware Street Safe Routes to School Corridor, which spans South Delaware Street from 19th Ave. to Pacific Blvd.

Figure 1-12: Delaware Street bike lane project location



The Delaware Street Safe Routes to School Corridor is a high priority project identified by the City's 2020 Bicycle Master Plan that will design and construct 0.75 miles of Class IV separated bike lanes and 0.35 miles of Class III bicycle boulevards. The project is slated to be competed in FY2024/2025. Its northern terminus at 19th Ave. necessitates a connection between these two projects, and this project will explore connectivity options between the Class IV separated bike lane on Delaware Street and 19th Ave. Providing a seamless cycling connection between these two corridors also helps to strengthen and expand the citywide bike lane network.

1.5.1.4 Transit-Oriented Development (TOD) Pedestrian Access Plan

The TOD Pedestrian Access Plan was adopted by San Mateo City Council in November 2022[13]. The goals of the Plan are as follows:

[13] https://www.cityofsanmateo.org/DocumentCenter/View/89713/2022-San-Mateo-TOD-Pedestrian-Access-Plan?bidId=

- Improve access routes to transit for all ages and abilities.
- Create safe and comfortable paths of travel.
- Promote equity.

The Plan includes several priority projects to improve pedestrian access within a half-mile radius of San Mateo's three Caltrain stations (San Mateo, Hayward Park, and Hillsdale) and along El Camino Real.

Priority recommendations that are relevant to the smart corridor project are to widen the sidewalk or add a Class I pathway connection on Pacific Blvd. near 19th Ave. and to improve the intersection at 19th Ave. Furthermore, a missing sidewalk on 19th Ave. was identified as part of the needs assessment but was not listed as a priority project.

As part of outreach and engagement, community members expressed their interest in pedestrian amenities like improved lighting, improved crosswalks, more frequent crossings, and wider sidewalks. These could be considered for future area projects, as supportive pedestrian amenities between the Hayward Park Caltrain station and the smart corridor will facilitate connections between the two.

1.5.1.5 Rail Corridor Transit-Oriented Development (TOD) Plan

The Rain Corridor TOD plan was adopted in 2005 with the goal of supporting TOD within a half-mile radius of the Hillsdale and Hayward Park Caltrain stations[14]. The Plan area includes the area east of US 101, between Bermuda Dr. in the south and Concar Dr. in the north.

The objectives of the plan are as follows:

- Improve connections and create multi-modal streets,
- Focus TOD at station areas,
- Encourage transit-supportive land uses, and
- [Ensure] compatibility with existing development.

Many of the recommendations in the Plan involve intersections or segments of Delaware St., which is within both cycling and walking distance from the Mobility Hub site.

1.5.1.6 General Plan Update (Circulation Element)

Updates to the San Mateo General Plan are continual and ongoing through 2023. The most recent updates were drafted in July 2022[15]. The update is ongoing, as community feedback is being considered throughout the plan update process, but the update provides a framework regarding how to approach planning projects moving forward.

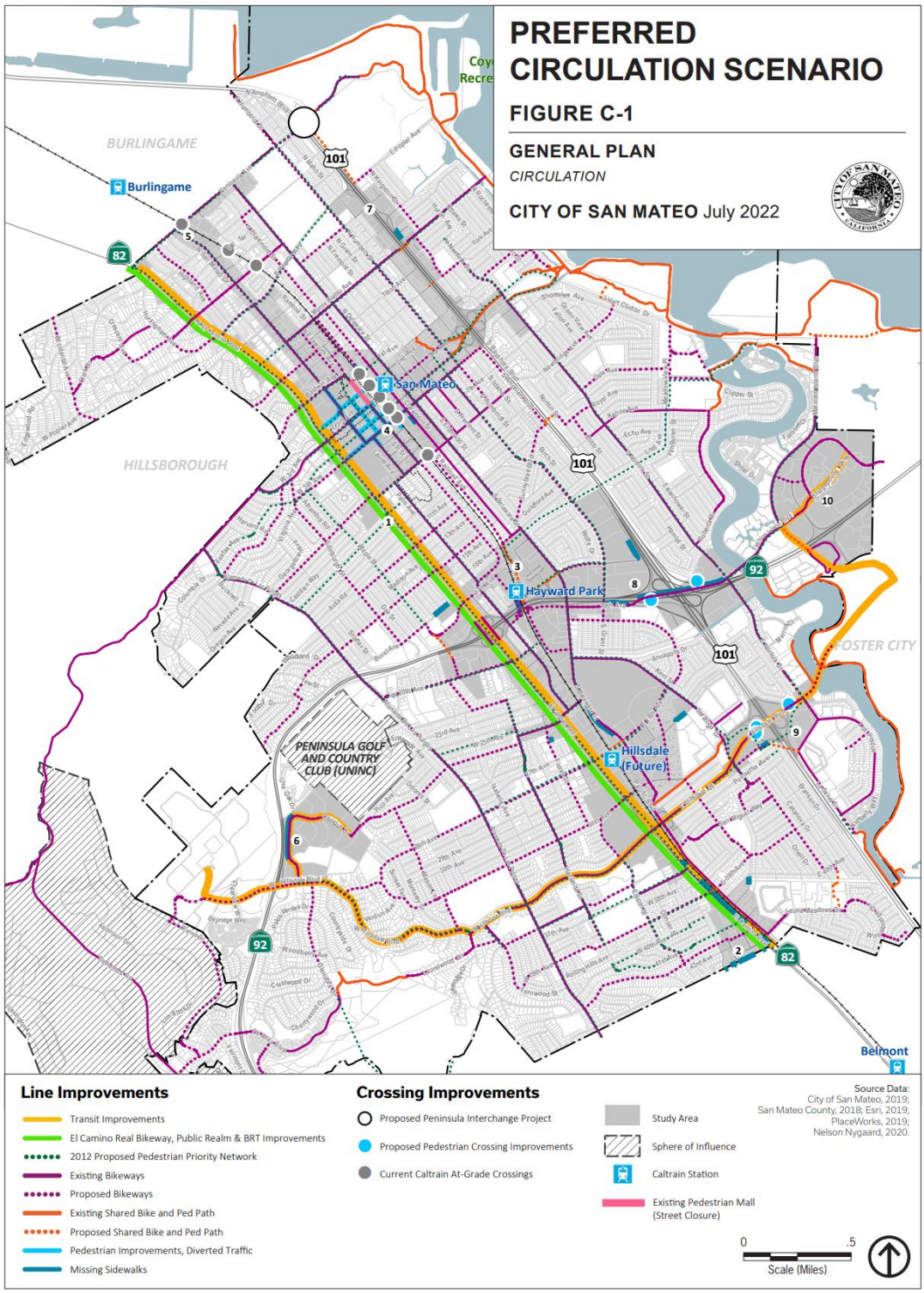
[14] https://www.cityofsanmateo.org/1899/Rail-Corridor-Transit-Oriented-Developme
[15] https://strivesanmateo.org/wp-content/uploads/2022/07/Draft_GOPAS_Combined_FINAL.pdf

Many new elements of the Plan are relevant to the Smart Corridor and Mobility Hub projects, specifically within the Circulation Element and policies related to multimodal transportation, bicycles and mobility, and transit and mobility services:

- Policy C-P1.1 Sustainable Transportation: Reduce GHG emissions from transportation by increasing mode shared for sustainable travel modes such as walking, bicycling, and public transit.
- Policy C-P1.2 Complete Streets: Apply complete streets design standards to future projects both in the public right-of-way and on private property. Complete streets are streets designed to facilitate safe, comfortable, and efficient travel for all users regardless of age or ability or whether they are walking, bicycling, taking transit, or driving.
- Policy C-P1.3 Vision Zero: Work towards eliminating traffic fatalities and serious injuries. Use a safe systems approach for transportation planning, street design, operations, emergency response, and maintenance that proactively identifies opportunities to improve safety where conflicts between users exist.
- Policy C-P1.4 Prioritize Pedestrian and Bicycle Mobility Needs: Prioritize pedestrian and bicycle mobility, connectivity, and safety when designing roadway and intersection improvements.
- Policy C-P4.1 Bicycle Network: Create and maintain a bike-friendly environment in San Mateo and increase the number of people who choose to bike.
- Policy C-P4.2 Bicycle Master Plan: Maintain an updated recommended bicycle network for implementation in the adopted Bicycle Master Plan and related City plans.
- Policy C-P4.3 First- and Last- Mile Connections: Encourage and facilitate provision of bicycle parking and shared mobility options at transit centers to provide first- and last-mile connections.
- Policy C-P4.4 Bicycle Related Technology: Explore ways to use technology to improve bicycle safety and connectivity.
- Policy C-P5.1 Increase Transit Ridership: Work with SamTrans and Caltrain to increase transit ridership.
- Policy C-P5.5 Transit Safety: Prioritize improvements to increase safety, access, comfort, and educate the public about the benefits of transit use at transit centers and bus stops in disadvantaged communities, along commercial corridors, and in dense, mixed-use neighborhoods.

The Preferred Circulation Scenario (Figure 1-13) identifies the Mobility Hub and Smart Corridor as locations for proposed pedestrian crossing improvements.

Figure 1-13: Preferred Circulation Scenario



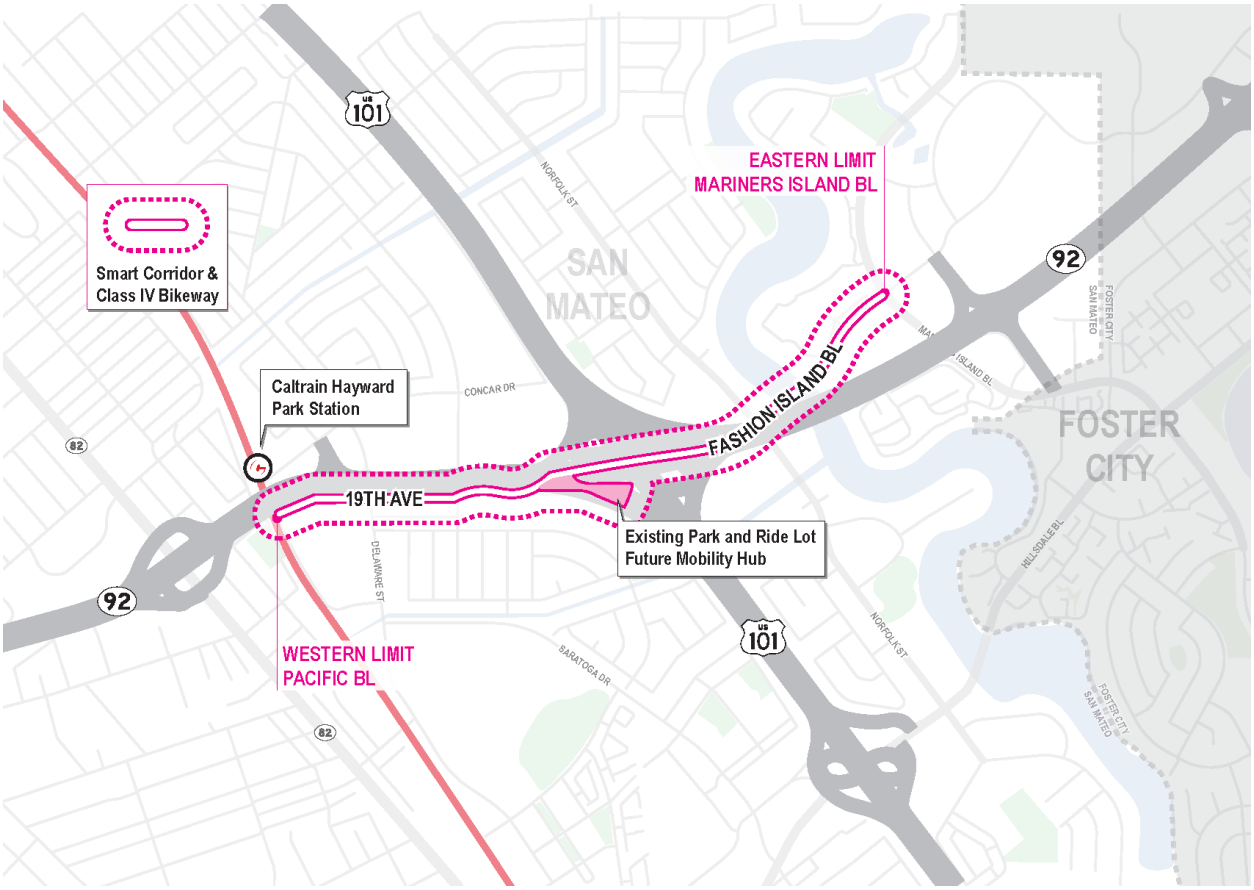
2.0 SITE AND PROJECT DESCRIPTION

This section provides a detailed description of the of the site and project area, including both the corridor spanning 19th Ave. and Fashion Island Blvd. and the Caltrans Park and Ride lot. This section also describes the characteristics of the project area, including resident demographics, existing and planned transportation infrastructure, and current travel behavior.

2.1 STUDY AREA CHARACTERISTICS

The study area for these projects consists of the corridor and the location of the future mobility hub. The corridor spans a 1.2-mile segment of 19th Ave. and Fashion Island Blvd. bounded by Pacific Blvd. to the west and Mariners Island Blvd. to the east. The project area is located entirely within the City of San Mateo. The location of the future mobility hub is the Caltrans Park and Ride lot located beneath the US 101/SR 92 interchange (Figure 2-1).

Figure 2-1: Project study area



2.1.1 Cross Sections

In order to fully understand the project site, it is important to understand the cross sections of the corridor. This provides insight into the current arrangement of the different street elements throughout the corridor to help provide an understanding of what is currently present and what the parameters are for any changes that can be implemented in terms of street and lane widths.

As this corridor is relatively lengthy, and the different elements of the street change significantly from one section to another, it has been divided into 6 separate sections as shown in Figure 2-2. Each of these sections are shown in turn on the following pages. As some of the sections of road are still subject to arrangement changes and lane changes, the layout that is most common within the section has been presented and it's location indicated on the map and as such other parts of the road section may differ from the cross section shown here.

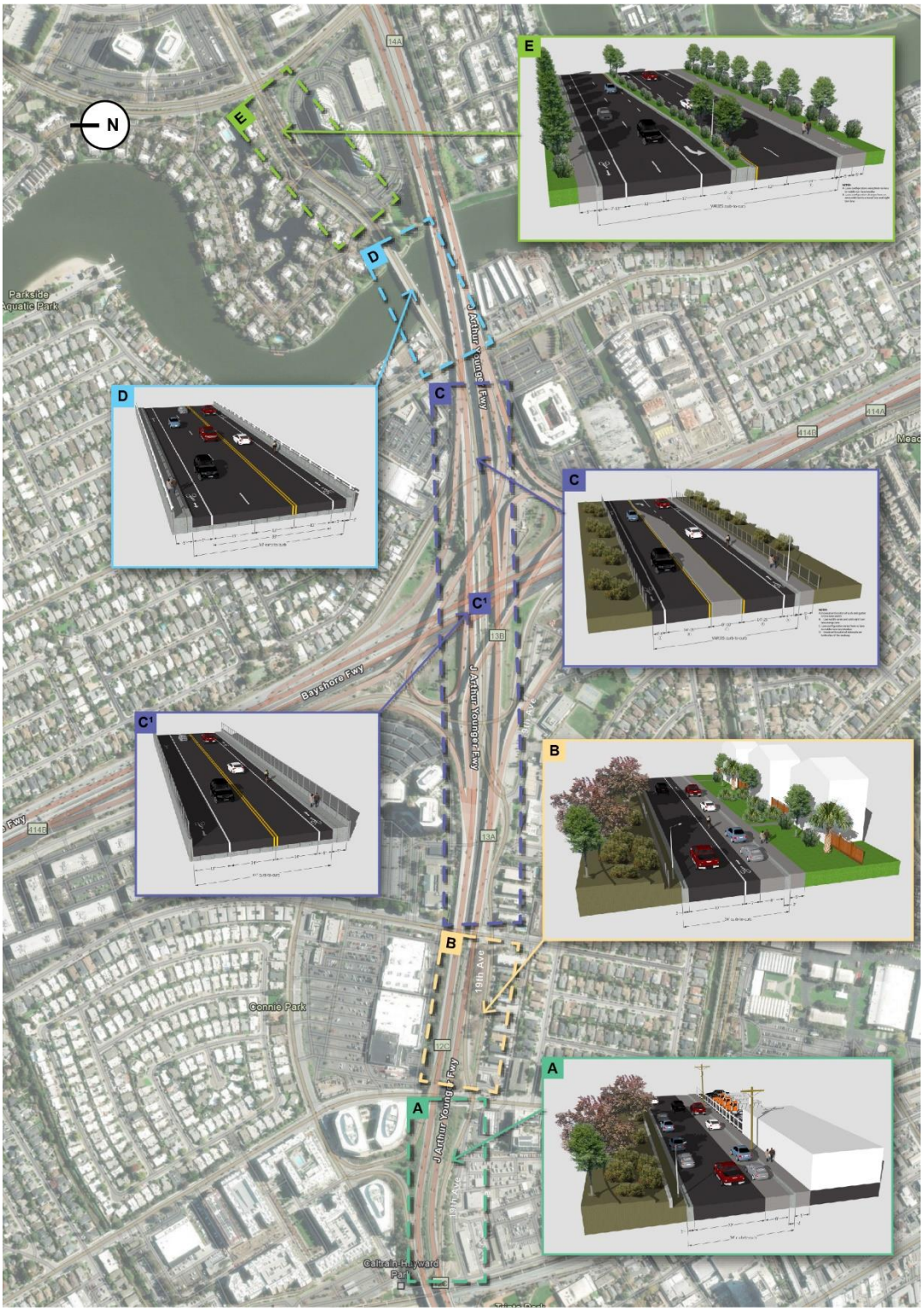
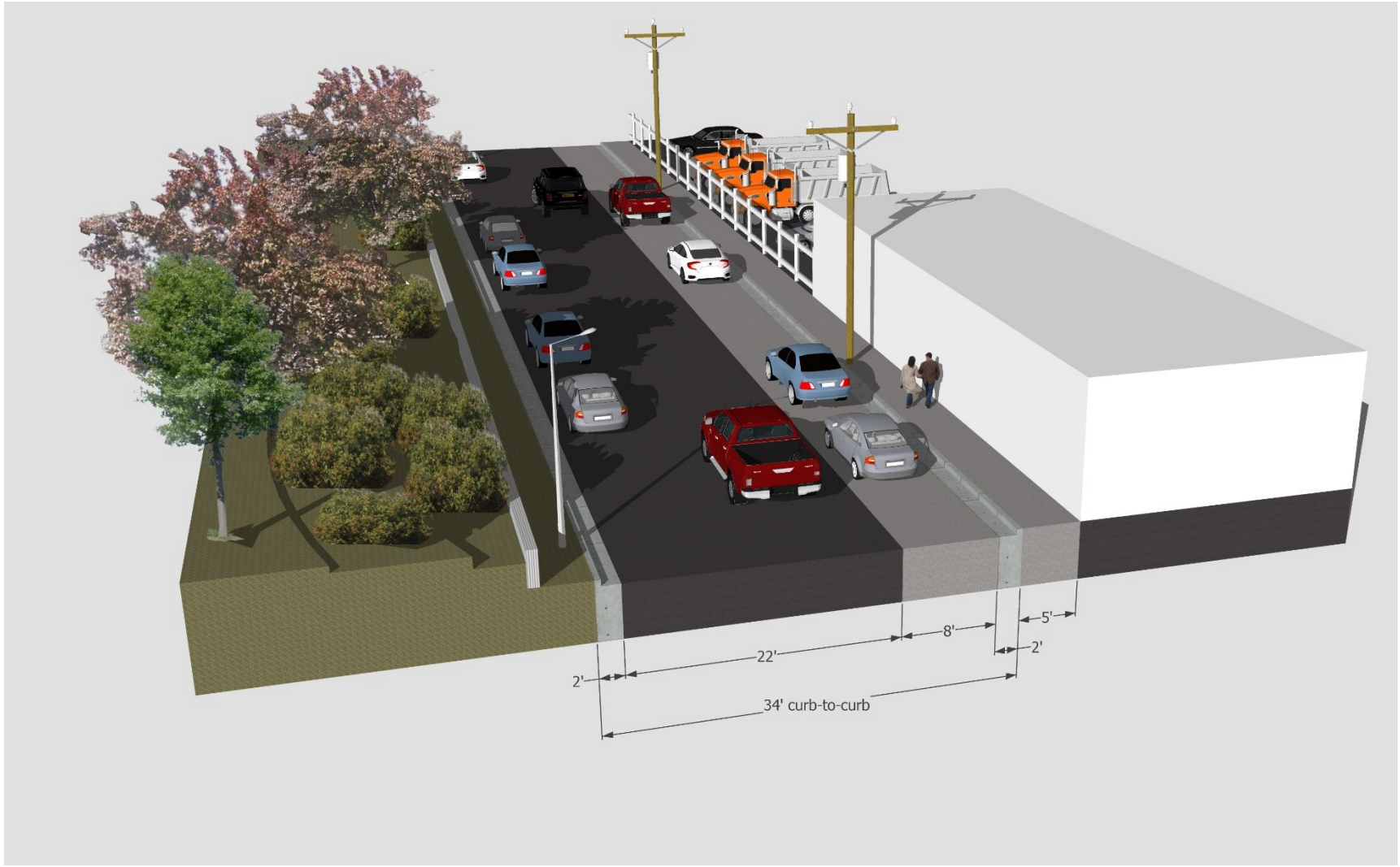


Figure 2-2: Corridor cross-sections

2.1.1.1 Section A

Figure 2-3: Cross section A (19th Ave. from Pacific Blvd. to Delaware St.)

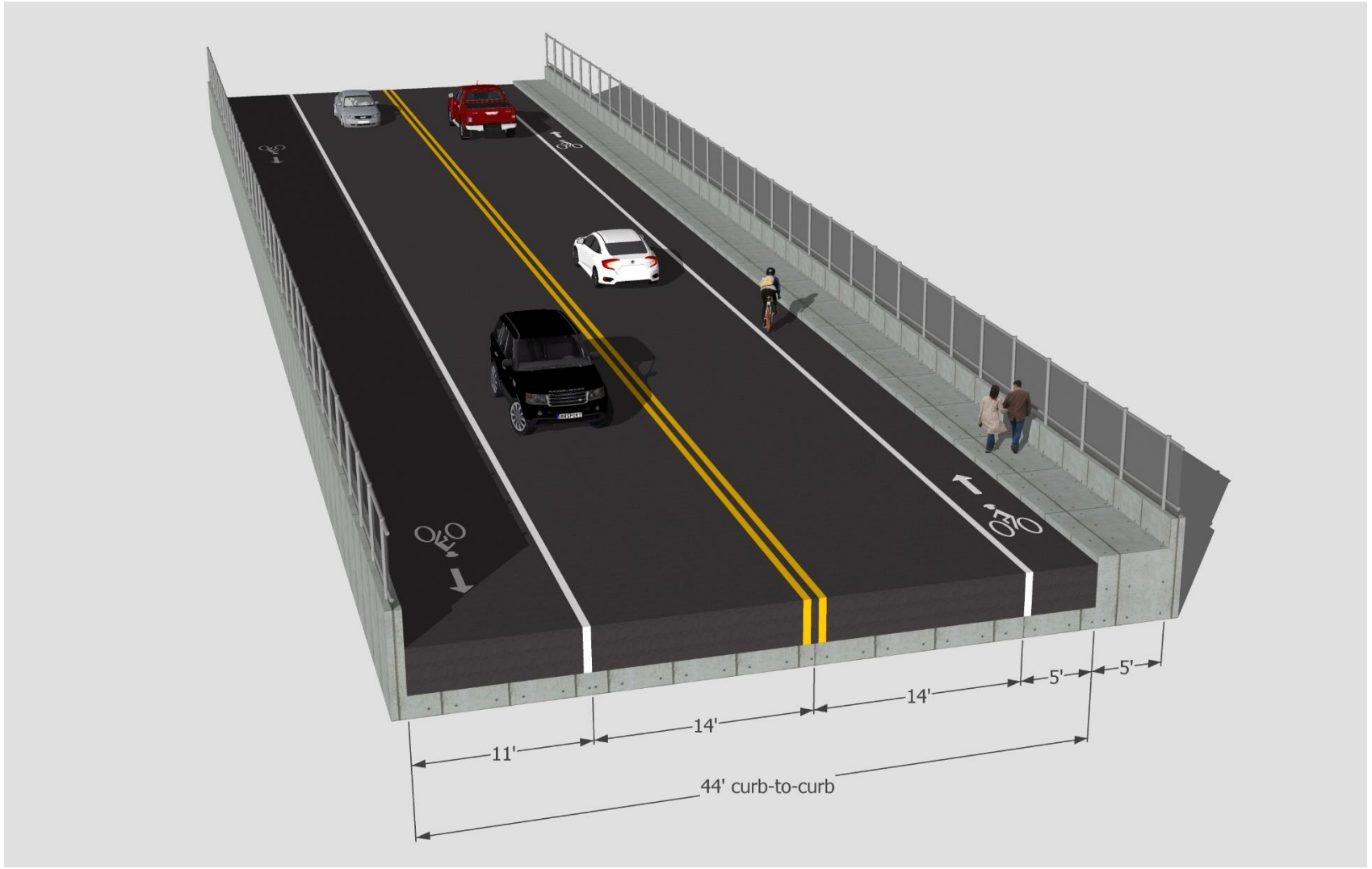


2.1.1.2 Section B

Figure 2-4: Cross section B (19th Ave. from Delaware St. to Grant St.)

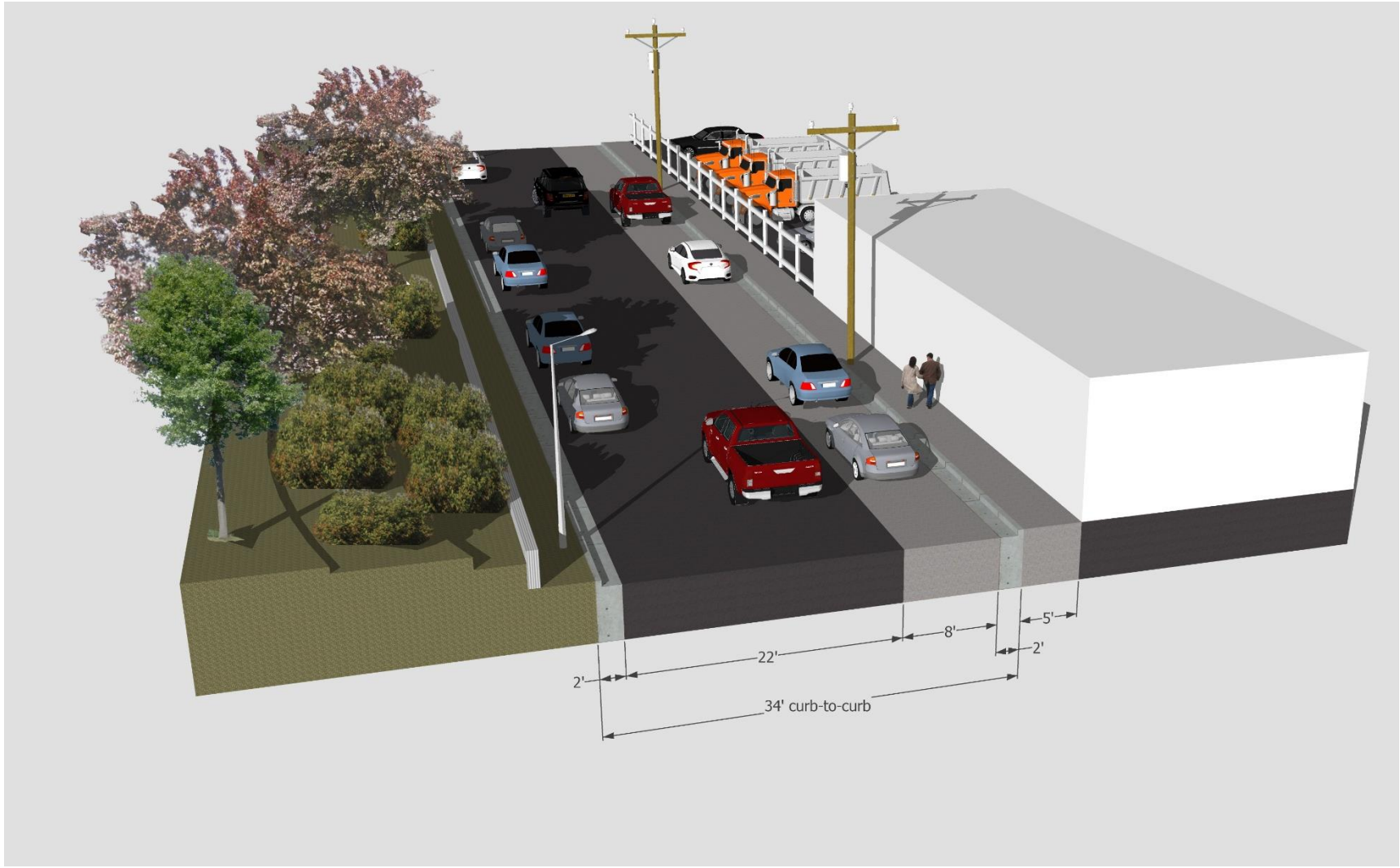
2.1.1.3 Section C1

Figure 2-5: Cross section C1 (Fashion Island Blvd, Structure)



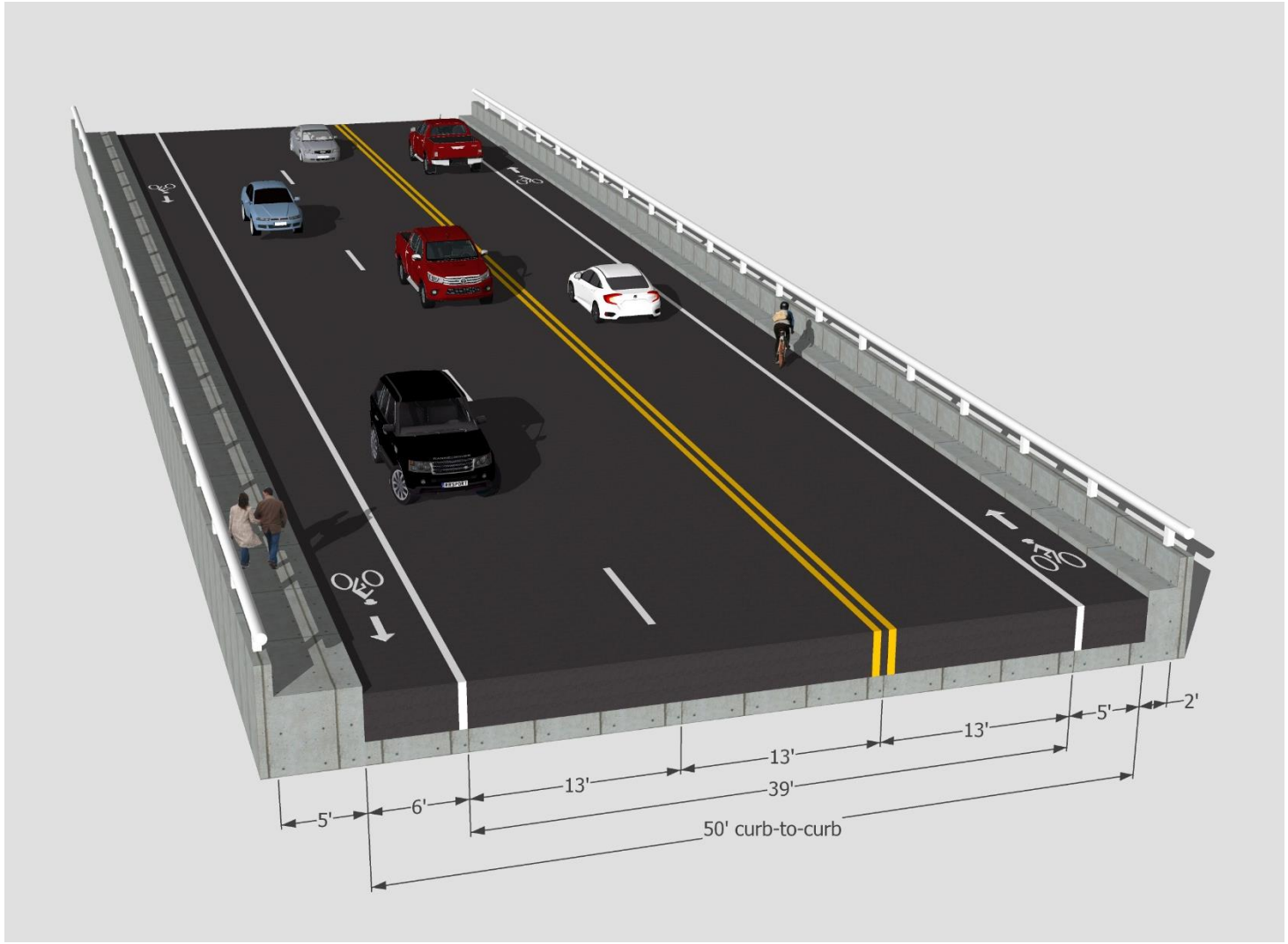
2.1.1.4 Section C

Figure 2-6: Cross section C (19th Ave./Fashion Island Blvd. from Grant St. to Norfolk St.)



2.1.1.5 Section D

Figure 2-7: Cross section D (Fashion Island Blvd. from Norfolk St. to East End of Bridge)



2.1.1.6 Section E

Figure 2-8: Cross section E (Fashion Island Blvd. from East end of Bridge to Mariners Island Blvd.)

2.1.2 Caltrans Right of Way

Figure 2-9 shows the California Department of Transportation (Caltrans) right of way, or land and property owned by Caltrans in the project study area. The entirety of the Caltrans Park and Ride lot is within the right of way, in adiition to all on and off ramps for the US 101 and SR 92 at the US 101/SR 92 interchange. The portion of the smart corridor along 19th Ave. is not owned by Caltrans, but the portion of Fashion Island Blvd. between 19th Ave. to the west and Norfolk St. to the east is within the Caltrans right of way.

SMCTA, SamTrans, and the City should engage with Caltrans early in the planning process to understand potential limitations or additional requirements for construction of the mobility hub on Caltrans-owned property. For example, generally speaking, without an MOU in place, Caltrans does not allow for permanent structures but does allow for accommodations to be made for structures that could be removed within a 24-hour period.

Figure 2-9: Caltrans right of way in project area[16]

2.1.3 Park and Ride Lot

This section describes the uses surrounding the current Park and Ride lot.

16 https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=04efb9a9f14c4da2aabd9ce36b7dda48/

Immediately surrounding the Park and Ride Lot is the Fiesta Gardens International School and Bay Area Self Storage (Figure 2-10).

Figure 2-10: Caltrans Park and Ride lot aerial view (Google Maps)

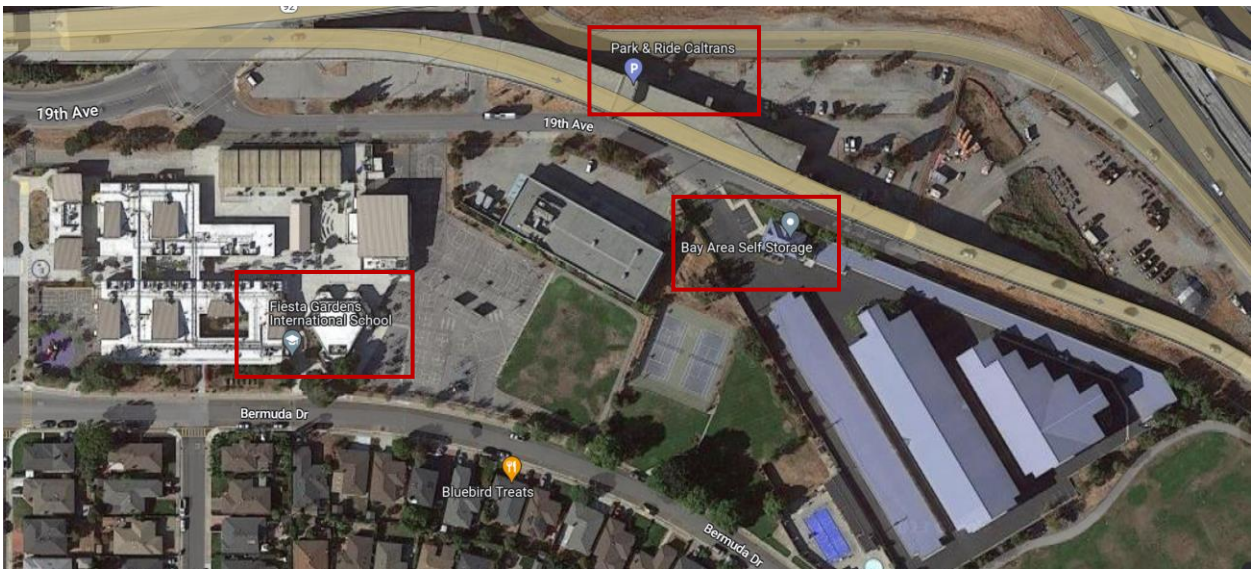


Figure 2-11 shows the current Park and Ride lot (as of August 2022) and Figure 2-12 shows the Park and Ride lot entrance facing north from 19th Ave.

Figure 2-11: Park and Ride Lot (Google Street View)

Figure 2-12: Park and Ride Lot from 19th Ave. (Google Street View)

Currently, the Park and Ride lot is being used as unofficial additional parking for pick-up and drop-off at the Fiesta Gardens International School, as well as a pick-up and drop-off location for shuttles for private firms. The primary use of the site is for short-term, temporary parking during pick-up and drop-off times, and is not chiefly being used as a Park and Ride lot. Figure 2-13 shows the Park and Ride lot in relation to the International School.

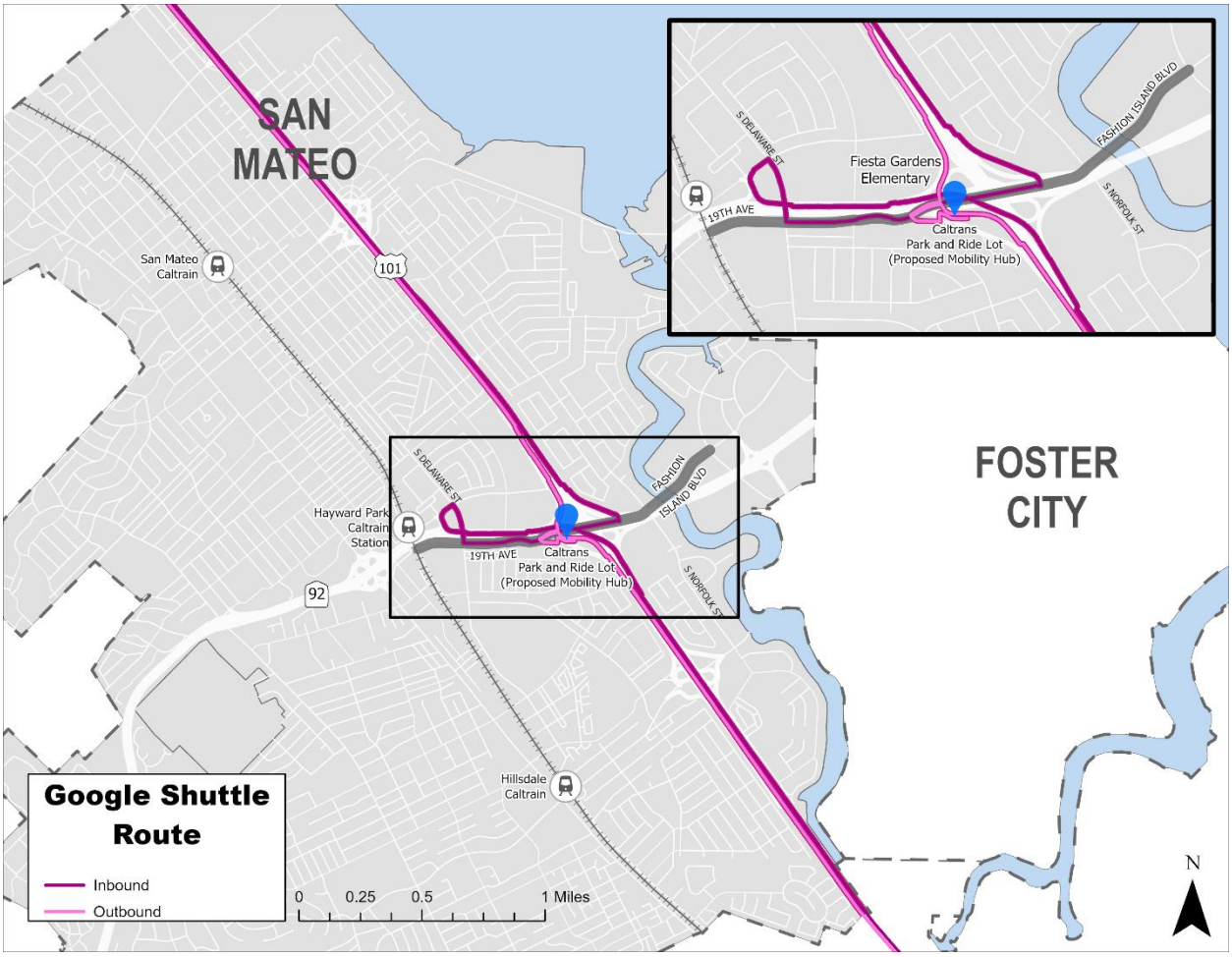
Figure 2-13: Park and Ride lot (left) and Fiesta Gardens International School (right) (Google Street View)

A private shuttle service operated by Google uses the Park and Ride lot to transport employees to at least 13 companies in the Oyster Point area in downtown San Francisco. Based on information gathered during a discussion with Google, the Park and Ride is a high ridership stop, with 31 daily riders. The shuttle currently makes five stops in the AM and five stops in the PM at the Park and Ride lot (Table 2-1). The shuttle route and its associated stops are shown in Figure 2-14. About ¾ of riders travel to Mountain View, about ¼ travel to South San Francisco, and a small number travel to San Bruno.

Table 2-1: Google shuttle schedule

AM stops	PM stops
6:20am	2:24pm
7:00am	3:55pm
7:35am	4:54pm
8:40am	5:52pm
10:50am	6:50pm

Figure 2-14: Google Shuttle Route



Discussions with Google personnel show that Google would like to see the mobility hub be designed to accommodate shuttles and transit vehicles as efficiently as possible, and be as friendly to pedestrians, cycling, and transit users through lighting and other amenities. They are also supportive of amenities such as EV chaging and real time signage. Concerns raised relate to security and safety of parked vehicles using the location as a Park and Ride currently, and preserving parking for shuttle use. If changes to the current parking configuration occur (such as transitoning to a paid parking model) that could diincentivize use of the shuttle, Google would need to reconsider if running the shuttle through this current stop would continue to be feasible.

The lot extends southeast, continuing to run along 19th Ave. encompassing the space between the southbound connector from the eastbound SR 92 and southbound US 101 and runs parallel to 19th Ave until 19th Ave.'s eastern terminus north of the Bay Area Self Storage. Figure 2-15 shows the portion of the Park and Ride lot across from the Bay Area Self Storage.

Figure 2-15: Park and Ride lot and Bay Area Self Storage (Google Street View)

2.1.4 19th Ave. and Fashion Island Blvd. Corridor

Figure 2-16 presents an aerial view of the corridor via Google Maps, including 19th Ave. and Fashion Island Blvd. between the Hayward Park Caltrain Station/Pacific Blvd. on the west and Mariners Island Blvd.

Figure 2-16: Project corridor aerial view (Google Maps)

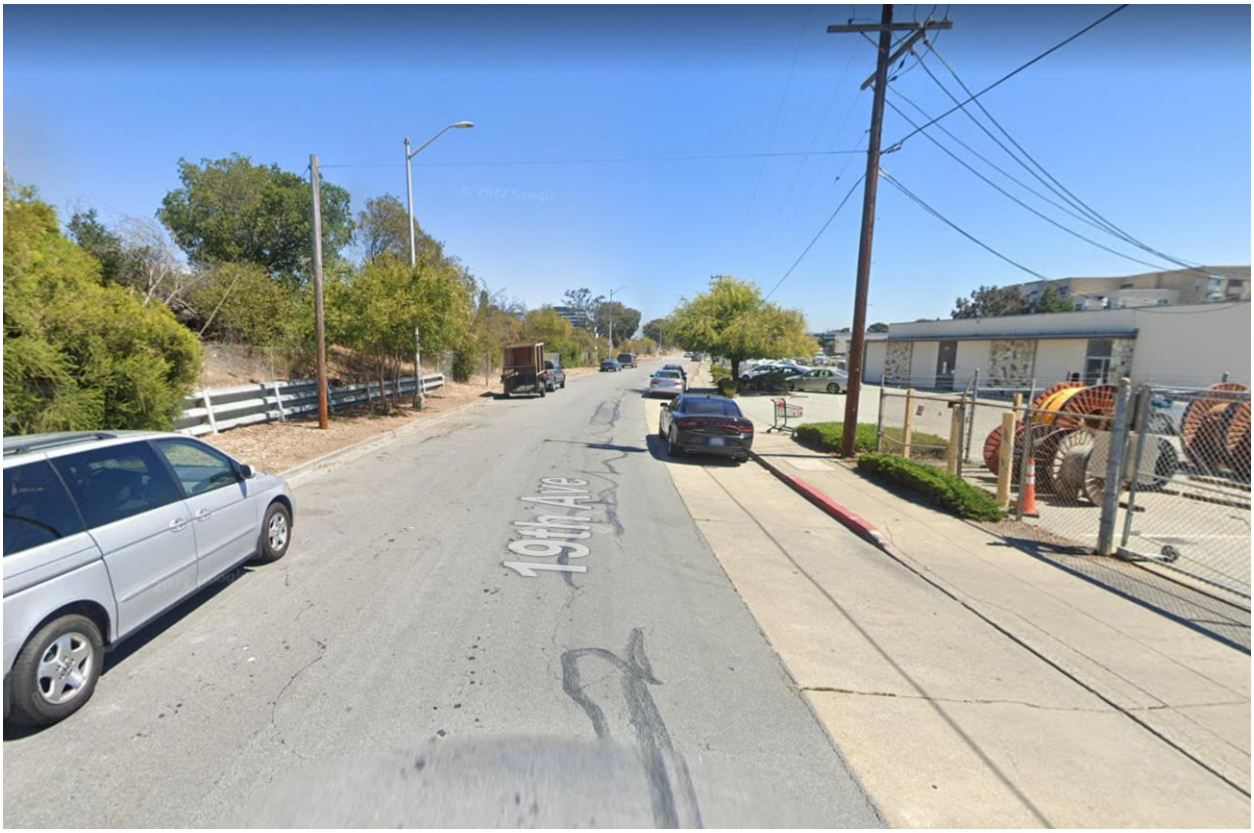
Along 19th Ave., SR 92 is north of the corridor. On the south side of 19th Ave., there are a variety of land uses including small retail/commercial uses, multifamily residential housing, and the Fiesta Gardens International School.

At the western terminus of the corridor at Pacific Blvd. is a pedestrian bridge that provides a crossing over the existing Caltrain tracks that leads to the Hayward Park Caltrain station (Figure 2-17). On the westerly side of the bridge, users can access the northbound station platform about 500 ft north on Leslie St. Users can also access an at-grade crossing to access the southbound platform about 150 ft north on Leslie St. It will be important to consider connections to this bridge so that the smart corridor enables better connectivity and easier access to the Caltrain station.

Figure 2-17: Project corridor at 19th Ave. and Pacific Blvd. (Hayward Park Caltrain station) (Google Street View)

Between Pacific Blvd. and Delaware St., 19th Ave. is a one-way street with vehicles traveling in the eastbound direction to merge with the SR 92 offramp at the Delaware St. intersection. Where this merge occurs, vehicles on 19th Ave. yield to vehicles exiting SR 92. There is on-street parking on the south side of 19th Ave. for most of this section, with on-street parking on the north side of the street for some of the section (Figure 2-18). As a full inventory of available parking is not available designs will assume a 22' linear parking stall.

Figure 2-18: 19th Ave. between Pacific Blvd. and Delaware St. (Google Street View)



There is a signalized intersection at 19th Ave. and Delaware St., where vehicles traveling eastbound on 19th Ave. can turn left or right onto Delaware St., continue straight onto 19th Ave., or continue straight onto the SR 92 entrance ramp (Figure 2-19 and Figure 2-20). The intersection features crosswalks on all sides except for at the northern side of Delaware St. that leads to the SR 92 eastbound on ramp. The existing Class II bike lane begins just east of the intersection on 19th Ave. This project will need to consider connections to the planned bike facilities on Delaware Blvd. discussed in Section 1.5.1.3, which will begin at 19th Ave.

Figure 2-19: 19th Ave. and Delaware St. intersection (Google Maps)

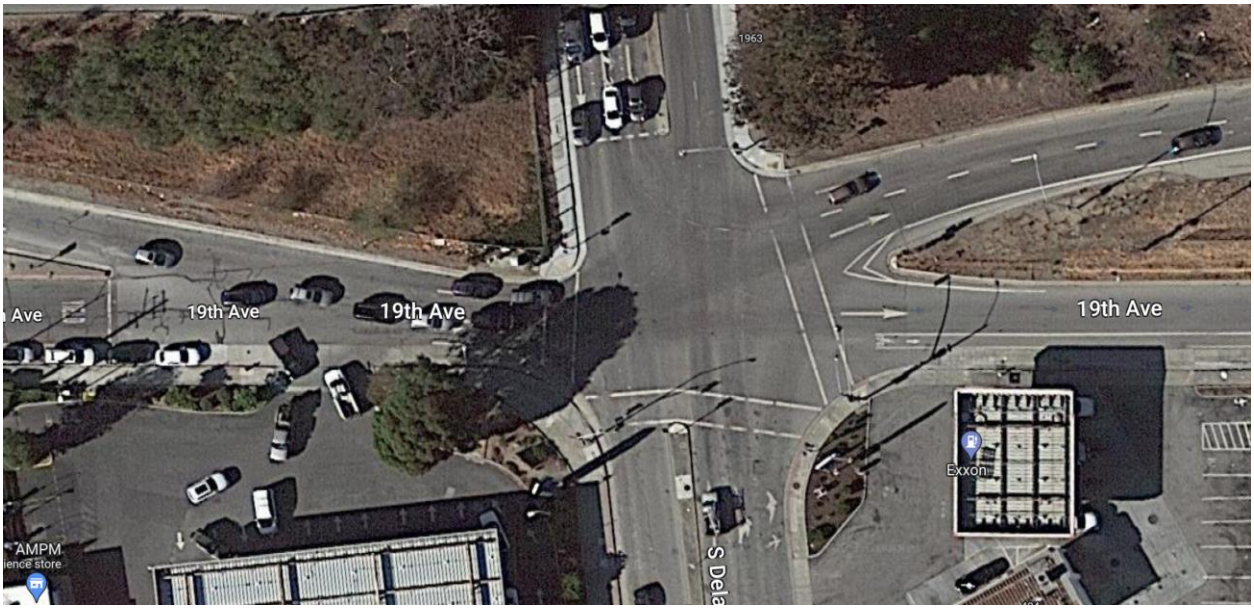


Figure 2-20: 19th Ave. and Delaware St. intersection (Google Street View)

Between Delaware St. and Grant St., 19th Ave. features one lane of vehicle traffic traveling in the eastbound direction, a Class II bike lane, and one lane of on-street parking adjacent to the sidewalk on the south side, and SR 92 north of the road (Figure 2-21). Land uses feature a gas station and multifamily housing. Occupancy will be generally assumed to support the removal of some on street parking if needed for the design, but additional parking utilization studies may be conducted to validate this assumption.

Figure 2-21: 19th Ave. between Delaware St. and Grant St. (Google Street View)

West of the intersection with Grant St., the 19th Ave. bike lane ends to accommodate a right-turn lane from 19th Ave. onto Grant St. (Figure 2-22). The intersection is signalized and features four crosswalks (Figure 2-23). Grant St. north of 19th Ave. and SR 92 features amenities including a large shopping center with a grocery store, a business park, and a YMCA. This is also the location of an approved-mixed use development project named Concar Passage[17]. The City approved the Planning Application and site plan in 2020. The project is slated to include 961 multi-family dwelling units (73 designated as affordable), approximately 40,000 square feet of commercial/retail space, associated parking, and three acres of community open space. The project will provide community benefits, including a $7.5 million financial contribution towards traffic improvements around the project's vicinity and a public transportation hub

[17] https://www.cityofsanmateo.org/3777/CONCAR-PASSAGE

called the Depot Lounge. This presents an opportunity to work with Concar Passage to make sure traffic improvements work in coordination with this project.

There are two far side SamTrans stops servicing routes 53 and 53P on Grant St. north and south of the intersection.

Figure 2-22: 19th Ave. and Grant St. intersection (Google Street View)

Figure 2-23: 19th Ave. and Grant St. intersection (Google Maps)

East of Grant St., 19th Ave. features one lane of vehicle traffic in each direction, a Class II bike lane in each direction, and no on-street parking (Figure 2-24). Here, the corridor interfaces with the existing Park and Ride (proposed Mobility Hub) and the corridor transitions from 19th Ave. to Fashion Island Blvd. (Figure 2-25). At this intersection, 19th Ave. continues to the southeast and the street becomes Fashion Island Blvd. when traveling straight through the intersection.

Figure 2-24: 19th Ave. east of Grant St. (Fiesta Gardens International School to the right) (Google Street View)

Figure 2-25: 19th Ave. to Fashion Island Blvd. (Google Street View)

Past the intersection, Fashion Island Blvd. travels under SR 92 and features one lane of vehicle traffic in each direction along with a Class II bike lane in each direction and no on street parking. A very wide median separates the lanes (Figure 2-26). Fashion Island Blvd. continues with this street configuration until reaching Norfolk St. Fashion Island Blvd. elevates to run above the US 101, where it runs adjacent to SR 92 (Figure 2-27). This portion of Fashion Island Blvd. features a sidewalk on the south side of the street, one southbound on-ramp to the US 101, one US 101 southbound off-ramp, and one US 101 northbound on ramp.

Figure 2-26: Fashion Island Blvd. (Google Street View)

Figure 2-27: Fashion Island Blvd. above the US 101 (Google Street View)

There is a signalized intersection at Norfolk St. and Fashion Island Blvd. (Figure 2-28). There are crosswalks on all sides of the intersection except for the southern leg that crosses Norfolk. There are far side bus stops servicing SamTrans routes 50, 59, and 250 on Norfolk St. on either side of the intersection.

Figure 2-28: Fashion Island Blvd. and Norfolk St. (Google Street View)

Past this intersection, Fashion Island Blvd. elevates to travel over Seal Slough. This portion features one lane of vehicle traffic traveling in the eastbound direction, two lanes traveling in the westbound direction, a Class II bike lane on each side of the street, and a narrow sidewalk on the south side of the street (Figure 2-29).

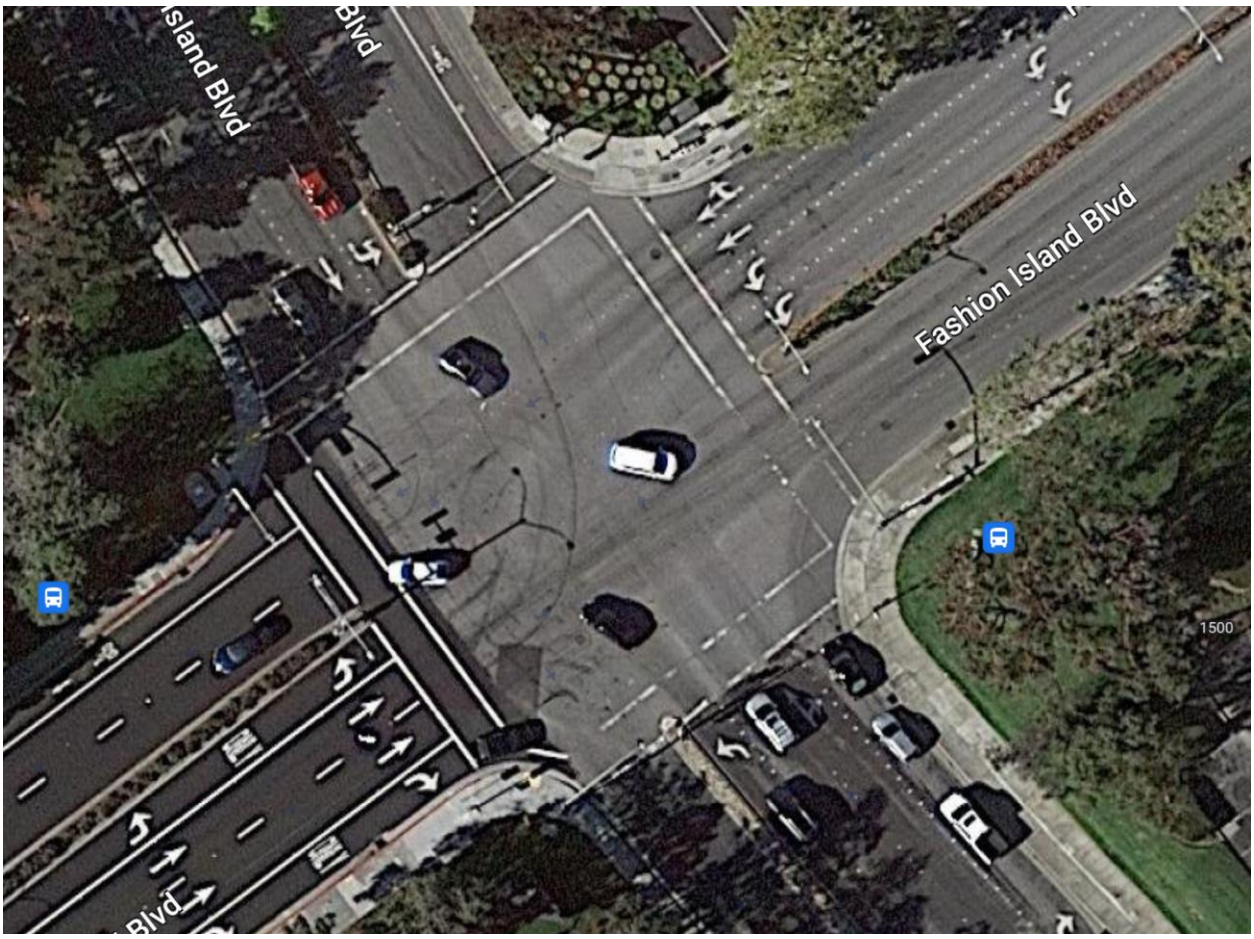
Figure 2-29: Fashion Island Blvd. over Seal Slough (Google Street View)

Once Fashion Island Blvd. crosses the Slough, the road widens to two lanes of vehicle traffic in either direction with a Class II bike lane on each side. The Class II bike lane traveling in the eastbound direction is only present for a short amount of time before it is dropped to accommodate right turn lanes into the offices and business parks. There is no on-street parking (Figure 2-30). After Harbor Seal Court, there is a median with landscaping. After crossing the Slough, land uses on the northern side of Fashion Island Blvd. include a residential gated community and the Fashion Island business park on the south side.

Figure 2-30: Fashion Island Blvd. east of Seal Slough (Google Street View)

The eastern boundary of the corridor is the intersection of Fashion Island Blvd. and Mariners Island Blvd. This is a signalized intersection featuring one protected left turn lane from Fashion Island Blvd. to Mariners Island Blvd. in the northbound direction and two protected left turn lanes from Fashion Island Blvd. to Mariners Island Blvd. in the southbound direction. The intersection has crosswalks at all crossings and two far side stops for SamTrans Route 251 on Fashion Island Blvd. at either side of the intersection (Figure 2-31).

Figure 2-31: Fashion Island Blvd. and Mariners Island Blvd. intersection (Google Street View)



Continuing along Fashion Island Blvd. just outside of the project corridor is the Bridegepointe Shopping Center, which begins at the next intersection of Fashion Island Blvd. and Baker Way, and includes a host of commercial, retail, and restaurant uses. Surrounding the shopping center are smaller business parks and office buildings and residential neighborhood.

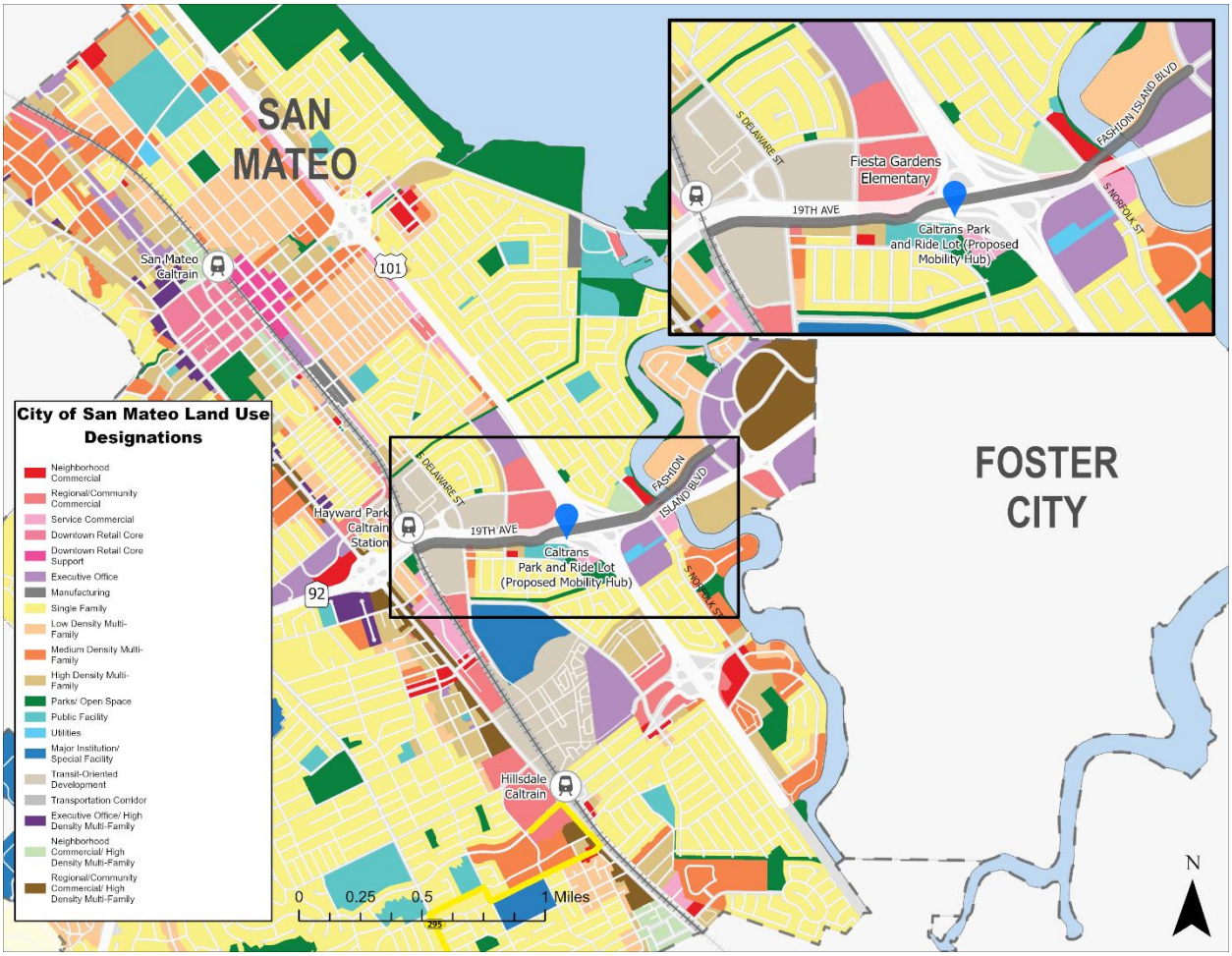
2.2 DEMOGRAPHICS AND LAND USES[18]

2.2.1 Current Land Uses and Zoning

Current land use designations for the City of San Mateo are shown in Figure 2-32.

[18] All demographic information presented in the following sections come from the US Census Bureau American Community Survey (ACS) 2016-2020 data unless stated otherwise and is mapped at the smallest geography available (either block group or census tract).

Figure 2-32: City of San Mateo Land Use Designations



There are a variety of land uses surrounding the Park and Ride lot, including:

- Public facility
- Service commercial
- Downtown retail core
- Parks/open space
- Single family residential
- High-density multi-family
- Neighborhood commercial
- Executive office
- Utilities
- Neighborhood commercial/high density multifamily mixed use

From west to east, the land uses surrounding the project corridor include:

- Transit-oriented development (TOD)
- Regional community/commercial

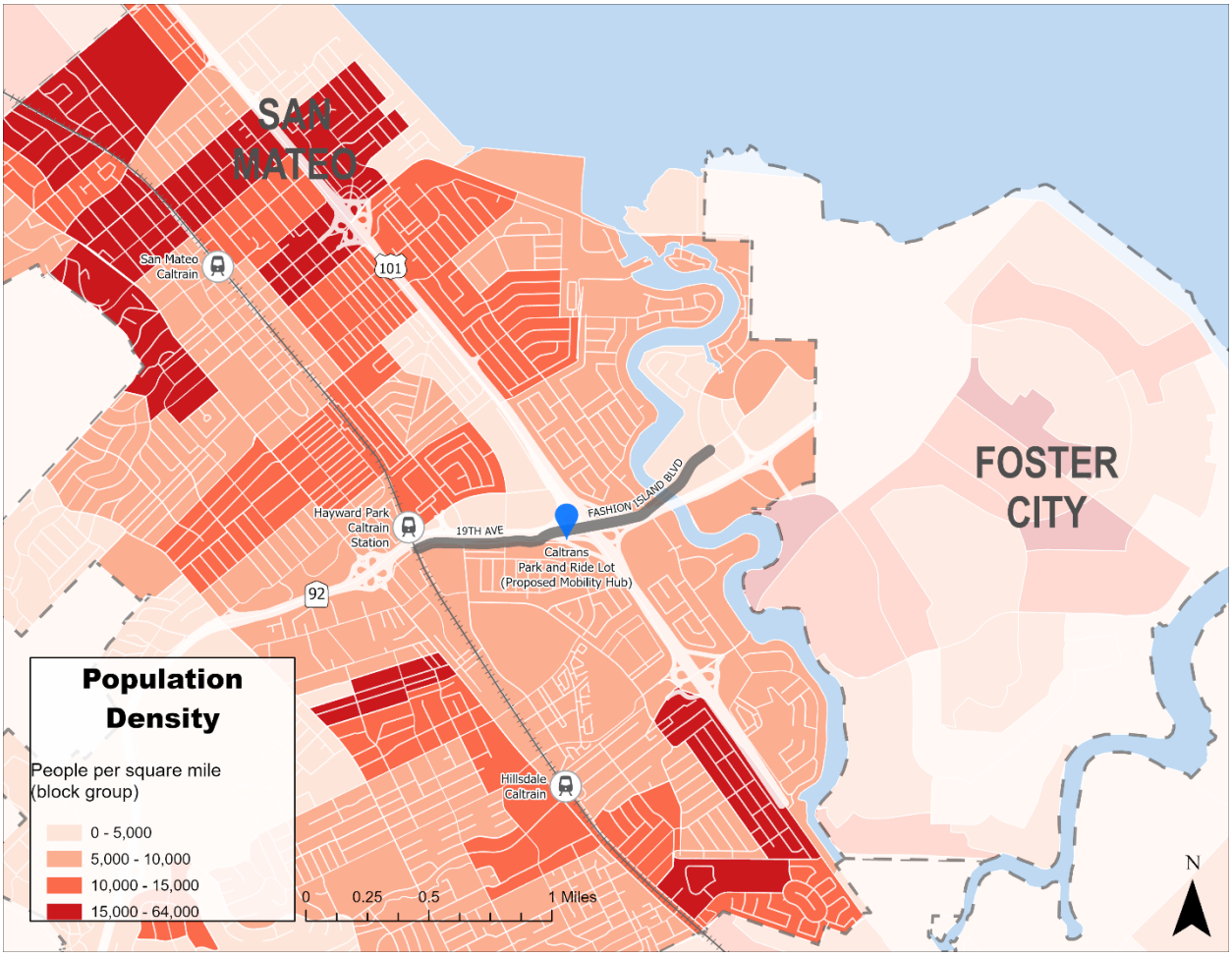
- High density multi family
- Public facility
- Downtown retail core
- Executive office
- Neighborhood commercial
- Executive office
- Low density multi family

Multiple parcels around the Hayward Park Caltrain station and the portion of the corridor west of the Park and Ride lot feature the TOD land use. Providing multimodal connections to and around TODs can help the viability of TODs and reduce private vehicle use in these areas by providing first/last mile options, where high-quality transit service is coupled with infrastructure for walking, biking, and other modes of active transportation.

2.2.2 Population Density

Figure 2-33 presents the population density of San Mateo in and around the project study area. A larger area was chosen to present demographic information so that the demographics surrounding the corridor can be compared and contextualized to the City as a whole as well as to understand the demographics of residents who are in cycling distance of the project area.

Figure 2-33: Population density



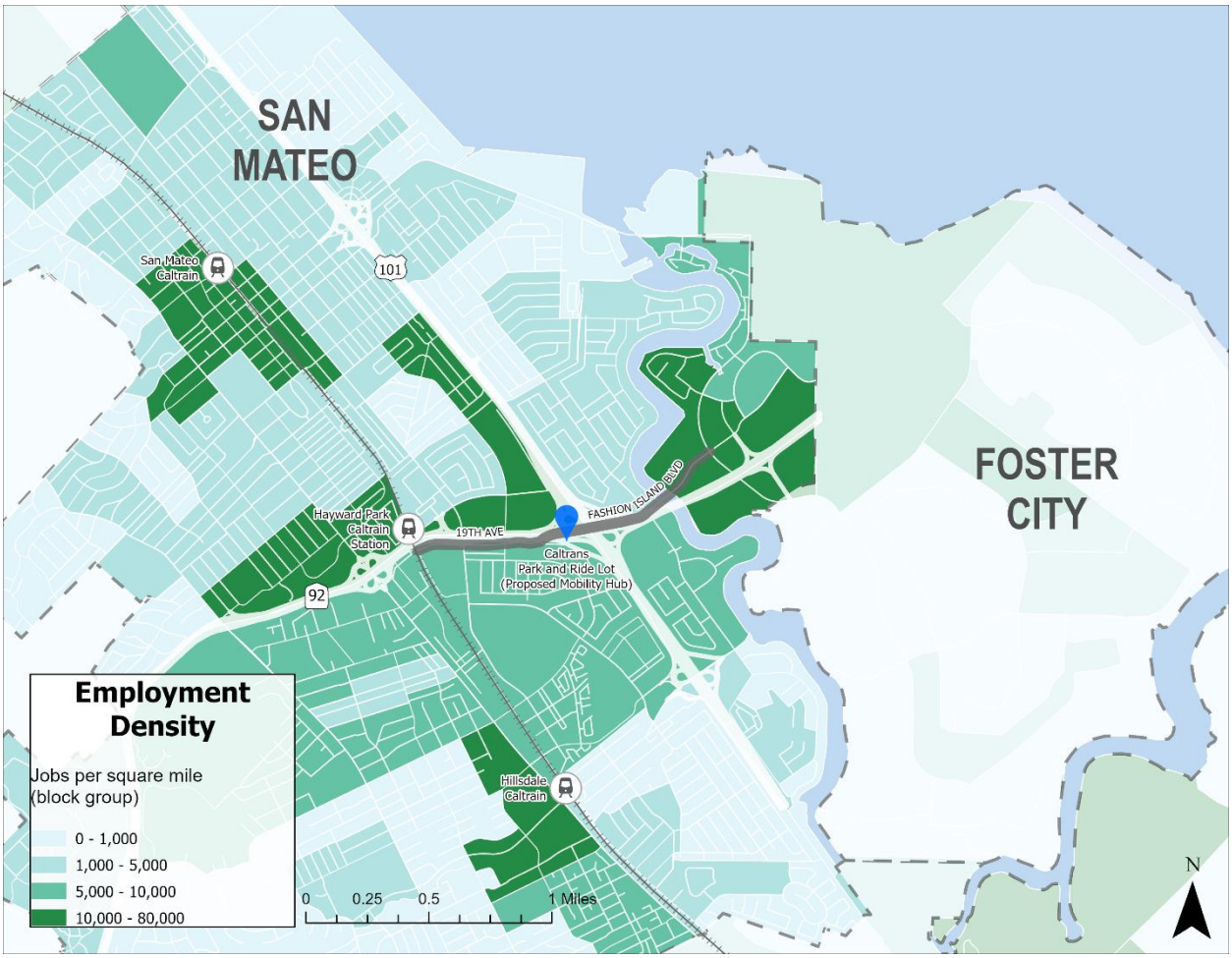
The current population density of the block groups surrounding the corridor are average to low compared to other areas of the city, which is intuitive given the nature of the intersecting freeways. In particular, the block group north of the Park and Ride lot and areas surrounding the eastern end of the corridor have low population density, because the majority of this area is designated for commercial and office uses. Overall, there is higher population density around Caltrain station and in the northern part of the city. Medium-density multifamily housing populates much of the area south of 19th Ave., contributing to the population density of that part of the corridor, along with clusters of higher population density around the Hayward Park Caltrain station.

2.2.3 Employment Density

Figure 2-34 presents employment density around the project study area and within San Mateo. There are several pockets of high employment density around the project study area. Of note, the areas around the study area with low population density display high employment density. The areas around the Hayward Park Caltrain station also have a high employment density. The block groups south of the corridor west of

Seal Slough also have a fairly high employment density and population density, showing that there is a mix of activities in this area. The high employment density around the corridor shows potential for the corridor to be used for a variety of uses, including commuting.

Figure 2-34: Employment density[19]



2.2.4 Low-Income Communities

Concentrations of low-income communities (defined as households whose annual income falls below the federal poverty threshold) are shown in Figure 2-35. The California Healthy Places Index shows a correlation between lower per capita income and lower access to automobiles; as such, understanding where low-income communities are in a service area is important for multimodal planning, and it is important that plans are made with a focus on equity and expanding accessibility and mobility for those living in poverty[20]. Generally, areas with higher concentrations of low-income households are in areas of

[19] Data source: US Census Bureau Longitudinal Employer-Household Dynamics (2019).
[20] https://map.healthyplacesindex.org/?redirect=false

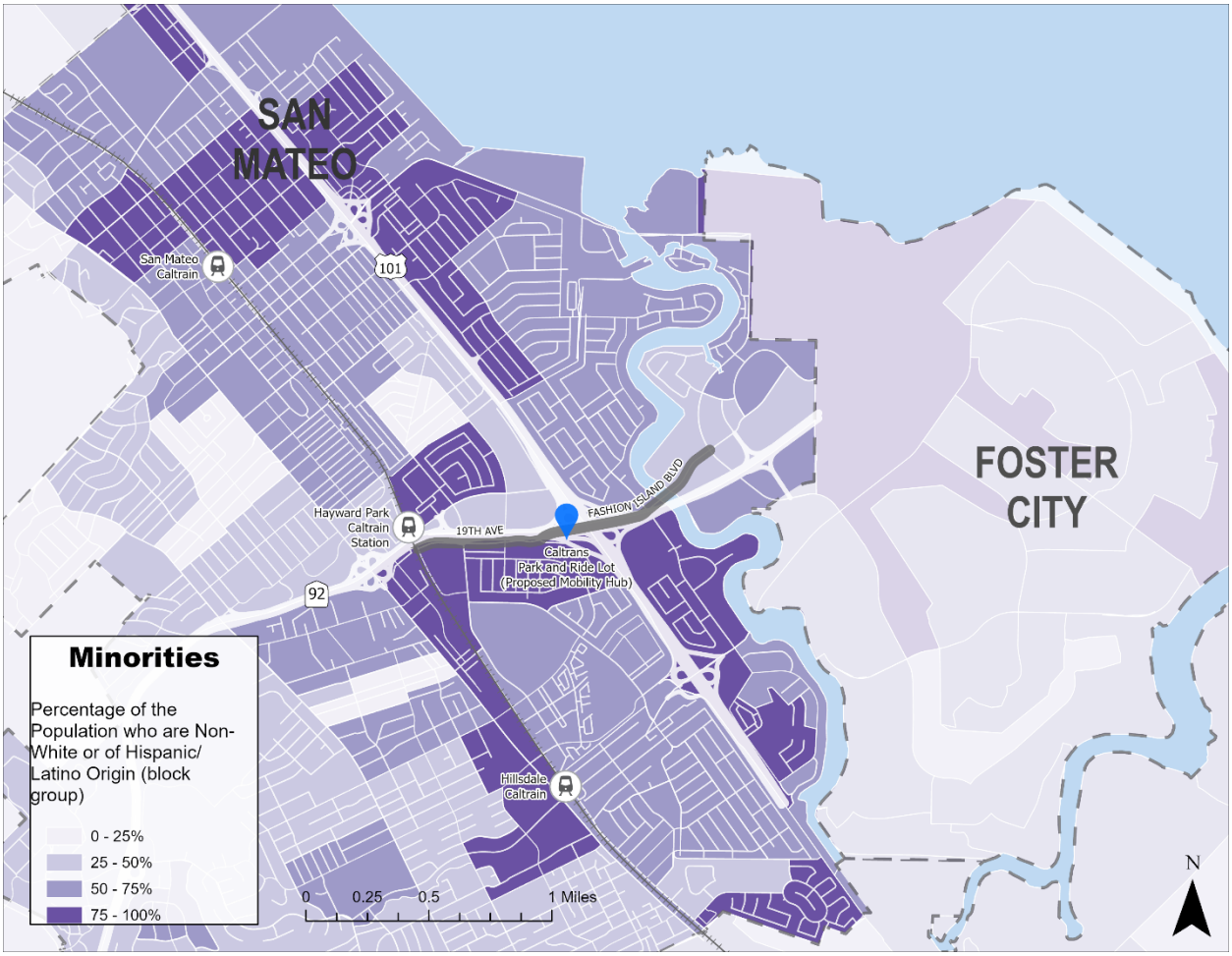
overall higher population density. The area south of 19th Ave. and around the Hayward Park Caltrain station see the highest percentages of people living in poverty immediately around the service area.

Figure 2-35: Low-income communities

2.2.5 Minorities

Minority populations (those who identify as non-white or are of Hispanic/Latino origin) are shown in Figure 2-36. The California Healthy Places Index shows a similar pattern for minority communities and automobile access compared to low-income communities, where minority communities tend to have less access to automobiles compared to other areas. Expanding transportation options for these communities can help enhance their access to opportunities, as well as create heathier and more sustainable communities. High concentrations of minority populations are seen south of the project corridor and around the Hayward Park Caltrain station.

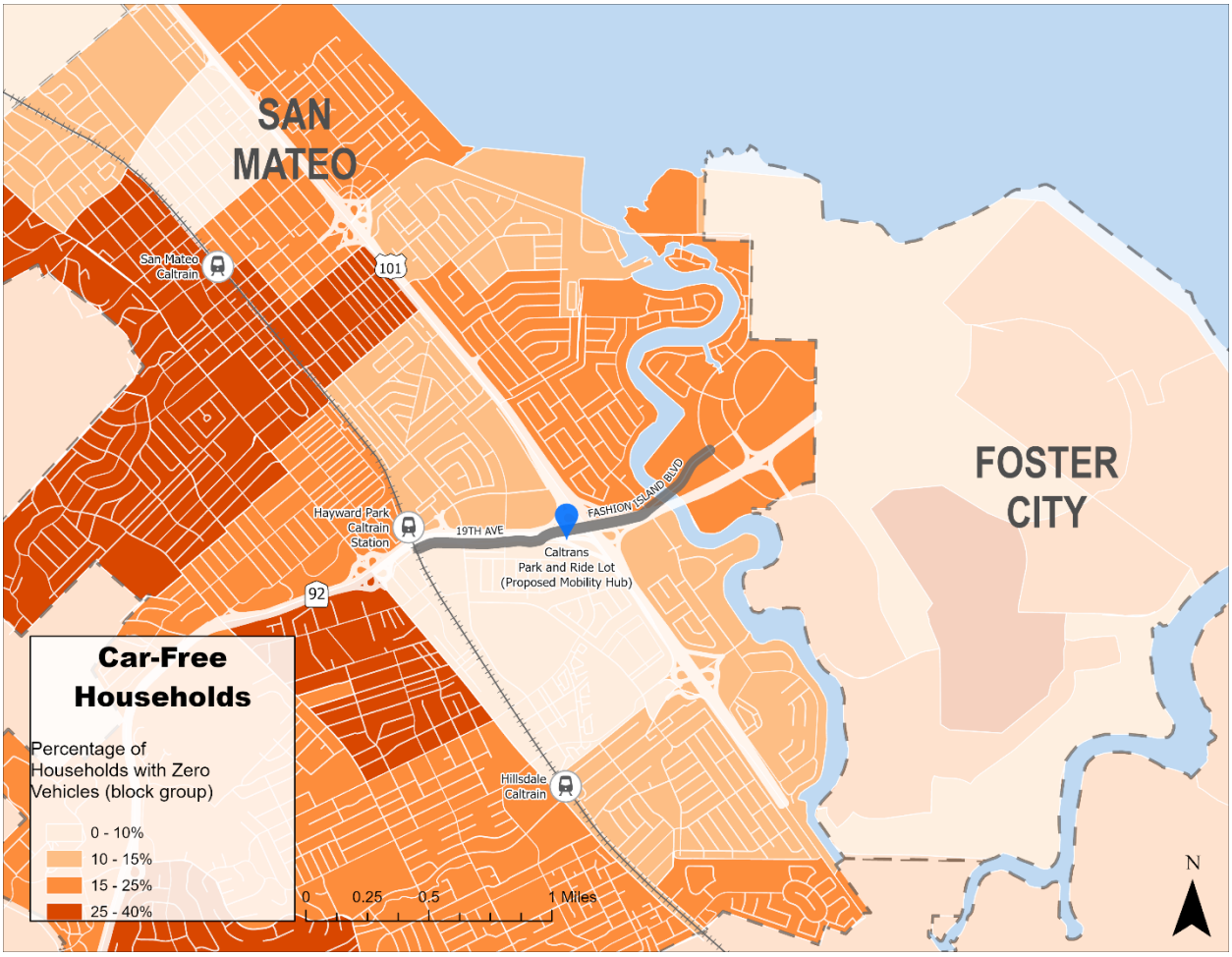
Figure 2-36: Minorities



2.2.6 Zero-Vehicle Households

Figure 2-37 shows the percentage of households who do not own a car by block group. There are high concentrations of car-free households around the San Mateo Caltrain station and Downtown San Mateo, and comparatively low concentrations of zero-vehicle households around the project area. This potentially shows that people living around the project area cannot currently get around conveniently without a car as compared to the Downtown, and presents an opportunity to improve access and connectivity for people living around the project area to choose another mode for some trips they would typically complete with a car.

Figure 2-37: Car-free households



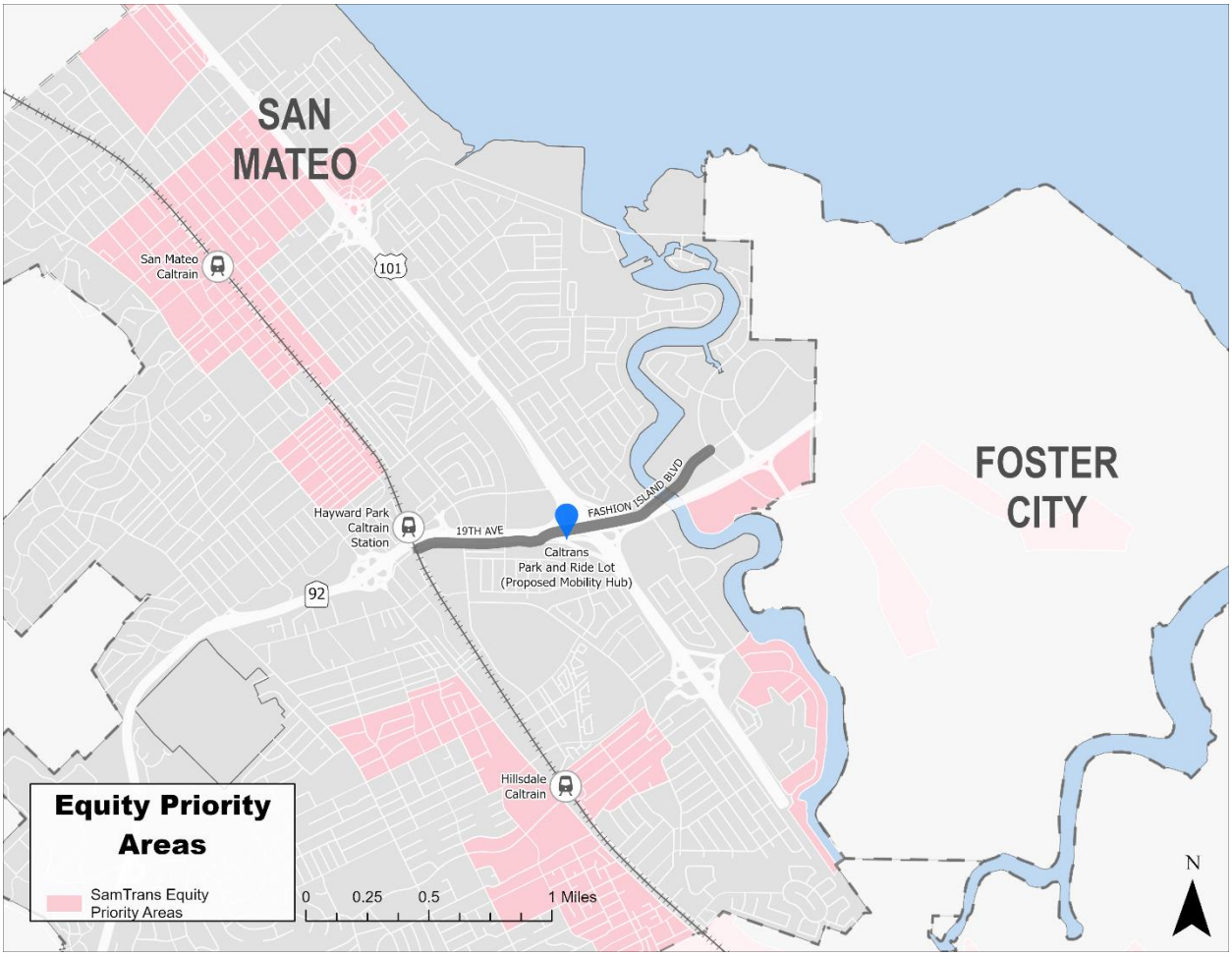
2.2.7 SamTrans Equity Priority Areas

SamTrans-defined Equity Priority Areas in San Mateo are shown in Figure 2-38. Equity priority areas were developed by SamTrans as a part of the recent Reimagine SamTrans project. Reimagine SamTrans utilized three demographic factors, as well as population density, to identify Equity Priority Areas. These factors include: car-free households, lower-income households (households earning less than $75,000 annually), and non-white households. This information can also be found in the SamTrans Service Policy Framework[21].

There are no Equity Priority Areas within or immediately surrounding the project area, but there is one Equity Priority Area north of the Hayward Park Caltrain station and one on the border of Foster City south of SR 92, which are within cycling distance of the corridor.

[21] https://www.samtrans.com/media/17555/download?inline

Figure 2-38: SamTrans Equity Priority Areas



2.2.8 MTC Equity Priority Communities

MTC also identifies census tracts that have a significant concentration of underserved populations, called Equity Priority Communities. These communities are identified based on a number of different socioeconomic criteria, and a census tract is defined as an Equity Priority Community based on eight different demographic variables at designated thresholds. If a census tract exceeds both values for Low-Income and People of Color or exceeds the threshold value for Low-Income and also exceeds the threshold values for three or more other variables, it is an Equity Priority Community.

- People of Color (70% threshold)
- Low-Income (28% threshold)
- Limited English Proficiency (12% threshold)
- Seniors 75 Years and Over (8% threshold)

- Zero-Vehicle Households (15% threshold)
- Single Parent Families (18% threshold)
- People with a Disability (12% threshold)
- Rent-Burdened Households (14% threshold)

MTC uses Equity Priority Communities Framework to help make decisions about planning, investment of funds and grants, and engagement with the community. MTC Equity Priority Communities in San Mateo are shown in Figure 2-39.

Figure 2-39: MTC Equity Priority Communities

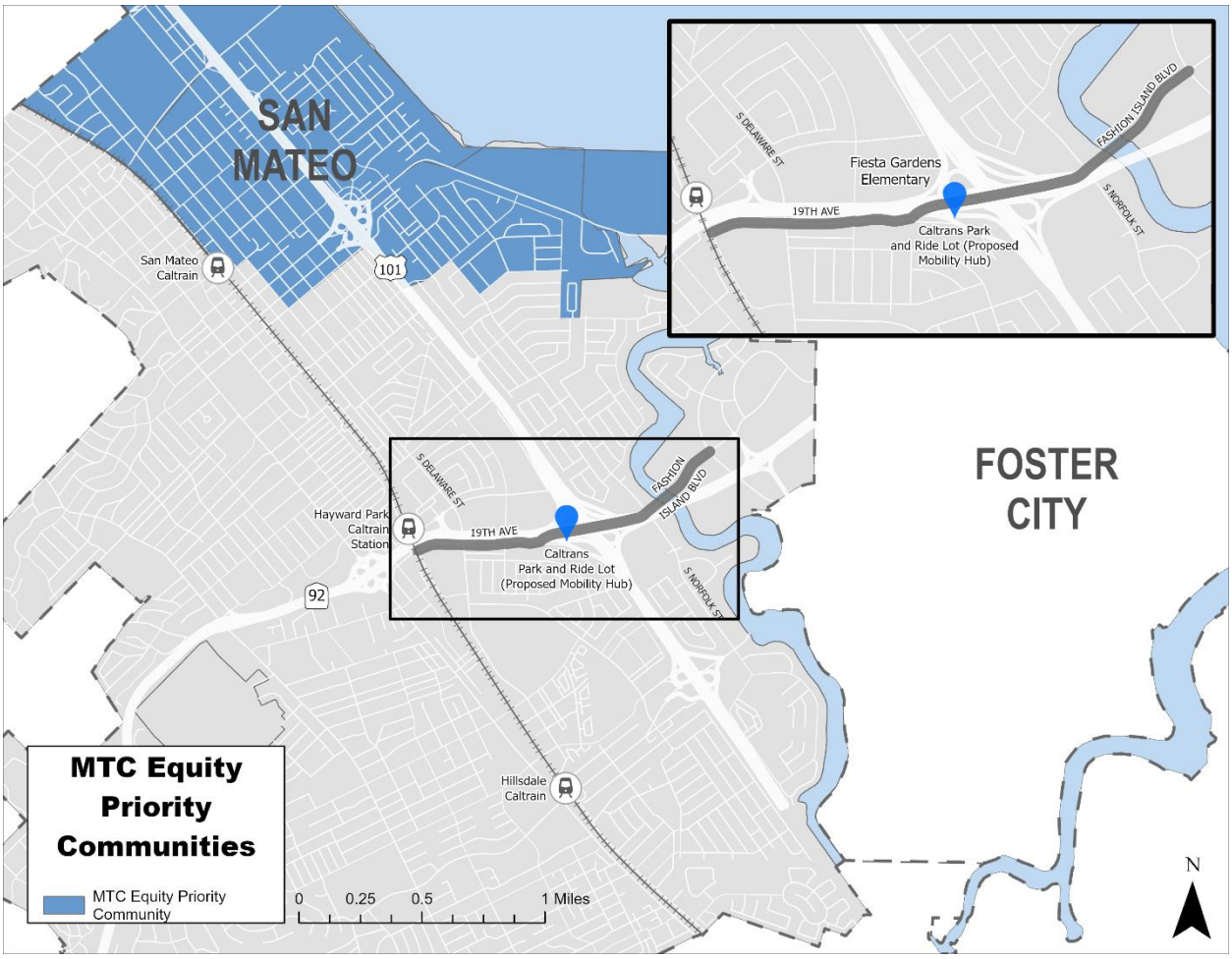


Figure 2-39 shows that there are no Equity Priority Communities directly within the project corridor, but there are five census tracts in San Mateo that are Equity Priority Communities. These Communities are within cycling distance of the project corridor and thus will benefit from project implementation.

2.3 EXISTING TRANSPORTATION INFRASTRUCTURE & SERVICES

2.3.1 Electric Vehicle Charging Context

Figure 2-40 shows the current distribution of public electric vehicle (EV) charging stations in San Mateo and the project service area according to the US Department of Energy Alternative Fueling Station Locator. There are several public EV charging stations near the project study area, specifically around the Hayward Park Caltrain station.

Figure 2-40: Public electric vehicle charging stations[22]

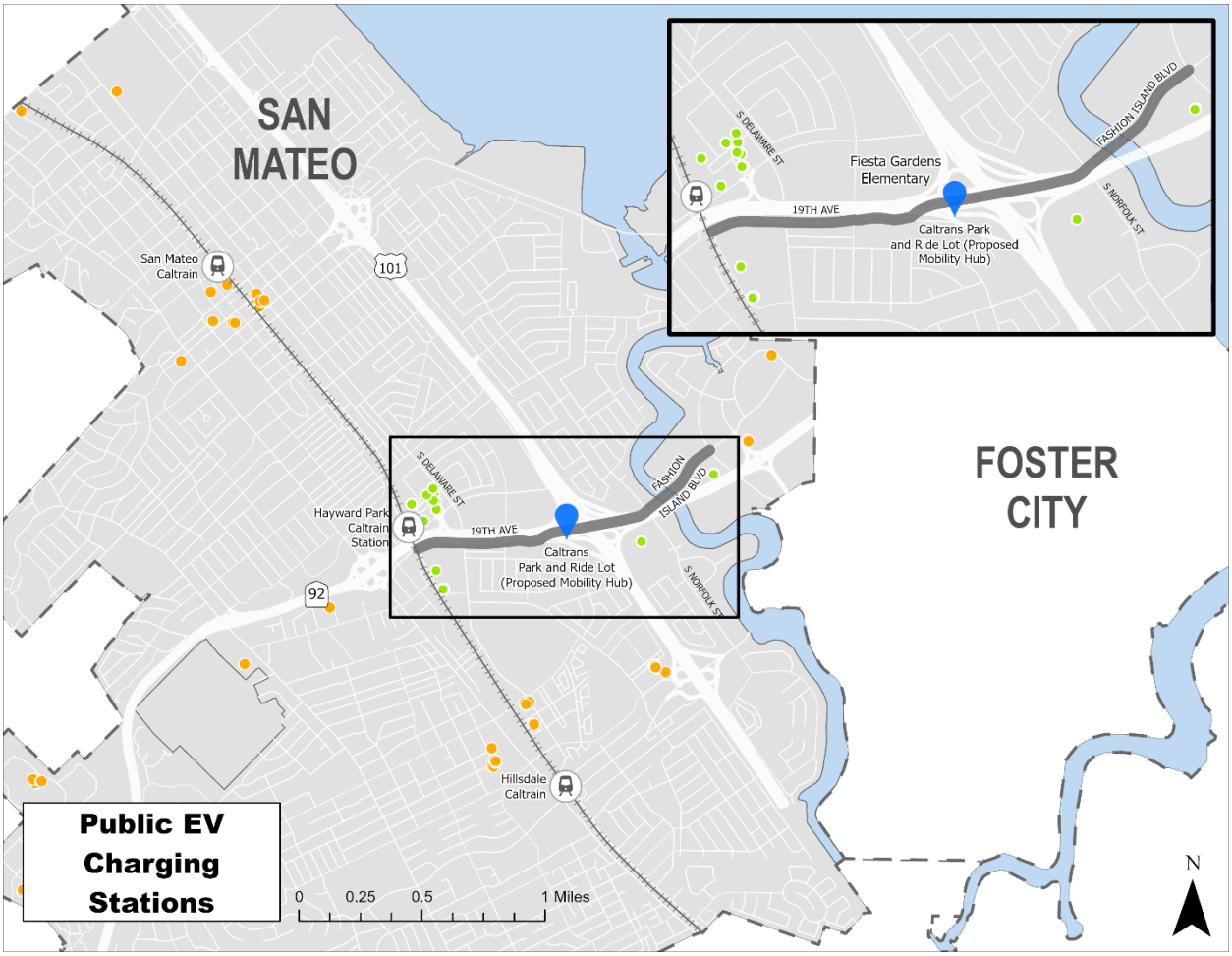


Table 2-2 presents a detailed inventory of the public EV charging stations surrounding the study area (shown in green on the map). All of the chargers are level 2 ChargePoint chargers (meant for light-duty

[22] Data source: US Department of Energy Alternative Fuels Data Center (Alternative Fuels Data Center: Alternative Fueling Station Locator (energy.gov))

vehicles and not for larger medium- or heavy-duty vehicles such as transit buses). Farther outside of the service area, there are also public EV charging stations available at the Bridgepointe Shopping Center.

Table 2-2: Public EV charging stations around the project study area

Name	Address	Charging details	Hours
San Mateo Corporation Yard	1949 Pacific Blvd. San Mateo, CA 94403	One level 2 charger with 6 ports	24 hours daily
Mode Apartments	2089 Pacific Blvd. San Mateo, CA 94403	Three level 2 chargers with 2 ports each	24 hours daily
Station Park Green Apartments/Essex Park	430 Station Park Cir. San Mateo, CA 94402	Three level 2 chargers with 1 port each Nine level 2 chargers with 2 ports each	24 hours daily
The Atrium (business center)	1900 S Norfolk St. San Mateo, CA 94403	One level 2 charger with 2 ports	24 hours daily
Fashion Island Business Center	1400 Fashion Island Blvd. San Mateo, CA 94404	Two level 2 chargers with 2 ports each	24 hours daily

2.3.2 Parking Context

This section documents on-street parking throughout the corridor.

19th Ave. between Pacific Blvd. and Delaware St. features intermittent on-street parking. Signs indicate no parking on the 2nd and 4th Friday of each month between 7am and 9am for street sweeping (Figure 2-41). The north side of the street has signs indicating no parking and that the space is reserved for SamTrans buses, indicating that this might be a current layover location (Figure 2-42). It will be important to understand if this space will need to be maintained or if it will be relocated to the future mobility hub. This section of the corridor also has signs prohibiting truck parking at any time as well as overnight parking (between 1am and 5am) (Figure 2-43). After 19th Ave. merges with the SR 92 off ramp, there is no more on-street parking on 19th Ave. before the intersection with Delaware St.

Figure 2-41: 19th Ave. on-street parking between Pacific Blvd. and Delaware St. (Google Street View)

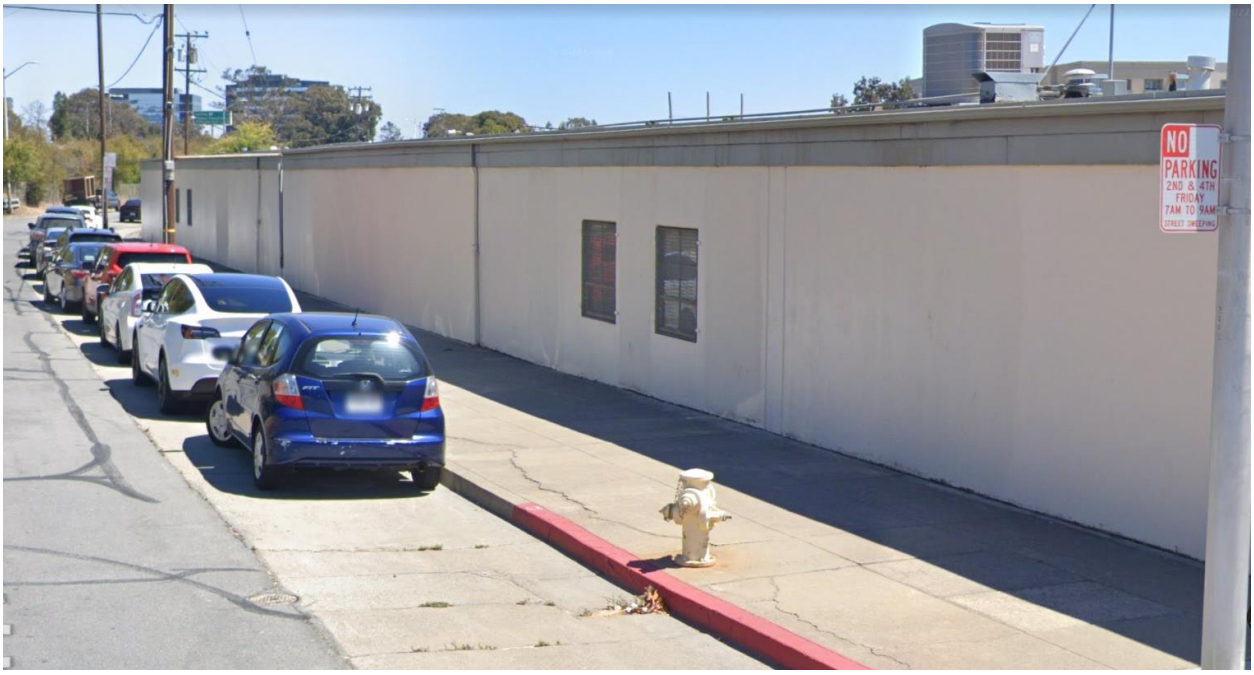


Figure 2-42: SamTrans bus parking on 19th Ave. between Pacific Blvd. and Delaware St. (Google Street View)

Figure 2-43: Additional parking signs on 19th Ave. between Pacific Blvd. and Delaware St. (Google Street View)

On 19th Ave. between Delaware St. and Grant St., there is one lane of on-street parking on the south side of the street between the sidewalk and existing bike lane (Figure 2-44). The same signs exist prohibiting parking on the 2nd and 4th Friday from 7am to 9am for street sweeping and prohibiting parking elsewhere on the street. West of the intersection with Grant St., on-street parking is replaced with a right-turn-only lane.

Figure 2-44: On-street parking on 19th Ave. between Delaware St. and Grant St. (Google Street View)

On-street parking is prohibited for the remainder of 19th Ave. east of Grant St. There is no on-street parking on Fashion Island Blvd. until the east side of the Seal Slough. There are two stretches on on-street parking on the south side of the street after crossing the slough. There are no apparent signs limiting when vehicles can park (Figure 2-45).

Figure 2-45: On-street parking on Fashion Island Blvd. (Google Street View)

2.4 SHARED MOBILITY SERVICES CONTEXT

Shared mobility includes services like bikeshare, e-scooter share, and carshare ride-hailing/transportation network company (TNC) services. San Mateo has had various agreements with different bikeshare programs since 2016, including agreements with Social Bicycles and Lime. The City's pilot with Social Bicycles lasted from May 2016-2018, and the City then entered into an agreement with Lime, who provided e-bikes. Lime discontinued bikeshare services in the city in February 2019. While the City does not presently allow e-scooter operations, staff can return to City Council at any time to make revisions to the micromobility program as needed[23].

In 2019, the City adopted a Shared Mobility Permit Program to partner with a new bikeshare operator but the City did not receive any applications. The City is currently evaluating next steps and opportunities related to bikeshare[24]. The City is interested in accommodating bikeshare at this site with the understanding that bikeshare cannot operate without a permit, and City Council has made only one permit available for a bikeshare vendor at this time.

In December 2022, C/CAG released a Micromobility Feasibility Study and Implementation Plan that established a framework to allow C/CAG and local partners to explore feasibility of implementing a shared

[23] https://www.cityofsanmateo.org/4097/Shared-Mobility-Permit-Program
[24] http://connectsanmateo.com/bikeshare/

micromobility service in San Mateo County to help close first/last mile gaps in accessing transit and provide more sustainable transportation options. The study intends to launch a micromobility pilot program by 2024. This project can look into partnering with this pilot program to integrate micromobilty services at the future mobility hub.

Despite this, micromoblity programs are being operated by other jurisdictions in San Mateo County. Redwood City Council adopted a new ordinance to allow shared micromoility operation in Redwood City in 2021, and a Scooter Share program operated by Bird was adopted in mid-2022[25]. In May 2023, Millbrae and Burlingame launched an electric bike sharing program with the operator Spin[26].

TNCs including Lyft and Uber operate in San Mateo, as well as various taxi services. The City also offers multiple carpool and vanpooling programs through multiple providers including Scoop, Merge, and others[27],[28]. Commute.org also provides free shuttle services to the public during commute hours on weekdays between the Hillsdale Caltrain station and major employment centers[29].

Various micromobility services are offered in neighboring jurisdictions. A description of each of the services is summarized below, followed by Table outlining where these services are available. In addition to these services, other municipalities offer rebates and other incentive programs for the purchase of e-bikes.

- Bay Wheels Bike Share[30]: a regional program offered through Lyft. The service offers different monthly and annual membership options for unlimited rides ($14.08 monthly or $16.58 monthly for the premium service option), single rides for $3.49 a trip, or day passes for $10. A Bay Wheels for Business program also offers annual memberships for businesses and employees, and the program offers discounted membership options for students and low-income residents. The program is currently active in San Francisco, San Jose, Berkely, and Oakland.

- Lime[31]: Lime offers electronic bike and scooter share. The program offers a corporate discount for employees and discounted options for low-income residents through the Lime Access program. Lime e-scooters are currently available in San Francisco, Oakland, and San Jose.

- Spin[32]: Spin offers electronic scooter share. The program offers Spin Access, a discounted option for low-income residents. The service is active in San Francisco.

[25] https://www.redwoodcity.org/departments/community-development-and-transportation/engineering-transportation/transportation-and-parking/bike-ped-plans-projects/shared-micromobility-program
[26] https://www.smdailyjournal.com/news/local/burlingames-e-bike-demo-ready-to-roll/article_5ad95bf2-ec83-11ed-a8aa-fb503afa3e8d.html
[27] http://connectsanmateo.com/carpool/
[28] https://511.org/carpool
[29] http://connectsanmateo.com/shuttles/
[30] https://account.baywheels.com/access-plans?lyft-branded
[31] https://www.sfmta.com/walking-biking-and-micromobility-commuters
[32] https://www.sfmta.com/walking-biking-and-micromobility-commuters

- Bird[33]: Bird electronic bikeshare and scooter share is currently active in San Francisco. Contra Costa County recently launched Bird bikeshare and scooter share in San Ramon, with plans to expand the program to Pleasant Hill. Redwood City operates a scooter share program.
- Veo[34]: Veo provides e-bike and e-scooters, currently in San Jose, Berkely, Emeryville, and Oakland.
- Bcycle[35]: Santa Cruz has announced a partnership to provide e-bikeshare services through Bcycle to the City of Santa Cruz, UC Santa Cruz, Capitola, Watsonville, Cabrillo College, and unincorporated County in 2024. The initial launch will include 400 e-bikes and 800 docks, which will be expanded to 660 e-bikes and 1320 docks.
- LEAP: the City of Richmond in Contra Costa County has partnered with LEAP to provide e-bikes throughout the city.

Table 2-3: Micromobility in neighboring jurisdictions[36]

	San Mateo County	San Francisco County	Santa Cruz County	Santa Clara County	Alameda County	Contra Costa County
Bay Wheels Bike Share						
Lime						
Spin						
Bird						
Veo						
Bcycle						

[33] https://511contracosta.org/micromobility/
[34] https://www.sanjoseca.gov/your-government/departments-offices/transportation/micro-mobility/micro-mobility-company-contacts
[35] https://www.cityofsantacruz.com/government/city-departments/public-works/traffic-engineering/bike-share
[36] Indicates the service is available in parts of the county, not necessarily the entire county. Bikes are shown to visualize presence of a micromobility service, whether it be e-bike or e-scooter or both.

LEAP						

2.5 CYCLING CONTEXT

Figure 2-46 shows the City's current bike network and Figure 2-47**Error! Reference source not found.** shows the planned bike network according to the 2020 Bicycle Master Plan. A Class II bike lane exists along most of the project corridor, and Class II or III bike lanes exist along most of the major intersections that interact with the corridor (Delaware St. and Norfolk St.).

In accordance with the Bicycle Master Plan, the current Class II bike lane on 19th Ave./Fashion Island Blvd. will be upgraded to a separated Class IV bike lane, and the gap between Pacific Blvd. and where the current Class II bike lane begins (where there is currently no bike lane) will be filled.

The Delaware St. bike lane will also be upgraded to a Class IV separated bike lane where it interacts with the project area, so providing a seamless connection between the two lanes will be an important consideration. Importantly, the Bicycle Master Plan calls for closing the gap in the Norfolk St. bike lane with the addition of a buffered bike lane immediately north of the Fashion Island Blvd. intersection.

At the mobility hub, the City is interested in exploring bike parking (including lockers and secured storage) and bike valet.

Figure 2-46: Existing bicycle network (San Mateo Bicycle Master Plan)

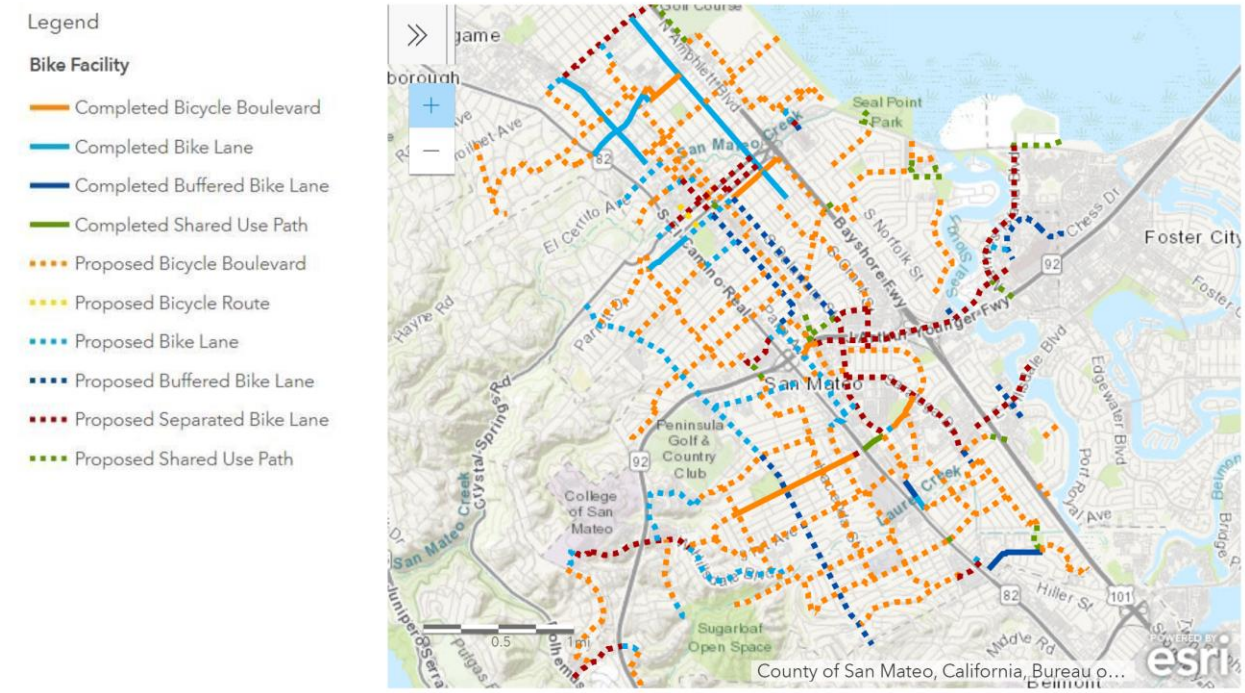
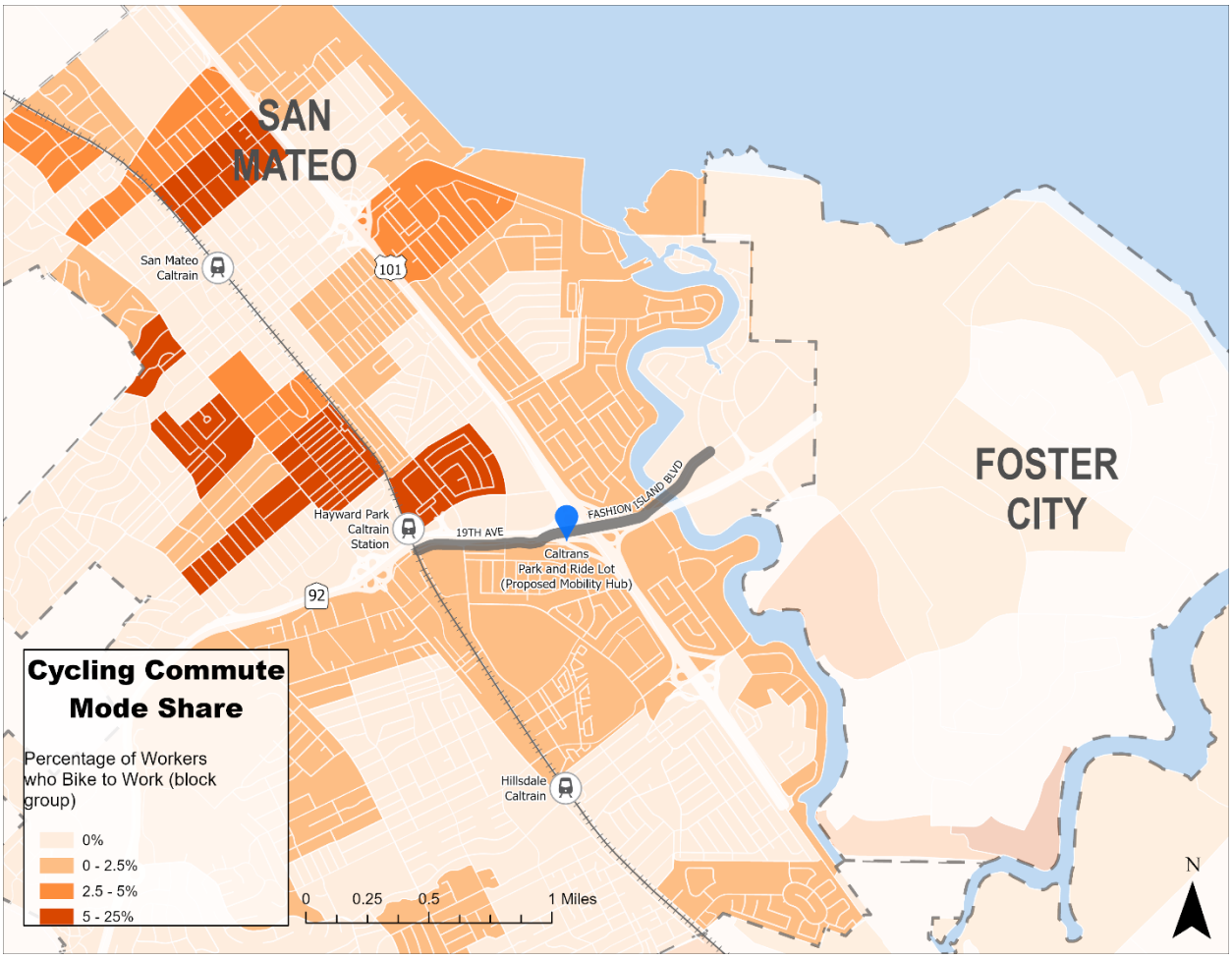


Figure 2-47: Proposed bicycle network (San Mateo Bicycle Master Plan)

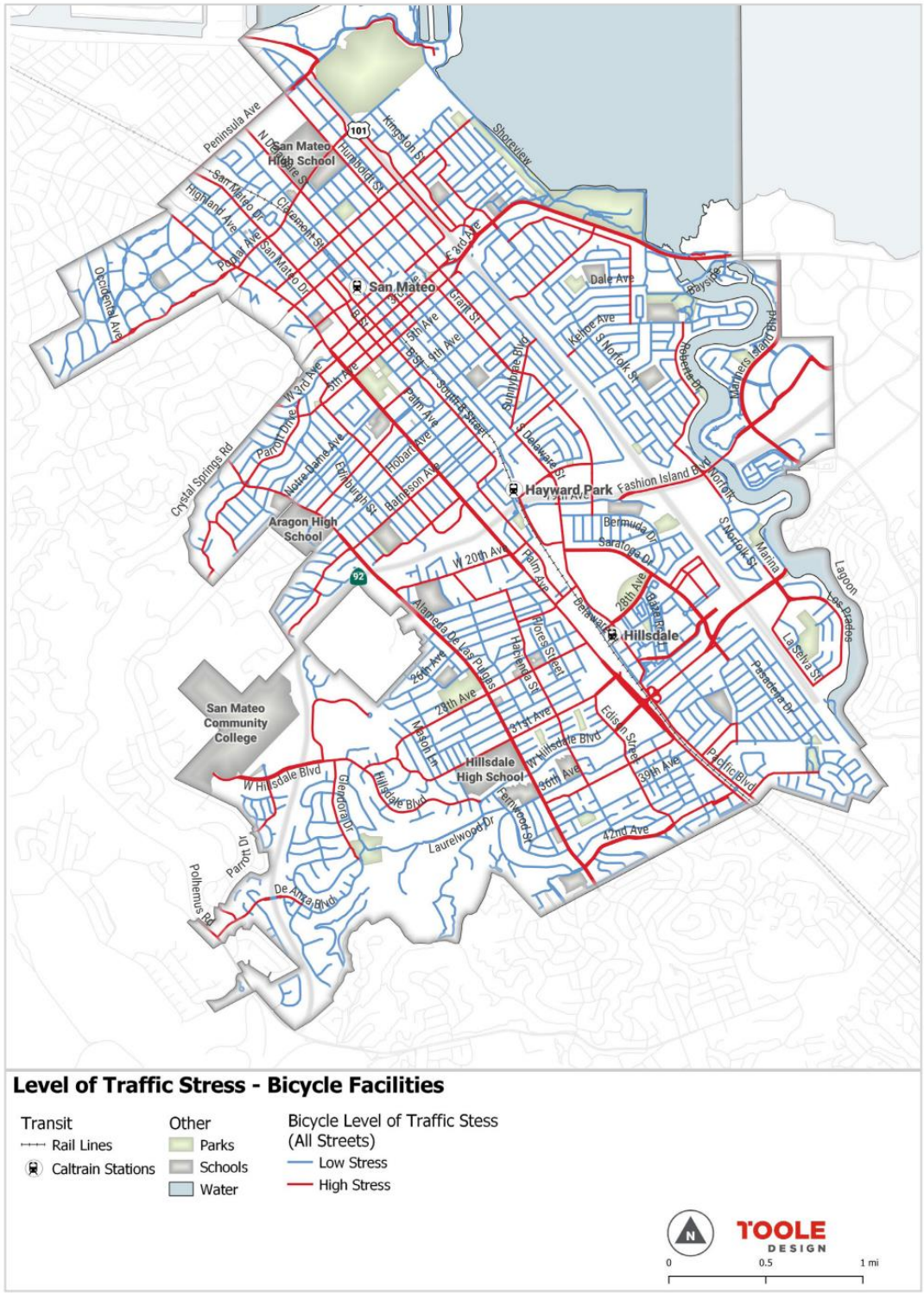
Figure 2-48**Error! Reference source not found.** shows the cycling commute mode share, or the percentage of workers in each block group who bike to work. While understanding commute mode share does not give us a perfect picture of how people complete all trips, it can provide a good proxy that we can draw general themes and patterns from. Overall, cycling commute mode share is low around the project study area and in San Mateo as a whole, though it is a more popular option in some areas around the Hayward Park Caltrain station.

Figure 2-48 : Cycle commute mode share



As part of the City's Bicycle Master Plan, levels of bicycle traffic stress were assessed (Figure 2-49). The analysis categorizes streets according to a perceived level of stress for cyclists based on the premise that a person's level of comfort while cycling increases as separation from vehicular traffic increases. The methodology incorporates roadway characteristics including traffic speed and volume, presence of on-street vehicular parking, and type of bikeway. This analysis shows that the eastern portion of the corridor that runs along Fashion Island Blvd. is considered a high stress area, as well as a small portion of 19th Ave. where it intersects with Delaware St. This project, which will close an important gap in the citywide bicycle network, can make cycling a more viable option.

Figure 2-49: Level of bicycle traffic stress (San Mateo Bicycle Master Plan)



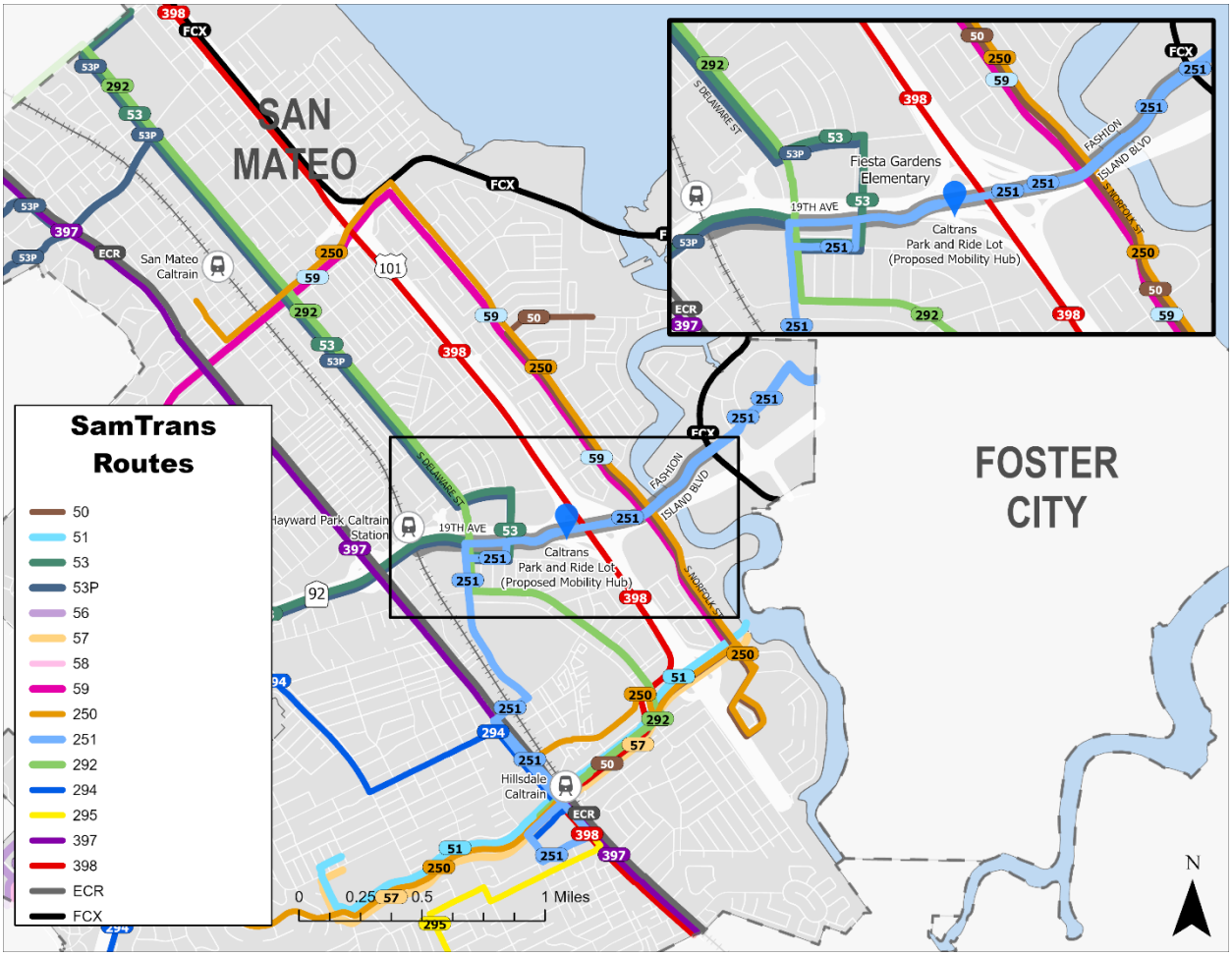
2.6 TRANSIT CONTEXT

SamTrans provides local and regional bus transit service throughout San Mateo County. Figure 2-50**Error! Reference source not found.** shows the current SamTrans network in San Mateo. Presently, no routes stop at the Park and Ride lot. Routes 53, 53P, 251, and 292 utilize a portion of the project corridor and stop near the Park and Ride lot.

In response to this project and the improvements to the Park and Ride lot, SamTrans may consider rerouting some existing routes to stop in the mobility hub, including routes 250, 251, ECR, and EPX (and potentially routes 53, 53P, and 292). As noted in Section 1.4.5, SamTrans may introduce two new express routes that would utilize the mobility hub, but these would not be implemented until at least 10-15 years in the future.

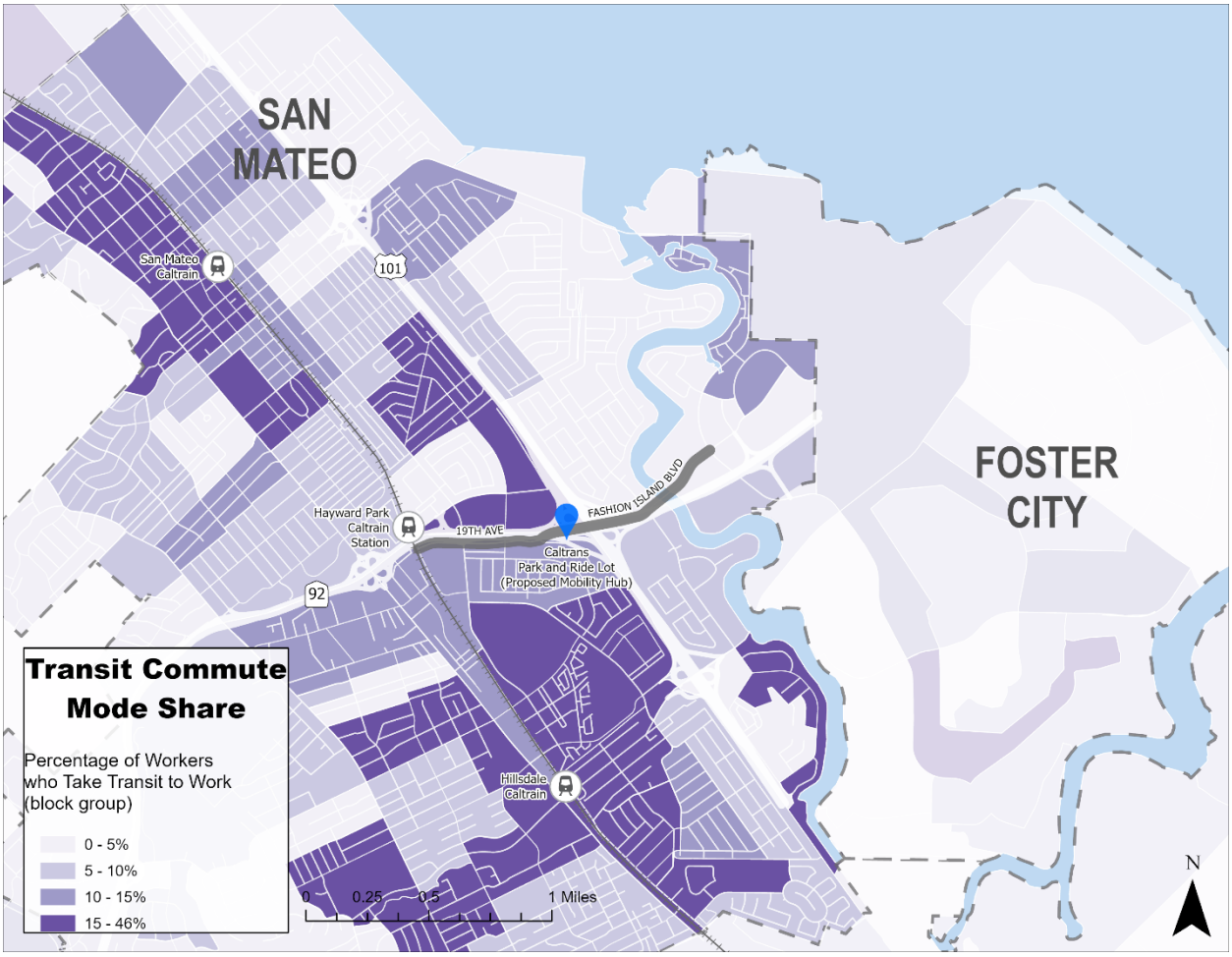
To prepare for SamTrans routes to use the mobility hub, it will require specific infrastructure, including operator restrooms and break room, two-six bus bays with charging infrastructure (or space for the future installation of charging infrastructure), and passenger amenities such as seating, trash cans, real-time arrival information, and potential ticket vending.

Figure 2-50: Current SamTrans bus network



Transit commute mode share is shown in Figure 2-51**Error! Reference source not found.**. Unsurprisingly, areas closer to the Caltrain stations have a higher percentage of workers who take transit to work, as well as the area directly north of the Park and Ride lot. Rerouting some SamTrans routes into the future mobility hub can help make taking transit easier.

Figure 2-51: Transit commute mode share



2.7 PEDESTRIAN CONTEXT

Recommended corridors and intersections for pedestrian improvements according to the City's 2012 Pedestrian Master Plan are shown in Figure 2-52**Error! Reference source not found.**. The majority of the corridor improvements relate to the installation of pedestrian-scale lighting. The only corridor recommendation in the project study area is for pedestrian-scale lighting on Fashion Island Blvd. east of Norfolk St. The plan also calls for intersection improvements at three points in the study area as well as the installation of a school zone crosswalk at Fiesta Gardens International School. As detailed in Section 1.5.1.4, pedestrian improvements in the project area are also planned as a part of the City's TOD Pedestrian Access Plan, which include widening the sidewalk or adding a Class I pathway connection on Pacific Blvd. near 19th Ave. and improving the intersection at 19th Ave. Furthermore, a missing sidewalk on 19th Ave. was identified as part of the needs assessment but was not listed as a priority project.

Figure 2-52: Pedestrian Master Plan recommended corridors and intersections

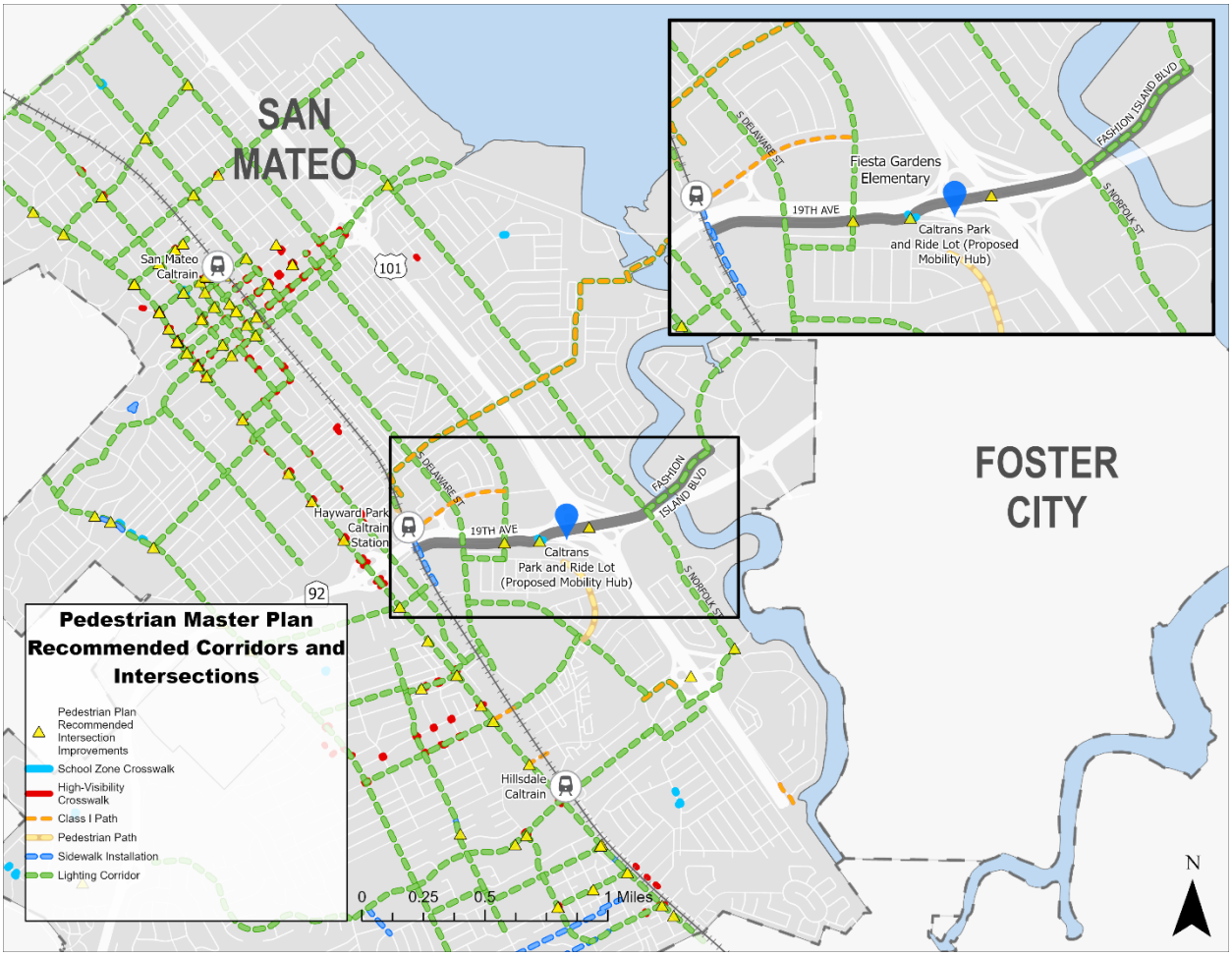
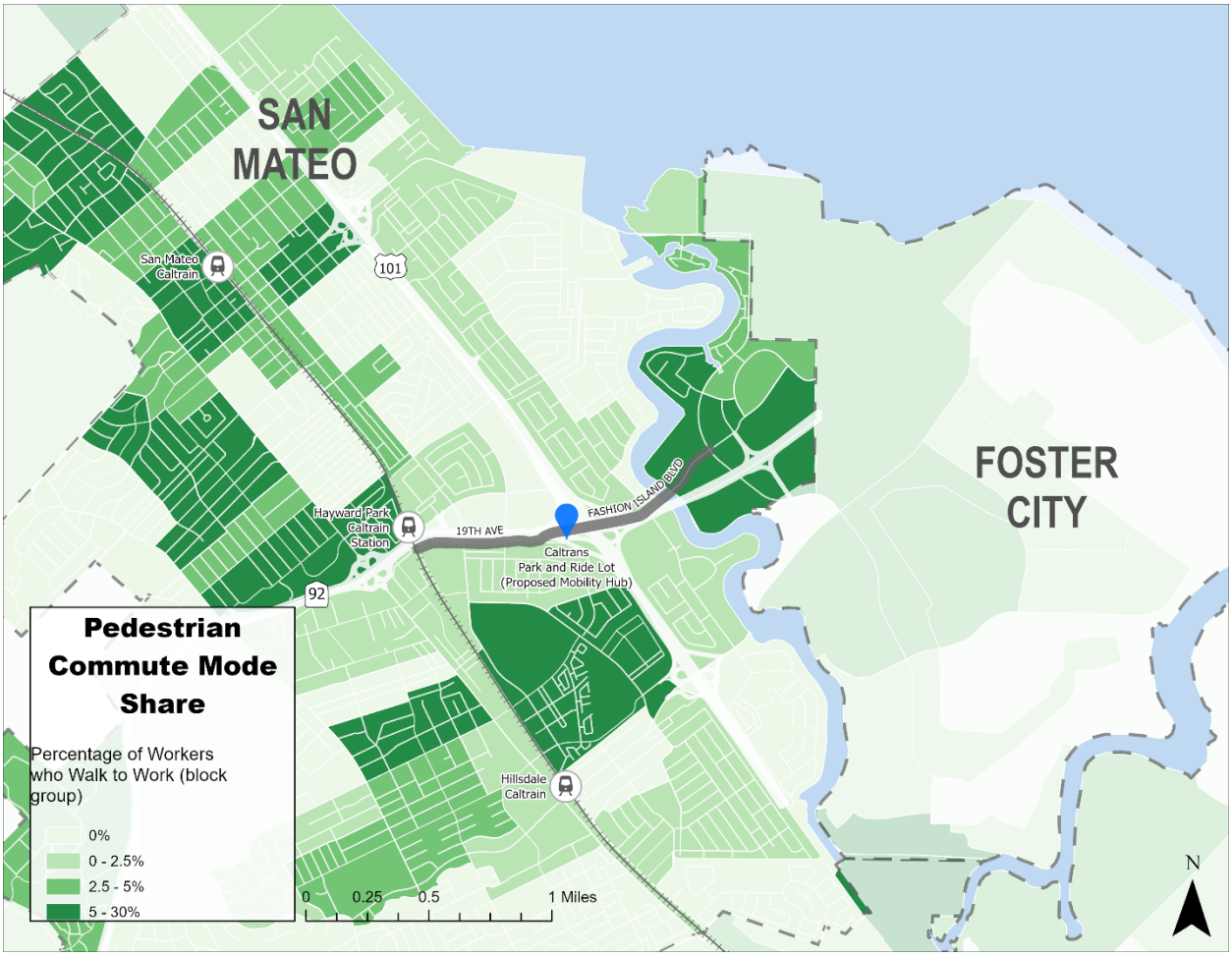


Figure 2-53**Error! Reference source not found.** presents pedestrian mode share, or the percent of workers who walk to work. Generally, workers are only able to walk to work if their work location is close to their residence, so pedestrian commute mode share is not reflective of how people complete all their trips, specifically their non-work trips. High percentages of workers who walk to work are found near the Hayward Park Caltrain station and at the eastern end of the project study area, near Bridgepoint Shopping Center.

Figure 2-53: Pedestrian commute mode share



2.8 TRAVEL BEHAVIOR ANALYSIS

StreetLight data is sourced from two different types of location 'big data', namely navigation-based GPS data and location-based services (LBS) data. Navigation-GPS data provides a smaller sample size than LBS data but it is ideal for commercial travel pattern analysis and for fine-resolution travel time analysis. This data is derived from navigation GPS devices in personal and commercial vehicles, as well as turn-by-turn navigation in smartphone apps.

LBS data is gathered from a mix of GPS and sensor proximity data from apps on smart devices with a spatial precision ranging from 5 – 25m and a regular ping rate (the rate at which the device is asked for its location) to allow for precise spatial analysis. This makes it more useful than traditional cell tower data because those lack spatial precision and ping infrequently. The apps on devices collect locations when they are operating in the foreground, but data is also collected when the app is open in the background and the device is moving using a variety of sensors which also enable spatial tracking when devices have no cell service or are in airplane mode.

Both these sources of data are then processed, normalized, transformed and validated using data from traffic counts and sensors. Based on traffic count data comparisons in different locations, the data is factored up to provide a representative estimation of vehicle trips.

Data is analyzed by identifying a set of zones within a study area and then examining the origin and destination of trips between the zones.

Streetlight data was used to analyze three (3) origin-destination (OD) zones and two (2) pass-through zones (gateways) in this instance. OD zones are areas that can be used either as origins or destinations to assess traffic from or to the zone as well as overall volumes within the zones. Gateways are segments of roadways for which pass-through traffic is calculated. For the purposes of this study 3 OD zones were established, a 0.5 mile radius from the potential mobility hub as well as a 1.5 mile radius from the mobility hub, split into an east and west zone split by the Seal Slough.

Traveler demographic data can also be pulled from the origin-destination analyses. It is important to understand traveler demographics to ensure that the different mobility options that make up the transportation system are meeting the needs of everyone in the community. Factors such as age, gender and income all play an important part of trip making and determining which mode of travel or travel decisions people make. Understanding this helps to identify which infrastructure would be most effective to encourage modal shift and understand where additional support needs to be provided to provide equitable transport.

For this study, data were aggregated for both an entire year (May 2021 through April 2022) and for Fall 2021 (either September through December or September 21st to December 21st when available). However, the descriptions below are only related to full-year data, as Fall 2021 data were comparable to data from a full year. In the Streetlight platform, more recent data than April 2022 does not provide demographics insight due to changes in privacy controls from data providers and therefore has not been examined.

2.8.1 Demographic Data

Understanding demographic data for travel patterns helps to enrich the understanding of the area and highlight any issues or impacts on communities, particularly underserved communities to ensure equitable transport interventions are implemented. Before examining the traveling trends it is important to understand who is making these trips. The findings and implications of this analysis are shown below in Table 2-4.

Table 2-4: Traveler demographics

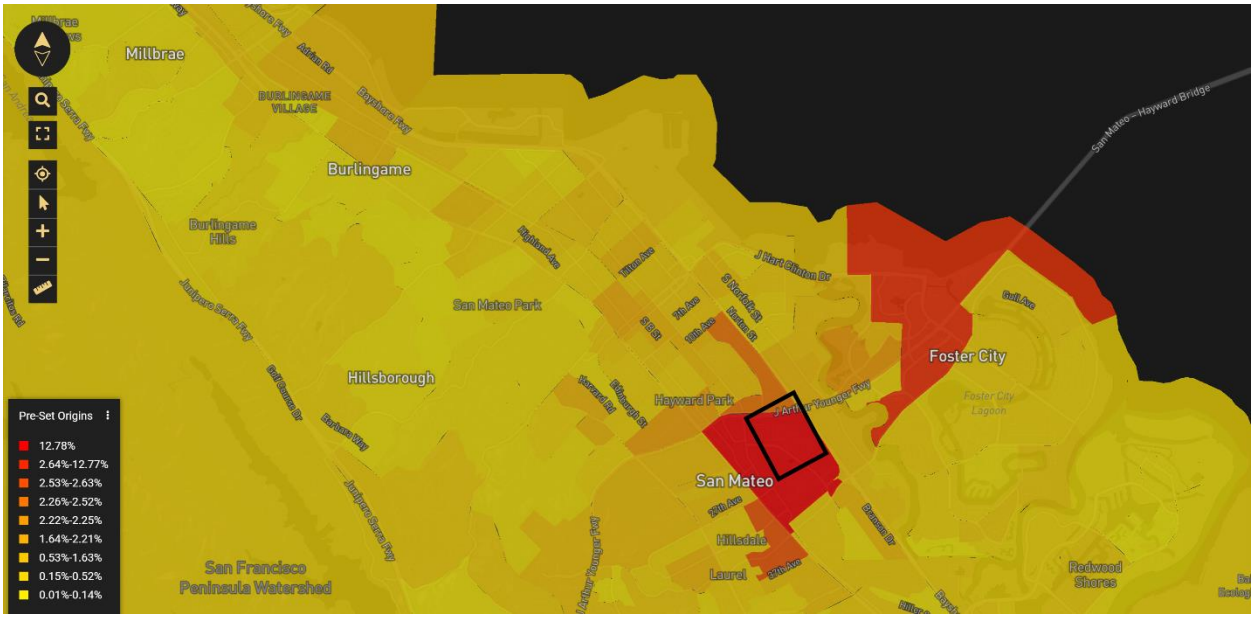
Finding	Implication
About 60% of trips were made by people who have a household income above $100,000 a year, with 1/3 of trips completed by people who have a household income above $200,000 a year. Most travelers are private-sector workers. About 54% to 58% of travelers own their homes. Over 60% of travelers have two or more cars.	These statistics indicate that the income of travelers in this area is very high which would typically indicate a higher car mode share, as people with higher incomes are more likely to own and use private vehicles. This is also shown as over 60% of travelers have 2 or more cars. It can also present an opportunity as high-income earners are more likely and able to pay for transportation services that provide higher levels of convenience, comfort or speed.
Around 15% to 17% of people “speak English less than ‘very well’”.	The level of English proficiency suggests that it would be important from a transportation equity standpoint to ensure the communications on and around the mobility hub in terms of wayfinding and signage are as visual as possible to be able to communicate effectively to all members of the community.
8% to 10% of travelers have a disability.	Additionally, as 8 to 10% of trip makers are reported to have a disability it is important to make sure mobility hub solutions are ADA-compliant and provide solutions and options for those who have some form of disability which may impact their means to travel.

2.8.2 OD Zone - 0.5 mile

2.8.2.1 All Vehicles

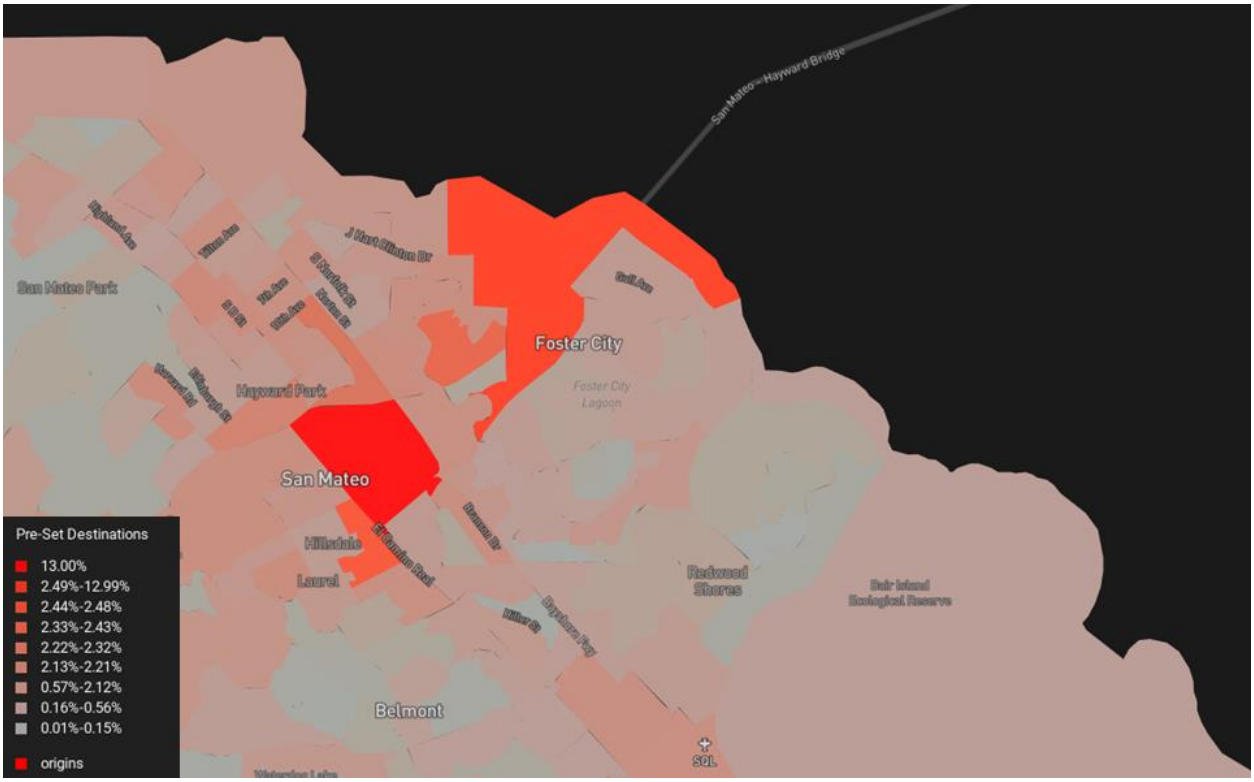
The 0.5 mile OD zone (roughly outlined in black in Figure 2-54 and Figure 2-55) represents an area of 0.5 miles from the mobility hub. Figure 2-54 shows that the majority of vehicles traveling to within 0.5 miles of the site originate from within the zone itself, at almost 13% of all vehicles. This indicates that there are many trip makers that are making relatively short trips (ending and starting in the same small area) by vehicle which could potentially use an alternative mode. Other locations that have higher amounts of trips to within 0.5 miles of the mobility hub originate in the Foster City area.

Figure 2-54: Trip origins to the 0.5 mile OD Zone



A similar pattern is shown when examining trips from within 0.5 miles of the mobility hub to other areas as shown by Figure 2-55. Thirteen percent of trips end in the same OD zone, with the second most popular destination being the Foster City area with 2.5% of all trips ending there. However, despite being the second most popular trip destination, the share of all trips is still only roughly 3% of all trips , showing that there is a wide spread of destinations.

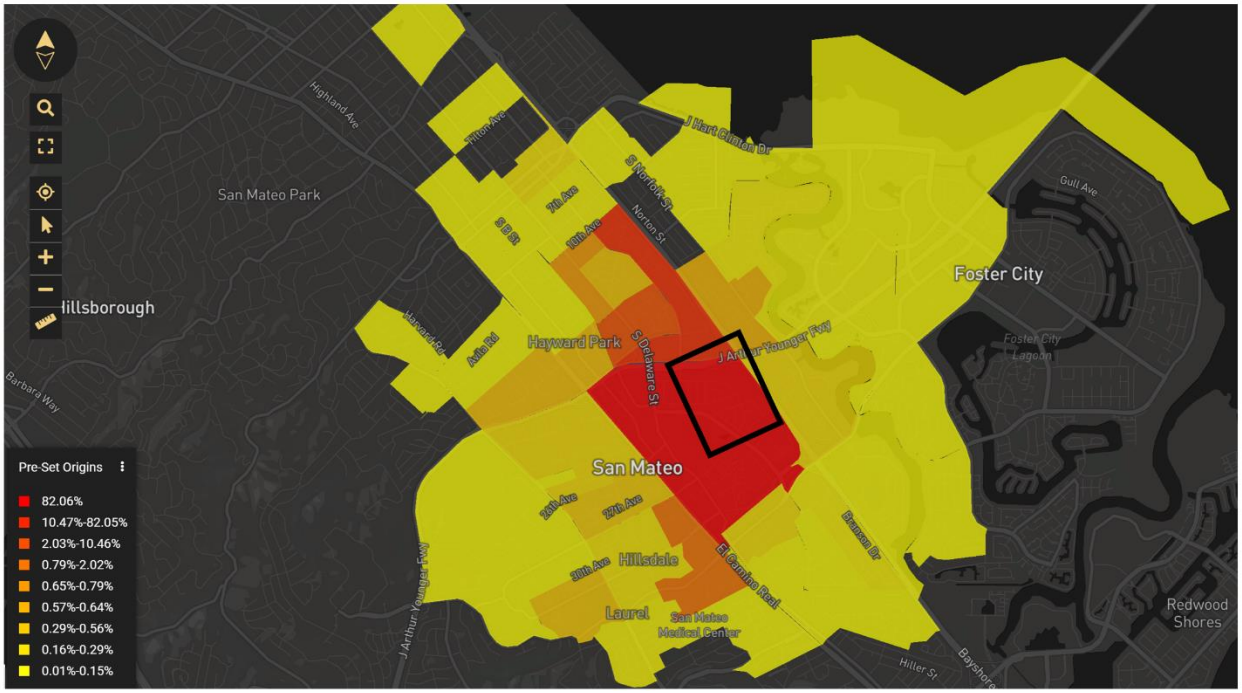
Figure 2-55: Trip destinations from the 0.5mile OD Zone



2.8.2.2 Pedestrian trips

Figure 2-56 examines trips made specifically by pedestrians; it shows that 82% of pedestrian trips to the 0.5 mile zone originate within the zone. The remaining 12% originated from the 2 zones directly to the north along Norton Street. This lack of longer journeys being made by foot to the 0.5 mile zone could reflect either a lack of pedestrian-friendly infrastructure or a lack of purpose for making a pedestrian trip that ends in the zone.

Figure 2-56: Pedestrian trips to the 0.5 mile OD zone



Again the same pattern is reflected with pedestrian trips from the 0.5 mile zone, with 82% ending in the same zone and the remaining 11% finishing in zones to the north as shown in Figure 2-57. This suggests limited infrastructure attracting pedestrians to walk to other surrounding areas with only some pedestrians making trips to areas north of the zone.

Figure 2-57: Pedestrian trips from the 0.5 mile OD zone

2.8.3 OD Zone - 1.5 mile (West)

For trips that travel to the mobility hub from further distances which could be covered by a bike, a 1.5 mile radius zone has been created around the mobility hub. This has been split into a west and east zone due to the severance created by the Seal Slough restricting movements.

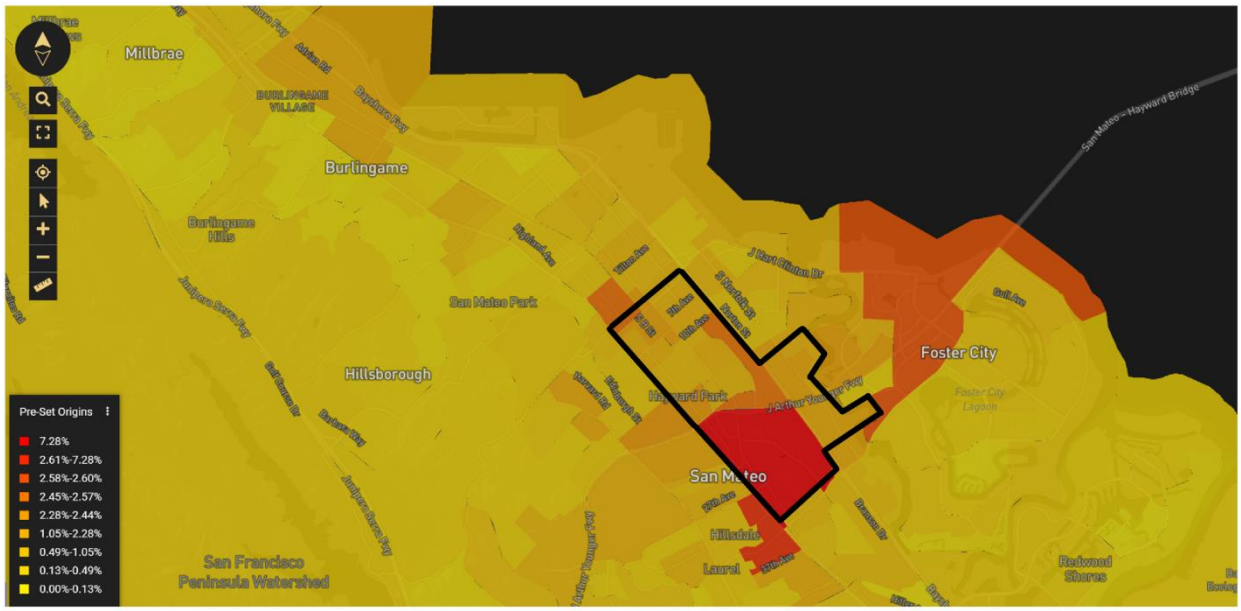
2.8.3.1 All Vehicles

The 1.5 mile OD zone West has been roughly outlined in black in Figure 2-58 and Figure 2-60. This represents a rough 1.5 mile cycling distance around the mobility hub, **west** of Seal Slough.

Like the 0.5 mile OD Zone, first of all it is important to understand vehicle trips in the area because they are the dominant mode. The majority of vehicle trips to this zone originate within the zone; however, there were also notable trips originating southeast of the US 101/SR 92 interchange, as well as from Foster City.

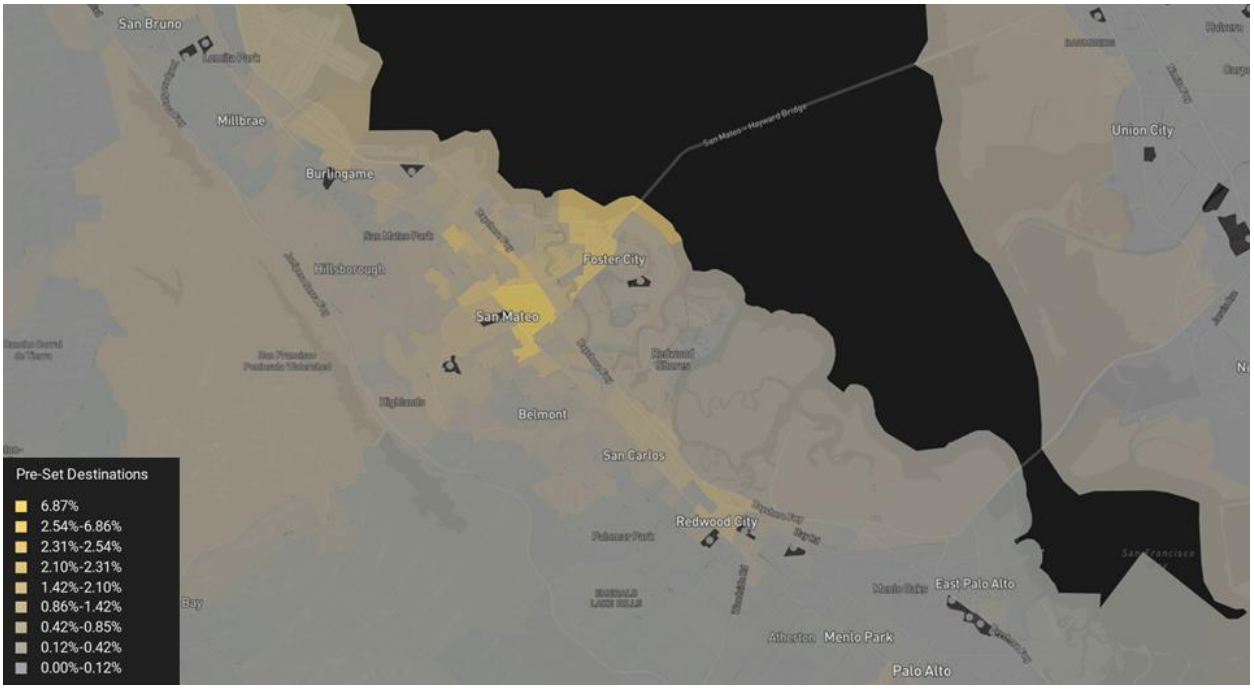
Interestingly, the vehicle trip origins to this 1.5 mile zone are distributed across a much wider range of traffic analysis zones. This is shown in Figure 2-58 which demonstrates that the traffic analysis zone with the largest percentage of vehicles only represents 7% of all vehicle trips.

Figure 2-58: Vehicle trip Origins to 1.5 mile OD Zone West



As shown in Figure 2-59 below, vehicle trips from the 1.5 mile zone are mostly ending in the same zone, however as was noted with the trip origins, this only accounts for about 7% of all trips showing that vehicle trips are spread out sparsely across different traffic analysis zones in the area.

Figure 2-59: Vehicle trip destinations from 1.5mile zone



2.8.3.2 Cycling

Cycling trips are distributed around the local area, as shown in Figure 2-60; most trips to the 1.5 mile zone by bike originate in the San Mateo area. This OD zone represents approximately 14% of all bicycle trips. The surrounding neighborhoods all have similar amounts of bicycle trips to the 1.5 mile zone at around 5% with limited trips from further afield.

Figure 2-60: Cycling trips to the 1.5mile OD Zone West

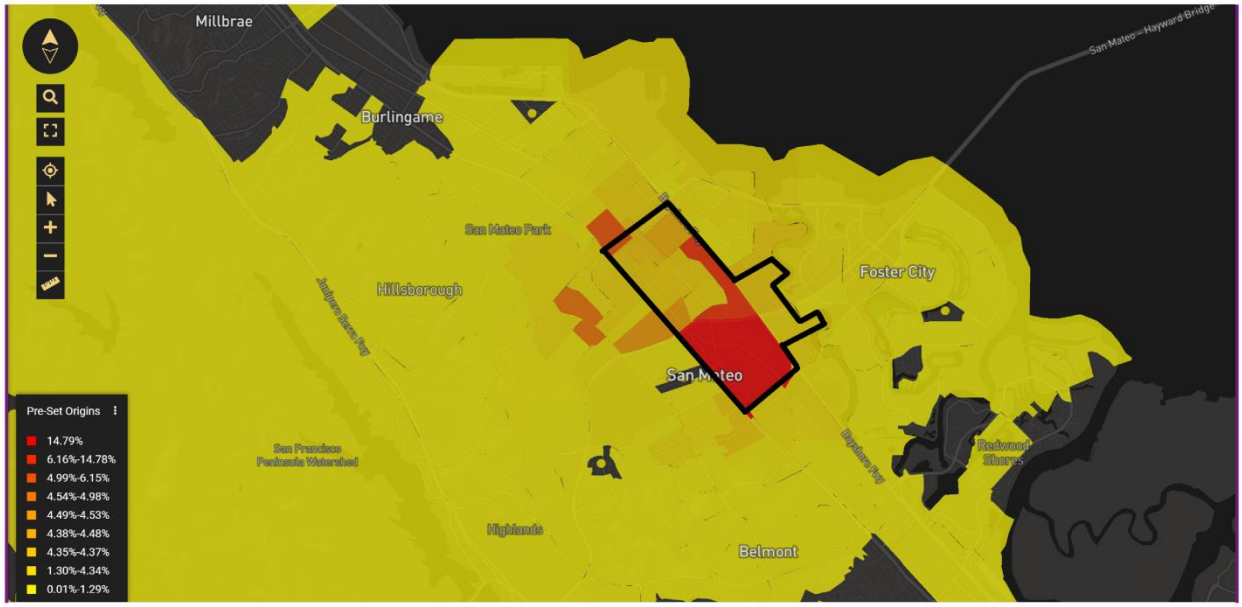


Figure 2-61 below indicates the location of cycling trips from the 1.5 mile OD zone (west). As expected, the destinations remain relatively local to the area compared to the vehicular trips. The majority end in the same zone directly around the OD zone equating to approximately 14% of destinations. The remaining zones around are all around 5% (+/- 1%) suggest a fairly even spread from the main OD zone, however generally more of the trips appear to end in the north compared to the south.

Figure 2-61: Cycling trips from 1.5 mile OD zone (west)

2.8.4 OD Zone – 1.5 mile (East)

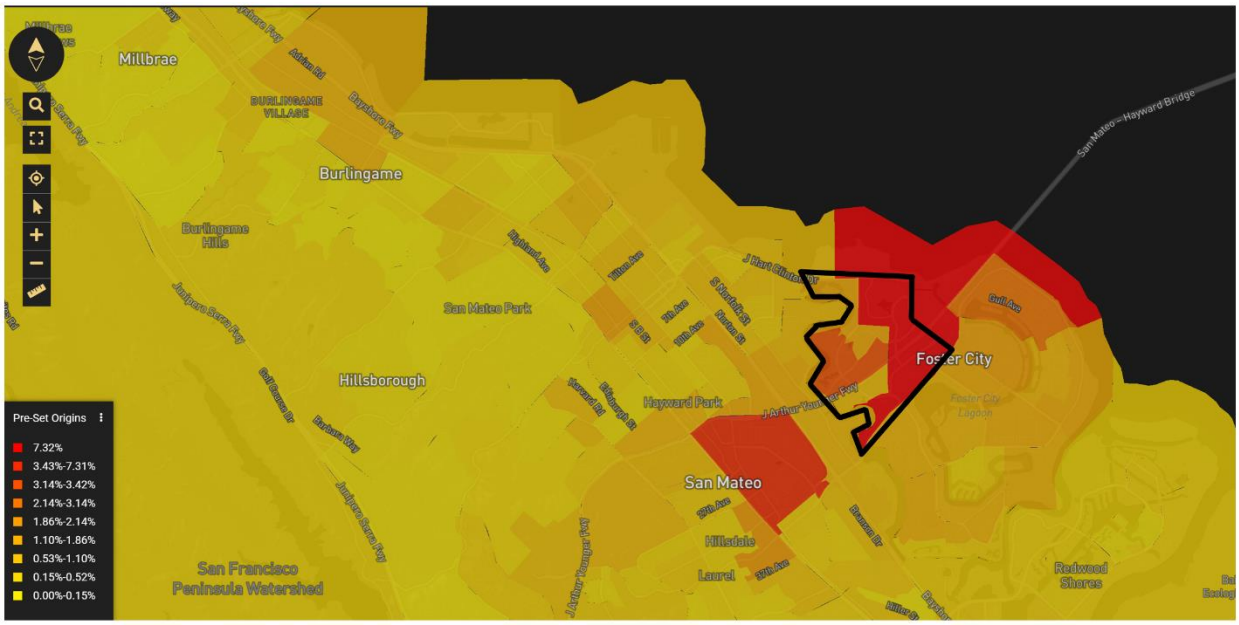
2.8.4.1 All Vehicles

The 1.5 mile OD Zone East has been roughly outlined in black in Figure 2-62 and Figure 2-64 and represents a rough 1.5 mile cycling distance around the zone, **east** of Seal Slough.

Like the OD zone to the west, the majority of vehicle trips originate within the zone; in this case, vehicle trips more often originated in the northern half of Foster City. The southeast intersection of US 101/SR 92 is also notable.

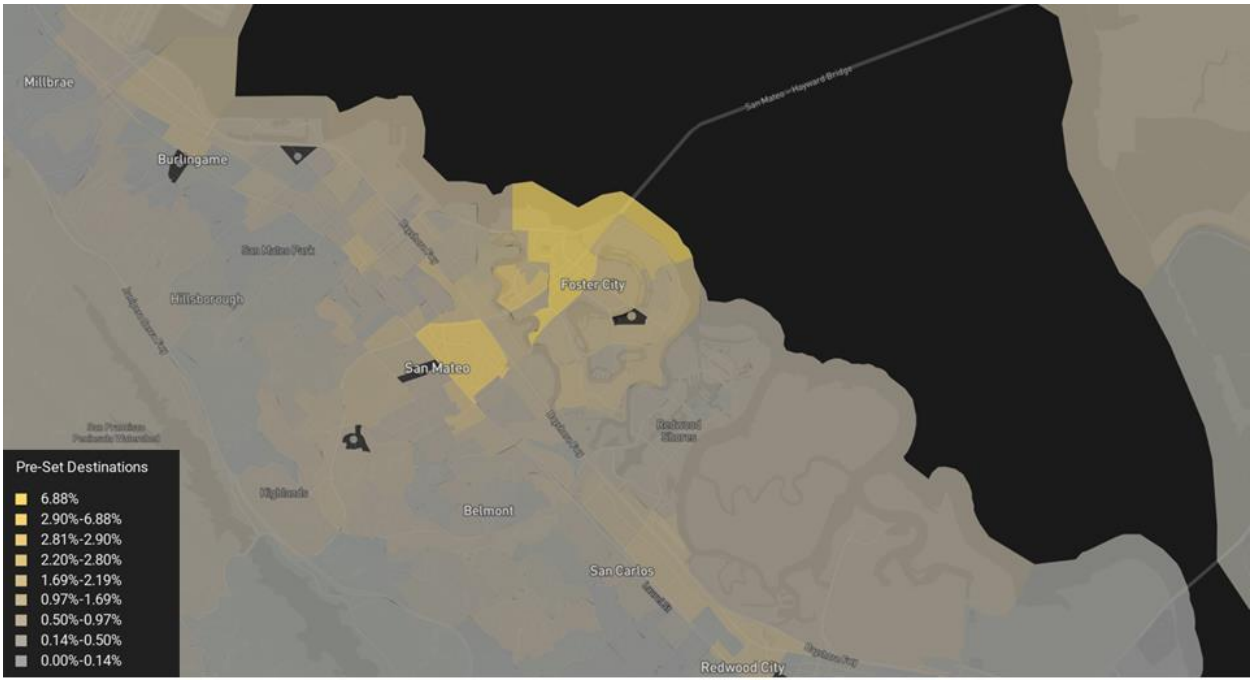
As shown in Figure 2-62, vehicle trip origins are distributed across traffic analysis zones; the traffic analysis zone with the largest percentage of vehicles only represents 7.32% of all vehicle trips.

Figure 2-62: Trips to OD Zone – 1.5 mile(East)



Once again vehicle trips from the 1.5 mile zone are mostly dominated by trips that end in the surrounding zone, however this only accounts for 7% of all trips. Other popular destinations are the northern part of Foster City, however, that only represents about 3% of trips. The rest of the trips are spread out across a vast amount of traffic analysis zones in the area and beyond.

Figure 2-63: Trips from OD Zone 1.5 mile (east)



2.8.4.2 Cycling

Figure 2-64 shows the origins of cycling trips to the 1.5 mile OD zone (east). Unlike the 1.5 mile OD Zone (west), the vast majority of cycling trips to this zone are coming from a small number of origin traffic analysis zones west of US 101 and Seal Slough; indeed, one traffic analysis zone accounts for 38% of trips to this OD zone. Overall, over 80% of trips originate in the Foster City core area and end in the 1.5mile OD zone (east) suggesting as expected that the Seal Slough does act as a major barrier and causes severance to the rest of the area.

Figure 2-64: Cycling trips to 1.5mile OD zone (east)

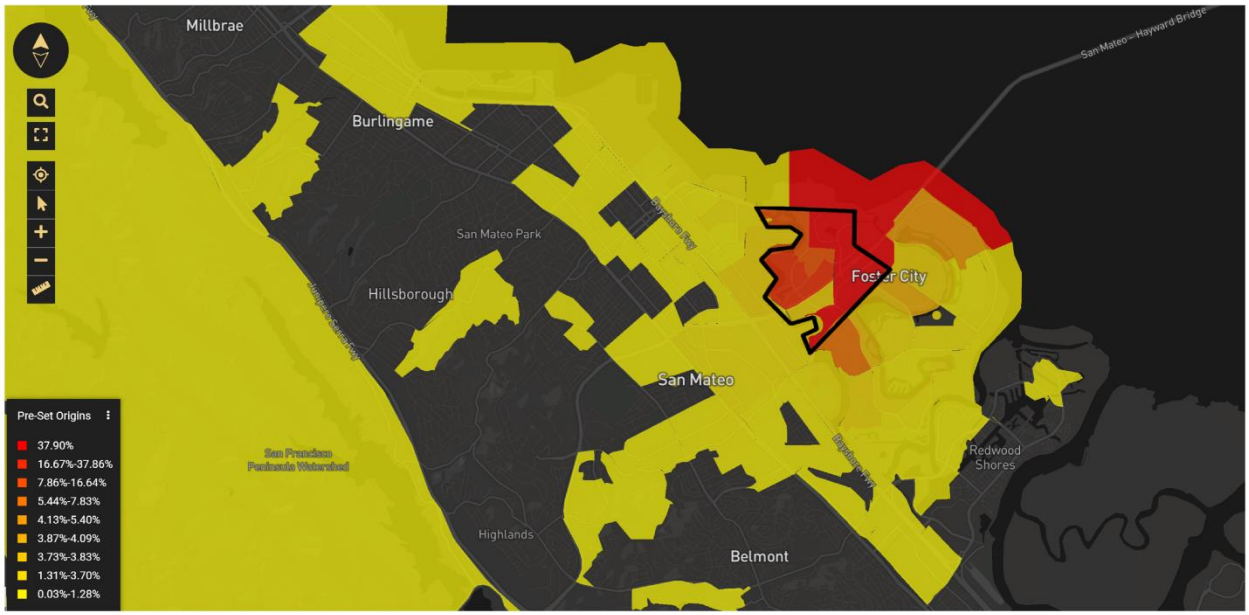


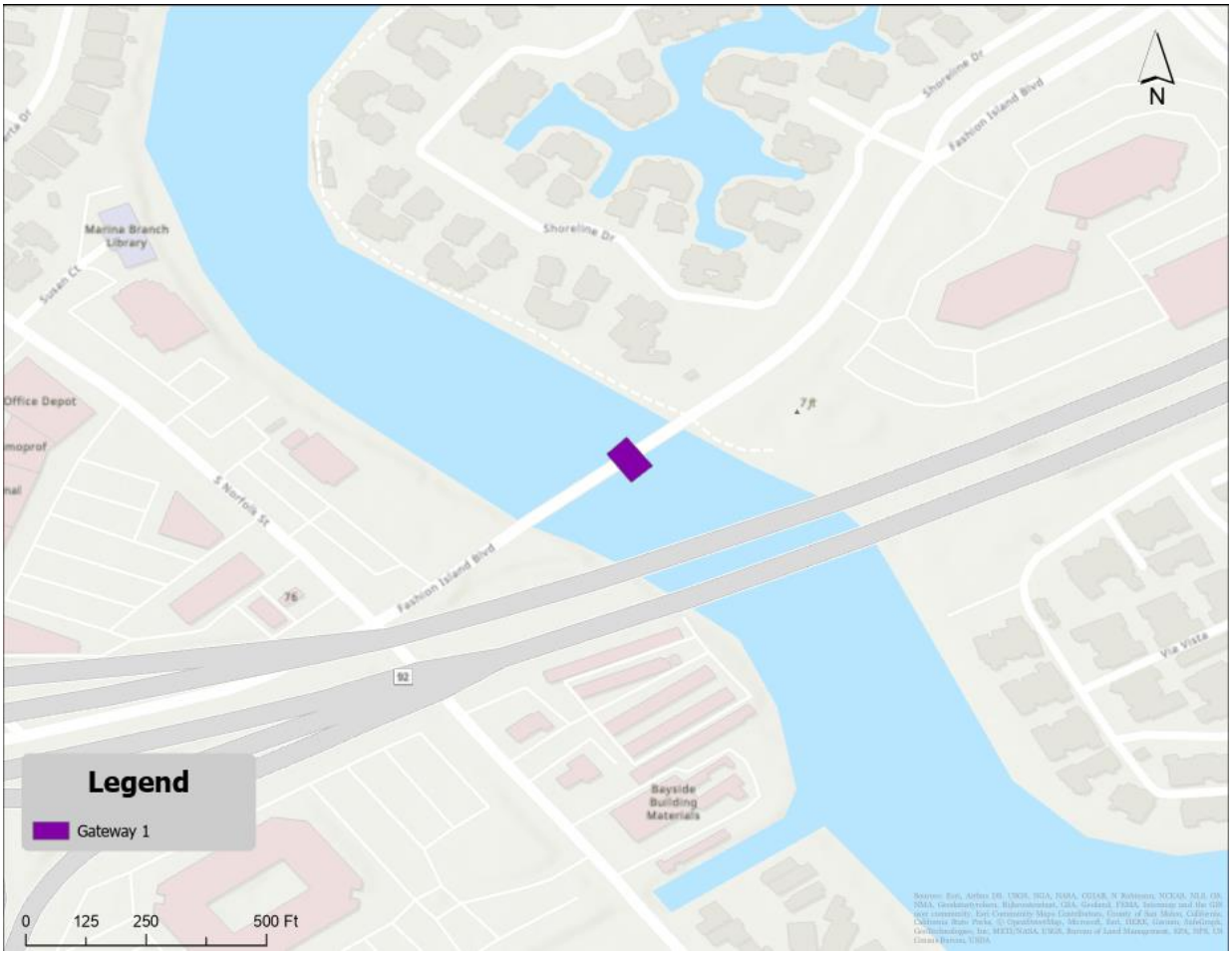
Figure 2-65 demonstrates again that for trips from the 1.5mile OD zone (east) the majority end in the same area around Foster City. In particular 2 TAZ's account for 52% of all cycling trips from this zone, which are the zones in the town center of Foster City. Similarly, there are limited trips to areas beyond the Seal Slough highlighting the severance that it causes.

Figure 2-65: Cycling trips from 1.5mile OD zone (east)

2.8.5 Gateway 1

The passthrough zones are used to understand on a wider scale where trips that pass along the corridor at key roadways are traveling to and where they have come from and provides an indication of where people might want to and from in the future. Gateway 1 is located on Fashion Island Blvd. on the bridge that crosses Seal Slough. This gateway is represented by the purple square at the center of Figure 2-66 and Figure 2-67.

Figure 2-66: Gateway 1 location



For trips that travel along Fashion Island Boulevard towards the mobility hub, southbound, Figure 2-67 shows that most of the trips end in the area, with about 31% ending in TAZ's around the mobility hub location. This shows there is a significant demand for trips that end in the mobility hub area that travel south down Fashion Island Blvd towards the mobility hub. A significant amount also travel up the coast towards San Francisco Airport and South San Francisco.

Figure 2-67: Gateway 1 vehicle trip destinations travelling towards the mobility hub

Below are average daily traffic volumes passing through Gateway 1 for different days of the week and times of the day for the time period analyzed (1 May 2021 – 30 April 2022).

Table 2-5: Gateway 1 traffic volumes 2021

Gateway	Average Weekday Daily Volume		Average Weekend Daily Volume	
	AM Peak	PM Peak	AM Peak	PM Peak
1a (NE – away from the hub)	1293	2960	990	2831
1b (SW - towards the hub)	1658	2656	925	3119

These travel patterns could indicate that the types of traveler making the trips are not dominated by commuters, with a later morning and midday peak and early evening peak. Additionally, these travel patterns are potentially indicative of changing travel trends following the pandemic, with the traditional AM peak in one direction, followed by the reverse PM peak in another direction and instead reveal a non-typical travel pattern. Due to these non-typical travel patterns revealed by Streetlight, further analysis was undertaken to examine the patterns on an hourly basis for both this time period (2021) and 2019 to compare, the results of which can be seen below in Figure and Figure .

These show that when looking at the hourly profile of traffic in both directions (1a and 1b) on Fashion Island Boulevard for 2021, the peak of travel occurs at the weekend, with the highest volume of traffic occurring on the weekend at the middle of the day. For the weekday, there is a small peak in the AM for both directions at 8am, however, volumes continue to increase to a peak in the later afternoon and early evening. Broadly the peaks in 2021 are less distinct and drastic suggesting generally higher volume traffic is spread out more throughout the day, reflecting changing working patterns following the pandemic. In comparison, 2019, particularly gate 1b has a much more distinct and traditional traffic profile with 2 clear peaks in the AM and PM on weekdays. Additionally, the overall traffic volumes for 2019 are higher than 2021, suggesting that overall numbers of vehicles on the roads are lower than in 2019. However it is likely that ongoing impacts of the pandemic may have been impacting travel behavior in 2021 with different levels of restrictions and return to ‘normal’ travel behavior at different times.

Figure 2-68: Gateway 1a (NE) traffic volumes comparison between 2021 and 2019

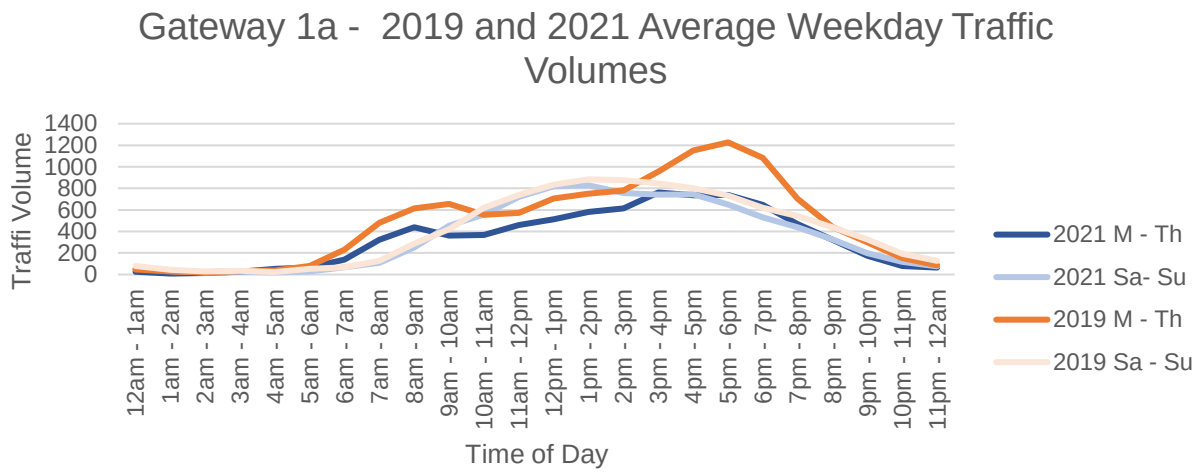
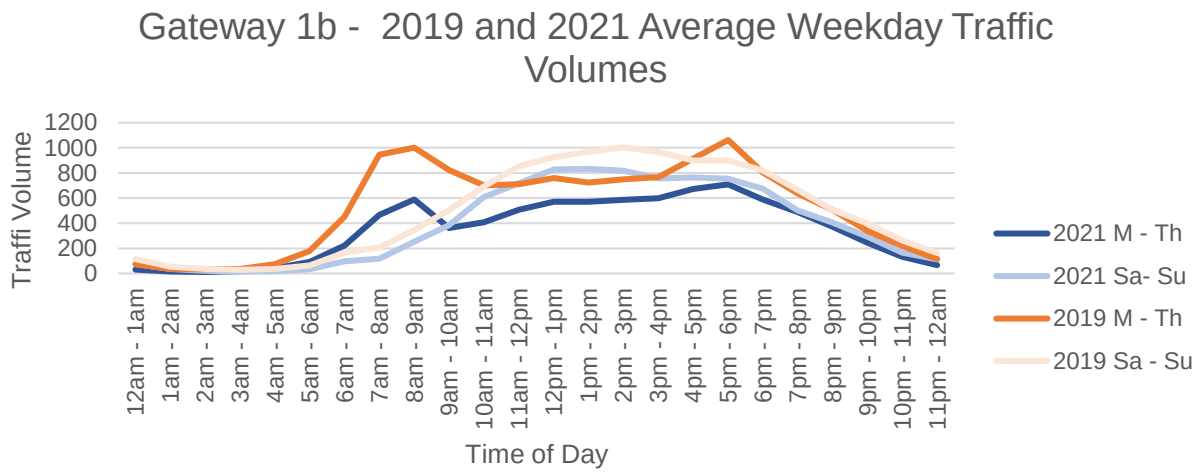


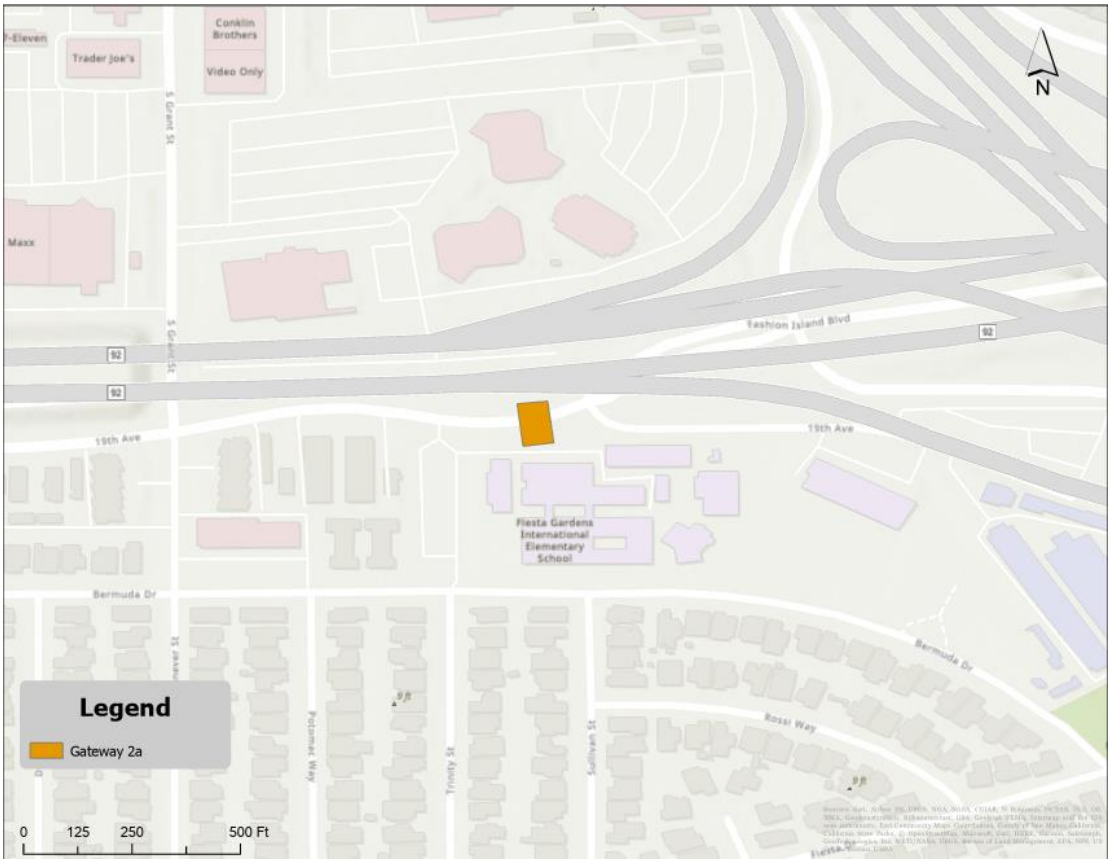
Figure 2-69: Gateway 1b (SW) traffic volumes comparison between 2019 and 2021



2.8.6 Gateway 2

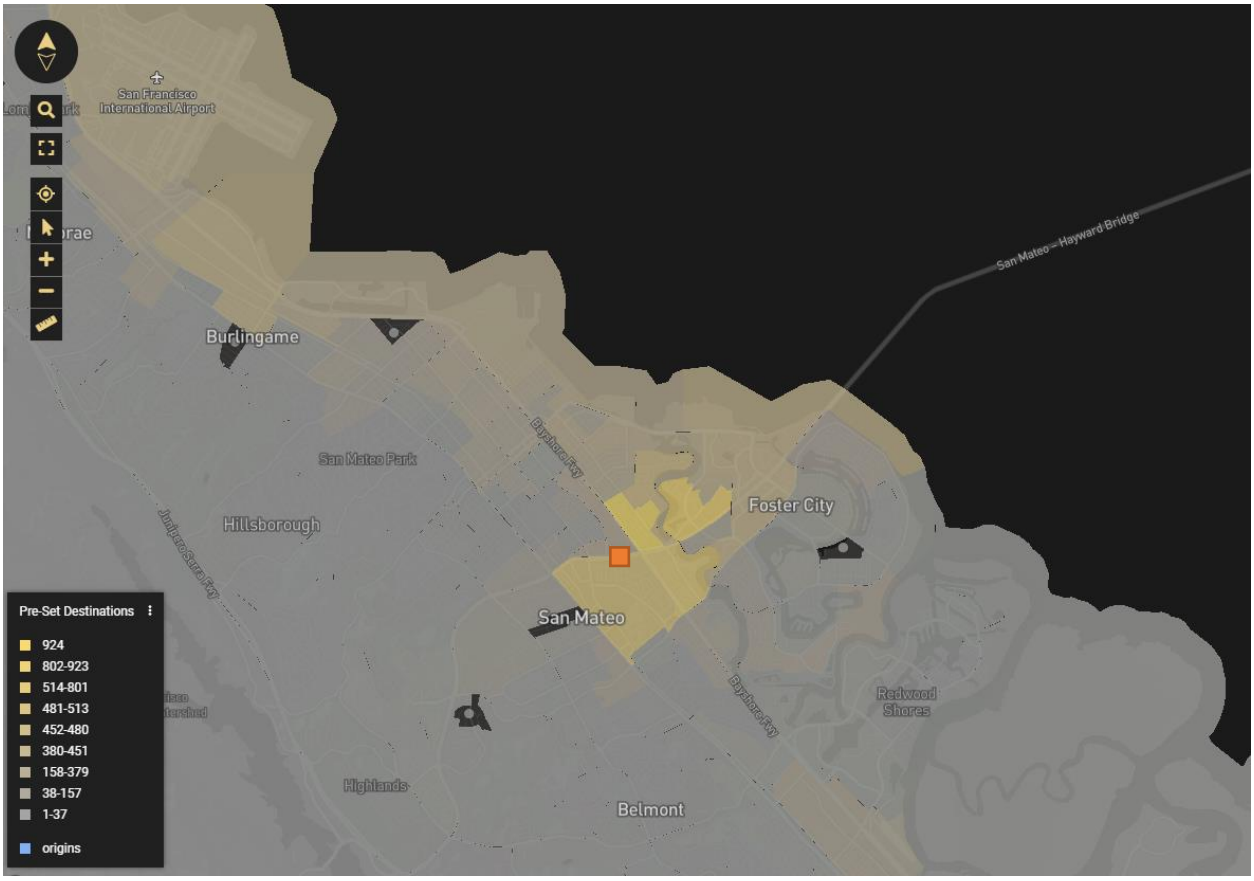
Gateway 2 is located on 19th Ave. before the street turns into Fashion Island Blvd. at the SR 92/US 101 interchange. This gateway is represented by orange squares in Figure 2-70 and Figure 2-71.

Figure 2-70: Gateway 2 location



For trips that travel towards the mobility hub eastbound on 19th Avenue, the majority of trips end in and around Foster City, with the top five destination transportation analysis zones (TAZ) accounting for approximately 25% of all trips being in and around the hub. This suggests a need to cover a relatively short distance from the mobility hub to support a lot of travelers. Additional destinations include San Francisco airport and TAZ's along the coast through to Burlingame.

Figure 2-71: Trips towards the mobility hub through Gateway 2



In terms of traffic volumes at different times of the day, Table 2-6 provides the volumes for the AM and PM peak periods for both weekday and weekend in both directions (from 1 May 2021 – 30 April 2022).

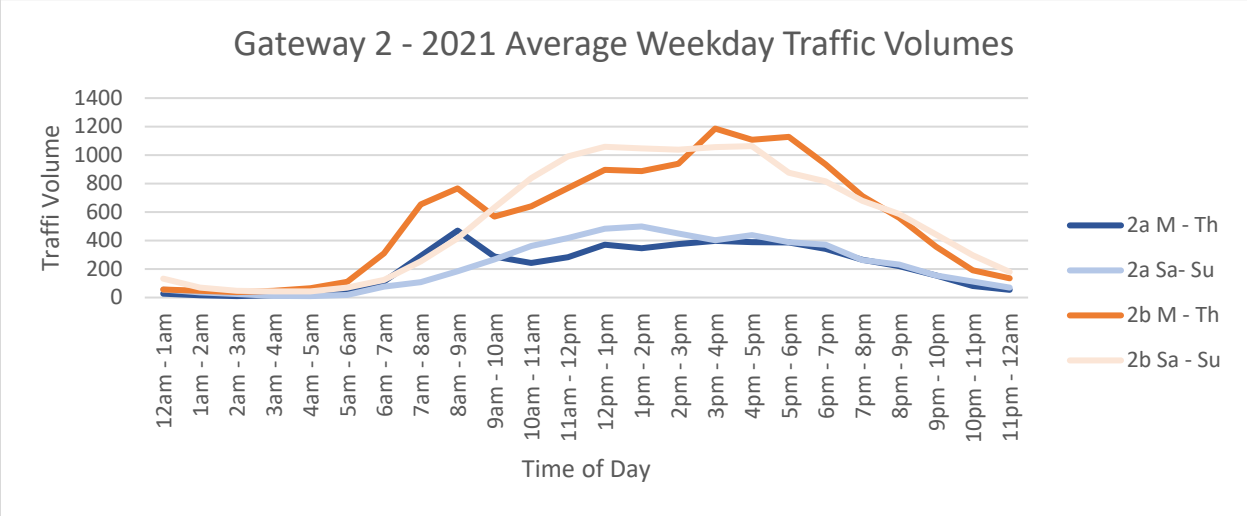
Table 2-6: Gateway 2 traffic volumes 2021

Gateway	Average Weekday Daily Volume		Average Weekend Daily Volume	
	AM Peak	PM Peak	AM Peak	PM Peak
2a (SW – from the hub)	1026	1372	1372	1493
2b (NE - towards the hub)	2408	4472	1459	3908

This shows, similar to Gateway 1, that the PM peak is higher for both directions compared to the AM peak, further corroborating the finding that traditional travel patterns are different in this instance with a slow gradual increase throughout the day peaking in the afternoon and early evening before dropping off.

This is also shown in Figure 2-72 which demonstrates how the flows change for an average weekday and weekend day. This shows that generally traffic heading north east on 19th Avenue towards the mobility hub is much higher than traffic heading in the opposite direction south west on both weekdays and weekends.

Figure 2-72: Gateway 2 - 2021 average weekday traffic



When examining the differences between 2019 and 2021, there have been less significant changes at this gate (Gate 2) compared to Gate 1, with both years reflecting more similar travel patterns. The only significant difference between the years can be seen in Figure which shows a reduction in overall trips from 2019 to 2021 but still reflecting the same travel trend. For Gate 2a (Figure 2-73), the traditional morning and evening peak in 2019 for Monday to Thursday can still be partially seen in 2021 albeit with lower peaks and no specific evening peak. For Gate 2b, northeast bound, the travel patterns have remained the most similar between 2019 and 2021 as shown in Figure 2-74. There appears to be both a morning peak and an evening peak in 2019 and 2021 while the weekend follows a standard slow growth in trips up to midday and afternoon peaks then dropping off towards the evening.

Figure 2-73: Gateway 2a - 2019 and 2021 traffic volumes comparison

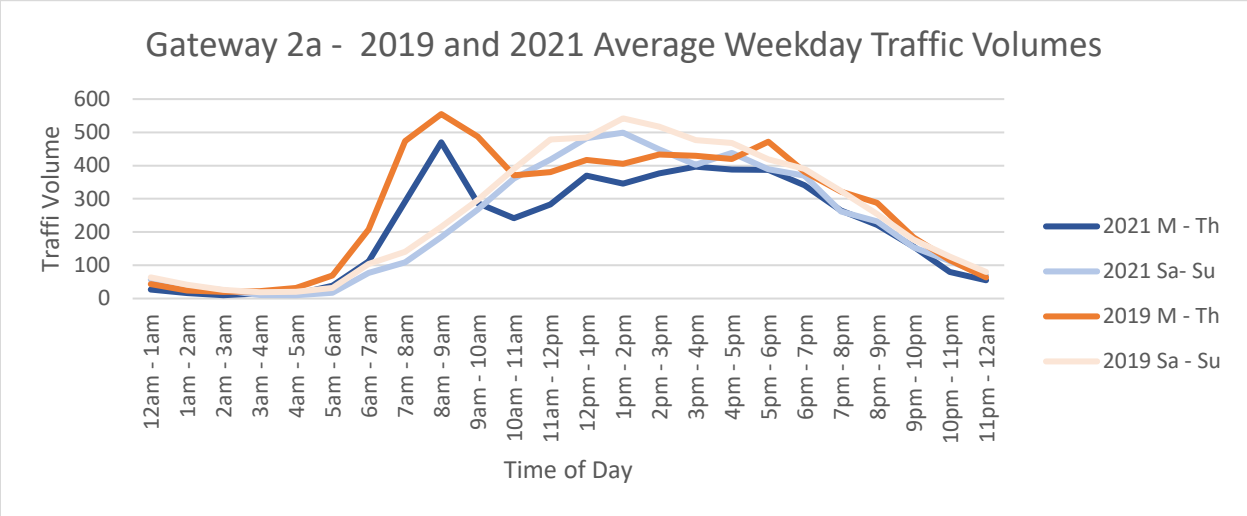
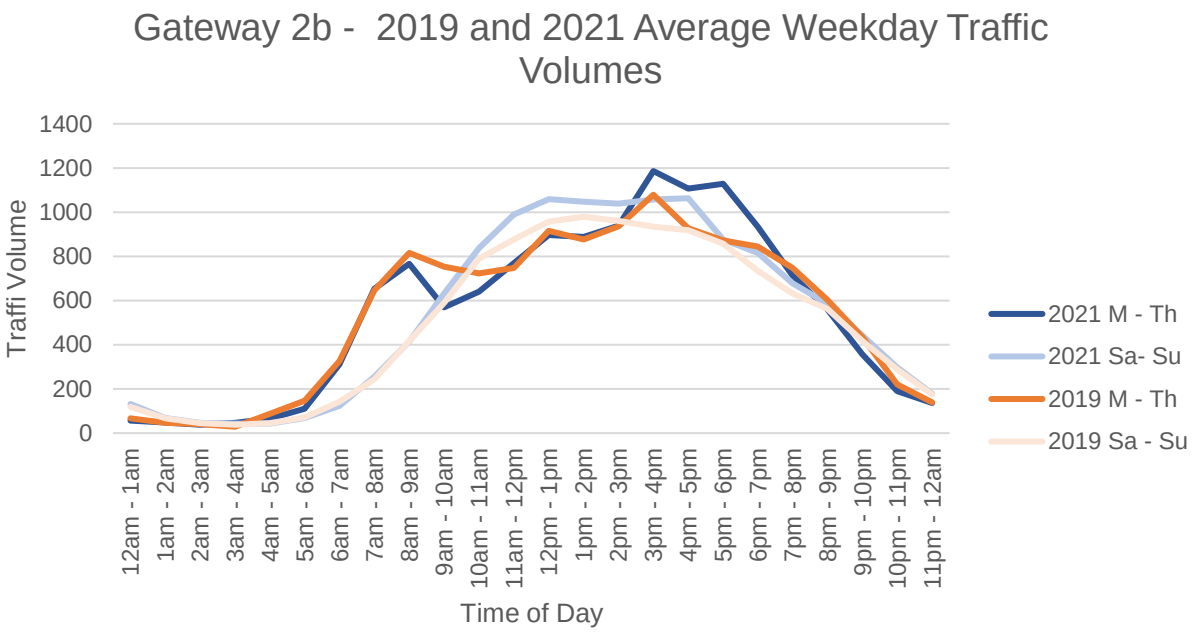


Figure 2-74: Gateway 2b - 2019 and 2021 traffic volumes comparison



2.9 MULTIMODAL COLLISION AND SAFETY ANALYSIS

To gain an understanding of the frequency of instances of traffic collisions across modes, a multimodal collision and safety analysis was completed using Safe Streets data from the City of San Mateo[37]. The City of San Mateo Police Department collects and publishes data online across a number of categories, including pedestrian and bicycle collisions. Figure 2-75 shows the frequency of all collisions (across all modes) that occurred in the project area between January 2019 and May 2023. Figure 2-75 also shows that collisions occur most frequently at 19th Ave. and Delaware St. and at Fashion Island Blvd. and Norfolk St., where data points are pink in the center.

[37] https://www.cityofsanmateo.org/4449/Safe-Streets-San-Mateo

Figure 2-75: All collisions in the project area, January 2019-May 2023 (Safe Streets San Mateo)

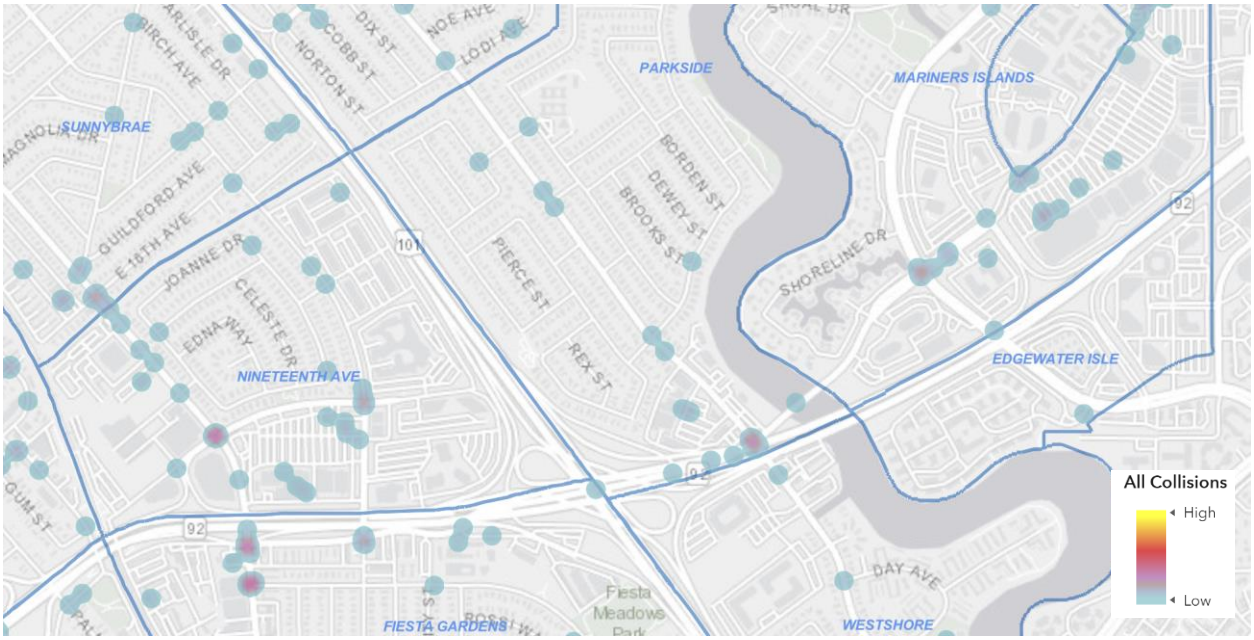


Figure 2-76 shows all bicycle collisions in the project study area that occurred between January 2017 (the earliest date that data is available) and March 2023. There were two reported bicycle collisions at the Fashion Island Blvd. and Norfolk St. intersection from 2018. One incident reported minor injuries, while the other was fatal to the cyclist.

Figure 2-76: Bicycle collisions in the project area, January 2017-March 2023 (Safe Streets San Mateo)

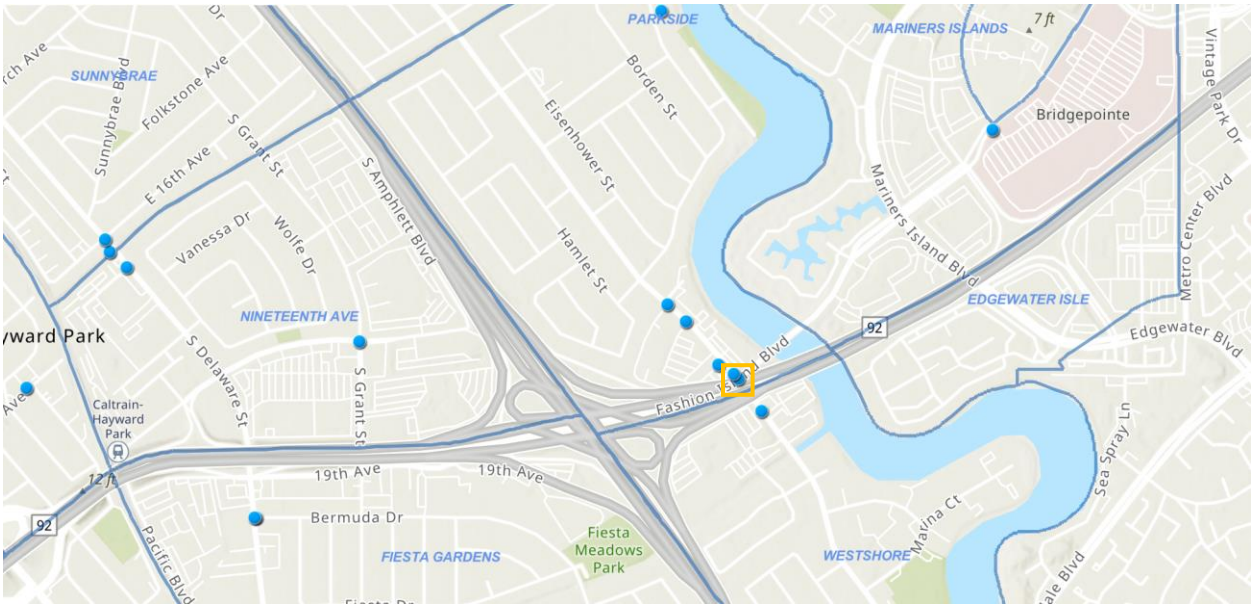
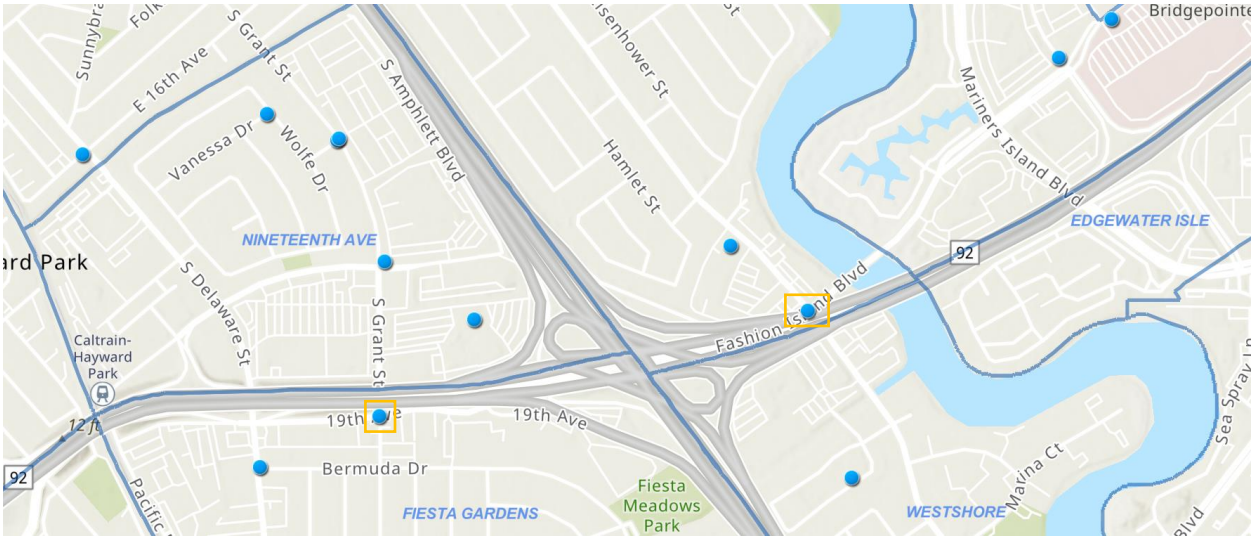


Figure 2-77 shows pedestrian collisions for the same time period. Two collisions occurred in the project area: at the intersection of 19th Ave. and Grant St. in 2018, and at Fashion Island Blvd. and Norfolk St. in 2019. Both collisions were between a pedestrian and a vehicle, and no fatalities were reported.

Figure 2-77: Pedestrian collisions in the project area, January 2017-March 2023 (Safe Streets San Mateo)



3.0 CLOSING

This memo provided an overview of the US 101/SR 92 Mobility Hub and Smart Corridor Concept Plan, the background of the project, its relation to other regional and local plans and projects, and a detailed description of the site and its characteristics. These characteristics included examining the demographics of the service area, the existing transportation infrastructure, and an analysis of current travel behaviors and how people are moving around the corridor today.

Now that an understanding of existing conditions has been developed, the project can move to the next phase of the plan, which includes developing the mobility hub and smart corridor toolkit and launching the first phase of community engagement.