Stantec

US 101/SR 92 MOBILITY HUB AND SMART CORRIDOR CONCEPT PLAN

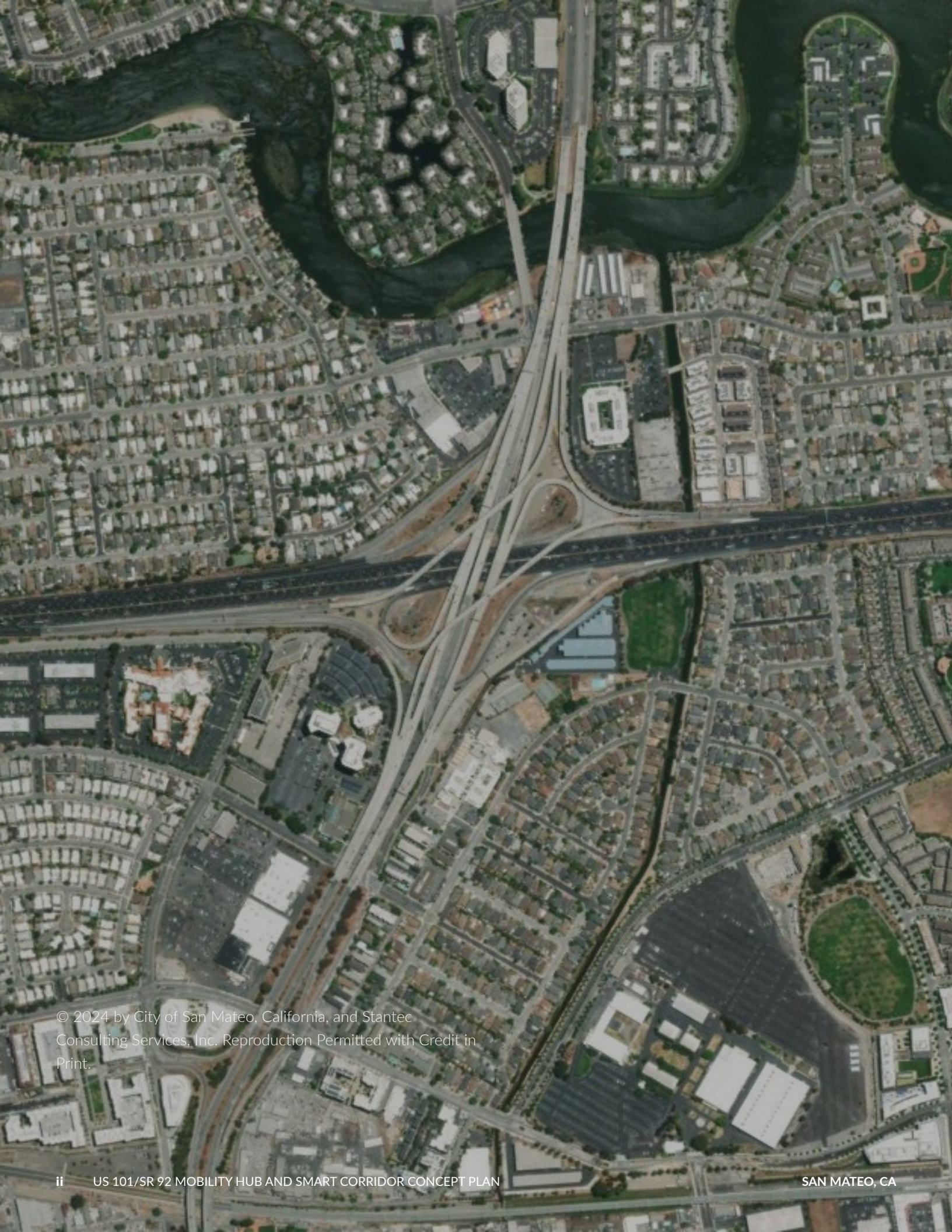
PREPARED FOR: CITY OF SAN MATEO, SAN MATEO COUNTY TRANSPORTATION AUTHORITY, AND SAMTRANS

MARCH 2025

CITY OF SAN MATEO CALIFORNIA

SAN MATEO COUNTY Transportation Authority

samTrans



© 2024 by City of San Mateo, California, and Stantec Consulting Services, Inc. Reproduction Permitted with Credit in Print.

REPORT ACKNOWLEDGMENTS

Thank you to all of the organizations and individuals who committed their time, energy, and resources to this effort. This study would not have been possible without the support of many throughout the process. On behalf of the San Mateo County Transportation Authority (TA), San Mateo County Transit District (SamTrans), and the City of San Mateo, the Stantec team thanks the diverse group of participants whose collective efforts are reflected in this report.

PROJECT PARTNERS

TRANSPORTATION AUTHORITY AND SAMTRANS

Patrick Gilster, Director, Planning and Fund Management

Sue-Ellen Atkinson, Manager, Planning and Fund Management

Chelsea Schultz, Manager of Strategic Planning

Amy Linehan, Government and Community Affairs Officer

Nicole Arshad, Government and Community Affairs Specialist

Carolyn Mamaradlo, Senior Project Manager

Jessica Manzi, Director, Project Delivery

CITY OF SAN MATEO

Jay Yu, Engineering Manager

Bethany Lopez, Senior Engineer

Kenny Tanaka, Assistant Engineer

CONSULTANT TEAM

STANTEC

Gyan Sinha, Project Manager

Ashley Thompson, Deputy Project Manager

Hector Guzman, Senior Transportation Engineer

Vince Delgado, Senior Transportation Designer

Robert Williams, Smart(ER) Mobility Planner

Rachel Young, Transportation Planner

Astrid Mayak, Planner/Urban Designer

Deirdre Nolan, Architectural Designer

Wei Xiao, Urban Designer

Lance Mikhail Punay, Urban Designer

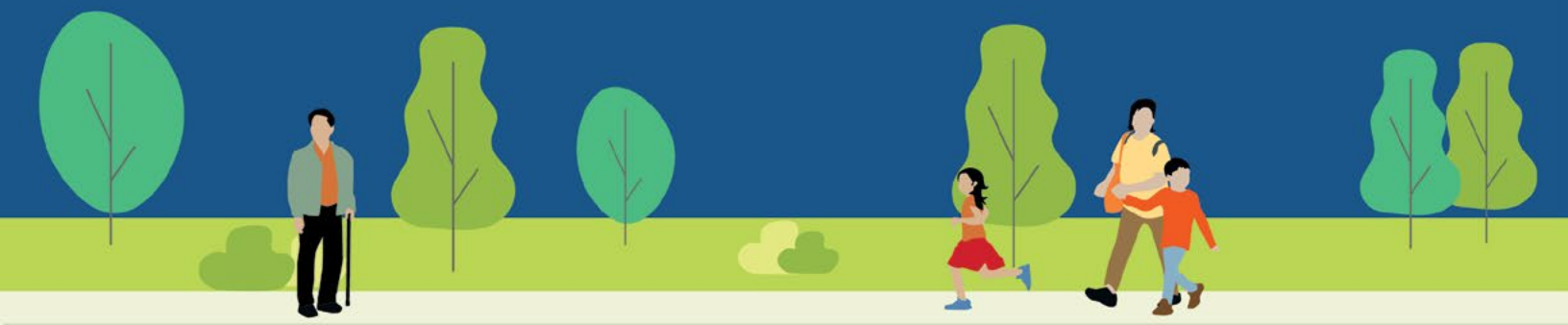
Chris Gendron, Cost Estimator

Mike Rutkowski, Complete Street Advisor

Matt Davis, Smart Corridor Advisor

TABLE OF CONTENTS

CHAPTER 1
INTRODUCTION



1 INTRODUCTION

19th Avenue near Delaware Street

Located in the San Francisco Bay Area, one of the densest regions in the United States, the US 101 and SR 92 interchange presents a major barrier to local east/west access in the City of San Mateo while connecting busy expressways in the center of San Mateo County.

The underlying 19th Avenue/Fashion Island Boulevard corridor is important as one of few local access routes in San Mateo that connect eastern San Mateo and Foster City to the west side of US Highway 101. The corridor is vehicle-focused and lacks investment in safe transportation options to help people walk, bike, roll, and access transit in the area.

Multiple governmental stakeholders have come together to identify, evaluate, and design feasible multimodal improvements for the corridor. The US 101/SR 92 Mobility Hub and Smart Corridor Plan represents a two year inter-agency and publicly collaborative effort to identify a preferred conceptual design that would help address those deficiencies and present an implementation plan to further this work.

PROJECT CONTEXT

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 to enhance mobility and accessibility along an important corridor. Entirely within the City of San Mateo, the project area consists of 19th Avenue and Fashion Island Boulevard crossing over US 101 while running parallel to, and sometimes beneath, SR 92 (**Figure 1-A**). Pacific Boulevard marks the western extent of the corridor while Mariners Island Boulevard represents the eastern terminus. The project also considers improvements to the current Caltrans Park and Ride lot within the US 101/SR 92 interchange as a Mobility Hub.

Focused examination seeks to identify current and potential future issues along the 1.2-mile segment of 19th Avenue/ Fashion Island Boulevard and address them proactively. This study presents a preferred conceptual design alternative, offering a detailed perspective for the future of the corridor. Establishing a Smart Corridor and Mobility Hub solidifies important multi-modal connections to better meet the needs of the entire community.

This project is part of broader efforts 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 from westbound SR 92 to southbound US 101, modify the merge conditions from US 101 to eastbound 92, and upgrade the Fashion Island Boulevard and Hillsdale Boulevard exit ramps. The US 101/SR 92 Direct Connector Project considers construction of new direct links from westbound SR 92 to the express lanes on US 101 in both the northbound and southbound directions.

While the larger highway-focused efforts are either approaching construction or are under study, other improvements to local access corridors adjacent to and through the interchange still present opportunities for

FIGURE **1-A**
STUDY AREA - PACIFIC BLVD TO MARINERS ISLAND BLVD

enhancement. The development of a Smart Corridor along 19th Avenue and Fashion Island Boulevard and a Mobility Hub at the US 101/SR 92 interchange embodies several goals related to active transportation, public transit, and the overall mobility network (**Figure 1-B**). The fundamental goal of the project is to determine a preferred design for each, providing the conceptual materials need to progress to detailed design, construction, and funding searches. Concept plans are designed to enhance competitiveness for future grant opportunities.

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

FIGURE **1-B**
PROJECT GOALS

SMART CORRIDOR FRAMEWORK

The Smart Corridor will incorporate Complete Streets and technology-forward elements along three unique segments of 19th Avenue and Fashion Island Boulevard. The segments, divided and defined by Grant and Norfolk Streets, reflect the varying character and opportunity for modification of cross sections throughout the corridor.

Complete Streets are designed for travelers of all ages and abilities, traveling by all modes, with gray and green infrastructure to support people walking, biking, using a scooter or mobility device, or accessing transit as well as the environment. The planning, design and operation must minimize conflict between modes so travelers can comfortably complete their journey.

A Smart Corridor promotes a technology-forward focus and innovative corridor design, supporting a Complete Streets approach by incorporating and leveraging advanced technologies that enhance safety, accessibility, and efficiency for all users. These corridors utilize smart traffic signals, real-time information, and adaptive lighting to create a more inclusive and user-friendly environment. For auto-centric corridors, adopting a Complete Streets approach will balance the needs of all road users, reduce congestion, and promote sustainable transportation options. Integrating Smart Corridor features can transform traditionally car-focused areas that act as barriers to other forms of travel into dynamic, multimodal spaces that prioritize the well-being and mobility of the entire community.

Figure 1-C illustrates the synergies between Complete Streets, technology, and green infrastructure design elements. Chapter 4 of this plan further describes design elements of the Smart Corridor in great detail along with design process considerations.

MOBILITY HUB FRAMEWORK

A Mobility Hub is being considered at the Caltrans-owned Park and Ride lot below the US 101/SR 92 interchange. This hub will serve as a transportation anchor in the community and provide safe, comfortable, convenient, and accessible space for seamless transfers between different travel modes. Co-location at the hub will enable travelers of all means, ages, and abilities to access multiple transportation options and supportive amenities.

The preferred concept design aims to complement the proposed Smart Corridor improvements by co-locating facilities near 19th Avenue/Fashion Island Boulevard. Bus service will access the site from 19th Avenue, with dedicated bus turn around space for safety and efficiency. The Mobility Hub will provide a passenger waiting area with covered seating and wind screens, interactive kiosks for real-time updates and ticket purchasing, a community plaza, and micromobility amenities like bikeshare parking, bike racks, e-scooter share parking, and bicycle lockers near the active transportation facilities along the Smart Corridor.

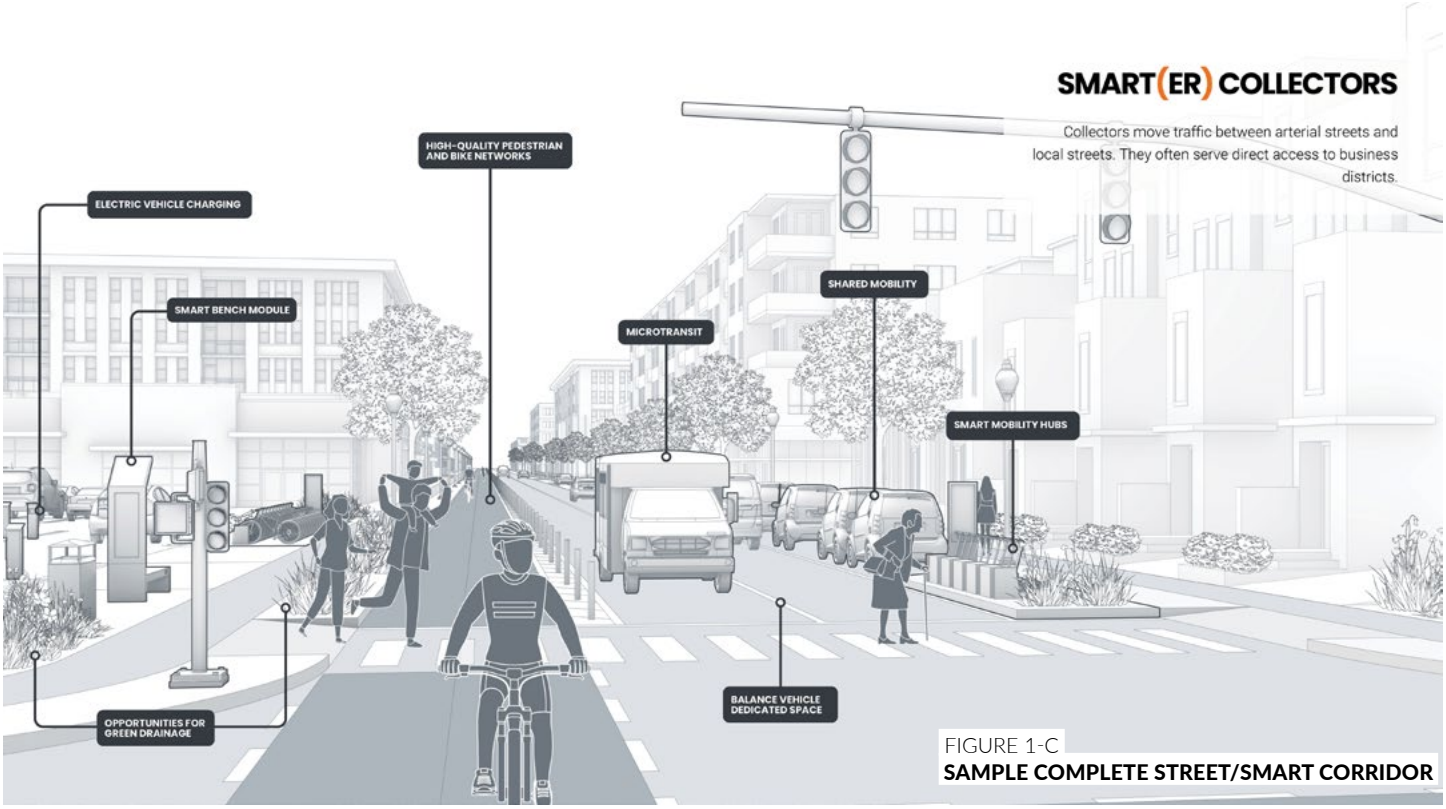


FIGURE 1-C
SAMPLE COMPLETE STREET/SMART CORRIDOR

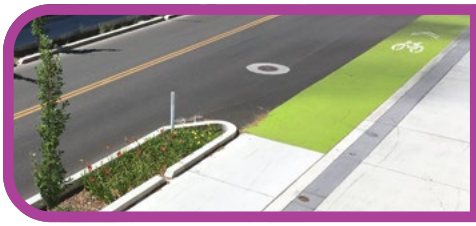
GUIDING PRINCIPLES

Guiding Principles were developed to lead the design of the project and ensure the preferred alternatives reflected the goals of the community. The project team gathered community input through a comprehensive engagement process, including public events, focus groups, workshops, surveys, and other outreach efforts. The principles inform recommendations and the conceptual design, integrating community concerns and design elements preferred by interested parties.

1 **Expand transportation options**

2 **Increase access to safe, high-quality transit**

3 **Reduce emissions and enhance public health**



4 **Improve conditions for all non-motorized forms of transportation**

e.g. walking, cycling, rolling, etc.

ABOUT THE PROCESS

The project timeline is shown in **Figure 1-D**. The project commenced in early 2023 with completion anticipated for early 2025. The project team engaged interested parties and the public in two phases. The first phase identified community needs and mobility gaps, followed by the development of design alternatives. Phase 2 focused on gathering feedback related to design alternatives, leading to the selection of a preferred alternative for both the Smart Corridor and the Mobility Hub.

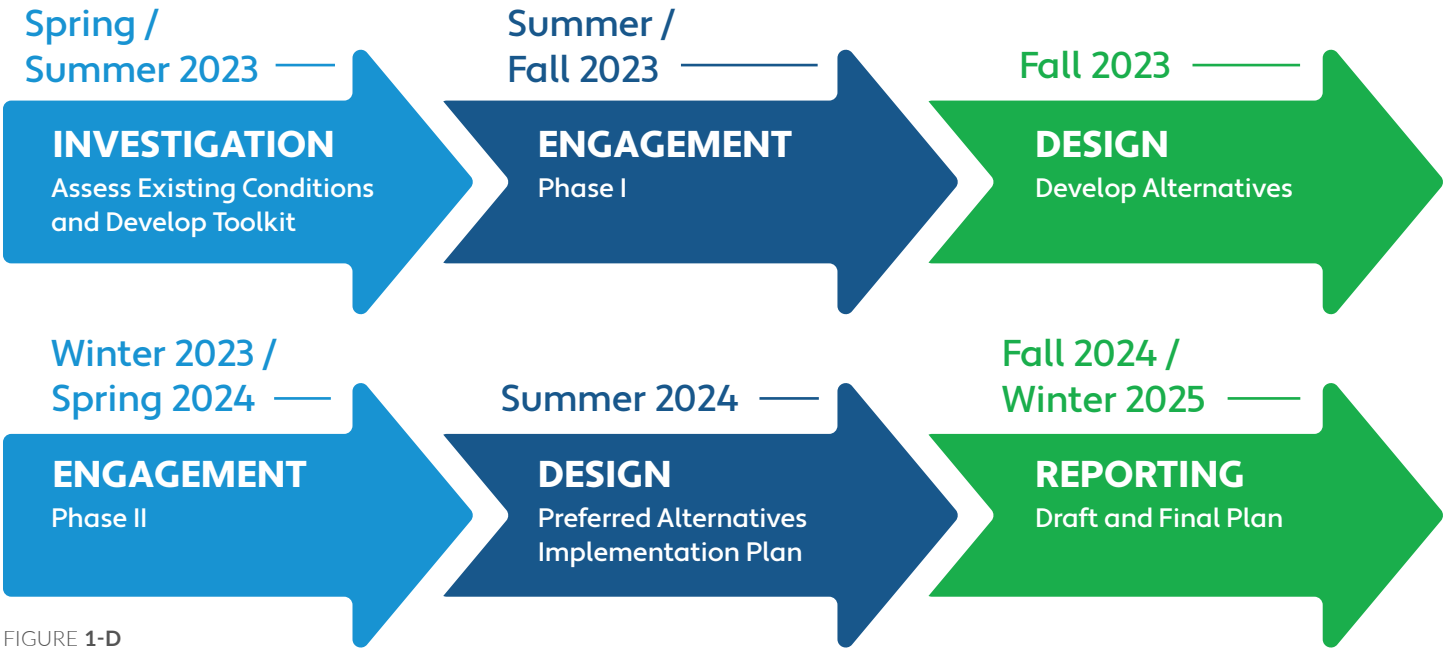


FIGURE **1-D**
PROJECT TIMELINE

INVESTIGATION

Initial work focused on gathering community feedback and conducting preliminary analysis. This stage featured three in-person events in the community along with a community preference survey, offering the public opportunities to express their concerns, challenges, and positive/negative circumstances identified within the study area.

DESIGN

The design phases flanked the second phase of engagement with interested parties and the broader community to develop and refine the conceptual design for each aspect of the project. In an effort to understand a wider range of perspectives, an in-person community workshop and an identical online survey comprised the second round of public interaction. Division of the project into segments and subsequent voting informed refinements to the preferred design.

REPORTING

The final phase consolidates all project work into a comprehensive report that establishes the recommendations and design characteristics required to realize the community's vision for a Smart Corridor along 19th Avenue/ Fashion Island Boulevard and a Mobility Hub at the adjacent Caltrans Park and Ride.

CHAPTER 2
INVESTIGATION

2 INVESTIGATION

Corridor improvements and bus service enhancements along 19th Avenue and Fashion Island Boulevard have been identified as priorities in multiple adopted local, county, and regional plans. The Mobility Hub and Smart Corridor project seeks to more safely bridge a critical transportation gap through a busy interchange and establish a much-needed multimodal east-west connection between San Mateo and Foster City.

While supporting plans provide insights into preferred multimodal concepts for the reconfiguration of the 19th Avenue/Fashion Island Boulevard corridor, understanding current physical and social conditions sets a more detailed direction for creating a safe and accessible environment for all its users. Background analysis forms the foundation by encompassing a range of factors, including traffic patterns, pedestrian and bicycle infrastructure, demographic trends, and land use patterns.

BACKGROUND & CONTEXT

DEMOGRAPHICS

A selective demographic data snapshot describes San Mateo as a community in transition (**Figure 2-A**), with a young median age, significant numbers of persons with

disabilities, reliance on personal vehicles for commuting, and minimal bicycling for transportation, emphasizing the need for comprehensive and versatile solutions. Census tracts containing portions of the study corridor reflect the same attributes as the City as a whole.

The population density surrounding the corridor is generally low compared to other parts of the city. Areas immediately north of the Park and Ride lot and at the eastern end of the corridor exhibit the lowest density as they are currently reserved for commercial and office uses. Medium-density multifamily housing south of 19th Avenue and clusters near

CITY OF SAN MATEO

104,165
Total Population

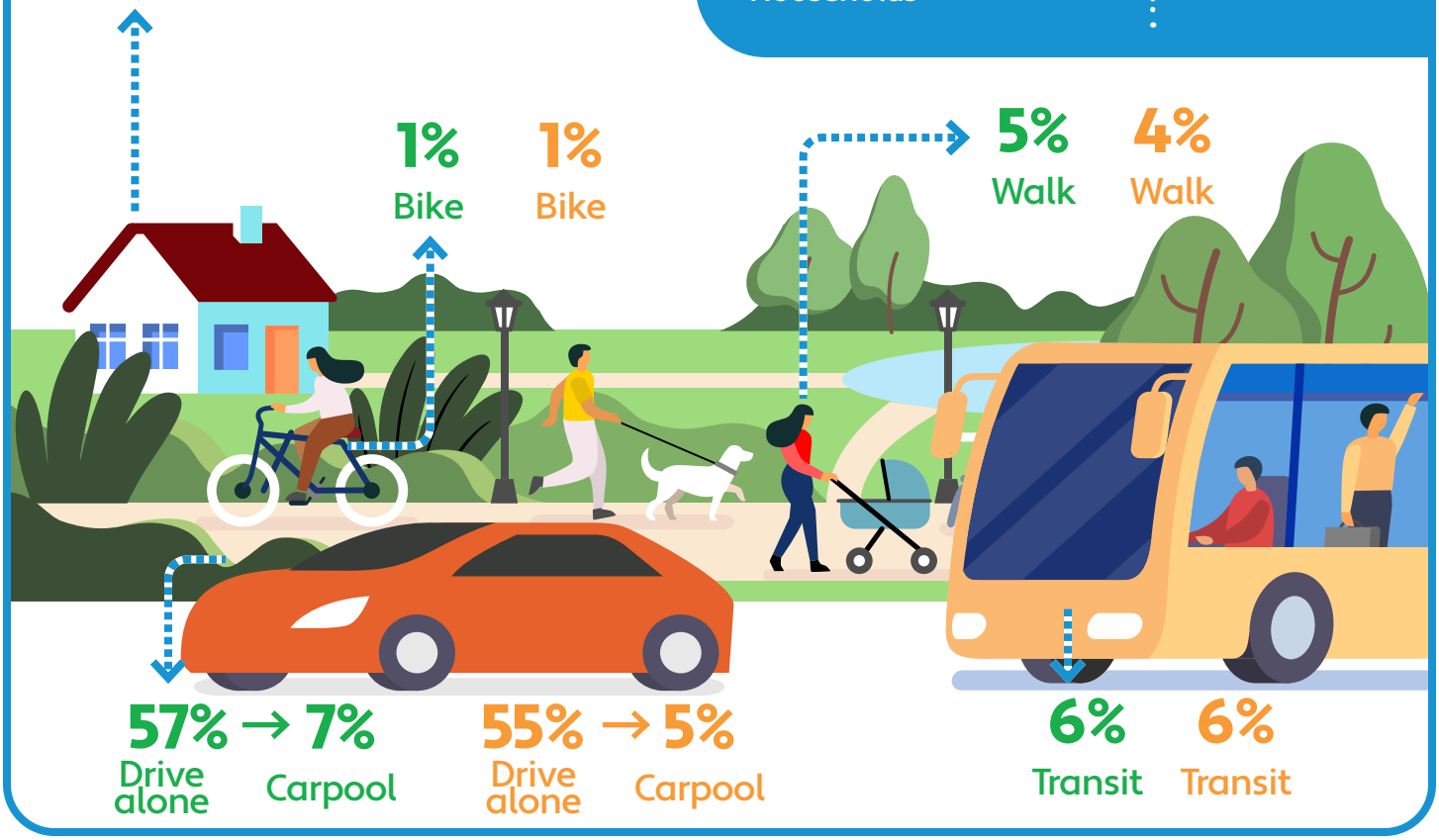
38.1
Median Age

FIGURE **2-A**
SAN MATEO DEMOGRAPHIC PROFILE

	Corridor Area	San Mateo
Persons with a Disability	10%	10%
Zero-Car Households	7%	6%

CORRIDOR 9,236 HOUSEHOLDS

SAN MATEO 39,916 HOUSEHOLDS



Source: U.S. Census Bureau American Community Survey 5-Year Estimates (2018-2022).

FIGURE **2-B**
EXISTING POPULATION AND EMPLOYMENT DENSITY

the Hayward Park Caltrain station contribute to the greatest levels of population density along the corridor.

The study area features several pockets of high employment density, often in regions with low population density (**Figure 2-B**). The high employment density around the corridor shows its potential for various transportation purposes, including commuting.

The California Healthy Places Index shows a correlation between lower per capita income and reduced access to automobiles, highlighting the need to identify low-income communities for effective multimodal planning. Plans should prioritize equity to enhance accessibility and mobility for those living below the poverty line. Specifically, the areas south of 19th Avenue and those surrounding the Hayward Park Caltrain station have the highest poverty rates within the immediate service area.

Similarly, minority communities (those who identify as non-white or are of Hispanic/Latino origin) often have less access to personal automobiles. Expanding transportation options can improve access to employment opportunities and daily needs while supporting healthier, more sustainable communities. High concentrations of minority populations are located south of the project corridor and near the Hayward Park Caltrain station (**Figure 2-C**).

Compared to the project area, higher concentrations of car-free households are found near the San Mateo Caltrain station and Downtown San Mateo. This suggests that compared to the central business district, people living throughout the project area experience transportation limitations without a vehicle.

- HIGH EMPLOYMENT (>10,000 jobs/sq. mi.)
  LOW POPULATION (<10,000 persons/sq. mi.)
- HIGH EMPLOYMENT (5,000–10,000 jobs/sq. mi.)
  LOW POPULATION (<10,000 persons/sq. mi.)
- LOW EMPLOYMENT (<5,000 jobs/sq. mi.)
  HIGH POPULATION (>15,000 persons/sq. mi.)
- LOW EMPLOYMENT (<10,000 jobs/sq. mi.)
  LOW POPULATION (< 10,000 persons/sq. mi.)

FIGURE 2-C
EXISTING EQUITY INDICATORS

SamTrans identified Equity Priority Areas in San Mateo through its Reimagine SamTrans project, using the following factors:

- Population density
- Car-free households
- Lower-income households (earning under $75,000 annually)
- Non-white households

While the study corridor does not directly pass through any Equity Priority Areas, one exists north of the Hayward Park Caltrain station and another along the Foster City border, south of SR 92, both within cycling distance of the corridor.

MTC identifies Equity Priority Communities as census tracts with significant underserved populations based on eight socioeconomic criteria. A tract qualifies if it exceeds thresholds for both Low-Income and People of Color, or for Low-Income plus three or more additional variables:

- 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's Equity Priority Communities Framework guides decisions on planning, investment, and community engagement. While no Equity Priority Communities are within the project corridor, five nearby census tracts in San Mateo qualify and are likely to benefit from the project.

LOW INCOME (>10% below poverty line)
HIGH MINORITY (>75% non-white or hispanic/latino)

VEHICLE ACCESS (>15% households with zero vehicles)

SAMTRANS EQUITY PRIORITY AREA

FIGURE **2-D**
GENERAL PLAN 2040 LAND USE MAP

LAND USE

The corridor immediately borders a diverse mix of land uses including neighborhood and service commercial offerings, multi-family housing of varying densities, an elementary school, and large auto-oriented office buildings.

Despite this diverse mix, there are distinct development and integration challenges. The corridor's proximity to two elevated expressways acts as a barrier to building a cohesive community, particularly for those without personal vehicles. Separated commercial sectors, residential areas, and offices complicate the ability to move easily between home, work, and activities, and highlight the need for better multimodal connectivity.

Multiple parcels near the Hayward Park Caltrain station and the corridor west of the Park and Ride lot are designated for medium density mixed use development. Providing or enhancing multimodal connections to and through these areas can increase their viability and reduce private vehicle use by offering first/last mile solutions.

- VERY LOW DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- SERVICE COMMERCIAL / LIGHT INDUSTRIAL
- REGIONAL COMMERCIAL
- MEDIUM DENSITY OFFICE
- HIGH DENSITY OFFICE
- LOW DENSITY MIXED USE
- MEDIUM DENSITY MIXED USE
- HIGH DENSITY MIXED USE
- PARKS / OPEN SPACE
- PUBLIC FACILITIES
- UTILITIES

EXISTING PLANS & POLICIES

Throughout the region, recent plans and policies have prioritized the enhancement of multimodal transportation options to promote active transportation and transit usage, ultimately contributing to more sustainable communities. The Smart Corridor and Mobility Hub project incorporates key elements identified in local, countywide, and regional planning documents. Advancing to the next phase of planning and selecting a preferred design alternative is imperative in moving the project toward full implementation.

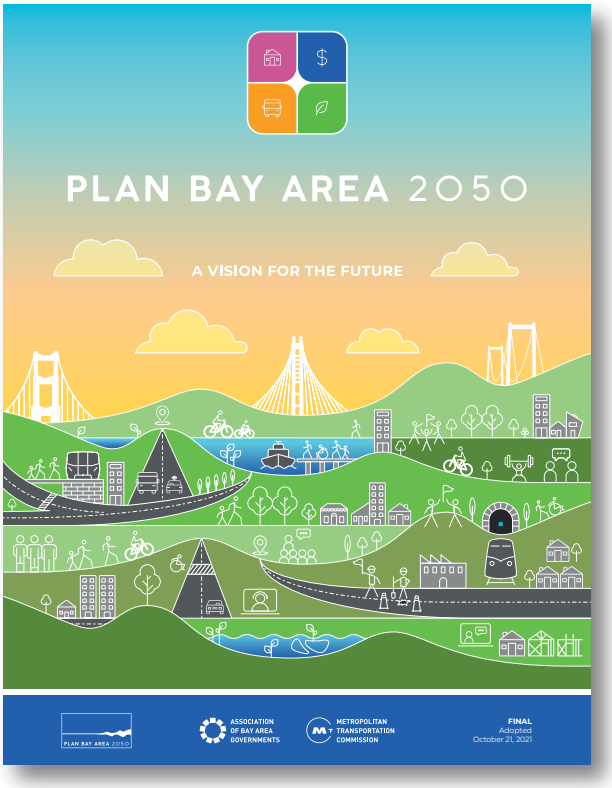
PLAN BAY AREA 2050 (2021)

The Bay Area's growing population requires a comprehensive and forward-looking approach, which is reflected in the region's long-range planning framework. Within the regional plan, the Metropolitan Transportation Commission (MTC) has developed a strategic initiative known as Priority Development Areas (PDA), which are places near public transit where new housing, jobs, and community amenities can be concentrated to guide and support sustainable growth.

Because PDAs are located in areas with significant existing transit infrastructure, they maximize the value of public investments while minimizing environmental impacts and promoting a reduction in car dependency.

MTC supports PDAs through a range of assistance programs, including planning and technical assistance for the development of Specific Plans for PDAs, which provide more customized support of design standards or transportation impact review. PDAs also align with MTC's broader goals outlined in the long-range regional plan and the Transit-Oriented Communities policy.

Multiple PDAs have been designated in the City of San Mateo. As the portion of the Smart Corridor and Mobility Hub project between Pacific Boulevard and US 101 is situated within the Rail Corridor PDA, the investment in active transportation and transit infrastructure will help to advance the MTC's strategic goals of greater convenience and utility of non-vehicular travel while positioning the corridor for future growth and sustainable development.



"Over its more than 10-year history, the PDA program has allowed cities to plan for more than 100,000 new housing units within walking distance of convenient transit."

– Plan Bay Area 2050

BAY AREA REGIONAL MOBILITY HUBS IMPLEMENTATION PLAYBOOK (2021)

The Park and Ride lot is identified as a Mobility Hub within the framework of Plan Bay Area 2050. The Mobility Hub program is a climate initiative strategy from the regional plan that aims to:

- Increase transit access and connectivity
- Focus growth
- Increase transit-oriented development
- Provide viable travel options to all Bay Area communities

MTC coordinates and funds hub development and offers technical assistance to ensure efficient multimodal connectivity. Their implementation playbook offers guidance to ensure consistency with other hub project development throughout the Bay Area and increase the likelihood of obtaining funding. The Playbook aligns planning, implementation, and delivery with regional objectives.

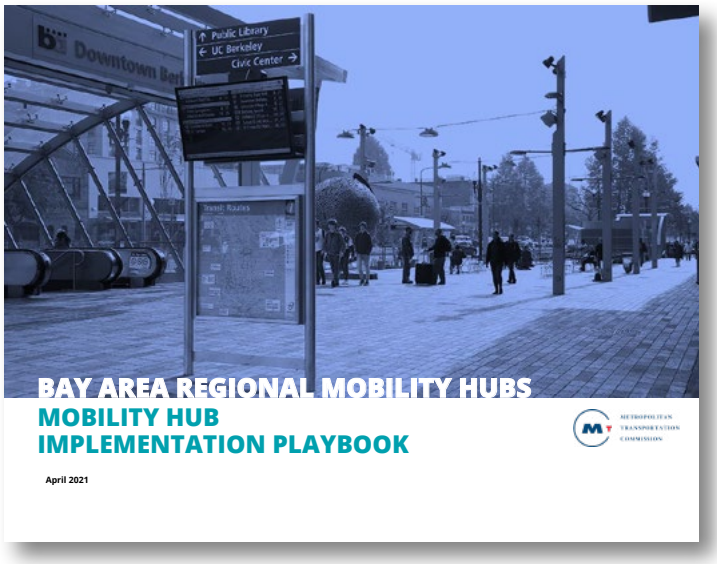


FIGURE **2-E**
MTC-DEFINED REGIONALLY SIGNIFICANT MOBILITY HUBS

SAN MATEO COUNTY COMPREHENSIVE BICYCLE AND PEDESTRIAN PLAN (2021)

The City/County Association of Governments of San Mateo County (C/CAG) has 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*." The plan identifies the following goals to achieve this vision:

- Connectivity: Establish a connected network of facilities for people cycling and walking.
- 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.

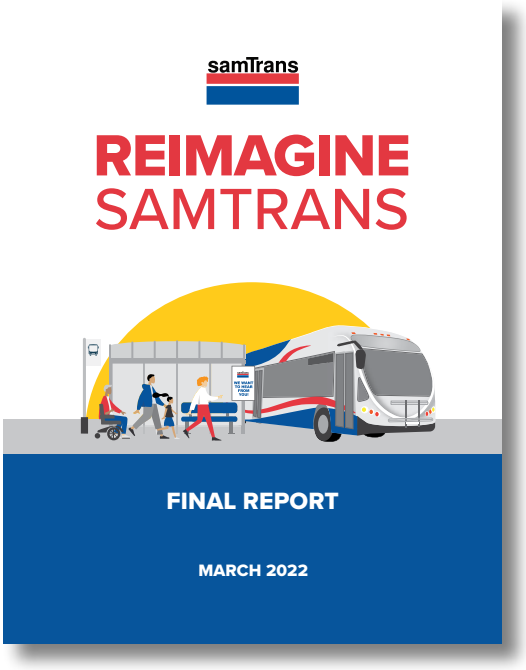
This plan identifies the 19th Avenue/Fashion Island Boulevard corridor as a part of the countywide backbone bikeway network, a gap in the transit network, and a pedestrian focus area.

REIMAGINE SAMTRANS (2022)

Reimagine SamTrans is a comprehensive operational analysis project to evaluate and refresh the entire SamTrans bus system. The project team conducted three rounds of public outreach, as well as existing conditions evaluation and market research. Recommendations reflect post-pandemic travel patterns and transportation needs, meeting the following goals:

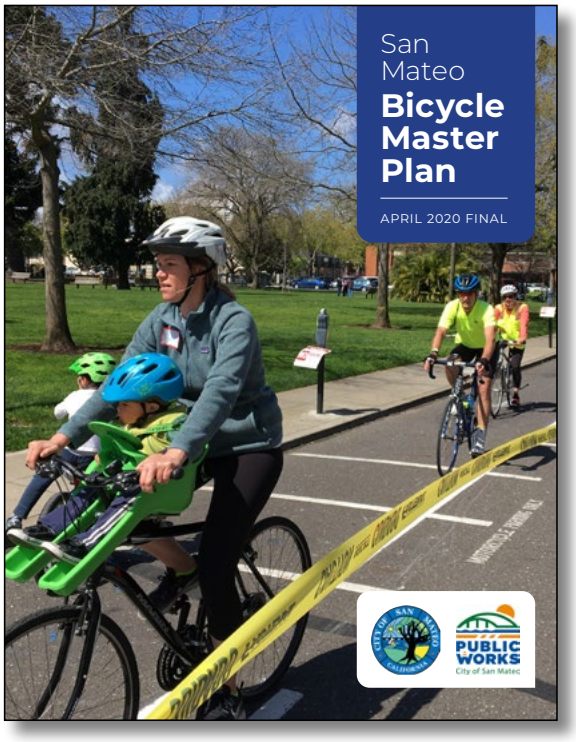
- Improve the experience of existing SamTrans customers.
- Grow new and more frequent ridership on SamTrans.
- Build SamTrans' efficiency and effectiveness as a mobility provider.

Following over three years of community engagement, technical analysis, and planning work, SamTrans initiated the resulting system changes in August 2022.



SAN MATEO BICYCLE MASTER PLAN (2022)

San Mateo updated their 2011 plan by adopting a new Master Plan to expand and improve the city's bicycle network. Developed alongside the City's General Plan update, which emphasizes multimodal transportation, the proposed network includes 101 miles of bike lanes, shared paths, and bicycle boulevards, an increase of 45 miles over the existing network. The Plan proposes a Class IV separated bike lane along 19th Avenue from the Hayward Park Caltrain station to Mariners Island Boulevard. The project area, would realize improved bicycle access and connectivity through implementation of the bikeway.



OTHER PLANS

MTC REGIONAL ACTIVE TRANSPORTATION PLAN (2023):

Developed to guide the policy and investment framework needed to achieve Plan Bay Area 2050 goals, MTC's Active Transportation Plan supports strategies to build a Complete Streets Network. Key elements include an updated Complete Streets policy, identification of a regional active transportation network, and a five-year implementation plan that focuses on near-term actions to deliver network projects.

The Regional Active Transportation Plan recognizes the Foster City Levee Pedway as part of an active transportation network that connects the Smart Corridor project to the San Francisco Bay Trail. The implementation matrix includes convening partners for the Bay Trail Strategic Plan and Gap Closure Implementation Plan as well as planning, technical, and delivery support for Bay Trail projects.

19TH AVENUE/FASHION ISLAND BOULEVARD STUDY (2022):

A priority corridor for the current City Council, the City studied the 19th Avenue/Fashion Island Boulevard corridor to both assess congestion on Fashion Island Boulevard and to review the feasibility of implementing a westbound lane on 19th Avenue between Grant and Delaware Streets.

Project objectives included feasibility determinations of:

- Reconstruction of the Fashion Island Boulevard/Norfolk Street intersection to optimize vehicle throughput
- Realignment of travel lanes on the Seal Slough bridge based on travel patterns and congestion relief options
- Consideration of converting 19th Avenue between Delaware Street and Grant Street to a bidirectional roadway.

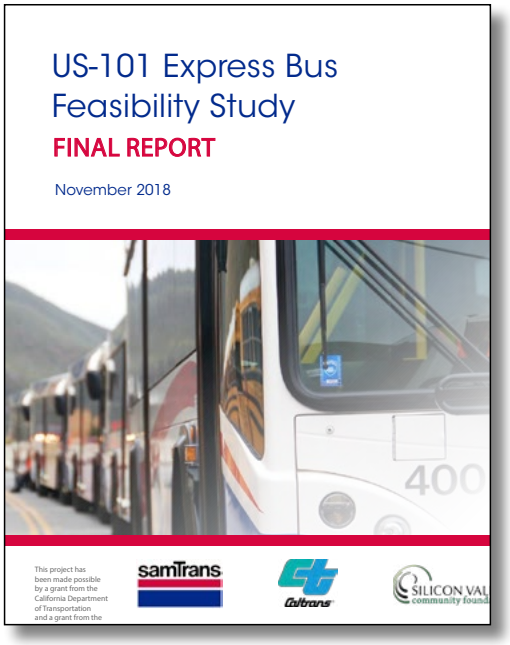
The report recommends prioritizing signal coordination, controlling throughput, leading pedestrian intervals, and

adding a general-purpose lane to the US 101 Southbound on-ramp. Other key recommendations include extending turn lane queue areas at Norfolk Street and intersections with US 101 ramps. The City plans to proceed with bridge restriping and improvements near the Norfolk/Fashion Island Boulevard intersection, including bike facilities, lane extensions, and turn lane additions. Further analysis is needed for other improvements. Improvements identified in this study will be incorporated into the design and construction phases of the Smart Corridor project.

US-101 EXPRESS BUS FEASIBILITY STUDY (2018):

SamTrans evaluated the financial and operational feasibility of long-distance express buses on the congested US 101 freeway in San Mateo County. The study explored various route options and identified transit-supportive facilities, including multimodal hubs, to address first/last mile gaps.

Two proposed potential routes would service this study corridor's park and ride lot, requiring an expansion of and/or improved connections for people walking and cycling. Though not currently slated for immediate implementation, delivery of these routes could be expedited by a Mobility Hub that serves as a catalyst for faster express bus service.



DELAWARE STREET SAFE ROUTES TO SCHOOL CORRIDOR BICYCLE IMPROVEMENTS (2024):

The City of San Mateo received a CalTrans Active Transportation Program grant for full funding of the 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 Avenue to Pacific Boulevard.

The City's Bicycle Master Plan identifies a high priority project for the corridor to construct 0.75 miles of Class IV separated bike lanes and 0.35 miles of Class III bicycle boulevards in 2025. Its northern terminus at 19th Avenue necessitates a connection to the Smart Corridor project to strengthen and expand the citywide bike lane network.

CALTRANS STATE HIGHWAY SYSTEM MANAGEMENT PLAN (2023):

An integrated management plan for California's State Highway System, the document presents needs, investments, and resulting performance projections for a 10-year period spanning July 2023 – June 2033. The most recent version introduces a new Mobility Hubs objective designed to facilitate and encourage use of high-occupancy modes such as carpools, vanpools, buses, and rail transit, as well as active transportation modes, instead of vehicles.

The plan redefines park and ride facilities as Mobility Hubs and further categorizes existing facilities into Multimodal Mobility Hubs in contract with Commuter Rideshare Mobility Hubs. It bases performance metrics on multimodal usability measures, the collective attributes that can lead to an increase in mode shift from single occupant vehicles to other modes, and sets targets related to the desired state of repair.

CALTRANS DISTRICT 4 PEDESTRIAN PLAN (2021):

Developed in collaboration with partner agencies, advocates, and members of the public, the District 4 Pedestrian Plan outlines pedestrian needs on and across Caltrans facilities in the nine-county Bay Area, and serves as a reference for

planners and project designers who aspire to make road projects more pedestrian-friendly. The document promotes alternatives to driving as a means of reducing congestion, combating greenhouse gases, and encouraging a healthier lifestyle. The plan identifies a need for east-west freeway crossings of US 101 near the US 101 / SR 92 interchange.

CALTRANS DISTRICT 4 BIKE PLAN (2018):

Developed within the framework of Toward an Active California, the California State Bicycle and Pedestrian Plan, the District 4 Bike Plan identifies infrastructure improvements to remove barriers to bicycling while enhancing bicycle safety and mobility. The plan guides Caltrans and its partners to develop an integrated bicycle network for the Bay Area. Like the pedestrian plan, the bicycle plan identifies needs for separated crossing of US 101 near the project area as well as a top-priority corridor project for SR 92 crossing the bay to Hayward.

CALTRAIN STATION ACCESS POLICY (2024):

Caltrain released an update to station access to define goals and objectives that focus investment decisions on enhancing all methods of access to and from Caltrain stations.

Caltrain's Station Access Policy emphasizes safe, universally accessible, well-maintained, and seamless connections to Caltrain stations as well as integration with the local station area and community context. The policy establishes an access hierarchy to guide station area planning that spotlights walking, biking/shared micromobility, and transit facilities as the highest priority when considering proposed access improvements.

Previous versions of the policy statement categorized the Hayward Park station as a Neighborhood Circulator station, which is characterized by moderate density, low Caltrain service levels, and underused parking lots. The Smart Corridor project can help expand access to the Hayward Park station in accordance with the updated policy.

SAN MATEO TRANSIT-ORIENTED DEVELOPMENT PEDESTRIAN ACCESS PLAN (2022):

San Mateo City Council adopted a plan in November 2022 whose goals are as follows:

- 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 access for people who walk within a half-mile radius of San Mateo's three Caltrain stations and along El Camino Real.

Priority recommendations that are relevant to the Smart Corridor project include widening the sidewalk or adding a Class I pathway connection along Pacific Boulevard near 19th Avenue along with general intersection improvements. Additionally, a missing sidewalk along 19th Avenue 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 amenities such as improved lighting, more visible crosswalks, more frequent crossings, and wider sidewalks.

US 101 / SR 92 MANAGED LANE DIRECT CONNECTOR PROJECT (ONGOING):

TA, in partnership with the City/County Association of Governments of San Mateo County, Caltrans, the City of San Mateo, and Foster City, proposes to add a managed lane direct connector at the US 101 and SR 92 interchange. Currently, there is no direct connection between the US 101 Express Lanes and SR 92. As a result, drivers must exit and cross multiple travel lanes – increasing traffic congestion.

The project is studying three design alternatives, including reversible lanes. Goals of the project include greater adoption and efficiency of carpooling, transit, and shuttles by reducing travel times and increasing travel time reliability for those modes.

EXISTING CONDITIONS

CORRIDOR PROFILE

The Corridor Profile graphics, presented on the following pages, visually synthesize the current operational conditions along 19th Avenue and Fashion Island Boulevard. The depictions effectively highlight challenges related to current mobility arrangements and space allocation along the corridor.

Taken together, the profile tells the story of how the corridor was conceived to preserve some local circulation in the midst of the intersection of two major expressways. While some active transportation facilities have been created along sections of corridor, most are unprotected, and the roadways remain predominantly car-oriented. In many segments the corridor functions as a service road for SR 92, characterized by residential and commercial properties with individual driveway entrances as well as merging and diverging expressway ramps. As parking is often self-contained on each property, curb cuts along the sidewalk are frequent, posing increased risks for people walking. These various existing corridor configurations underscore the need for strategic interventions to enhance safety, bikeability, and walkability.

WHAT WE LOOKED AT:

- Number of lanes
- Right-of-way
- Pavement width
- Land use
- Transit routes

What is a cross-section?

A "cross-section" is a way to describe the design of a road. It is a way to visualize how big the different parts of the road are. It shows things like: measurements of lane width, if bike lanes are present, and how wide sidewalks are.

In order to fully understand the project site, it is important to understand physical measurements and the intended function of cross sections corresponding to various segments of the study corridor. This provides insight into the current arrangement of street elements and the capacity of the right-of-way to support facility programming changes.

As this corridor is relatively long, and the different elements of the street change significantly from one section to another, cross-section analysis divides the corridor into five separate sections (**Figure 2-F**). The attributes of each of these sections are profiled on the following pages. As some roadway sections feature multiple vehicle lane and active transportation facility configurations, diagrams present the typical layout within each section. Other portions of the roadway segment may differ from the cross-sections displayed.

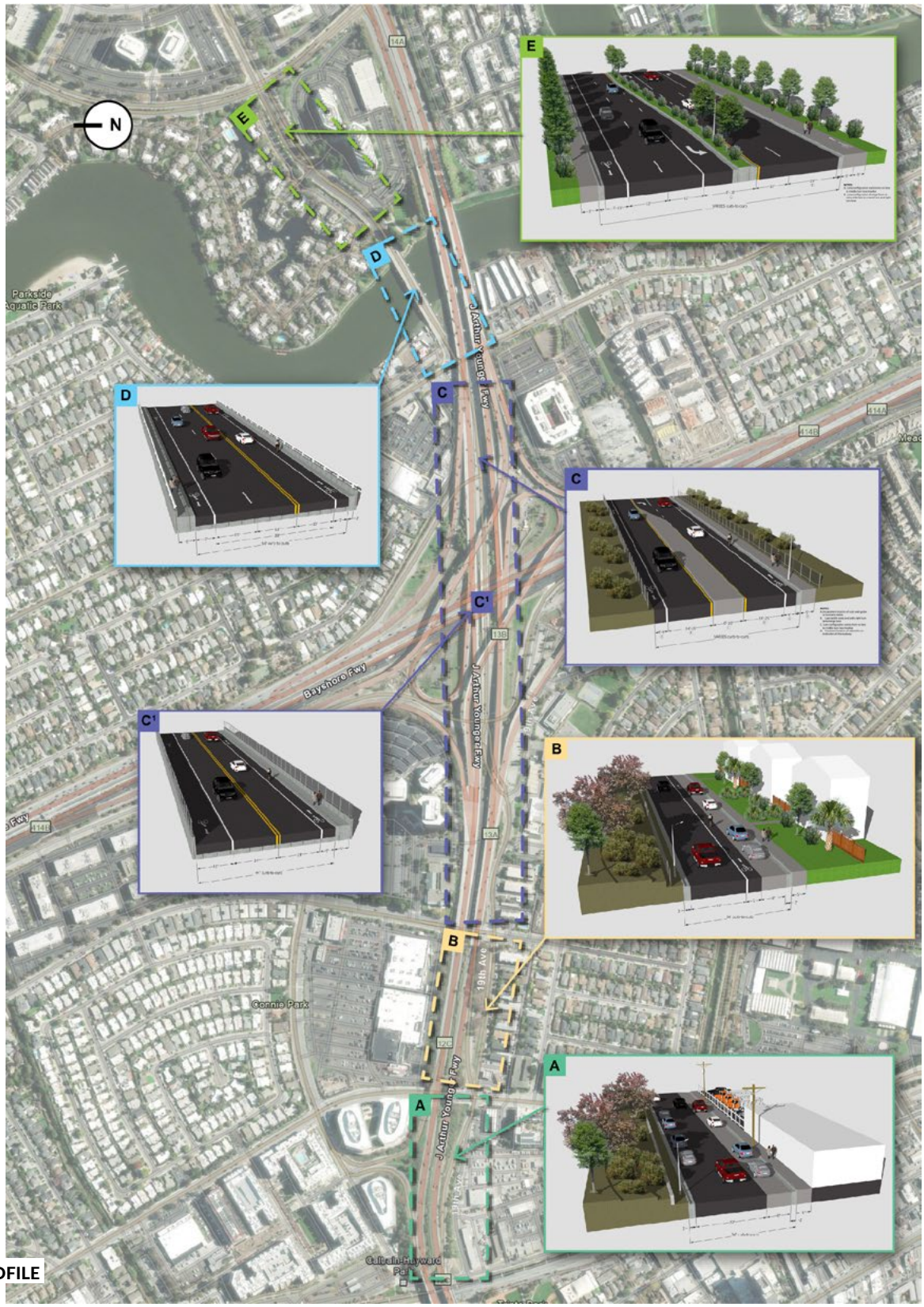


FIGURE **2-F**
FULL CORRIDOR AND INDIVIDUAL SEGMENT PROFILE

SECTION A – PACIFIC BOULEVARD TO DELAWARE STREET

The varying width of 19th Avenue and Fashion Island Boulevard highlights distinct zones for potential active transportation enhancements and safety improvements.

What does 19th Avenue look like from Pacific Boulevard to Delaware Street?

In Section A, 19th Avenue consists of:

- Two 11' vehicle lanes (One-way eastbound)
- One 8' parking lane
- 34 foot curb-to-curb width
- 5 foot sidewalk on one side

This section borders a variety of land uses to the south, including small commercial uses, multifamily residential housing, and the Fiesta Gardens International School. At the western terminus of the corridor, a pedestrian bridge provides a crossing over the railroad to the Hayward Park Caltrain station.

At the eastern end of the segment, vehicles traveling eastbound on 19th Avenue merge with and yield to traffic exiting SR 92. On-street parking is primarily located on the south side of 19th Avenue, but is also periodically permitted on the north side per regulations.

There is a signalized intersection at 19th Avenue and Delaware Street, where vehicles continuing eastbound may split to remain on 19th Avenue, or follow an entrance ramp to SR 92. The intersection features crosswalks on three legs, except the north leg crossing Delaware Street.

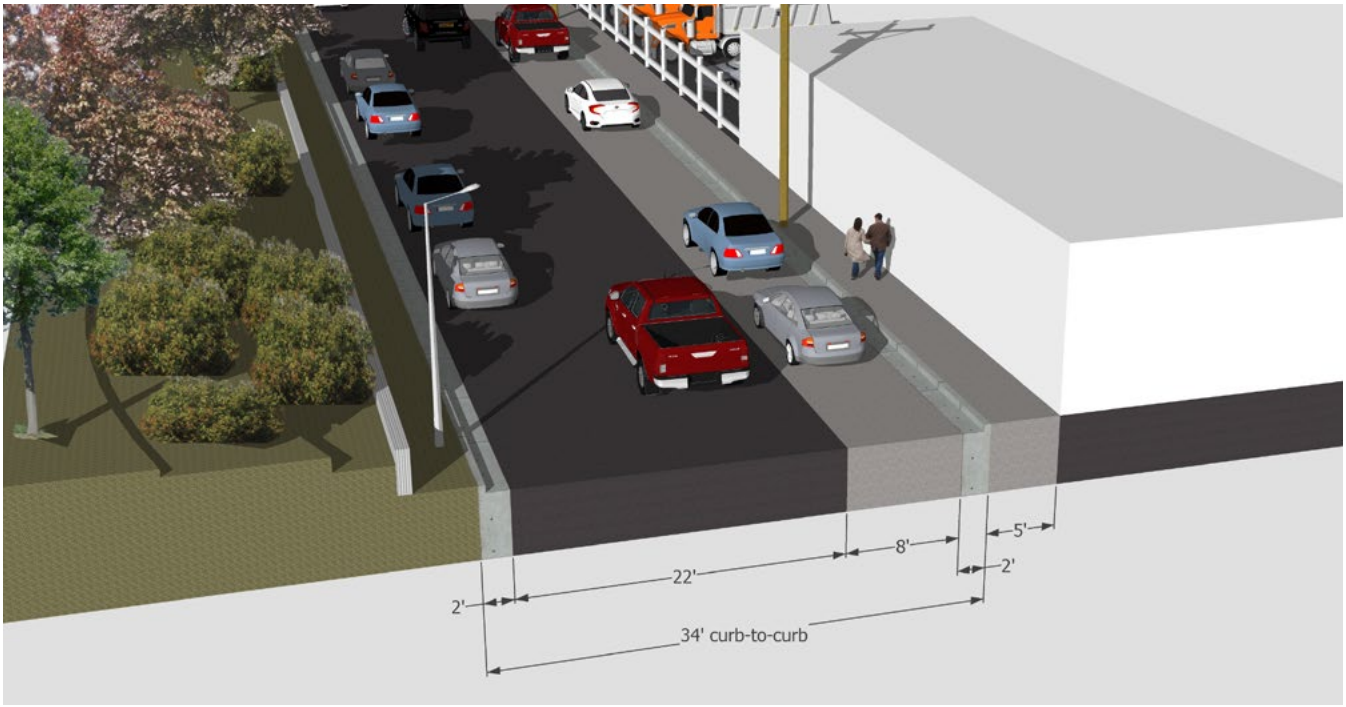


FIGURE **2-G**
EXISTING LANE MEASUREMENTS (SECTION A)

SECTION B – DELAWARE STREET TO GRANT STREET

What does 19th Avenue look like from Delaware Street to Grant Street?

In Section B, 19th Avenue consists of:

- One 17' vehicle lane (One-way eastbound)
- One 5' bicycle lane (One-way eastbound)
- One 8' parking lane
- 34 foot curb-to-curb width
- 5 foot sidewalk on one side

East of Delaware Street, 19th Avenue is comprised of one lane of eastbound vehicle traffic, a Class II bicycle lane, and a parking lane adjacent to the south sidewalk. Adjacent land uses include a fuel station, convenience store, and multifamily housing. Immediately west of the intersection with Grant Street, the bicycle lane ends to accommodate a vehicle right-turn lane. The intersection is signalized and fully equipped with high-visibility crosswalks at each leg. A bus stop for northbound SamTrans routes 53 and 53P is located along Grant Street south of the intersection.

North of SR 92, Grant Street features amenities that serve communities along the corridor, including a large shopping center with a grocery store, a business park, and a YMCA. An approved site plan exists for redevelopment of this area to include 961 dwelling units, approximately 40,000 square feet of commercial/ retail space, and three acres of community open space. Project funding will provide a $7.5 million financial contribution towards traffic improvements and a public transportation hub.

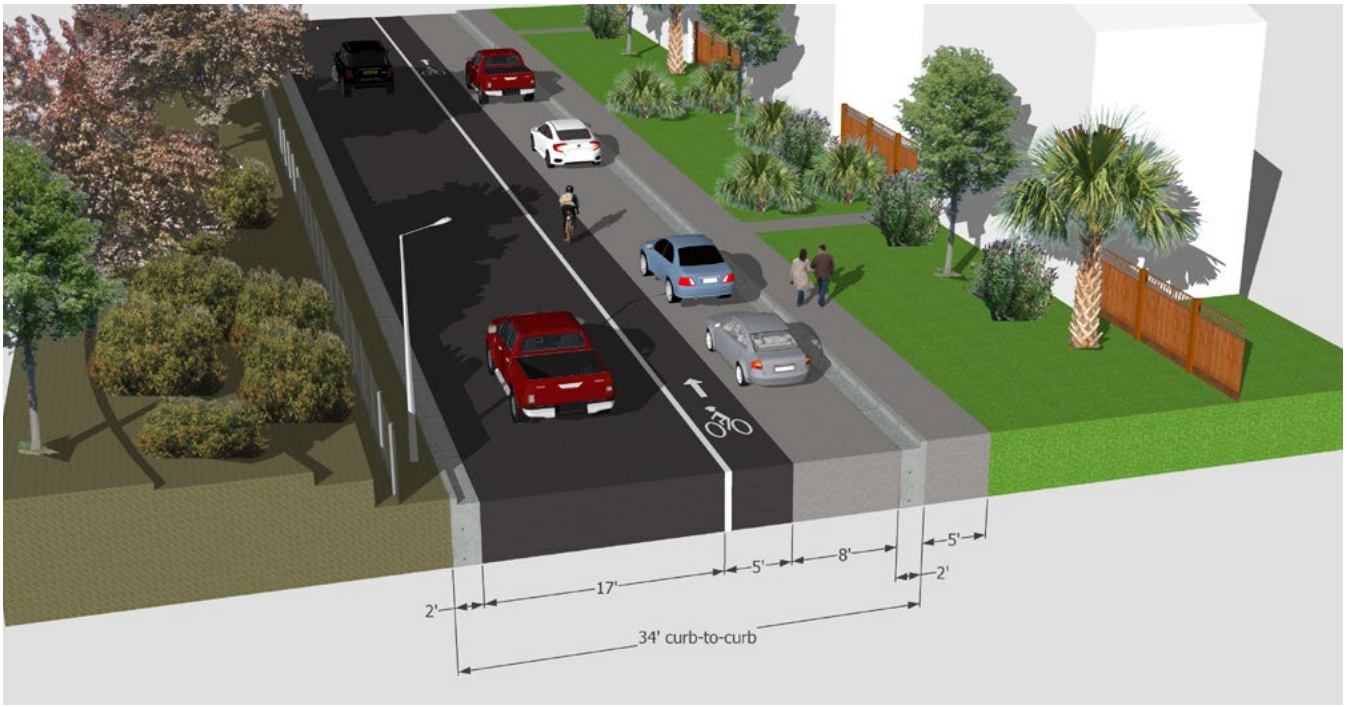


FIGURE **2-H**
EXISTING LANE MEASUREMENTS (SECTION B)

SECTION C – GRANT STREET TO NORFOLK STREET

What does the primary corridor look like from Grant Street to Norfolk Street?

In Section C, corridor roadways consist of:

- Two vehicle travel lanes of varying widths (min. 14')
- Two bicycle lanes of varying widths (min. 4' max. 11')
- No on-street parking
- Variable curb-to-curb width
- 5 foot sidewalk on one side

East of Grant Street, 19th Avenue features one lane of vehicle traffic in each direction, a Class II bike lane in each direction, and no on-street parking. This portion of the corridor interfaces with the existing Park and Ride as 19th Avenue departs the corridor at a T intersection. Through movements become Fashion Island Boulevard, which retains similar cross-section characteristics.

East of 19th Avenue, Fashion Island Boulevard travels under SR 92. Approaching Norfolk Street, a wide median separates the travel lanes (**Figure 2-I**).

At the signalized intersection with Norfolk Street, Fashion Island Boulevard fans out into turning lanes. Crosswalks are present at three legs of the intersection, with the exception of the southern leg that crosses Norfolk Street. Bus stops servicing SamTrans routes 50, 59, and 250 are located 200-350 feet south of the intersection along Norfolk Street.

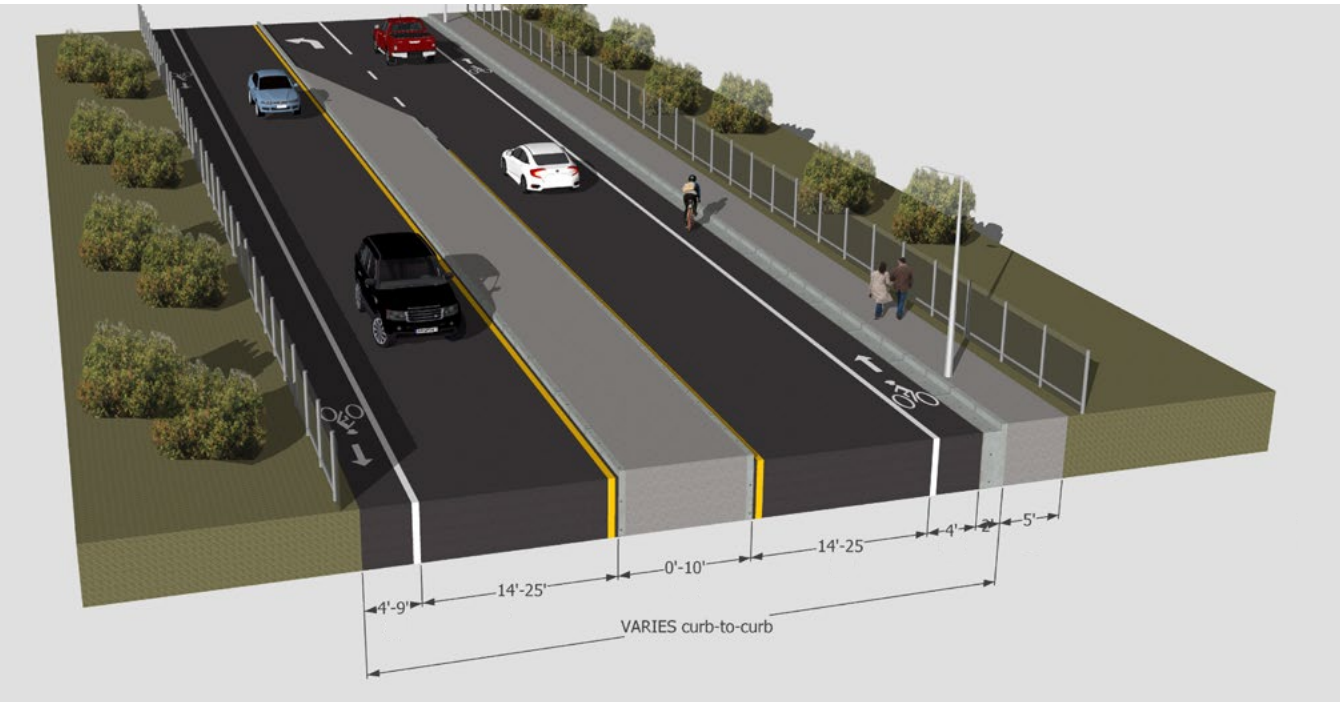


FIGURE **2-I**
EXISTING LANE MEASUREMENTS (SECTION C)

SECTION D – SEAL SLOUGH BRIDGE

What does Fashion Island Boulevard look like while crossing Seal Slough?

In Section D, Fashion Island Boulevard consists of:

- Three 13' vehicle lanes
- Two 5' bicycle lanes
- No on-street parking
- 50 foot curb-to-curb width
- 5 foot sidewalk on one side

East of Norfolk Street, Fashion Island Boulevard climbs to travel over Seal Slough. While constrained moreso than other segments of the corridor due to the physical dimensions of the bridge, wide motor vehicle travel lanes are present. One lane of vehicle traffic travels in the eastbound direction while two lanes travel in the westbound direction. Painted Class II bicycle lanes are present on each side of the roadway. Pedestrian accommodations only exist on the north side of the bridge.

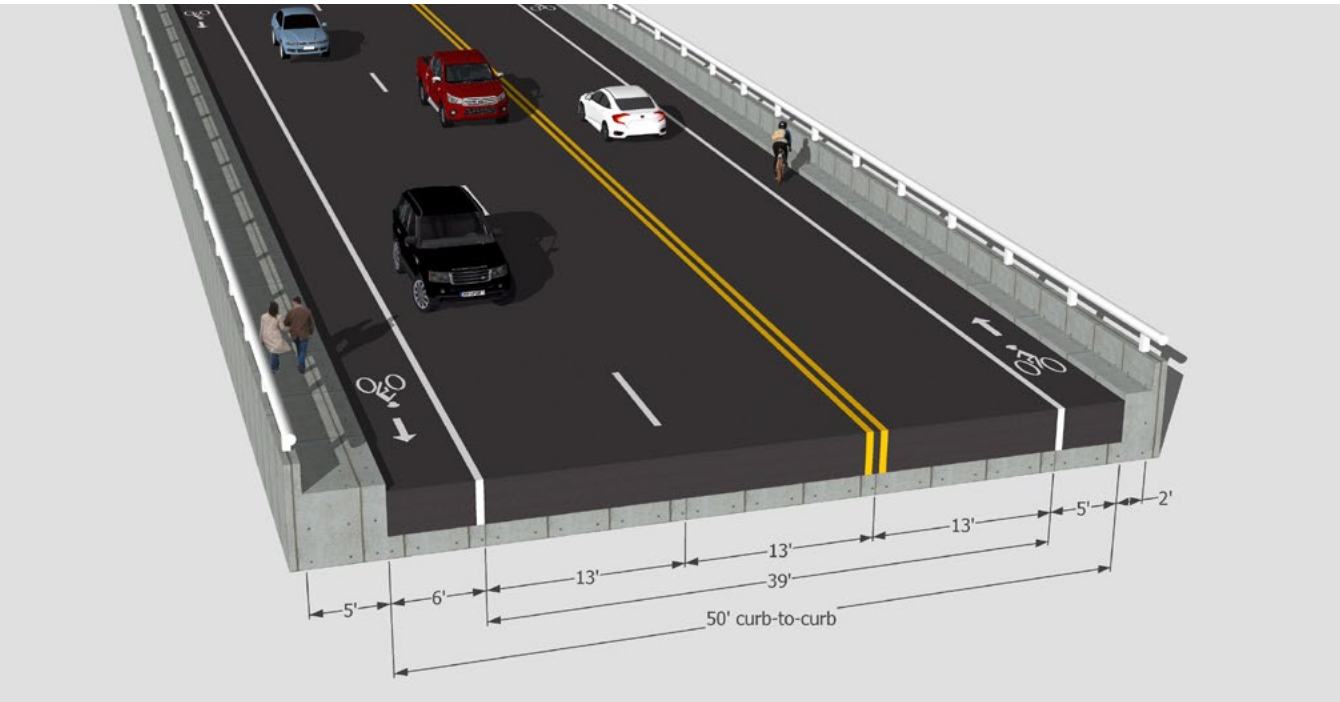


FIGURE **2-J**
EXISTING LANE MEASUREMENTS (SECTION D)

SECTION E – SEAL SLOUGH TO MARINERS ISLAND BOULEVARD

What does Fashion Island Boulevard look like from Seal Slough to Mariners Island?

In Section E, Fashion Island Boulevard consists of:

- Three 12' vehicle lanes
- One variable width vehicle lane (Divided at intersections to provide right turn lanes)
- One 5' bicycle lane (Westbound)
- No on-street parking
- Variable curb-to-curb width
- 5 foot sidewalk on one side
- 10 foot multi-use path on one side

Once Fashion Island Boulevard crosses the Slough, the road widens to two lanes of vehicle traffic in either direction. Bicycles are accommodated by a westbound Class II bike lane and a double-wide sidewalk on the opposite side that acts as a multi-use path. East of Harbor Seal Court, a landscaped median separates the direction of travel. Land uses surrounding this section of Fashion Island Boulevard include a residential community and the Fashion Island business center.

The intersection of Fashion Island Boulevard and Mariners Island Boulevard marks the eastern end of the corridor. The intersection includes one left turn lane in the eastbound direction and two left turn lanes in the westbound direction. The intersection has crosswalks across all legs and far side bus stops for SamTrans Route 251 along Fashion Island Boulevard on either side of the intersection.

FIGURE **2-K**
EXISTING LANE MEASUREMENTS (SECTION E)

CALTRANS PARK AND RIDE

The 101 / 92 Park and Ride currently functions as a simple 174-space surface parking lot intended for commuter carpool parking. Samtrans Route 251 passes by the Park and Ride, but makes no stops in the area.

The lot encompasses the space between an access ramp for southbound US 101 and the eastern terminus of 19th Avenue. Parking is only currently accessible from that dead-end segment of 19th Avenue. Of three access points, only the furthest east allows for two-way ingress and egress.

Generally, the Park and Ride lot is most often used as unofficial short-term parking related to pick-up and drop-off at the Fiesta Gardens International School, as well as a pick-up and drop-off location for private shuttles. A shuttle service operated by private partners uses the Park and Ride lot to transport employees. Based on information provided, 31 daily riders make use of this shuttle stop. The shuttle currently serves the Park and Ride five time during the AM and five times during the PM.

FIGURE **2-L**
EXISTING CALTRANS PARK AND RIDE LOT LOCATION

KEY TAKEAWAYS

Separated land uses and limited east-to-west access are barriers to connectivity.

While surrounded by diverse land uses, each land use is separated from the next, making it difficult to travel between home, work, and amenities without a personal vehicle. Regardless of mode, east-to-west access along the corridor is limited and the expressways create large physical barriers. Residents who rely on walking or biking lack the basic infrastructure needed to access essential services and opportunities. Addressing these challenges is important for improving connectivity and enhancing mobility access for all.

A lack of dedicated multimodal facilities compromise safety for people walking and cycling.

While the facilities from 19th Avenue to Fashion Island offer some options, there is still a need for enhanced active transportation infrastructure. Adding continuous and better separated bicycle and pedestrian facilities along with robust crossings would improve safety and accessibility for all users.

The Park and Ride lot is underutilized and could be enhanced with improved multimodal access and amenities.

The 101/92 Park and Ride facility operates primarily as a surface parking lot with no amenities supportive of other modes, such as bicycle lockers, electric vehicle charging stations, or nearby transit stops. Its limited accessibility makes it more useful for unofficial short-term parking and private shuttle services than for its intended commuter carpooling purpose. Improvements, such as adding multimodal amenities and reconfiguring site access, could increase its functionality and attract more users.

CHAPTER 3
ENGAGEMENT

3 ENGAGEMENT

Recognizing the significance of public involvement, this study included robust engagement to not only better understand the community's needs, but also to incorporate them into the project design. The project team interacted with local residents, business owners, and community leaders to identify issues and strategies to supplement the data. Community engagement activities included online tools like surveys, in-person events including pop-ups and workshops, and focused stakeholder discussions.

The San Mateo County Transportation Authority, SamTrans, and the City of San Mateo conducted several engagement activities from Spring 2023 to Summer 2024 to gather community input to address local transportation needs. Various engagement techniques were utilized throughout the process, including pop-up events, an online survey, stakeholder meetings, an infrastructure tour/ride, and a workshop-style open house event.

The first phase of engagement identified community needs and mobility gaps, followed by the development of design alternatives. Phase 2 focused on gathering feedback related to design alternatives, leading to the selection of a preferred alternative and the development of an implementation strategy.

PROJECT WEBSITE

The website stated project goals, timelines, and opportunities for public involvement. It featured updates on project milestones, scheduled meetings, and relevant technical visual materials such as a project fact sheet, the existing conditions report, and a Mobility Hub/Smart Corridor toolkit. All materials were provided in English, Spanish, and simplified Chinese.

Additionally, the website outlined various channels through which individuals could contribute their insights and feedback. The digital platform provided an opportunity for engagement for those who were not able to attend an in-person event by furnishing similar information and the ability to comment.

PHASE 1: IDENTIFY NEEDS AND MOBILITY GAPS

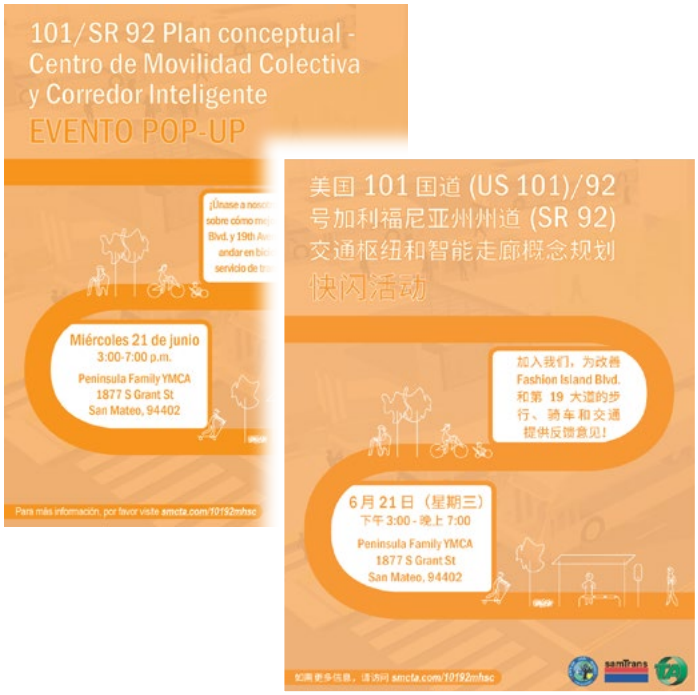
Phase 1 of the community engagement process focused on the identification of local transportation needs and mobility gaps. Three pop-up events, an infrastructure ride and walk tour, and a community preference survey were conducted during the Summer of 2023.

Prior to engaging the public, the project team created a Mobility Hub and Smart Corridor toolkit containing information on typical amenities and services included as part of mobility hubs and smart corridor projects. The toolkit equipped community members and stakeholders with the knowledge needed to shape the development of concept plans.

POP-UP EVENTS

Three pop-up engagement events were held at the Peninsula Family YMCA, the July Fiesta Gardens Homeowners Association Meeting via teleconference, and the Pedway Plaza near connections to the Fashion Island Boulevard Bridge. The events were promoted on social media and at locations throughout the City in English, Spanish, and simplified Chinese.

The project team also facilitated a pair of meetings with interested parties. One focused on local businesses and included representatives of Rakuten and SAMCEDA. The other engaged community organizations such as the Fiesta Gardens Elementary PTA, the Silicon Valley Bicycle Coalition, and the San Mateo chapter of the NAACP. The project team incorporated commentary received during these meetings into the development of conceptual design alternatives.



EVENT	LOCATION	EVENT DATE	PARTICIPANTS
Peninsula Valley YMCA Pop-up	On Site	June 21, 2023	30
Fiesta Gardens Homeowners Association Pop-up	Virtual	July 5, 2023	36
San Mateo / Foster City Levee Pedway Pop-up	On Site	July 15, 2023	30
Stakeholder Meeting: Businesses	Virtual	July 18, 2023	2
Technical Advisory Group Meeting	Virtual	July 18, 2023	8
Stakeholder Meeting: Community-based Organizations	Virtual	July 21, 2023	6

FIGURE **3-B**
PHASE 1 OUTREACH STRATEGIES

RIDE AND WALK TOUR

In collaboration with the Silicon Valley Bicycle Coalition, the project team hosted an infrastructure tour on June 23, 2023, bringing together elected officials, community stakeholders, and project team members. The interactive tour offered a firsthand look at the project corridor by both walking and biking key sections, providing valuable insights into existing conditions. The tour began with an orientation to the corridor and mobility hub before participants walked the western portion, assessing pedestrian infrastructure such as crossings, lighting, and overall walkability while observing driver behavior and traffic conditions.

A portion of the group then biked the eastern section, navigating key intersections like Norfolk Blvd. and Fashion Island Blvd., before concluding at Mariners Island Boulevard to reflect on their experiences and potential improvements. On the return trip, participants biked back to the park-and-ride lot, experiencing freeway on-ramp crossings along the way. Throughout the tour, dynamic discussions between stakeholders and project team members helped identify key challenges, explore possible solutions, and most importantly, build momentum and support for the project.

ONLINE SURVEY

The survey asked questions related to current travel patterns, mobility concerns, and preferences. Mobility concerns included a lack of comfort (73%), perceived speeding (66%), perceived safety issues (66%), and a lack of separation from traffic (64%). Of people who indicated they walk, bike, or roll along Fashion Island Boulevard and 19th Avenue, 57 percent stated that they do not feel comfortable along the corridor.

Respondents preferred Smart Corridor features such as real-time transit information, lighting scaled to active transportation users, micromobility docks, traffic calming measures, enhanced wayfinding, and green infrastructure. Mobility Hub preferences added a focus on pick-up/drop-off areas, long-term bicycle parking, electric vehicle parking, and weather-protected waiting area amenities.

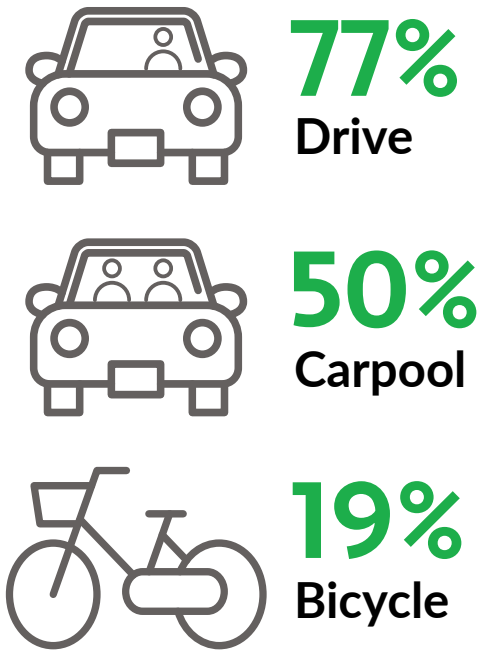


FIGURE **3-A**
PHASE 1 SURVEY RESPONDENT TRAVEL MODES

PHASE 2: REVIEW CONCEPT DESIGNS

The second phase of outreach took place in Spring 2024 and focused on conceptual alternatives that incorporated feedback from the first phase. New engagement included new project materials, a community workshop, and a second online survey to move forward in identifying preferred designs for both the Smart Corridor project and the proposed Mobility Hub.

The project team utilized Phase 1 community feedback to develop conceptual design alternatives for the Smart Corridor and proposed Mobility Hub as part of feasibility planning. Phase 2 of outreach brought these conceptual designs to the community and interested parties to gain additional feedback in order to solidify the details of a preferred design. Three primary outreach methods were utilized during this project phase, including:

- **Project Materials:** The project team developed new materials for the second phase of the project in English, Spanish, and simplified Chinese, including a multilingual mailer sent to 9,500 households.
- **In-Person Community Workshop:** The project team held a multilingual in-person community workshop at Fiesta Gardens Elementary School directly along the corridor and adjacent to the Park and Ride lot on May 15, 2024. Approximately 35 people attended the workshop and voted on their favorite designs as well as provided detailed feedback on ways the designs could be improved to better suit the community.
- **Online Survey:** A multilingual online survey was developed to reach as many community members as possible. Participants selected their favorite conceptual design alternatives.

COMMUNITY WORKSHOP

The project team hosted an in-person community workshop at Fiesta Gardens Elementary School. The workshop provided the community with background for each project and the opportunity to engage with the proposed conceptual alternatives. The workshop also included in-depth review and discussion about the conceptual alternatives for the Smart Corridor and Mobility Hub context.

Workshop activities presented conceptual designs for the Smart Corridor in three segments. Attendees indicated their preference for bicycle facility design in each segment. This method used feedback to create a preferred corridor design that mixes options per segment. Attendees also voted on three Mobility Hub concepts that alternately emphasized amenities, multimodal mobility, and transit capacity.

ONLINE SURVEY

The project team developed an online survey to replicate the in-person community workshop, including a recorded background overview presentation. Similar to workshop attendees, community members viewed the survey, which presented the same conceptual alternatives, and voted for preferences by project segment. The information from the survey was collated with the in-person feedback to help the project team solidify a preferred design. In total, 12 community members provided input through the online survey.

Based on overall voting, the two-way Class IV bikeway concept was the preferred alternative for the Smart Corridor along with a multimodal Mobility Hub concept.

KEY THEMES AND TAKEAWAYS

Traffic congestion is a concern.

Engagement participants noted the level of traffic in the area as a challenge, as well as other auto-centric concerns including the potential for increased congestion along the corridor and at the Norfolk Street intersection. They additionally identified current use of the park and ride by the nearby school as a pick-up/drop-off area and the preservation of parking as challenges to corridor updates.

Support exists for improved multimodal facilities to enhance safety.

Both phases of public engagement activities made clear the support for multimodal facilities that enhance safety for people walking and biking. Participants expressed the need for safe and comfortable multimodal access as a top priority along and across the corridor. These feelings of safety went beyond dedicated bike lanes to include a desire for improved lighting, safety call boxes, and other context-sensitive amenities, especially at the Mobility Hub with its somewhat isolated location under the freeway.

Smart Corridor improvements must address accessibility.

Initial participants cited support for better access to the Hayward Park Caltrain Station, the YMCA, and Fiesta Gardens International School, as well as a desire for the Mobility Hub to seamlessly connect to nearby destinations. Concerns about crime reported during Phase 1 of the engagement matched a need identified by Phase 2 participants for corridor lighting better scaled for non-motorized users.

CHAPTER 4
19TH AVENUE AND FASHION ISLAND BOULEVARD SMART CORRIDOR

4 SMART CORRIDOR DEVELOPMENT

Today, the roadway comprising the project corridor primarily accommodates private vehicles. Minimal pedestrian and bicycle facilities currently exist, though their underutilization, community feedback, and safety data emphasizes the need for safer crossings for people walking and enhanced bicycle infrastructure.

GUIDING PRINCIPLES

Early in the project, the team established Guiding Principles to lay the groundwork for the design process, detailed fully in Chapter 1. The principles, reiterated below, and related project goals provided guidance for the redesign of the corridor:

1 **Expand transportation options**

2 **Increase access to safe, high-quality transit**

3 **Reduce emissions and enhance public health**

4 **Improve conditions for all non-motorized forms of transportation**

In this context, retrofitting the corridor requires careful consideration of mobility trade-offs to cater to the diverse needs of various users and modes of travel.

DESIGN CONSIDERATIONS

Guiding principles and project goals inform the redesign of portions of 19th Avenue and Fashion Island Boulevard, drawing on insights from both data analysis and public input. These considerations translate key themes from engagement into practical design interventions. Initial evaluation identified areas for design adjustments to enhance mobility for all ages, modes, and abilities.

Challenges for users include:

- Vulnerability as most active transportation infrastructure is unprotected and interrupted by driveways/freeway access ramps
- Feeling of stress when walking or riding a bicycle near or beneath the multiple freeways in the area supported by designation in the Bicycle Master Plan as a high level of stress corridor
- Bicycling discouraged by a lack of continuous and separated bicycle lanes
- Perception of danger for non-motorized users by a high volume of high-speed traffic and wide vehicular travel lanes
- Perception of compromised personal safety due to a lack of lighting
- Desire to preserve on-street parking

Opportunities to balance travel modes along 19th Avenue and Fashion Island Boulevard include:

- Separating bicycle facilities to provide safe, dedicated spaces for people biking as well as those walking.
- Implementing high-visibility crosswalks, pedestrian refuge islands, and curb extensions to improve safety and convenience for people who walk.
- Narrowing traffic lanes and using on-street parking to reduce vehicular speeds and create a more welcoming environment for non-motorized users.
- Enhancing the viability of alternative transportation modes through improved connections to intersecting pedestrian and bicycle facilities.
- Reconfiguration of lanes to reduce vehicular congestion.

ALTERNATIVES DEVELOPMENT

The project team broke the corridor into three segments corresponding to different typical existing right-of-way and roadway conditions (**Figure 4-A**). Each alternative aligned with the project's Guiding Principles, informed by the previous analysis of the existing conditions, Complete Streets best practices, and insights from public engagement efforts. While sharing common goals, the alternatives diverge in their bicycle facilities location and design.

In the first segment, from Pacific Boulevard to Grant Street, the two alternatives were a two-way Class IV separated bikeway at street level or raised to sidewalk level. The next segment, from Grant Street to Norfolk Street, provided the option of a two-way Class IV separated bikeway on the south side of the roadway or one-way Class IV separated bike lanes on the north and south sides. Segment three, from Norfolk Street to Mariners Island Boulevard, only had one feasible option – a two-way Class IV separated bikeway at street level.

Through stakeholder and agency discussions, public engagement, and detailed roadway design, the alternatives for each segment evolved into two full corridor options. Option A proposed a two-way Class IV separated bikeway on the south side along the entire corridor. Option B proposed a two-way Class IV separated bikeway on the south side for segment one and one-way Class IV separated bike lanes on both sides for segments two and three.

All alternatives considered maximizing on-street parking, reducing travel lane widths, enhancing safety, and improving the experience of those who walk and bike along the corridor, including intersection improvements and reconfigurations.

Source: Streetsblog/Rudick

Source: Philadelphia Inquirer/Gralish

DESIGN CRITERIA

Design criteria consist of guidelines and specifications that a design must meet. Their primary purpose is to set clear, measurable goals and limitations that guide the design process.

For the proposed redesign of the 19th Avenue and Fashion Island Boulevard corridor, the project team has defined four key criteria to address both present and anticipated future challenges. These criteria inform the development of designs that attempt to enhance safety, promote active transportation, optimize movement, and minimize adverse impacts on the community and environment.

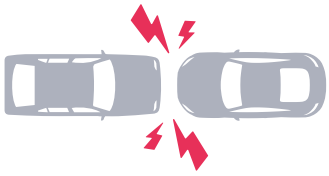
"Is the bridge wide enough for two travel lanes and bike lanes?"

"Concern about increased vehicle demand on the corridor in the future with increased housing production"

- Public Workshop Comments

SAFETY

Evaluates whether the design contributes to a safer environment for all corridor users.

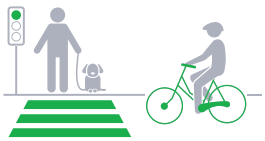


TECHNOLOGY

Considers innovative transportation systems and digital infrastructure to optimize efficiency and safety for all roadway users.

BICYCLE & PEDESTRIAN

Assesses the design's effectiveness in improving the corridor's functionality and appeal for people cycling and walking.



IMPACTS

Examines the potential effects of the design on the local natural and built environments.

DESIGN ELEMENTS

Design elements represent the composition of the design itself. The design team selected specific design elements that will be used to realize the concepts promoted by residents, interested parties, and team members.

HIGH-QUALITY INTERSECTIONS

- **Curb Extensions:** Shorten crossing distances and provide green infrastructure opportunities such as stormwater management
- **High-Visibility Crosswalks:** Improve driver visibility from a distance, reduce the risk of crashes involving injury to people walking, and clearly indicate safe crossing points

SEPARATED BIKE FACILITIES

- **Separated Bike Lanes:** Use buffers, curbing, and/or parked cars to horizontally and vertically separate people cycling from traffic and enhance safety
- **Intersection Treatments:** Increase expectation of bicycle activity with green paint and markings through intersections while accounting for the incompatibility of sharing crosswalks between people biking and walking

SMART CORRIDOR ELEMENTS

- **Smart Traffic Signals:** Optimize signal phasing and efficient movement of people driving, cycling, walking, and accessing transit through the use of traffic signals along the corridor connected and synchronized both to each other and to vehicles with the appropriate technology
- **Dedicated Bicycle Signals/Phases:** Allow people cycling to safely travel through the intersection by providing an additional traffic signal scaled to people walking or a phasing within the vehicular traffic signal dedicated to movements on bicycle facilities
- **Transit Priority Phasing:** Optimize area transit operations by dedicating traffic signals phases to transit, especially around the mobility hub

Smart intersection concept illustration

Example of a separated bike lane at an intersection

ACCESSIBILITY IMPROVEMENTS

- **Universal Design Principles:** Apply universal design principles to ensure transportation infrastructure accommodates all users, including elderly individuals and those with disabilities
- **Ensure American with Disabilities Act (ADA) Compliance:** Make all infrastructure compliant with ADA, including accessible sidewalks and crossings

CONCEPT DESIGN

Taking the design criteria and community feedback into account, the design team applied transportation infrastructure elements to a detailed design to create a preferred corridor concept. The high-level concept design for 19th Avenue/Fashion Island Boulevard offers strategies focused on access management, intersection improvements, and enhanced multi-modal connectivity. Leveraging previous data analysis and community feedback, this concept design is crafted to address the challenges identified along the corridor effectively.

A more detailed exploration of the proposed design, lays the groundwork for the future development of detailed engineering plans and to support the securing of implementation funding. The preferred alternative focuses on optimizing the existing roadway within the current right-of-way boundaries to enhance 19th Avenue/Fashion Island Boulevard's overall functionality and improve safety for all roadway users. By leveraging the public land surrounding the corridor, this concept minimizes the need for additional right-of-way, making strategic use of the available space.

Despite its constraints, the preferred concept plan ambitiously addresses the corridor's existing challenges by incorporating Class IV protected bike lanes, smart intersections, enhanced crosswalks, spot medians, and preserving on-street parking.

This approach maintains the current roadway configuration while introducing buffer zones between vehicle lanes and protected bike lanes, enhancing safety for people cycling without sacrificing vehicle flow. The buffer space provides a clear separation between vehicles and people who bicycle, reducing potential conflicts and contributing to a safer, more organized roadway. Additionally, the design proposes a reduction in vehicle lane widths from 11-15 feet to 10-11 feet, a strategic traffic-calming measure that encourages safer speeds and improves overall vehicular safety.

Sidewalks are widened and/or buffered from traffic with a bike facility. While preserving existing vehicular traffic flow, the preferred alternative introduces significant safety improvements people walking and cycling, transforming the corridor into a multi-modal spine connecting the proposed Mobility Hub to a greater transportation network and enhancing the experience for all roadway users.

BY THE NUMBERS

6 *Smart Intersections*

2.6 *Lane Miles of Protected Bikeways*

815 *Feet of New Sidewalk*

78% *Parking Spaces Preserved*

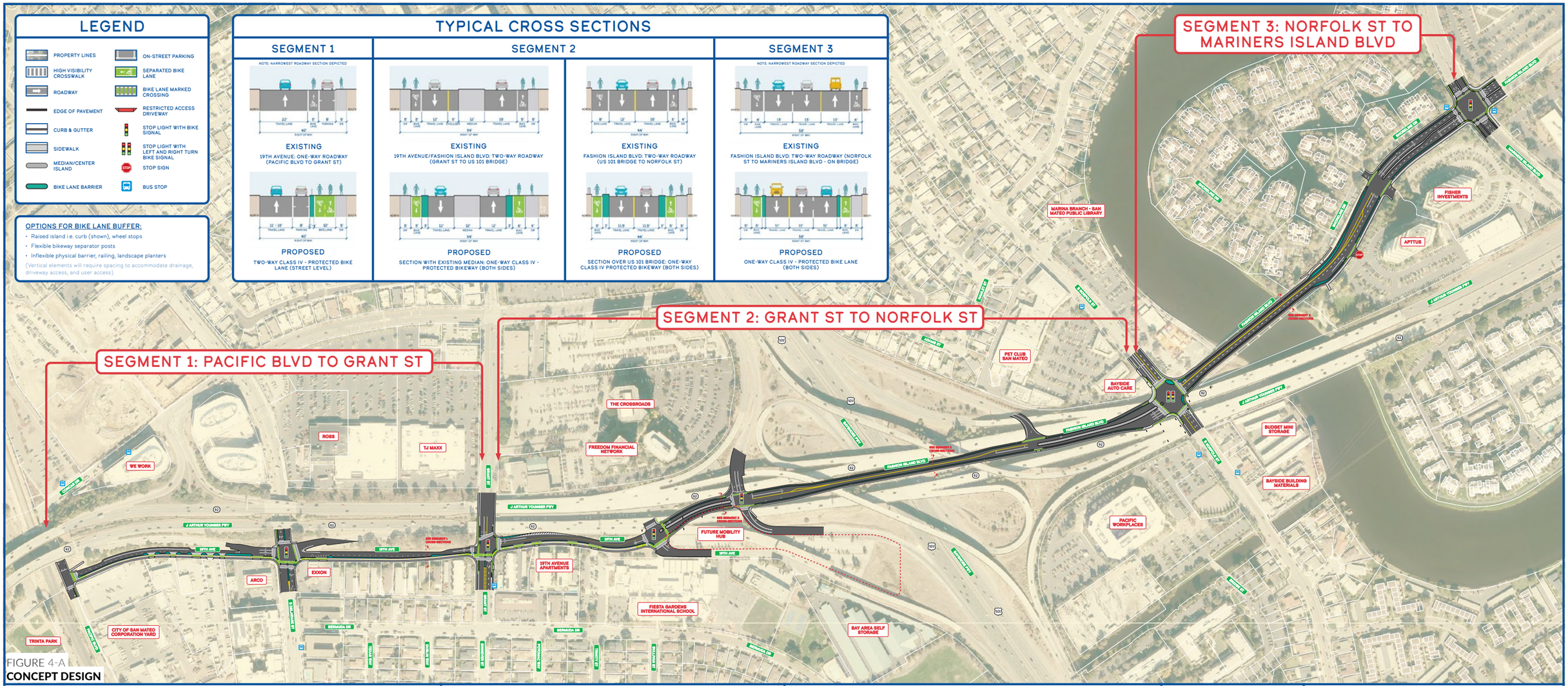


FIGURE 4-A
CONCEPT DESIGN

Conceptual only: not for construction.

PACIFIC BOULEVARD INTERSECTION

RECOMMENDATIONS

- **Nearby Corridor Cross-Section:** Single one-way eastbound travel lane. 40 foot cross section.
- **Lane Width:** 11 ft one-way eastbound vehicle travel lane.
- **Bicycle Facilities:** Western terminus of a 10 foot wide, continuous bi-directional Class IV protected bicycle lane on south side of 19th Avenue. Vertical buffer from parking lane, 2-4 feet in width. Bicycle facility at sidewalk level.
- **Pedestrian Facilities:** Continuous sidewalk 5 feet in width on south side of 19th Avenue connecting to sidewalk along Pacific Boulevard. Separated from parking lane by bicycle facility. High-visibility crosswalks on east and south legs of raised intersection. ADA-compliant curb ramps at all approaches.
- **Traffic Calming/Speed Management:** On-street parking protected by extensions of the bicycle lane barrier. Raised intersection/speed table.

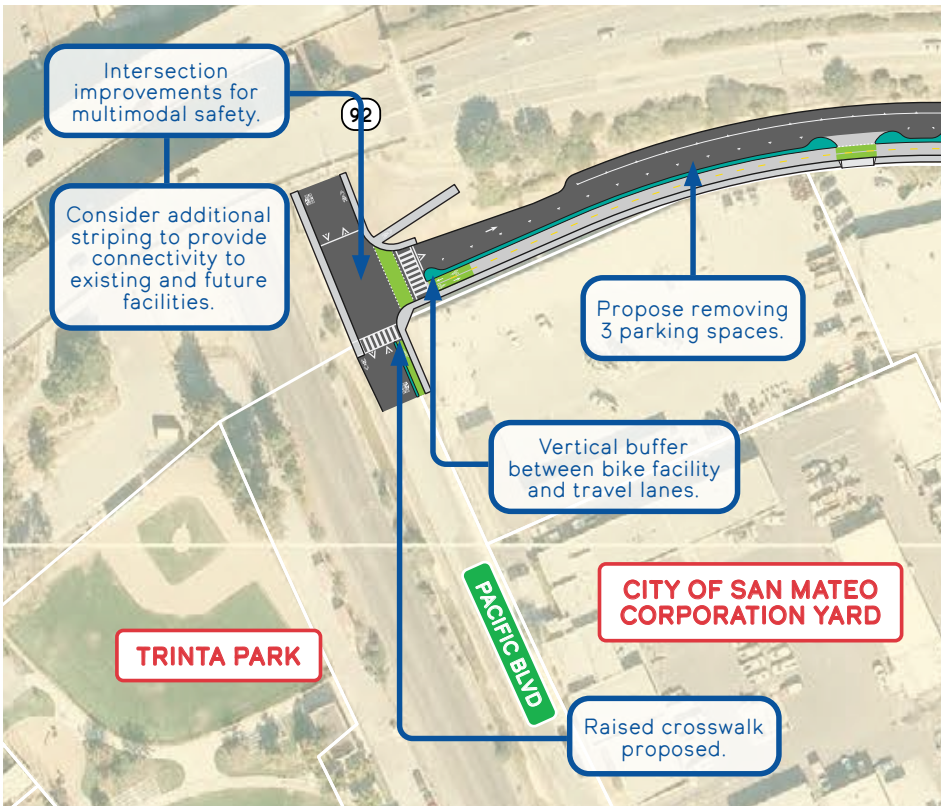


FIGURE 4-B
PACIFIC BOULEVARD INTERSECTION CONCEPT PLAN

DELAWARE STREET INTERSECTION

RECOMMENDATIONS

- **Cross-Section:** Complex one-way eastbound of varying lane width accommodating merging and diverging ramps from/to SR 92.
- **Bicycle Facilities:** Continuance of 10 foot wide, continuous bi-directional Class IV protected bicycle lane on south side of 19th Avenue connecting to a City-led bicycle facility project on Delaware Street. Bicycle facility at sidewalk level with intermittent vertical buffer. Marked crossing of Delaware Street separate from crosswalk.
- **Pedestrian Facilities:** Continuous sidewalk 5 feet in width on south side of 19th Avenue connecting to sidewalks along Delaware Street. Separated from vehicle lanes by bicycle facility and vertical buffer. High-visibility crosswalks across all legs of intersection. North and south leg crossings of Delaware Street split by median islands. ADA-compliant curb ramps at all approaches.
- **Traffic Control:** Signalized for vehicles, bicycles, and pedestrians. Bicycle signal cycles influenced by detection. West leg of intersection includes vehicle left turn only, right turn only, and straight or left turn lanes, a new alignment to simultaneously enhance traffic flow and safety. Through traffic from 19th Avenue metered via yield 150 feet from stop bar.

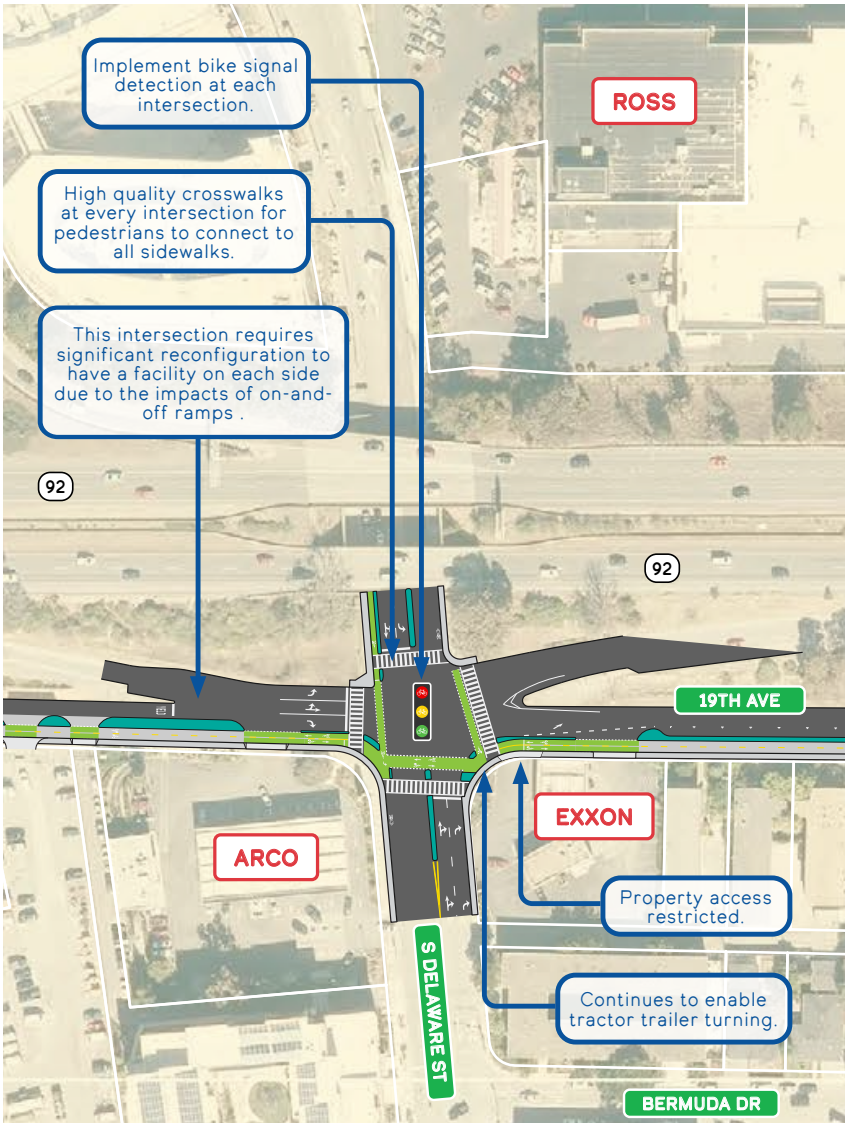


FIGURE 4-C
DELAWARE STREET INTERSECTION CONCEPT PLAN

GRANT STREET INTERSECTION

RECOMMENDATIONS

- **Cross-Section:** West leg represents the end of one-way eastbound operation. 19th Avenue handles bi-directional vehicular traffic east of Grant Street.
- **Bicycle Facilities:** Continuance of 10 foot wide, bi-directional Class IV protected bicycle lane on south side of 19th Avenue. Bicycle facility at sidewalk level with intermittent vertical buffer. Marked crossing of Grant Street separate from crosswalk. Grant Street bicycle lanes marked through intersection with green paint high-visibility treatment.
- **Pedestrian Facilities:** Continuous sidewalk 5 feet in width on south side of 19th Avenue connecting to sidewalks along Grant Street. Separated from vehicle lanes by bicycle facility and vertical buffer. High-visibility crosswalks across all intersection legs. South leg crossing split by median island. ADA-compliant curb ramps at all approaches.
- **Traffic Control:** Signalized for vehicles, bicycles, and pedestrians. Signal cycles for all modes optimized through detection mechanisms. No changes to lane configurations. West leg includes vehicle right turn only and straight or left turn lanes to a single eastbound receiving lane. East leg of intersection includes vehicle right turn only and left turn only lanes to Grant Street.
- **Parking:** On-street parking preserved and protected by curb extensions on south side of 19th Avenue west of intersection between Delaware Street and Grant Street.

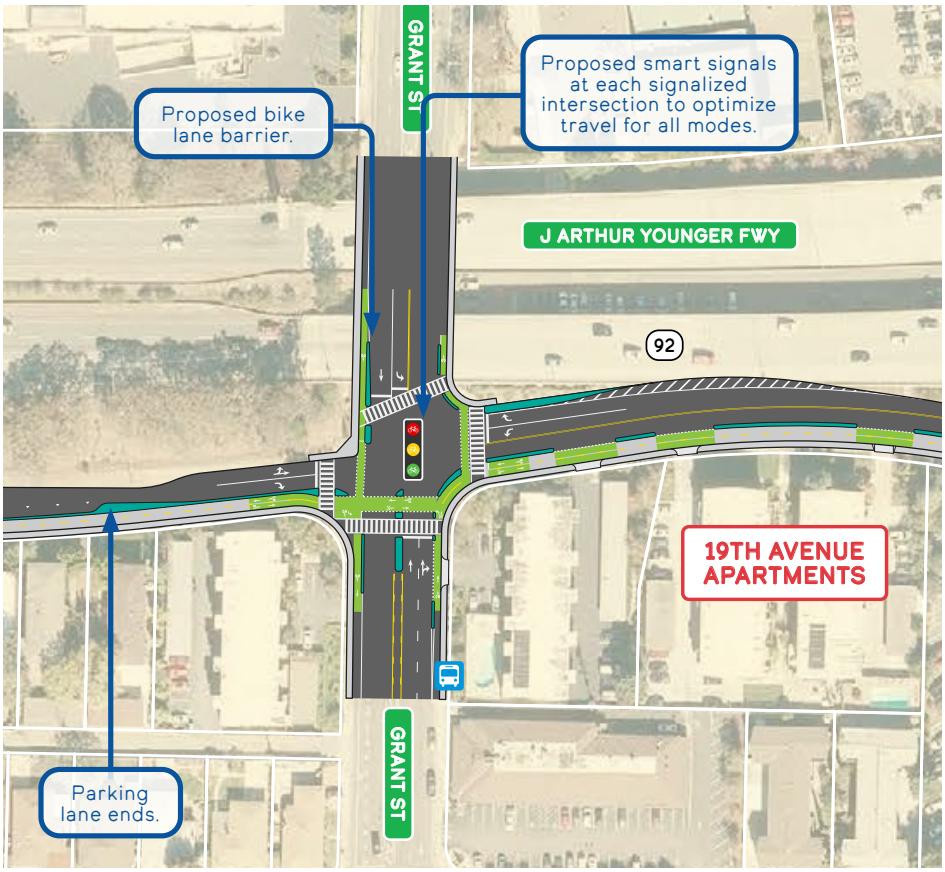


FIGURE **4-D**
GRANT STREET INTERSECTION CONCEPT PLAN

SNAPSHOT: SECTION BETWEEN PACIFIC BOULEVARD AND GRANT STREET

This segment of the corridor envisions a transformation of the western section of 19th Avenue from the existing wide one-way travel lane adjacent to a bike lane and on-street parking, to a proposed narrower travel lane with a bi-directional bikeway at curb level protected by on-street parking and a vertical buffer.

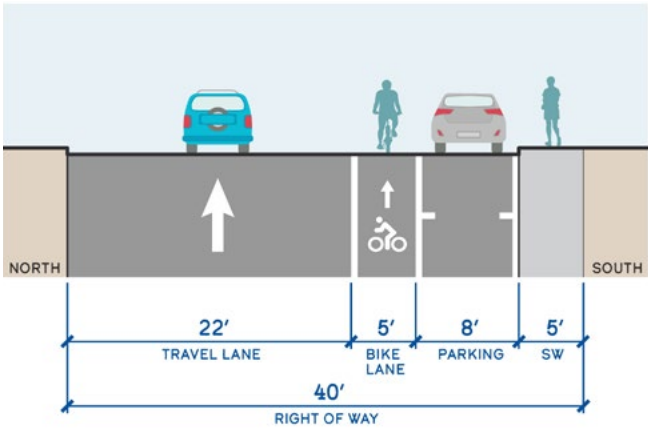
The proposed design introduces a Class IV protected bicycle facility to enhance safety for people cycling while accommodating turning movements in key access areas. The reconfiguration prioritizes multimodal transportation and travel efficiency while maintaining on-street parking inventory.

Key modifications in this approach include:

- Introduction of a physical vertical buffer between the parking lane and active transportation facilities
- Relocation of bicycle facilities above the curb, adjacent to the sidewalk, and further from vehicles.

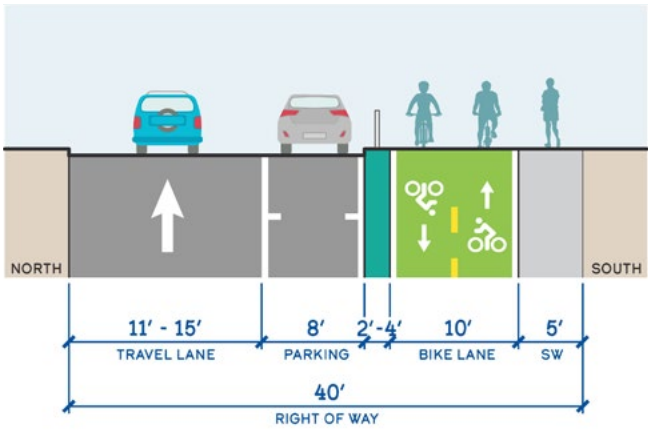
This concept retains the general layout of a dedicated parking lane and sidewalk on the south side of 19th Avenue while introducing modifications to vehicle travel lane width.

NOTE: NARROWEST ROADWAY SECTION DEPICTED



EXISTING

19TH AVENUE: ONE-WAY ROADWAY (PACIFIC BLVD TO GRANT ST)



PROPOSED

TWO-WAY CLASS IV - PROTECTED BIKE LANE (STREET LEVEL)

FIGURE **4-E**
EXISTING AND PROPOSED CROSS-SECTIONS – SEGMENT 1

Existing 19th Avenue approaching Grant Street, looking east

Proposed 19th Avenue approaching Grant Street, looking east

19TH AVENUE INTERSECTION

RECOMMENDATIONS

- **Cross-Section:** 19th Avenue becomes Fashion Island Boulevard east of the intersection in a wider cross section owing to the presence of a wide center median.
- **Bicycle Facilities:** Intersection marks the end of the bi-directional Class IV protected bicycle lane on south side of 19th Avenue. Bicycle facility splits into one-way cycle tracks, still at sidewalk level, protected by a 3 foot wide vertical buffer east of intersection. Marked bicycle crossings of the south and east legs (split by median island) guide people cycling as facility type transitions.
- **Pedestrian Facilities:** West of intersection, sidewalk located only on south side of 19th Avenue separated from vehicle lanes by bicycle facility and vertical buffer. East of intersection sidewalks available on both sides of roadway, each protected by buffer and narrower bicycle facility. High-visibility crosswalks across all intersection legs except east. ADA-compliant curb ramps at all approaches.
- **Traffic Control:** Signalized for vehicles, bicycles, pedestrians, and transit vehicles. Signal cycles for all modes optimized through detection mechanisms. West leg of intersection includes vehicle left turn only and straight or right turn lanes. East leg of intersection includes single vehicle lane permitted to make any movement.
- **Traffic Calming/Speed Management:** 12 foot wide center median reduces single travel lane width between 19th Avenue Intersection and US 101 Ramps.

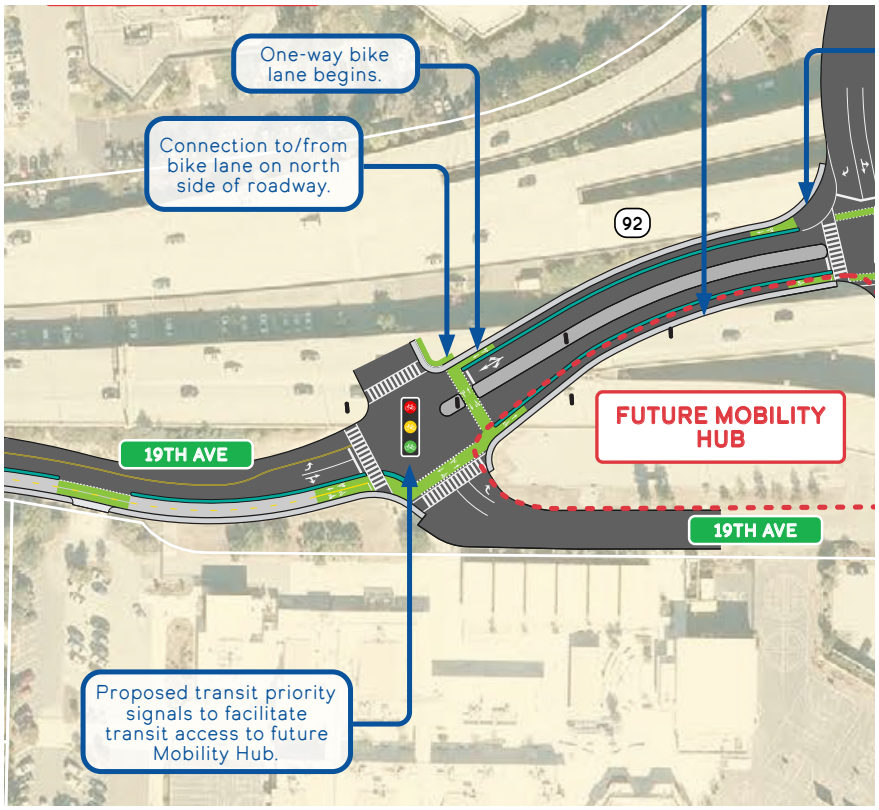


FIGURE **4-F**
19TH AVENUE INTERSECTION CONCEPT PLAN)

US 101 ACCESS RAMP INTERSECTION

RECOMMENDATIONS

- **Cross-Section:** Fashion Island Boulevard west of the intersection operates in a 64 foot wide right-of-way including a 12 foot wide center median. Extra width east of the intersection occupied by a turning lane, gradually tapering to a narrower cross section.
- **Bicycle Facilities:** Split single direction Class IV protected bicycle lanes continue at roadway level separated by a 3 foot wide vertical buffer. Lanes marked through intersection with green paint high-visibility treatment separate from pedestrian crosswalk. Future design will consider additional safety measures for bicycle travel across ramps.
- **Pedestrian Facilities:** West of intersection sidewalks available on both sides of roadway, each protected by buffer and narrower bicycle facility. Sidewalk does not continue on east side of intersection. High-visibility crosswalks across west and south intersection legs. ADA-compliant curb ramps at all approaches.
- **Traffic Control:** Signalized for vehicles, bicycles, and pedestrians. Signal cycles for all modes optimized through detection mechanisms. West leg of intersection includes single vehicle lane, left turns not permitted. East leg of intersection includes vehicle left turn only and through movement lanes, right turns not permitted.
- **Traffic Calming/Speed Management:** 12 foot wide center median reduces single travel lane width between 19th Avenue Intersection and US 101 Ramps.

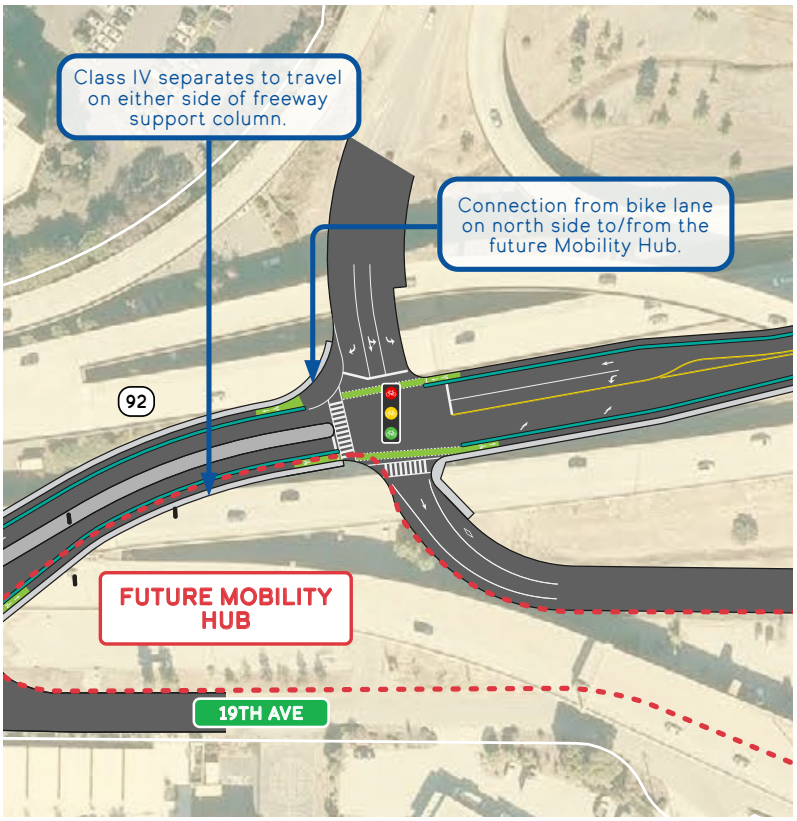


FIGURE **4-G**
US 101 ACCESS RAMP INTERSECTION CONCEPT PLAN

NORFOLK STREET INTERSECTION

RECOMMENDATIONS

- **Cross-Section:** Median divided section west of intersection with tapering westbound lane and eastbound four-lane fanout.
- **Bicycle Facilities:** Split single direction Class IV protected bicycle lanes continue at roadway level separated by a 3 foot wide vertical buffer. Eastbound lane briefly switches outside sidewalk on approach to intersection. Crossings marked through intersection in all four directions separate from pedestrian crosswalks.
- **Pedestrian Facilities:** Sidewalk only on south side of Fashion Island Boulevard west of intersection. Sidewalks on both sides resume east of intersection on bridge approach. High-visibility crosswalks across all legs. ADA-compliant curb ramps at all approaches.
- **Traffic Control:** New signal system to be installed for vehicles, bicycles, and pedestrians. West leg of intersection includes protected left turn, right turn only, and two through movement lanes. East leg of intersection alignment modification to two vehicle receiving lanes and single westbound vehicle lane permitting all movements based on City corridor study.

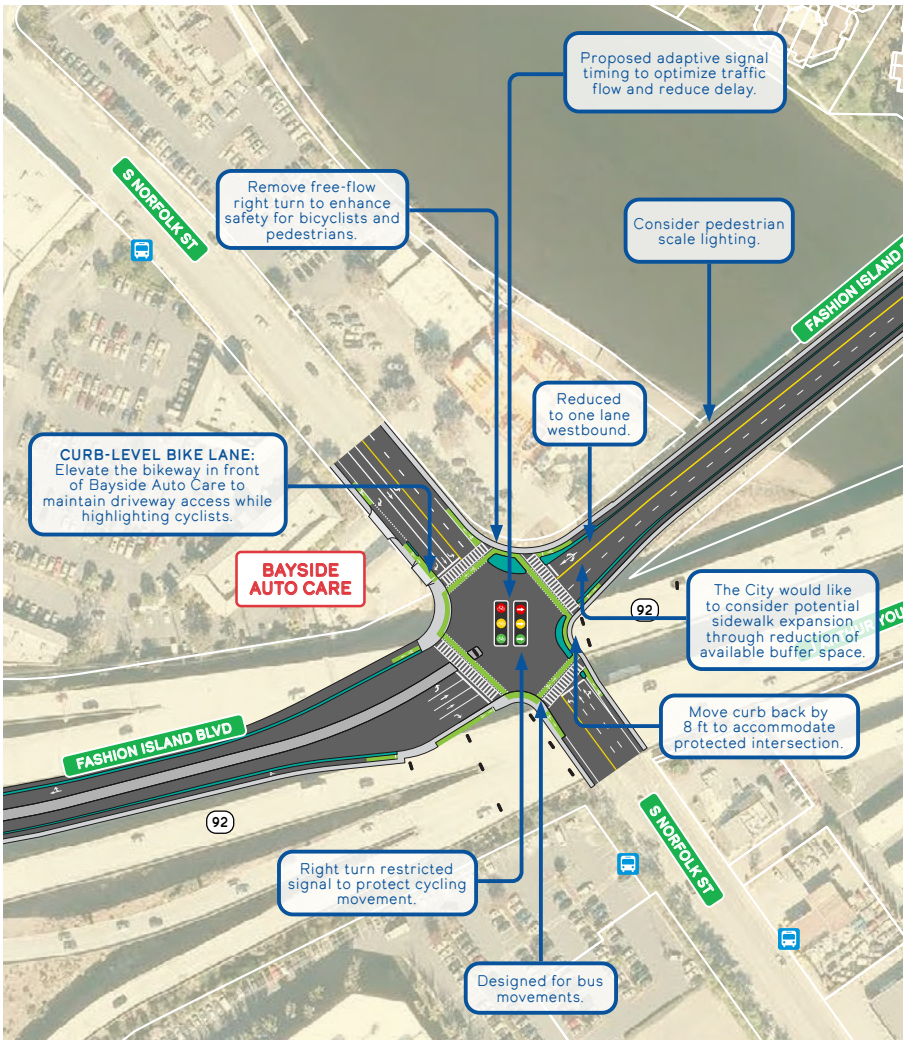


FIGURE **4-H**
NORFOLK STREET INTERSECTION CONCEPT PLAN

Existing Fashion Island Boulevard and Norfolk Street Intersection

Proposed Fashion Island Boulevard and Norfolk Street Intersection

SNAPSHOT: SECTION BETWEEN GRANT STREET AND US 101

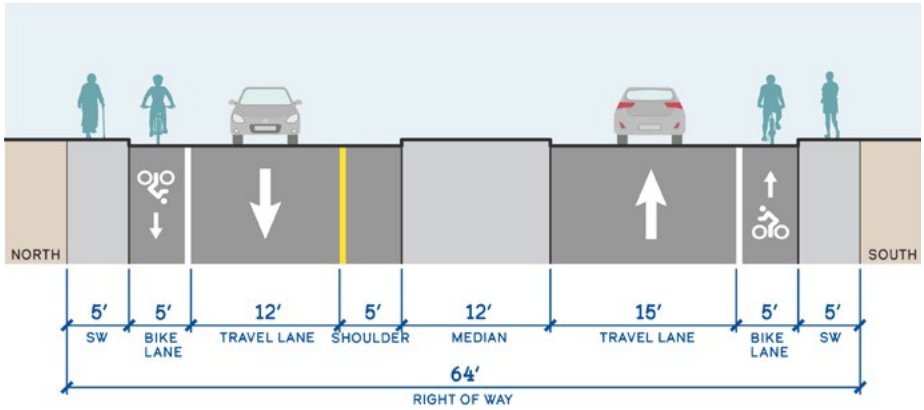
This segment of the corridor, typified by Fashion Island Boulevard between 19th Avenue and US 101 access ramps, would separate the existing bicycle lanes while maintaining adequate vehicular travel lane and sidewalk width.

The proposed design reclaims underutilized space currently acting as a median-side shoulder for westbound traffic and excessive eastbound travel lane width. While remaining in the same footprint, bicycle facilities become protected to enhance safety for people cycling.

Key modifications in this approach include:

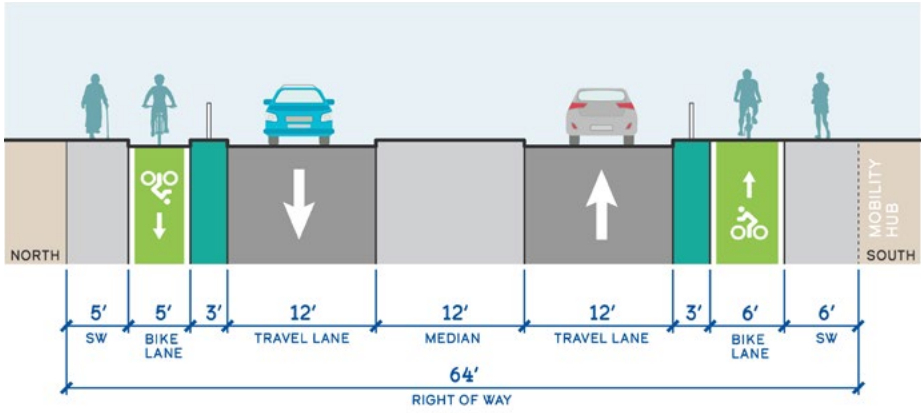
- Introduction of a physical vertical buffer between vehicular travel lanes and active transportation facilities
- Relocation of bicycle facilities above the curb and further from vehicles.

This concept retains the general layout of the existing cross sections while reallocating right-of-way width to better define multimodal accommodations.



EXISTING

19TH AVENUE/FASHION ISLAND BLVD: TWO-WAY ROADWAY (GRANT ST TO US 101 BRIDGE)



PROPOSED

SECTION WITH EXISTING MEDIAN: ONE-WAY CLASS IV - PROTECTED BIKEWAY (BOTH SIDES)

FIGURE 4-1
EXISTING AND PROPOSED CROSS-SECTIONS – SEGMENT 2

SNAPSHOT: SECTION BETWEEN US 101 AND NORFOLK STREET

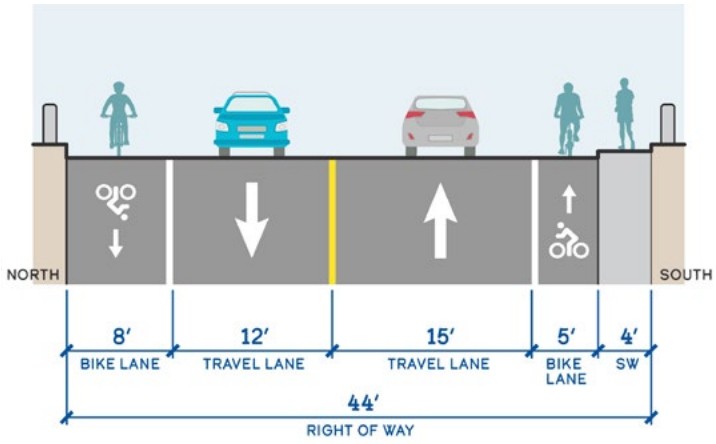
Along the same larger segment of the corridor, but further east along Fashion Island Boulevard as it operates between sections of SR 92 and passes over US 101, the typical section narrows. Nonetheless, space exists to separate the existing bicycle lanes while expanding what is a currently narrow sidewalk.

The proposed design reduces vehicle lanes widths to provide ability to enhance bicycle and pedestrian facilities. While remaining at roadway level bicycle facilities become protected on the opposite side of narrowed travel lanes. Both factors work together to lower vehicle speeds and enhance safety for non-motorized users.

Key modifications in this approach include:

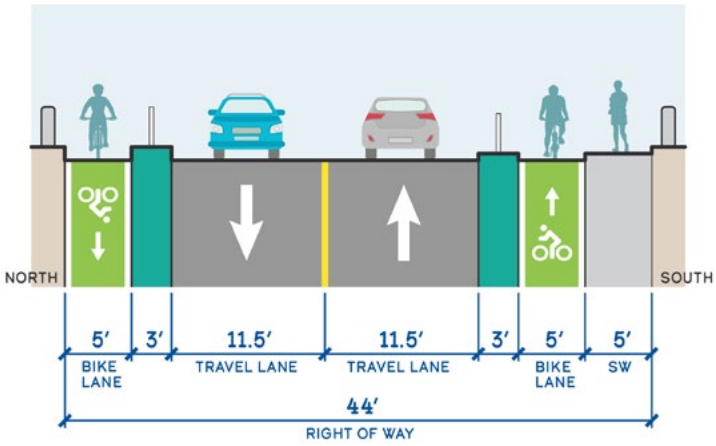
- Introduction of a physical vertical buffer between vehicular travel lanes and active transportation facilities
- Relocation of bicycle facilities away from vehicular travel lanes.
- Wider sidewalk on the south side of the roadway.

This concept maximizes the utility of the cross section for all modes, especially in terms of protecting people who bicycle by reducing vehicle speeds. It better allows for simultaneous use of the sidewalk by additional user groups, most notably persons with disabilities.



EXISTING

FASHION ISLAND BLVD: TWO-WAY ROADWAY (US 101 BRIDGE TO NORFOLK ST)



PROPOSED

SECTION OVER US 101 BRIDGE: ONE-WAY CLASS IV PROTECTED BIKEWAY (BOTH SIDES)

FIGURE **4-J**
EXISTING AND PROPOSED CROSS-SECTIONS – SEGMENT 2

FASHION ISLAND/HARBORTOWN ACCESS INTERSECTION

RECOMMENDATIONS

- **Cross-Section:** Four-lane section west of intersection with initially wide westbound lane tapering to standard width. Five-lane median divided section east of intersection.
- **Bicycle Facilities:** Split single direction Class IV protected bicycle lanes continue at roadway level separated by a vertical buffer of varying width. Lanes marked through intersection with green paint high-visibility treatment.
- **Pedestrian Facilities:** Sidewalks available on both sides of roadway on each side of intersection. No crossing of Fashion Island Boulevard. No marked crosswalks in front of stop bars. ADA-compliant curb ramps already exist at all approaches.
- **Traffic Control:** Stop control for vehicles exiting Fashion Island or Harbortown. Pocket left turn lanes provided for Fashion Island Boulevard traffic in each direction. Westbound through movement lane to single westbound receiving lane and right turn only lane to enter Harbortown. Eastbound through movement only lane and straight or right turn (Fashion Island) lane to two eastbound receiving lanes.

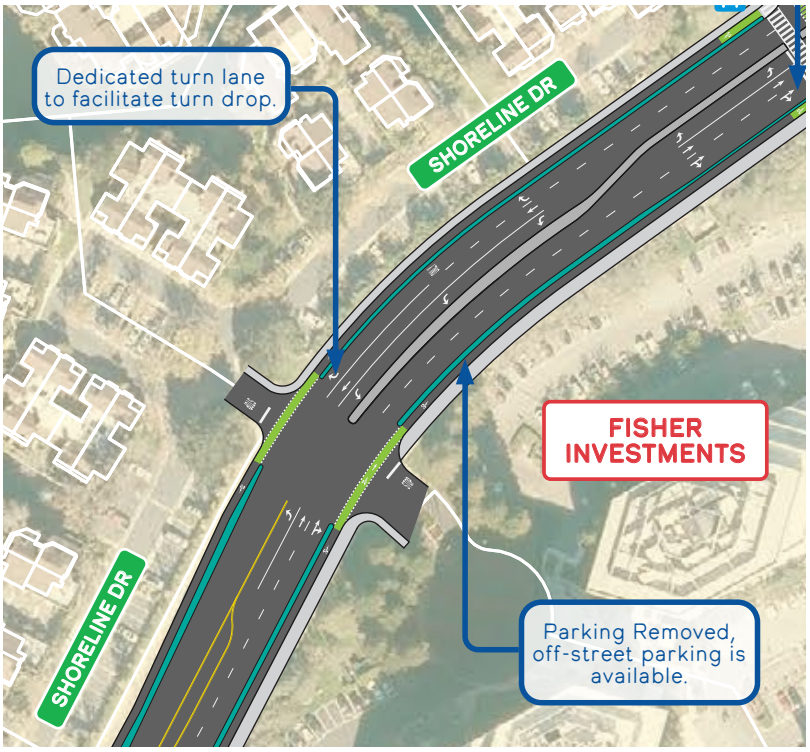


FIGURE **4-K**
FASHION ISLAND/HARBORTOWN ACCESS INTERSECTION CONCEPT PLAN

MARINERS ISLAND BOULEVARD INTERSECTION

RECOMMENDATIONS

- **Cross-Section:** Eastern terminus of study corridor. Median divided five-lane section west of intersection with six-lane section east of intersection.
- **Bicycle Facilities:** Split single direction Class IV protected bicycle lanes continue at roadway level separated by a narrow vertical buffer, seamlessly feeding into bicycle lanes along Mariners Island Boulevard. Crossings marked through intersection in all four directions separate from pedestrian crosswalks. Links less certain to eastbound cycling facilities outside of study area.
- **Pedestrian Facilities:** Sidewalks on each side of Fashion Island Boulevard west of intersection. High-visibility crosswalks across all intersection legs. ADA-compliant curb ramps at all approaches.
- **Traffic Control:** Signalized for vehicles, bicycles, and pedestrians. West leg of intersection includes one vehicle left turn only lane, one through movement only lane, one straight or right turn lane, and two westbound receiving lanes. East leg of intersection includes one vehicle left turn only lane, one through movement only lane, one straight or right turn lane, and three eastbound receiving lanes.

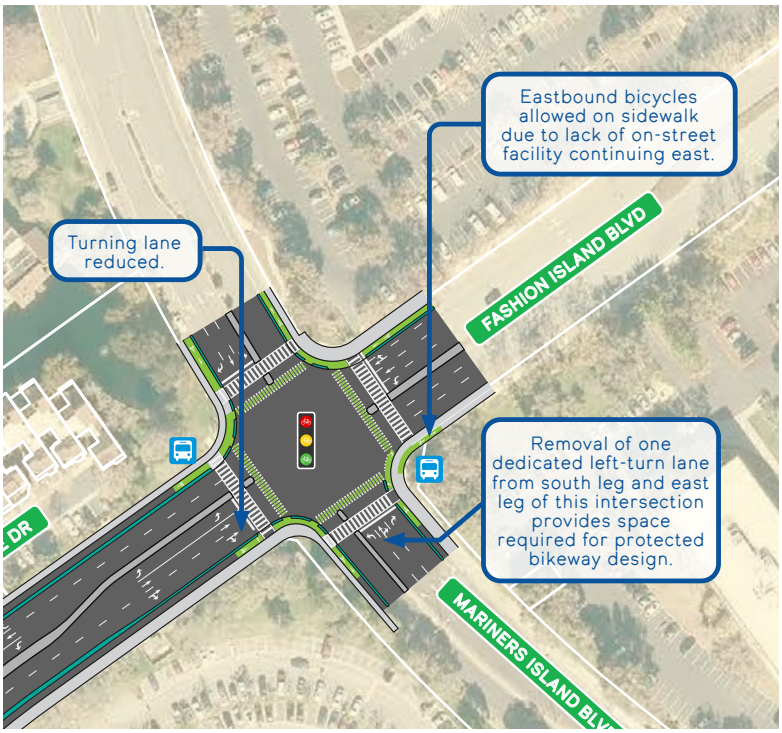


FIGURE **4-L**
MARINERS ISLAND BOULEVARD INTERSECTION CONCEPT PLAN

SNAPSHOT: SECTION BETWEEN NORFOLK STREET AND MARINERS ISLAND BOULEVARD

The narrowest roadway section within Segment 3 is represented by the 56 foot wide right-of-way on the Fashion Island Boulevard Bridge over Seal Slough. While less space exists to reclaim for separated bicycle lanes and sidewalks, enhancements can be created for all modes.

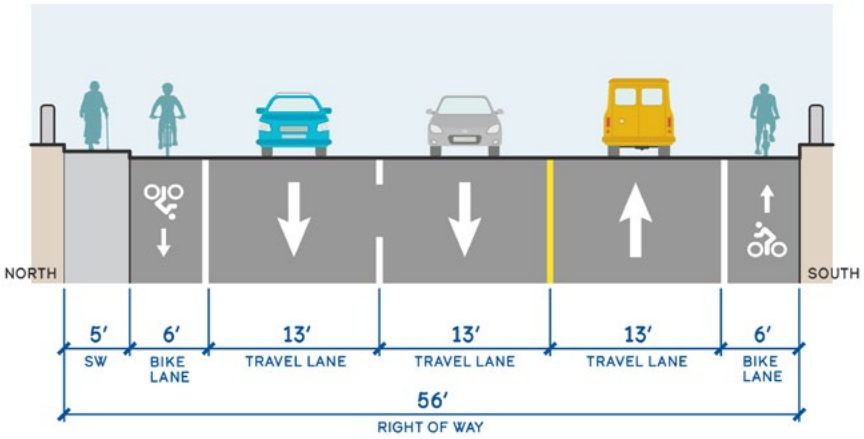
The proposed design recovers programmable width from wider than standard vehicle and bicycle lanes. Travel lanes narrowed to a practical minimum to support transit services allow for vertical buffers for standard bicycle lanes at roadway level as well as the addition of a second sidewalk on the south side of the roadway.

Key modifications in this approach include:

- Introduction of a physical vertical buffer between vehicular travel lanes and active transportation facilities
- Sidewalks present on both sides of the roadway
- Lane reconfiguration from two westbound lanes to two eastbound lanes per City study

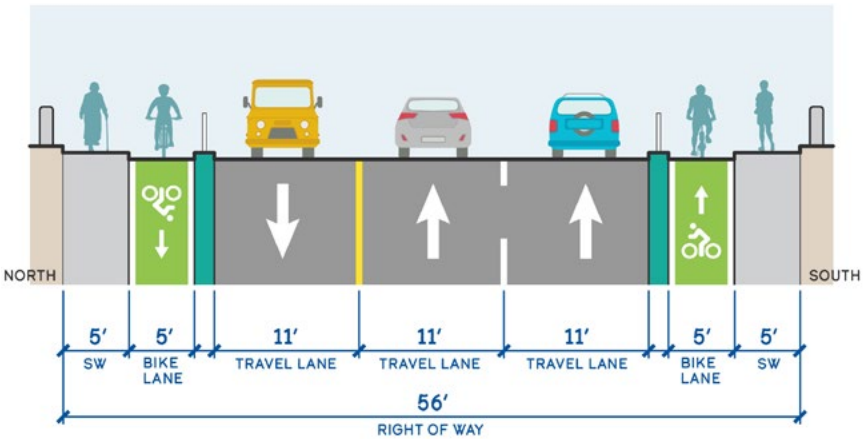
This concept performs all of the functions of the Smart Corridor. It reduces the need for pedestrian crossing activity at Norfolk Street and better facilitates connections to sidewalks on Fashion Island.

NOTE: NARROWEST ROADWAY SECTION DEPICTED



EXISTING

FASHION ISLAND BLVD: TWO-WAY ROADWAY (NORFOLK ST TO MARINERS ISLAND BLVD - ON BRIDGE)



PROPOSED

ONE-WAY CLASS IV - PROTECTED BIKE LANE (BOTH SIDES)

FIGURE 4-M
EXISTING AND PROPOSED CROSS-SECTIONS – SEGMENT 3

COST ESTIMATES

The Concept Plan represents the chosen design for further development. The plan reflects a decision to pursue a full transformation of the corridor, enhancing its multimodal safety and functionality. The tables below summarize the projected expenses associated with elements of the redesign.

CONCEPT PLAN COST ESTIMATE

Construction Subtotal	$ 13,472,018
Contingencies (30%)	$ 4,041,605
Total Opinion of Probable Construction Cost	$ 17,515,000
Design/Administration/ Permitting (30%)	$ 5,254,500
TOTAL	**$ 22,769,500**

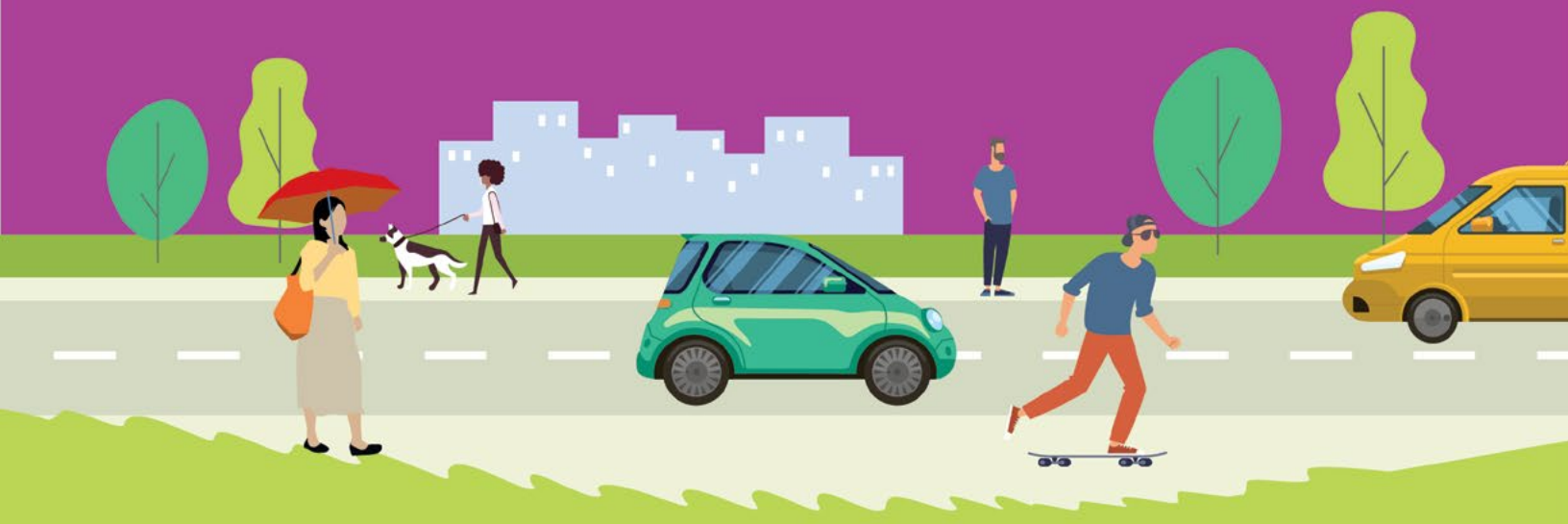
The quantities shown have formed the basis for construction cost estimates, using standard unit cost values from similar corridor projects.

- Unforeseen site conditions and additional material costs identified during the engineering stage may increase this estimate of 2024 costs, subject to change following full surveys and final design.
- Right-of-way acquisition is not anticipated, nor are any unforeseen acquisition costs included in this estimate.
- A 30 percent contingency and 30 percent surcharge for design, construction administration, and permitting are assumed.

CONCEPT PLAN CONSTRUCTION COST BREAKDOWN

LINE ITEM	QUANTITY	UNIT COST	LINE ITEM COST
Asphalt	438,935 sf	$ 4.50–32	$ 2,362,903
Porous Concrete	15,982 sf	$ 62	$ 990,884
Roadway Curb and Gutter	22,613 lf	$ 75-76	$ 1,715,776
Concrete Sidewalk	12,534 sf	$ 42	$ 526,428
Median/Center Island	143 sf	$ 25	$ 3,575
Bikeway Barrier	33,640 sf	$ 25	$ 841,000
Linear Pavement Markings	21,214 lf	$ 3-220	$ 520,282
Stencil Pavement Markings	267 each	$ 10-250	$ 29,420
Pavement Marking Removal	2,530 lf	$ 3-10	$ 9,800
Traffic Signs, Lights, Signals			$ 2,570,003
Raised Intersection	1 ls	$ 150,000	$ 150,000
Other (Stormwater, Traffic Control, Mobilization)	ls	% 5-20	$ 3,751,947
CONSTRUCTION SUBTOTAL			**$ 13,472,018**

CHAPTER 5
CALTRANS PARK AND RIDE MOBILITY HUB



5 CALTRANS PARK AND RIDE MOBILITY HUB

The Mobility Hub will enable the connection of all travel modes introduced throughout the improved Smart Corridor with the ability to transfer to and from multiple modes in an activated community space.

This chapter outlines the process for designing the proposed Mobility Hub located along the 19th Avenue and Fashion Island Boulevard Smart Corridor.

DESIGN CONSIDERATIONS

As previously stated, the Mobility Hub was designed for the existing Caltrans-owned Park and Ride lot below the US 101/SR 92 interchange. Since the final location for the Mobility Hub has not been adopted, this design exercise utilized a replicable process that could be applied regardless of location.

The Mobility Hub design focused on benefiting the community to the highest degree. The practical purpose of the Mobility Hub is to provide access to multiple modes of transportation and make transfers more convenient. However, the human-centered and experiential goals of the design were to also create a sense of place that is locally relevant and contextually sensitive through the programming and activities. The design will be flexible to adapt to evolving needs and can be phased to accommodate implementation over time based on funding opportunities.

AMENITIES TOOLKIT

The Mobility Hub design process began with establishing an amenities toolkit to act as a menu of options for what could be included in the hub (**Figure 5-A**). This toolkit included the following categories and elements:

- **Transit and trip-making services:** Pick-up and drop-off areas for people accessing ride-hailing or microtransit services, 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 and safe crossings of vehicular travel lanes for people walking, cycling, and using other mobility devices. A priority for this project will be providing seamless connections between the mobility hub and Smart Corridor bicycle facilities.
- **Amenities:** Community space, complementary retail, appropriate supportive infrastructure such as lighting, seating, trash receptacles, etc.

The toolkit was filtered through stakeholder and community input during the Phase 1 public engagement process prioritize the elements envisioned for the Mobility Hub design. Every category of elements (i.e., transit and trip-making services, parking and charging services, priority access, and amenities) were ranked evenly amongst the stakeholders and public, with priority access being of the most importance. The elements within the categories were also ranked evenly, with the highest priority element being a bus/shelter stop and little need for freight unloading areas or carshare parking.

FIGURE 5-A
MOBILITY HUB AMENITIES TOOLKIT ELEMENTS

HUB TYPOLOGY AND SPACE PROGRAMMING

After the amenities toolkit established "what" to potentially include in the Mobility Hub, the next step in the design process was to determine how and whether to incorporate each element within the hub. To do this, the Mobility Hub was considered at three different scales: minor, midsize, and major. A minor Mobility Hub is an upgraded neighborhood bus stop and includes smaller scale transit or trip-making, parking or multimodal services, and amenities, such as bus stops, bike parking, and trash receptacles. Midsize Mobility Hubs are located at key destinations along major arterial roads and include more transit or trip-making and parking or multimodal services, such as pick-up/drop-off areas and bikeshare, as well as introduce spatial amenities, such as community spaces or retail. Major Mobility Hubs are located at transit centers, park and ride lots, and underutilized commercial parking lots. These hubs offer a full suite of services for transit or trip-making, parking or multimodal services, and amenities.

The Mobility Hub at the Caltrans-owned Park and Ride was determined to be a major hub type. The amenities toolkit and hub typology were combined to begin the space programming step in the design process.

ALTERNATIVES DEVELOPMENT

Since stakeholder and community input did not prioritize the toolkit elements, most were ranked equally. The Mobility Hub was classified as a major hub, implying a broad range of desired amenities with unclear prioritization of amenity provision space allocation. Therefore, the concept design alternatives were represented by three themes that corresponded with the transit/trip making, parking/charging, and amenity categories from the original amenities toolkit.

The Transit Concept Plan prioritized transit and trip-making services. The Amenities Concept Plan prioritized public amenities. The Multimodal Concept Plan prioritized parking and multimodal services. Each of the three concepts improved access to the site. There was also an understanding that each concept should maintain as much of the existing parking lot as possible to continue its use as a park-and-ride, as well as to maintain space for the existing private shuttle services that operate out of the current location, serving major employers in the area. Each concept should integrate with the improvements along 19th Avenue and provide a safe, accessible environment for all users.

After assessing the three concept alternatives, the Multimodal Concept Plan was determined to be the

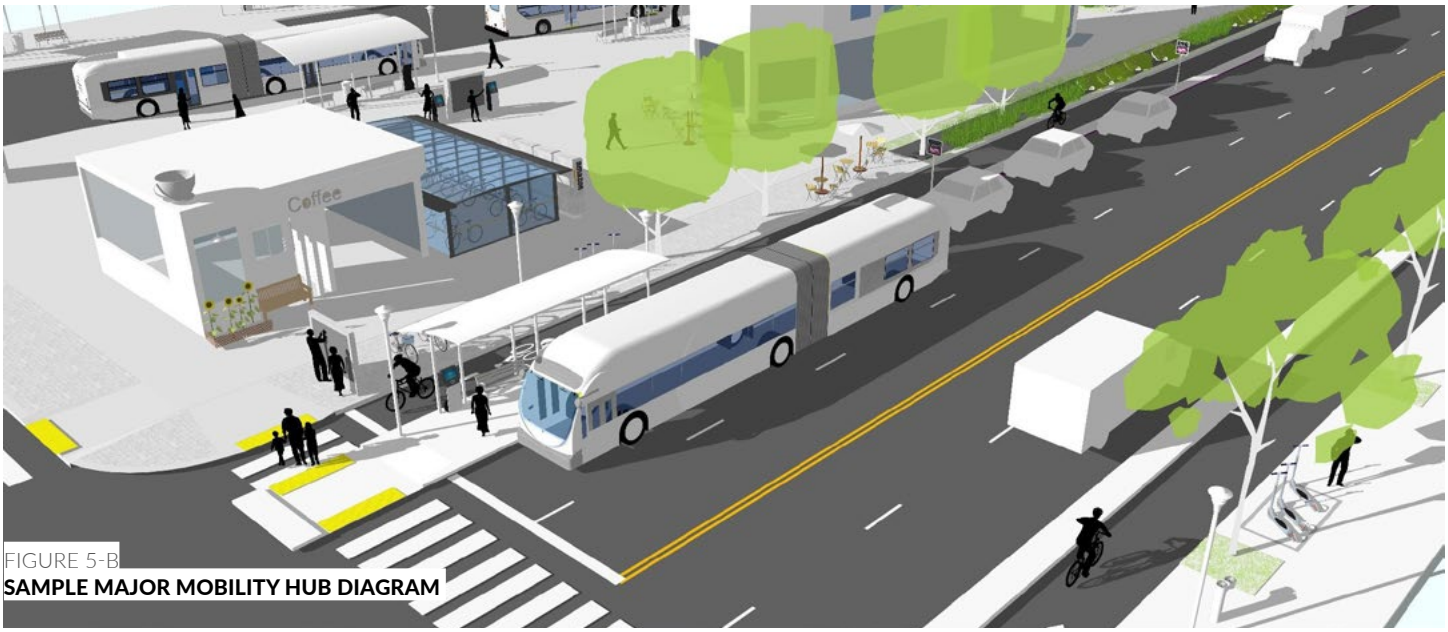


FIGURE 5-B
SAMPLE MAJOR MOBILITY HUB DIAGRAM

preferred because it created the greatest synergies between the Mobility Hub and the 19th Avenue and Fashion Island Boulevard improvements, while also creating a high-quality transit stop and providing ample public amenity space.

TRANSIT CONCEPT PLAN

The Transit Concept Plan prioritizes and maximizes transit and trip-making features and optimizes bus circulation. Defining characteristics of this design include (**Figure 5-C**):

- Six public transit (e.g., full-sized bus, microtransit) bays with adequate turn-around space for efficient on-site movement (#1)
- Preservation of the parking lot on west side of site as a park-and-ride, with minimal impact to its current configuration and capacity, (#13)
- Preservation of a central pick-up/drop-off area for private shared services (e.g., ride-sharing, private shuttle services), separated from public transit services (#12)
- Separate access for transit and freight services via 19th Avenue

Limitations of this design remain. First, bus movement would need to be clockwise, which is not an intuitive traffic circulation pattern for drivers, nor as observed by people accessing transit. The site arrangement isolates transit, multimodal services, and community spaces from the Smart Corridor. Transfers between modes are less convenient. The proximity of on-street freight loading facilities to the nearby school may introduce conflict between large vehicles and people walking. Finally, buses, shuttles and freight share turn-around space, which could cause delays and introduce conflicts between modes.

Ultimately, the Transit Concept Plan was not selected because amenities (e.g., transit, multimodal, and community spaces) were not well integrated across the site. There was too far of a physical disconnect between the location of the bus terminal on the east side of the site, the centrally located multimodal options, and the multimodal facilities along the Smart Corridor.

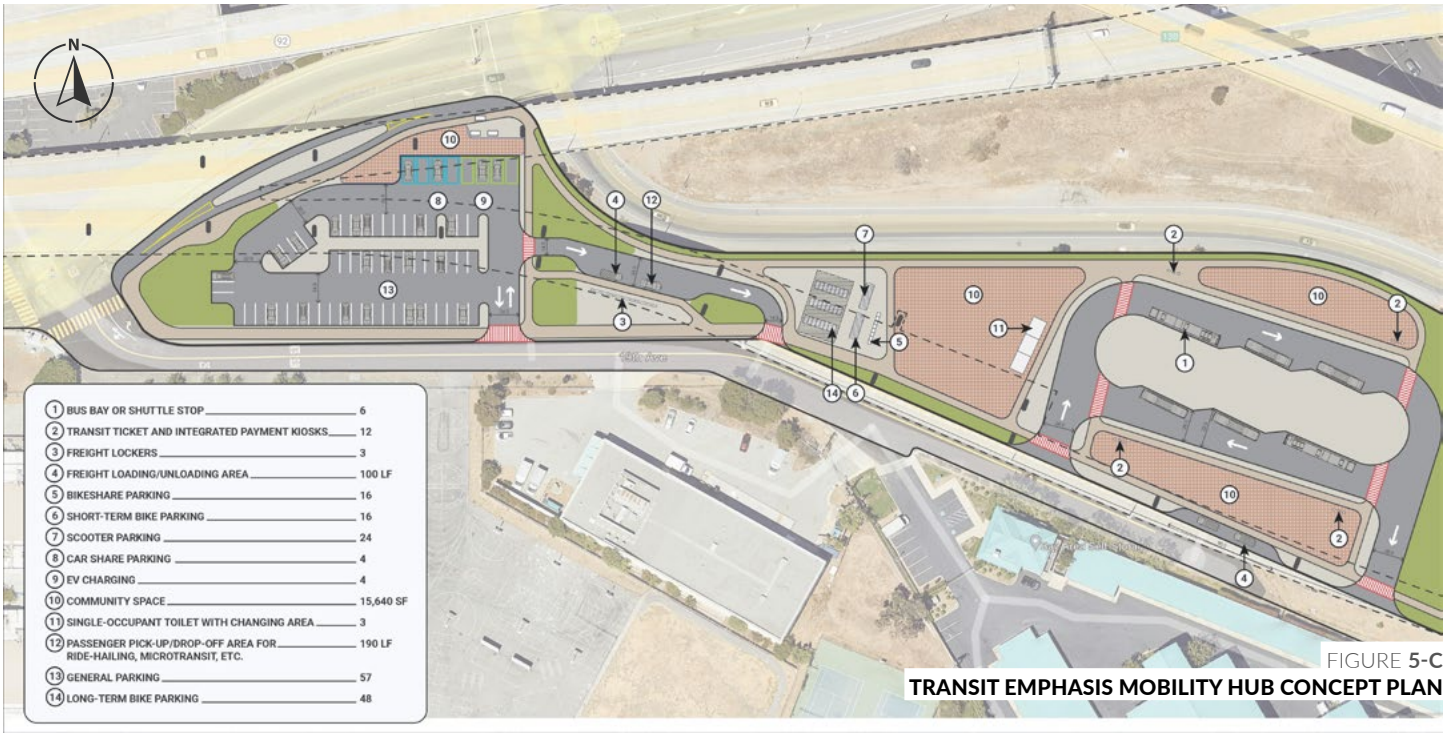


FIGURE **5-C**
TRANSIT EMPHASIS MOBILITY HUB CONCEPT PLAN

AMENITIES CONCEPT PLAN

The Amenities Concept Plan maximizes the amount of community space and public amenities and is characterized by the following (**Figure 5-D**):

- Community space is easily accessible and visible from the Smart Corridor and provides a flexible space for complimentary small-scale retail (#4)
- Preservation of the parking lot on west side of site as a park-and-ride, with minimal impact to its current configuration and capacity (#13)
- Many of the multimodal services are co-located adjacent to the Smart Corridor for ease of access and transfers between modes
- Preservation of a central pick-up/drop-off area for private shared services (e.g., ride-sharing, private shuttle services), separated from public transit services (#12)

However, the amenities concept plan has several limitations. Only four bus bays are provided, located on-street and shared with other services. On-street facilities may cause unsafe interactions between buses/vehicles and people walking throughout the parking lot or traveling to/from the school. While the bus turn around space is separated from other modes, it is removed from the site, adds travel time, and is not convenient or intuitive. Additionally, there is no dedicated space for freight services.

Ultimately, the Amenities Concept Plan was not selected because the design did not meet the standards for bus operations. The limited number of bus bays, the shared use of the bus bays, the on-street location, and the bus turnaround all contributed to this decision.

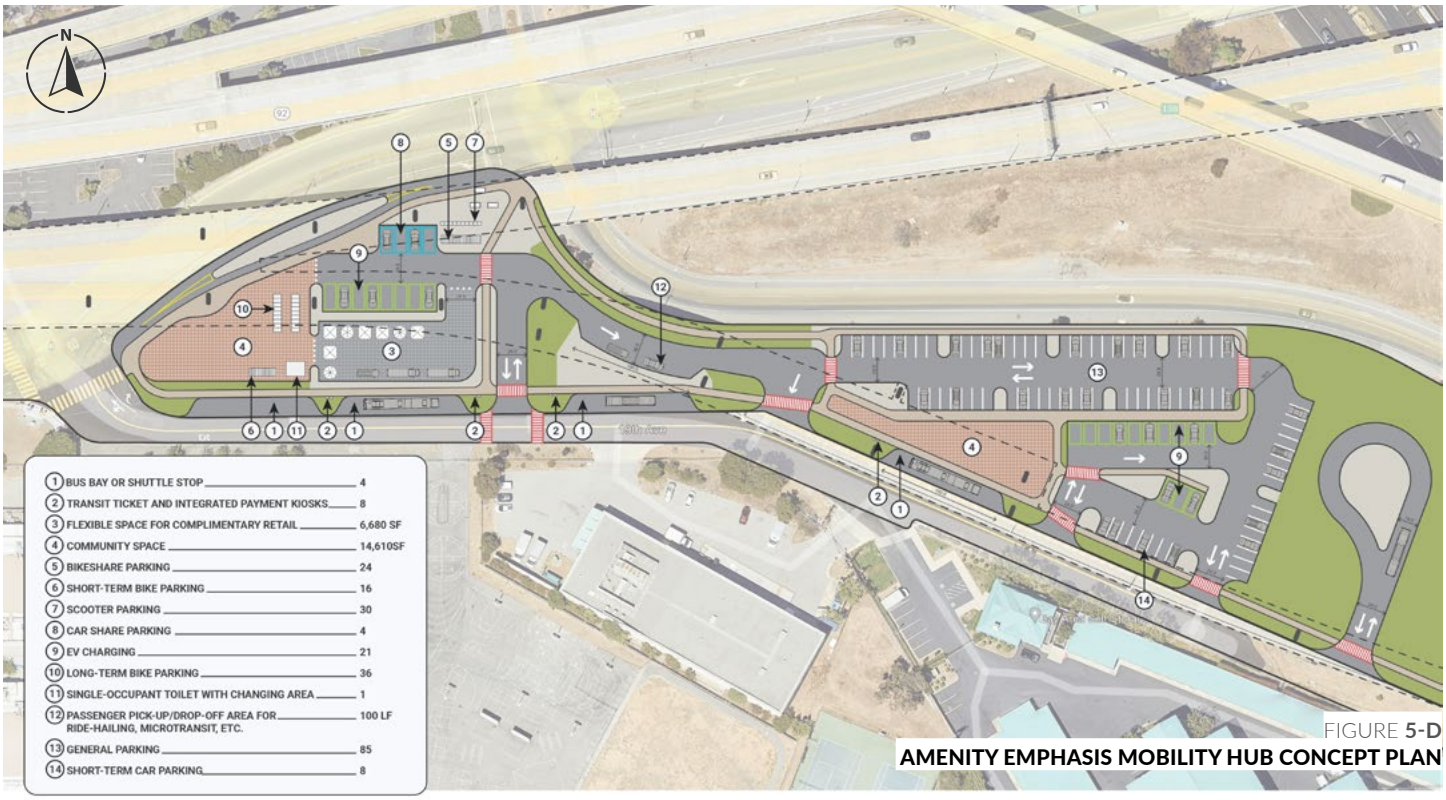


FIGURE **5-D**
AMENITY EMPHASIS MOBILITY HUB CONCEPT PLAN

MULTIMODAL CONCEPT PLAN (PREFERRED)

The Multimodal Concept Plan, the preferred concept, sought to create a synergy with the proposed Smart Corridor improvements by co-locating facilities near 19th Avenue/ Fashion Island Boulevard. In this design, most of the modifications to the existing Caltrans-owned Park and Ride lot occur on the west side of the site.

- Bus service is introduced off 19th Avenue and accommodates five to six buses in a dedicated turn around space (#1)
- A waiting area is located north of the bus bays that includes covered seating and wind screens, as well as two interactive kiosks that provide real-time information updates and allow tickets to be purchased (#16)
- A community plaza space with a bus operator restroom and public artwork opportunity occupies space further north, approaching the bike facilities and sidewalks along Fashion Island Boulevard (#10)
- Micromobility amenities, such as bikeshare parking (#5), bike racks (#6), e-scooter share parking (#7), and bike lockers (#14) are located directly adjacent to the Smart Corridor

There is an additional community space in the center of the site for potential future programming that separates public amenities to the west from the more private amenities to the east. There is also a decorative crosswalk proposed across 19th Avenue to safely connect the Mobility Hub to the existing school.

The east side parking lot is mostly preserved with minimal impacts to the existing parking capacity. The driveway closest to the center of the site was reconfigured for more intuitive circulation compared to the existing wide driveway with multiple drive aisles merging in a small space. The center parking aisle was changed from ninety-degree angle parking to on-street style parking for freight loading/ unloading and pick-up/drop-off for people accessing other mobility options. The parking aisle closest to 19th Avenue was reoriented for improved circulation for the added carshare and electric vehicle parking spaces, as well as a new driveway added towards the middle of the parking lot on 19th Avenue for ease of access for these services.

This concept provides the best combination of design attributes out of the three alternative concepts, including:

- There are no on-street services on 19th Avenue and the parking lot is located across from the existing school, minimizing potential unsafe interactions between buses/ vehicles accessing the mobility hub and pedestrians using the parking lot or walking to/from the school.
- Many of the multimodal services are co-located adjacent to the Smart Corridor for ease of access and transfers between modes
- Dedicated bus turn around space is completely segregated from other vehicle-related services for safety and efficiency
- Community space is easily accessible and visible from the Smart Corridor
- The parking lot on the east side of the site has been retained (#13)

Design features that may need further consideration include:

- Some of the vehicle-related services (e.g., ride share pick-up/drop-off, electric vehicle charging, car share) are far removed from the other travel modes and the Smart Corridor, making transfers between modes less convenient
- Freight services are somewhat removed, internalized in the east side parking lot, but share space with services for people accessing transit, raising potential conflicts between people walking and freight operations

BY THE NUMBERS

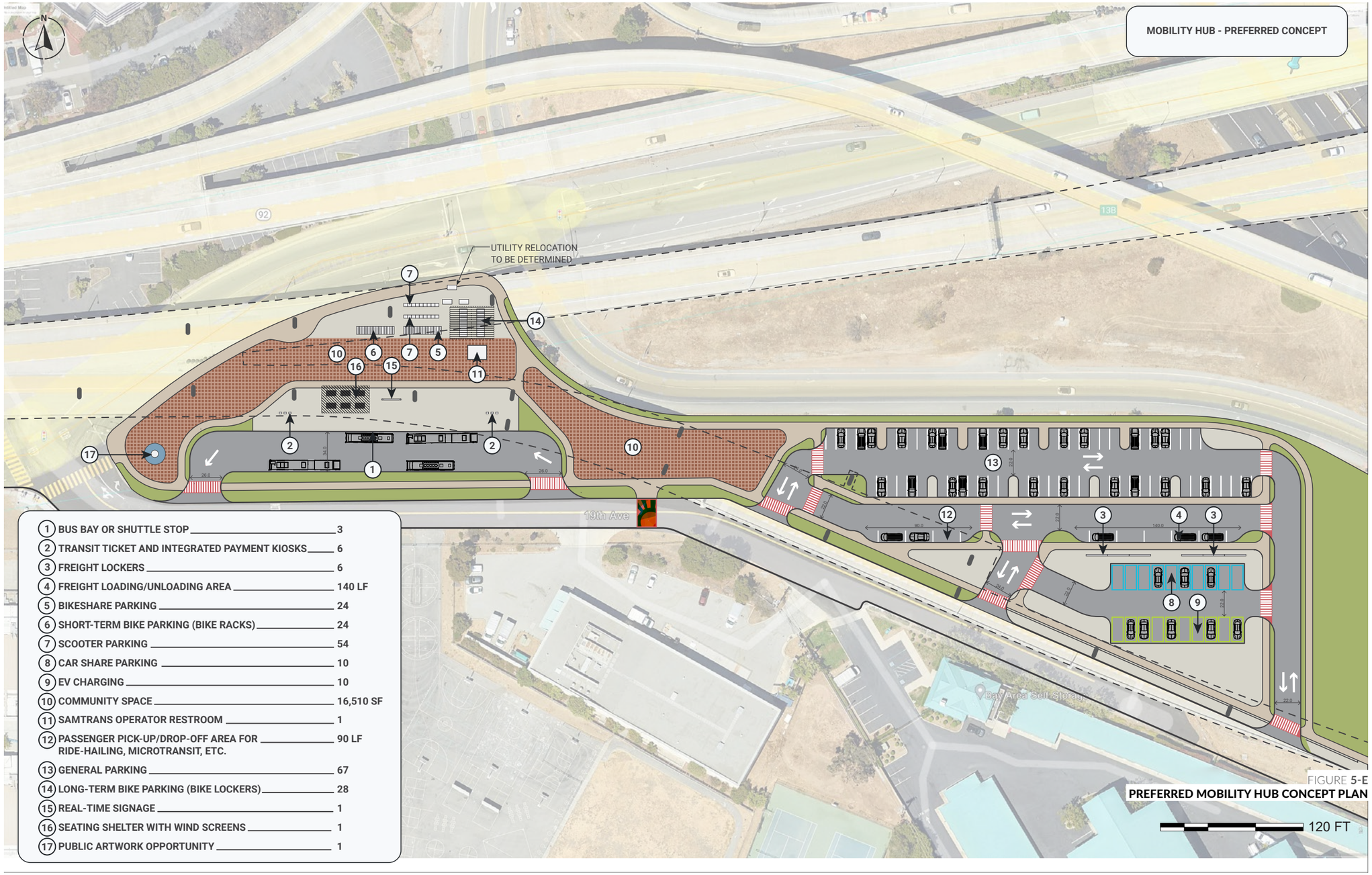
5+ *Bus Bays*

52 *Short- and Long-Term Bicycle Parking*

78 *Micromobility Rental Locations*

10 *Electric Vehicle Charging Stations*

>16K *Square Feet of Community Space*



1	BUS BAY OR SHUTTLE STOP	3
2	TRANSIT TICKET AND INTEGRATED PAYMENT KIOSKS	6
3	FREIGHT LOCKERS	6
4	FREIGHT LOADING/UNLOADING AREA	140 LF
5	BIKESHARE PARKING	24
6	SHORT-TERM BIKE PARKING (BIKE RACKS)	24
7	SCOOTER PARKING	54
8	CAR SHARE PARKING	10
9	EV CHARGING	10
10	COMMUNITY SPACE	16,510 SF
11	SAMTRANS OPERATOR RESTROOM	1
12	PASSENGER PICK-UP/DROP-OFF AREA FOR RIDE-HAILING, MICROTRANSIT, ETC.	90 LF
13	GENERAL PARKING	67
14	LONG-TERM BIKE PARKING (BIKE LOCKERS)	28
15	REAL-TIME SIGNAGE	1
16	SEATING SHELTER WITH WIND SCREENS	1
17	PUBLIC ARTWORK OPPORTUNITY	1

FIGURE **5-E**
PREFERRED MOBILITY HUB CONCEPT PLAN

PHASED IMPLEMENTATION APPROACH

To ensure a seamless and efficient implementation of transit improvements, the study team developed a phased approach to balance immediate operational needs with long-term strategic planning. The proposed phased strategy allows SamTrans to address challenges such as bus layover space and operator facilities while evaluating future mobility hub development options. This approach offers flexibility to adapt to site conditions and evolving transit demands, ensuring that improvements continue to serve contemporary needs.

Phase One (Interim Improvements for Bus Operations): During the first phase, the recommended approach is to utilize the existing Park and Ride lot as a bus layover space (including an operator restroom) with minimal site improvements:

- Maintain existing driveway and utilize the parking area immediately adjacent to the driveway to create a layover space for bus operators.
- Minor curb/concrete removal may be considered, in addition to parking space striping removal etc. to create a drive aisle and curb adjacent parallel parking for buses.
- Evaluate if an exit driveway is feasible where proposed in the conceptual design with minimal construction or impacts to utilities to facilitate one-way travel; sufficient turning space will need to be considered if a new driveway is not feasible and the existing is utilized for ingress and egress.
- Determine a viable location for an operator restroom, which could be permanent if utilities exist or a temporary facility if no utilities are present.

Phase Two (Evaluate Preferred Location for Mobility Hub): During the second phase, SamTrans will further evaluate the suitability of the Caltrans Park and Ride on 19th Avenue for existing and future SamTrans operations. This will likely take into considerations bus routing, frequency, access to major transit corridors and regional connectivity, and location context. Ideally, the result of this phase will include selection of a preferred location for the Mobility Hub.

Phase Three (Mobility Hub Buildout): During the third phase, mobility hub features would be implemented at the selected location. If the Caltrans Park and Ride on 19th Avenue is selected, SamTrans can refer to the Multimodal Concept design. Buildout of the Mobility Hub features may be phased.

COST ESTIMATES

This section provides a planning level cost estimate for the preferred Multimodal Concept Plan for a Mobility Hub at the Caltrans Park and Ride at 19th Avenue.

The quantities shown here form the basis for construction cost estimates, using standard unit cost values from similar projects. This is limited by the following assumptions:

- Unforeseen site conditions and additional material costs identified during the engineering stage may increase this estimate of 2024 costs, subject to change following full surveys and final design.
- Property acquisition is not anticipated, nor are any unforeseen acquisition costs included in this estimate.
- Estimates assume 30 percent contingency surcharges for design, construction administration, and permitting.

CONCEPT PLAN COST ESTIMATE

Construction Subtotal	$ 10,942,086
Contingency (30%)	$ 3,282,626
Design/Administration/ Permitting (30%)	$ 4,267,500
TOTAL	**$18,492,500**

CONCEPT PLAN CONSTRUCTION COST BREAKDOWN

LINE ITEM	QUANTITY	UNIT COST	LINE ITEM COST
PAVING/GROUND COVER			
Asphalt (new, full-depth)	61,238 sf	$ 30	$ 1,837,140
Concrete	24,275 sf	$ 35	$ 865,375
Painted Concrete	25,776 sf	$ 40	$ 1,031,040
Stamped Brick	21,983 sf	$ 60	$ 1,318,980
Concrete Curb	4,515 lf	$ 40	$ 180,600
Turf Establishment	26,222 sf	$ 2	$ 52,444
SITE FEATURES			
Transit Ticket & Integrated Payment Kiosks	6	$ 50,000 ea	$ 300,000
Freight Lockers (installed and provided by operator)	6	-- ea	--
Bikeshare Parking (8-bay)	3	$ 10,000 ea	$ 30,000
Short-Term Bike Parking (Bike Racks)	24	$ 500 ea	$ 12,000
Long-Term Bike Parking (Bike Lockers)	28	$ 4,500 ea	$ 126,000
Scooter Parking (8-bay w charge)	7	$ 25,000 ea	$ 175,000

CONCEPT PLAN CONSTRUCTION COST BREAKDOWN

LINE ITEM	QUANTITY	UNIT COST	LINE ITEM COST
SITE FEATURES CONT'D			
Level 2 EV Charging Station	10	$ 22,000 ea	$ 220,000
Samtrans Operator Restroom (1-stall)	1	$ 40,000 ea	$ 40,000
Real-Time Signage	1	$ 110,000 ea	$ 110,000
Seating Shelter w/ Wind Screens	6	$ 12,000 ea	$ 72,000
Public Artwork Opportunity	1	$ 5,000 ea	$ 5,000
PAVEMENT MARKINGS			
High Visibility Crosswalk (10'-Wide, Red & White Paint)	333 lf	$ 220	$ 73,260
Standard Parking Spaces (8.5'x18')	67	$ 10 ea	$ 670
Passenger Pick-Up / Drop-Off Spaces (23'x10')	3	$ 100 ea	$ 300
Freight Loading / Unloading Spaces (23'x10')	14	$ 80 ea	$ 1,120
Car Share Parking	10	$ 100 ea	$ 1,000
EV Charging Space	10	$ 100 ea	$ 1,000
Roadway Arrow	12	$ 200 ea	$ 2,400
Decorative Crosswalk (Raised)	1	$ 250 ea	$ 250
TRAFFIC SIGNS, LIGHTS, SIGNALS			
Signal Cabinet Relocation	1	$ 8000	$ 8,000
Lighting	15%	--	$ 968,337
Landscaping	10%	--	$ 646,358
Signage	2%	--	$ 129,112
OTHER			
Stormwater Improvements	20%	--	$ 1,641,477
Traffic Control	1%	--	$ 98,489
Mobilization	10%	--	$ 994,735
CONSTRUCTION SUBTOTAL			**$ 10,942,086**

US 101/SR 92 MOBILITY HUB AND SMART CORRIDOR CONCEPT PLAN

CITY OF SAN MATEO | CALIFORNIA

Stantec