I-580 Transit and Multimodal Corridor Strategy
Comprehensive Multimodal Corridor Plan

APPROVED BY:

3/18/2025

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DATE

I accept this Comprehensive Multimodal Corridor Plan for the I-580 Corridor as a document informing the regional transportation planning process.

ACCEPTED BY:

4/24/2025

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Metropolitan Transportation Commission

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03/11/2025

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California Department of Transportation

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I-580 Transit and Multimodal Corridor Strategy

A Comprehensive Multimodal Corridor Plan

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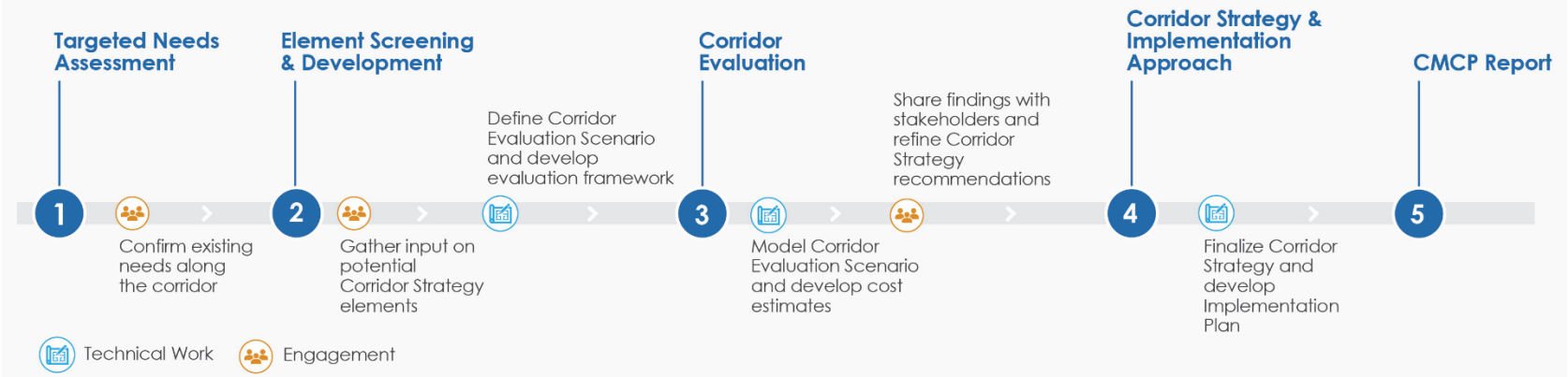
INTRODUCTION

The Interstate 580 (I-580) corridor, generally defined as all transportation facilities within one-half mile of the freeway, is a vital link in Northern California's transportation network. The corridor provides the primary east-west freeway connection within Alameda County and between the San Francisco Bay Region and the Central Valley. It includes extensive regional and local transit services, such as BART, ACE, AC Transit, and LAVTA, with more planned. It is most heavily used as it approaches the Bay Bridge, where the freeway and BART carry approximately 275,000 daily person trips combined.[1] At the gateway to the Bay Area region, the Tri-Valley is another high-demand section of the corridor, where in addition to passenger vehicles and transit riders, more than 18,000 trucks travel daily along the corridor to and from the critical Port of Oakland and nearby industrial areas.[2] Additionally like many interstates constructed through communities, those who walk or bicycle through neighborhoods along the corridor must grapple with barriers to safety and connectivity caused by freeway infrastructure and disconnected local roadway facilities.

Reflecting on the importance of this corridor to the local and regional transportation system, Alameda CTC developed a Comprehensive Multimodal Corridor Plan (CMCP or the Plan) for the I-580 corridor. The Plan consists of an integrated analysis of all transportation modes, facilities, and community needs on and around I-580 between the San Francisco-Oakland Bay Bridge toll plaza and the Altamont Pass. The primary outcome of the Plan is the Corridor Strategy, a comprehensive set of strategies and investments recommended for the I-580 corridor that improves alternatives to single-occupant vehicles and enhances safety, air quality, and equity.

Developing the Plan involved extensive coordination with agency and community stakeholders to define and prioritize investments. Agency stakeholder engagement included regular input from a project management team that included Caltrans District 4 and the Metropolitan Transportation Commission (MTC), a Technical Advisory Committee (TAC) representing 15 partner agencies, and discussions with individual agencies as needed throughout the planning process. Community engagement focused on partnerships with community-based organizations (CBOs) representing equity priority communities (EPCs) in Oakland, San Leandro, and Unincorporated Central Alameda County, in addition to general in-person and online public engagement. Engagement consisted of three phases: 1) confirming existing transportation needs and challenges on and along the corridor; 2) gathering input on potential Corridor Strategy elements; and 3) refining the proposed elements and recommendations to develop the final Corridor Strategy. The development process for the Plan is presented in **Figure ES-1**.

FIGURE ES-1: CORRIDOR STRATEGY DEVELOPMENT PROCESS AND TIMELINE



The Plan reflects the priorities of Alameda CTC, partner agencies, and communities and advances them towards implementation by enabling recommended projects to be eligible to apply for State Senate Bill 1 Solutions for Congested Corridors Program (SCCP) funding.

THE I-580 CORRIDOR IS KEY TO ALAMEDA COUNTY'S ECONOMIC VITALITY

The I-580 corridor is a critical connection between the more than 350,000 Alameda County residents who live along the corridor and the more than 150,000 jobs provided by major employment centers along the corridor. The I-580 corridor also provides access to another 425,000 jobs in downtown San Francisco through freeway, rail, and transbay bus connections. Through its connections to I-680, it also provides access to the job-rich Peninsula and South Bay.

Demands on the I-580 corridor are expected to increase in coming years due to population growth. The regional transportation plan, Plan Bay Area 2050, forecasts Alameda County's population to increase by 53 percent and employment to increase by 36 percent by 2050, with much of the growth occurring along the I-580 corridor in the Tri-Valley and central Alameda County.[3] Just east of Alameda County in San Joaquin County, the Tracy area, is expected to increase its population by 69 percent between 2015 and 2050. [4]

Transit is a major component of travel along the I-580 corridor, with regional rail service provided by BART and ACE and six local bus systems, including AC Transit and LAVTA. With increasing travel demand on the corridor and goals related to greater use of non-automobile travel, transit services will be increasingly relied upon to serve the travel needs of residents and employers along the corridor.

I-580 is also on the National Highway Freight Network and serves as a critical corridor in the region's goods movement network. It connects major port infrastructure at the Port of Oakland, Oakland International Gateway rail terminal, and the Oakland International Airport with warehouses, distribution centers, and long-distance highway and rail routes in the Central Valley. According to the federal Freight

Analysis Framework, the tonnage of domestic goods traveling in the Bay Area is expected to be 40-70 percent higher than 2019 levels by 2050, making maintenance of an efficient and reliable freight network essential.

I-580 IS A MAJOR BARRIER TO EQUITABLE, SAFE, AND CONVENIENT TRAVEL

The I-580 corridor is home to about 166,000 residents of neighborhoods designated as EPCs by MTC. These are communities with high concentrations of low-income residents and people of color that may have experienced historic underinvestment or have been disproportionately burdened by negative impacts from past transportation projects. Residents of these communities continue to bear the burdens of freeway traffic and congestion—including noise, pollution, and safety risks—even though many of the vehicles on I-580 come from outside their neighborhoods.

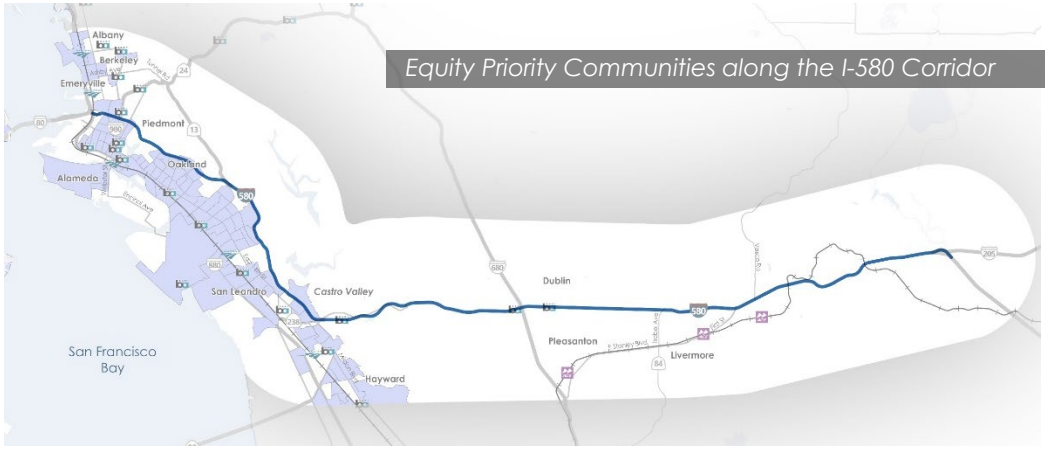
Previous outreach efforts with EPCs along the I-580 corridor revealed that many residents want easier access to key destinations by car because driving is often faster and more direct than transit or other options. At the same time, residents indicated that driving in their neighborhood takes too long and is unreliable because of traffic incidents or poor roadway conditions. Residents also noted that the physical barrier of I-580 and poorly maintained streets in their neighborhoods create an unsafe and uninviting environment for accessing transit, walking, and bicycling.

The CMCP needs assessment verified these concerns and identified elevated safety and connectivity issues near the interchange with I-238 and around the Grand Avenue/MacArthur Boulevard area in Oakland. These locations are the subject of a separate work effort to identify more detailed implementation.

RESPONDING TO CLIMATE CHANGE REQUIRES IMPROVEMENTS TO THE I-580 CORRIDOR

The transportation sector accounts for over one-third of the state's greenhouse gas emissions, the majority of which are attributable to passenger vehicles, and statewide vehicle miles traveled (VMT) has been increasing. According to the California Air Resources Board's (CARB's) 2022 report, Californians are driving more and carpooling less for work trips; the number of vehicles per household is increasing; transit ridership is falling; and people are walking and biking less compared to 2005.[5] Alameda County freeways are major sources of VMT, as Alameda County residents drive longer distances than the regional average.[6] VMT on Alameda County freeways increased by 8 percent between 2019 and 2023, continuing the 1 to 2 percent annual increase in countywide VMT observed prior to the pandemic.[7]

FIGURE ES-2: EQUITY PRIORITY COMMUNITIES



Equity Priority Communities along the I-580 Corridor

I-580 Mainline in the Tri-Valley

The consequences of climate change are expected to produce more extreme environmental conditions in the corridor, and climate hazards threaten both the physical assets of the I-580 corridor and neighboring communities. The I-580 corridor contains multiple structures and roadway segments throughout the corridor identified by Caltrans as Priority Level 1 in the 2020 Adaptation Priorities Report. Sea level rise and related flooding is a risk near the Bay shoreline and Lake Merritt in the western part of the corridor, and the many reservoirs and watersheds in the Tri-Valley present a flooding risk in the eastern half of the corridor. The I-580 corridor also faces risks from wildfires as it passes through very-high risk zones in the Oakland Hills, Altamont Pass, and other at-risk zones in the Tri-Valley. Because I-580 corridor is the major east-west corridor in Alameda County, it is likely to be critical for evacuating residents and supporting fire-fighting activities in the event of a major fire anywhere in the county.[8]

THE CORRIDOR STRATEGY BUILDS ON PREVIOUS PLANS TO SET INVESTMENT PRIORITIES

The Plan updates and defines a path for implementation for prior regional, countywide, and corridor planning, taking broad policy guidance from planning and policy work done at the county, regional and state levels. Key prior planning informing development of the Plan includes Plan Bay Area 2050; the 2020 Alameda Countywide Transportation Plan (2020 CTP); and the Alameda CTC I-580 and I-680 Work Program, which highlighted a number of initiatives in the corridor including the I-580 Design Alternatives Assessment (I-580 DAA), I-580/I-680 Interchange Project Study Report, I-580 Express Lanes After Study, and project development of Valley Link and I-205 Managed Lanes.

There is strong alignment at the state, regional, and local levels to focus on reducing VMT and greenhouse gas emissions and prioritizing equity and safety; adding capacity to I-580 is not feasible due to geographic and policy constraints, nor is it effective as a tool to reduce congestion in the long run. These themes were strongly reflected in the 2020 CTP, which sets transportation policy priorities for Alameda County.

With this policy framework, the Plan focuses on how to create attractive, affordable, seamless multimodal connections to spur mode shift and provides more implementation details related to express bus service, station access, integration with park-and-ride lots, and impacts to and integration with parallel arterials. In so doing, the Plan aligns the investments on the corridor with local priorities and state and regional goals and requirements to best position projects for future funding.


San Leandro BART

The seven goals of the Plan, which are adapted from the 2020 CTP goals, reflect this focus on aligning local priorities with funding requirements. Six of the goals are directly aligned with application criteria from the SCCP, and the seventh goal highlights Alameda CTC's commitment to equity as a fundamental part of the Plan. The Plan goals are as follows:

- Improve Sustainability
- Improve Health & Safety
- Improve Accessibility
- Enhance Travel Reliability & Efficiency
- Strengthen Economic Vitality
- Support Efficient Land Use & Existing Communities
- Advance Equity in Planning Process & Outcomes

A NEEDS ASSESSMENT IDENTIFIED MAJOR CHALLENGES ACROSS ALL MODES

The Plan identified corridor needs to be addressed through the Corridor Strategy based on technical assessments and public and agency stakeholder engagement. The needs assessment focused on improvements that will realize the 2020 CTP vision of healthy, safe, and livable communities while equitably accommodating growing travel demand.

Technical analysis included an assessment of travel markets and patterns on the I-580 mainline at three locations, an analysis of existing transit use and operations, a collision history analysis on the I-580 freeway mainline and at ramp terminal intersections, and an analysis of freight travel patterns and expected future needs to support freight clean fueling.

Public engagement related to needs used focus groups with CBO partners and other stakeholders from local businesses and institutions to identify and confirm transportation access, safety, and mobility needs along the I-580 corridor. CBOs were also engaged to support the organization of pop-up engagement events in Oakland, Cherryland, and San Leandro to ensure that the input mechanisms and engagement approaches were responsive to the accessibility and cultural needs of these communities. Public feedback was also collected through an online interactive web map. The corridor-wide agency TAC provided input on existing corridor opportunities, challenges, and travel needs.

Major findings from the needs assessment technical analysis and public and stakeholder engagement are summarized in the following subsections.

TRAVEL ON THE I-580 MAINLINE IS DISPERSED AND MAINLY SHORT DISTANCES

The travel markets assessment found that travel on the I-580 mainline is dispersed, following an "everywhere-to-everywhere" pattern, and is primarily for short- to medium-distance trips (e.g within a single Alameda CTC planning area or between adjacent planning areas). For example, as shown in **Figure ES-3**, more than 60 percent of westbound travelers on I-580 approaching the Lake Merritt area come from within Oakland, with 41 percent originating from the Oakland Hills and 20 percent originating from East Oakland.

Interregional trips from the San Joaquin Valley also exhibit a pattern of mostly short- to medium-distance travel. As shown in **Figure 2-9**, over 40 percent of vehicles traveling westbound over the Altamont Pass are destined for locations in the Tri-Valley (22 percent to Livermore and 20 percent to Dublin/Pleasanton), and only seven percent are bound for the major employment centers on the Bay (four percent to downtown, west, or north Oakland and three percent to San Francisco.

Low-to-moderate income households along the I-580 corridor are even more likely to commute shorter distances compared to higher-income commuters. Most commute

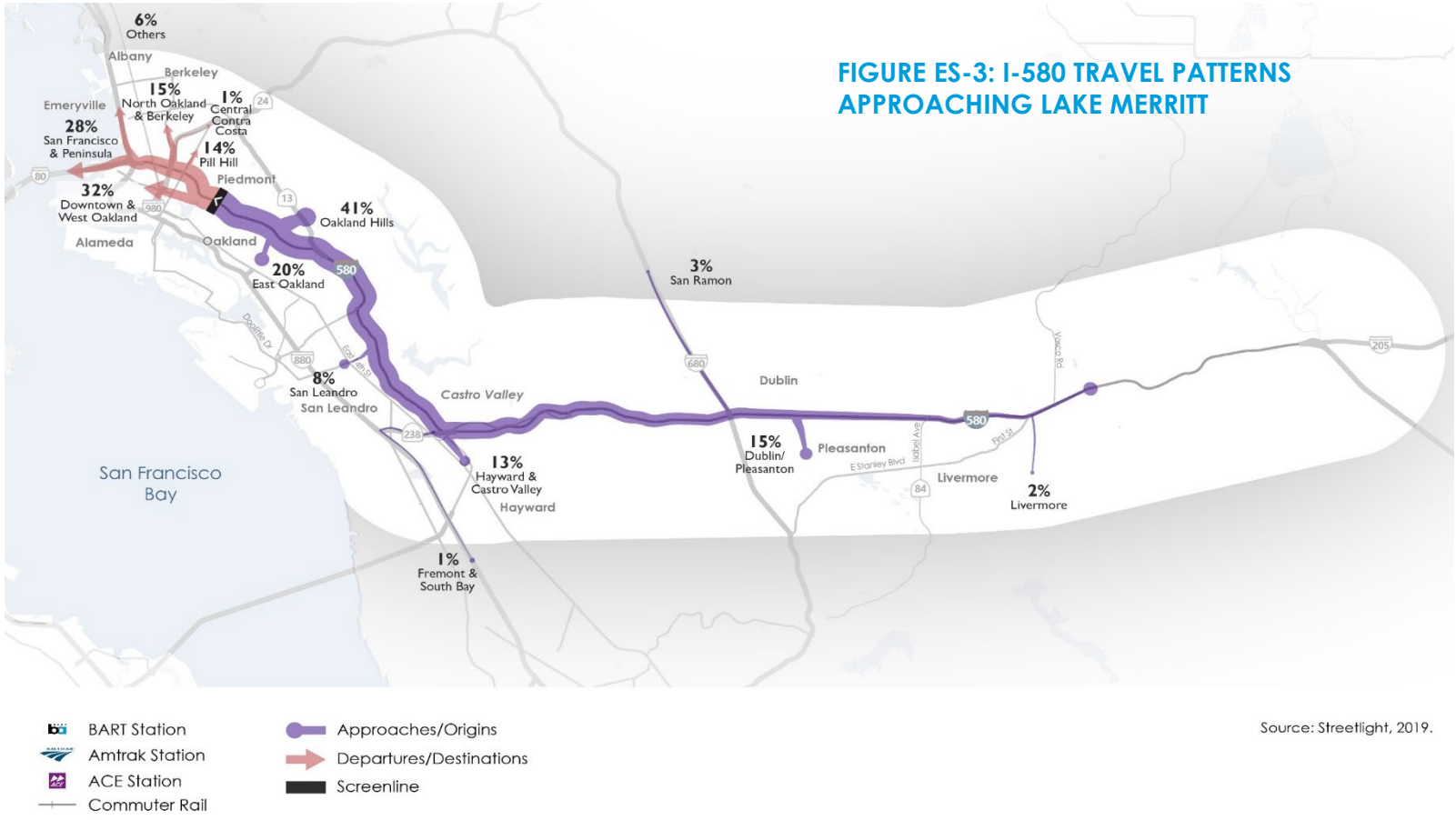


FIGURE ES-3: I-580 TRAVEL PATTERNS APPROACHING LAKE MERRITT

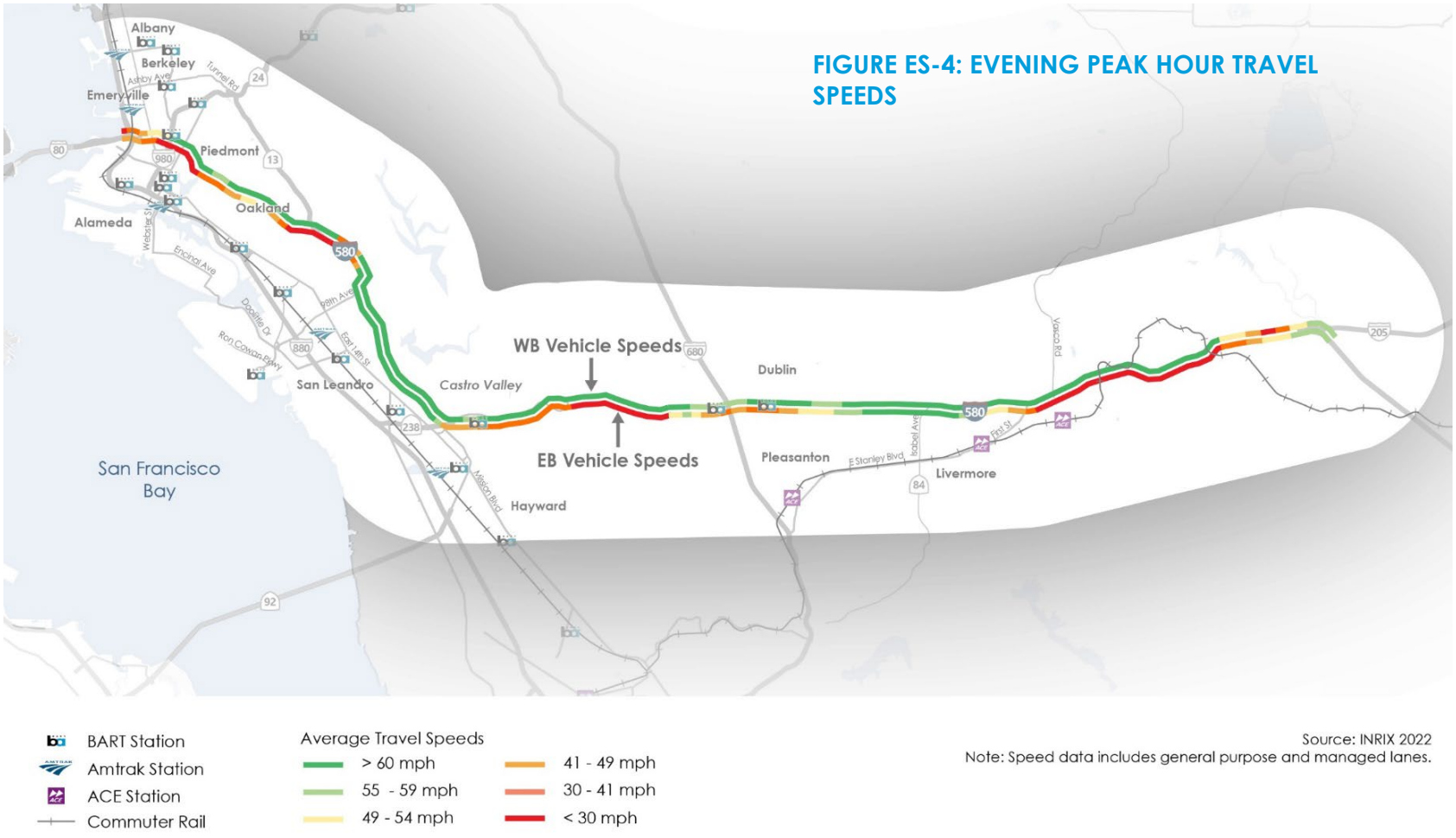
Source: Streetlight, 2019.

locally, within and to adjacent cities. Those who commute outside of their immediate communities mostly commute relatively nearby, with notable flows between Northern Alameda County and San Francisco and between Northern Alameda County and Central Alameda County.

HIGH TRAFFIC VOLUMES ON I-580 LEAD TO HEAVY CONGESTION AND POOR RELIABILITY

Although travel patterns on I-580 are mostly short and intermediate distance trips traveling between many dispersed activity centers, these traffic flows still create areas of very high vehicle volumes. The highest vehicle volumes on I-580 are seen in the Tri-Valley between Dublin and Pleasanton and Livermore. There are also many vehicles traveling over the Dublin Grade as different routing patterns in the corridor all use this segment of the freeway to reach various locations and interchanges on either side of this bottleneck.

FIGURE ES-4: EVENING PEAK HOUR TRAVEL SPEEDS



Source: INRIX 2022
Note: Speed data includes general purpose and managed lanes.

As roadways become more crowded, speeds slow down for all users, including both drivers and bus riders, and travel times become longer and less reliable. The slowest speeds are generally seen upstream of interchange bottlenecks and other high traffic merge points in the corridor, including the approaches to the interchange with I-680. Complex weaving sections also exacerbate congestion hot spots in the MacArthur Maze portion of I-580, where numerous merges and challenging roadway geometry slow traffic during peak times. Travel speeds on I-580 during the evening peak period is shown on **Figure ES-4**.

Truck volumes on I-580 are highest in the Tri-Valley where speeds are slowest. Most trucks traveling westbound on I-580 make trips during the morning peak and most of the eastbound trucks travel during the evening peak, precisely when commuters are also making these same movements. As a result, many trucks experience the slow travel speeds and unreliable travel times of these heavily congested periods, and they do not have the option of using the Express Lanes to bypass congestion and delays.

HIGH SPEEDS AND COMPLEX ROADWAY GEOMETRIES CREATE SAFETY RISKS ON THE I-580 MAINLINE

The safety needs assessment used historical collision data to help identify locations with the highest concentration of collisions based on the number and severity of crashes. It found that 56 percent of all collisions on the I-580 mainline between 2014 and 2019 were associated with unsafe speeds. All interchanges along I-580 displayed high collision activity, due to the increase in merging, weaving, and lane changes in these areas, especially in areas where I-580 connects with another interstate or grade-separated state route. There were also high collision severity areas west of SR 13 and in the Tri-Valley, likely due to complex roadway and ramp geometries and sudden changes in speed related to peak hour congestion. Through the Altamont Pass section of the corridor, elevation changes and roadway geometry likely contribute to increased crash concentrations, together with sudden lane changes and changes in speed as drivers attempt to avoid trucks that are slowing in preparation for the climb over the pass.

These findings aligned with feedback from the CBO focus group, which emphasized the need for improved on-ramp/off-ramp safety for motorists and the need to maintain good roadway conditions, particularly with potholes and debris after large storms.

I-580 IS A BARRIER TO SAFE AND CONVENIENT WALKING AND BICYCLING, AS HIGH-QUALITY CROSSING FACILITIES ARE LIMITED AND DISCONNECTED

Safety concerns on the I-580 corridor are not limited to the freeway mainline, as the interface between ramps and local roads poses a major safety challenge to people walking and bicycling. The safety needs assessment found that bicycle

Park Boulevard Undercrossing of I-580

and pedestrian collisions at ramp terminal intersections were primarily associated with vehicles traveling at high speeds as they enter and exit the freeway and conflicts between crossing bicyclists and pedestrians and turning vehicles, with limited high-quality infrastructure providing protected crossings. Feedback from CBOs and the TAC echoed these findings, highlighting the need for improved pedestrian and bicyclist safety, particularly at the interfaces with I-580 interchanges.

As a high-capacity interstate, I-580 has a limited number of freeway crossings. In all areas of the corridor, people walking and biking and wanting to cross the freeway are often forced to travel extra distances to reach a freeway crossing, many of which have safety concerns such as fast-moving traffic, limited separation, poor condition of sidewalks and bike lanes, or insufficient lighting and low visibility.

THE PRIMARY BARRIERS TO GREATER TRANSIT USE ON THE CORRIDOR ARE ACCESS, SPEED, AND RELIABILITY AS WELL AS SPECIFIC SERVICE GAPS

Transit service is reasonably matched to the land use and demographics for most communities in the corridor, with high-to-medium frequencies in the more urban parts of the corridor and low in the more suburban Tri-Valley area. However, the transit needs assessment identified a few service gaps with moderate-to-high demand not currently well-served by transit, including between Castro Valley and downtown Oakland and between the Tri-Valley and communities in San Joaquin County.

Despite relatively high route coverage and service levels for most travel markets in the I-580 corridor, transit mode share is generally low. Feedback from the TAC and CBOs emphasized the need to reorient transit service to match post-pandemic travel patterns, with a greater focus on serving local trips and increased off-peak travel, aligning with the finding from the travel markets assessment that most travel on the corridor is short to medium distances.

In addition to these targeted service gaps, the transit needs assessment identified poor access to rail transit stations and slow and unreliable bus speeds as major barriers to greater transit use on the corridor. BART is not easily accessible for many corridor residents and requires relatively long connecting trips by bus, walking, or bicycling. Several rail stations in the corridor have physical barriers like disconnected street grids severely limiting access from one side, and the roadway design and conditions around most stations limit the routes that are comfortable to travel by walking or bicycling. Bus service in the corridor generally travels in mixed flow traffic without priority at traffic signals, and many routes experience unreliable and slow travel speeds, particularly in the western part of the corridor with the highest opportunity for transit use. This also limits the use of bus transit to access destinations as well as connect to BART.

THE CORRIDOR STRATEGY IS A SET OF INVESTMENTS TO ADDRESS THESE CHALLENGES AND MEET THE PLAN GOALS

To identify potential elements of the Corridor Strategy, previous plans for the corridor were compared to the key challenges reflected in the needs assessment and priorities represented by the Plan goals. A gaps assessment was also conducted to identify unmet needs. New elements were developed to address these needs, including a potential busway on I-580 between I-980 and 35th Ave in Oakland, express bus service between downtown Oakland and Castro Valley, freeway ramp modifications, express lanes from just north of San Leandro to the Altamont Pass, and high-quality

bicycle connections between freeway crossings and the Countywide Bikeways Network (CBN). These were combined with projects advancing out of other plans, including Valley Link, ACE service increases, Dublin Blvd Extension, and bus priority corridors, to create the full Evaluation Scenario.

A key objective of the Plan was to understand what it would take to reduce auto travel in a heavily travelled interstate corridor. The Plan thus only explored elements that would reasonably support mode shift to transit, walking and biking. This meant that concepts evaluated for I-580 itself were primarily converting an existing travel lane to either a bus lane or express lane, transit & biking recommendations from prior plans were carried forward and expanded upon to fill in gaps, and supportive strategies from Plan Bay Area 2050 were incorporated.

Draft elements of the Corridor Strategy were reviewed with partner stakeholder agencies and the public to solicit feedback and refine the set of Corridor Strategy elements to be considered. Stakeholder engagement during this phase consisted of small group meetings with TAC members in East and Central Alameda County; individual meetings with AC Transit, BART, and OakDOT; and a workshop with Caltrans and MTC. Public engagement consisted of a CBO focus group and pop-ups in East Oakland, San Leandro, and Central Alameda County, organized in coordination with CBO partners. An interactive web map was also available online and shared via the CBO partners, TAC agencies, and Alameda CTC.

Feedback from engagement activities during this phase provided support for advancement of the draft elements, including those developed through the gaps assessment, and confirmed support for improved transit access and service and safer travel for walking and bicycling around interchanges.

The draft elements were then combined into the draft Corridor Strategy (referred to as the Evaluation Scenario), and evaluated for effectiveness using the Alameda Contra Costa Bi-County Model (AlaCC), which is a travel demand model used to estimate changes to corridor travel in response to changes in infrastructure and transit service. Key findings from the evaluation related to daily VMT, transit boardings, and accessibility are shown in **Table ES-1**. These findings were combined with cost estimates to inform Plan recommendations.

Overall, the evaluation illustrated a decrease in daily VMT, an increase in bus boardings, and an increase in jobs accessible by transit. When considering the change in vehicle travel for origins or destinations within the study area, the change was inconclusive. The evaluation highlighted important trade-offs of converting a travel lane and the high cost of infrastructure and transit service that modestly affect overall VMT. A final round of engagement was conducted to review the evaluation results and refine the final set of Corridor Strategy investments. Through this engagement, Plan stakeholders determined that the elements with the most outstanding questions and modest benefits, namely the changes to mainline I-580 and high degree of supporting transit service needed, require further study with more engagement before advancing.

Table ES-1: Key Metrics summarizing Evaluation Scenario Performance

Metric	Without Evaluated Projects	With Evaluated Projects	Net Change	% Change
Daily Network VMT	12,308,000	12,200,000	-108,000	-0.9%
Bus Boardings[1]	294,000	375,000	81,000	27.5%
Jobs accessible to Study Area PDA residents within…				
a 30-min car ride	2,138,000	2,141,000	3,000	0.1%
A 30-min transit trip	1,344,000	1,356,000	12,000	0.9%
Jobs accessible to residents of a subset of Oakland PDAs[2] within…				
a 30-min car ride	1,750,000	1,744,000	-6,000	-0.3%
A 30-min transit trip	687,000	762,000	75,000	10.9%

Source: Fehr & Peers, 2024
Notes:
1. Bus operators include AC Transit and LAVTA.
2. Oakland PDAs include portions of the MacArthur Boulevard Corridor, San Antonio, Fruitvale, Fruitvale and Dimond Areas, and Eastmont Town Center/International Boulevard TOD.

THE CORRIDOR STRATEGY RECOMMENDS NEAR- AND MEDIUM-TERM INVESTMENTS IN THE BICYCLE NETWORK, TRANSIT ACCESS AND SERVICE, AND INTERCHANGE SAFETY

Based on the evaluation results and feedback from CBO partners and agency stakeholders, elements of the final Corridor Strategy were identified either as near- or medium-term investments recommended for immediate advancement towards implementation or as long-term investments recommended for additional study and refinement prior to implementation. Recommended near- and medium-term investments are shown in **Figure ES-5** below.

The full set of recommended near-term investments along with project costs in Year of Expenditure (YOE) dollars is provided in **Table ES-2** below.

Recommended near-term investments consist of projects expected to be implemented within the next five years, including:

- Buildout of the Countywide Bikeways Network and multi-use trails of countywide importance, along with high-quality connections across I-580 to these facilities
- Multimodal corridor projects and transit priority infrastructure
- Rail station access improvements
- BART and ACE service improvements
- Near-term safety improvements at the I-580/I-680 interchange

- Technology enhancements to connect arterials with freeways for connected and autonomous vehicle

Recommended medium-term investments in the Corridor Strategy consist of projects expected to be implemented in six to ten years and include the following:

- Multimodal corridor and trails projects with longer expected implementation timelines
- Lower-priority connections between I-580 crossings and the CBN
- Safety improvements at priority interchanges that require additional assessment and definition
- Valley Link rail project initial operating phase

The full set of recommended medium-term investments is provided in **Table ES-3** below.

FIGURE ES-5: NEAR/MEDIUM TERM PROJECTS INCLUDED IN THE EVALUATION SCENARIO (NORTH COUNTY)

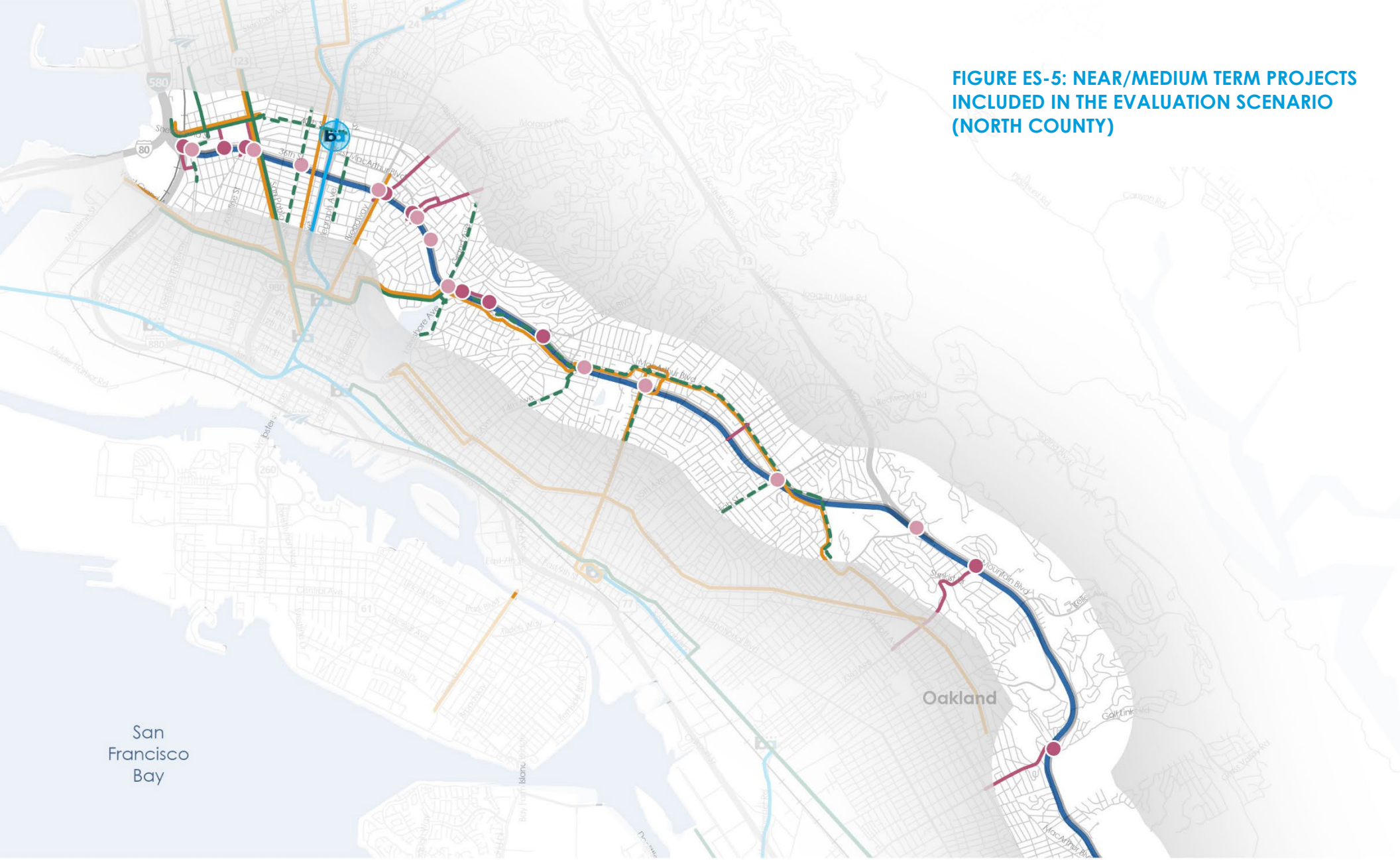


FIGURE ES-6: NEAR/MEDIUM TERM PROJECTS INCLUDED IN THE EVALUATION SCENARIO (SAN LEANDRO - CASTRO VALLEY)

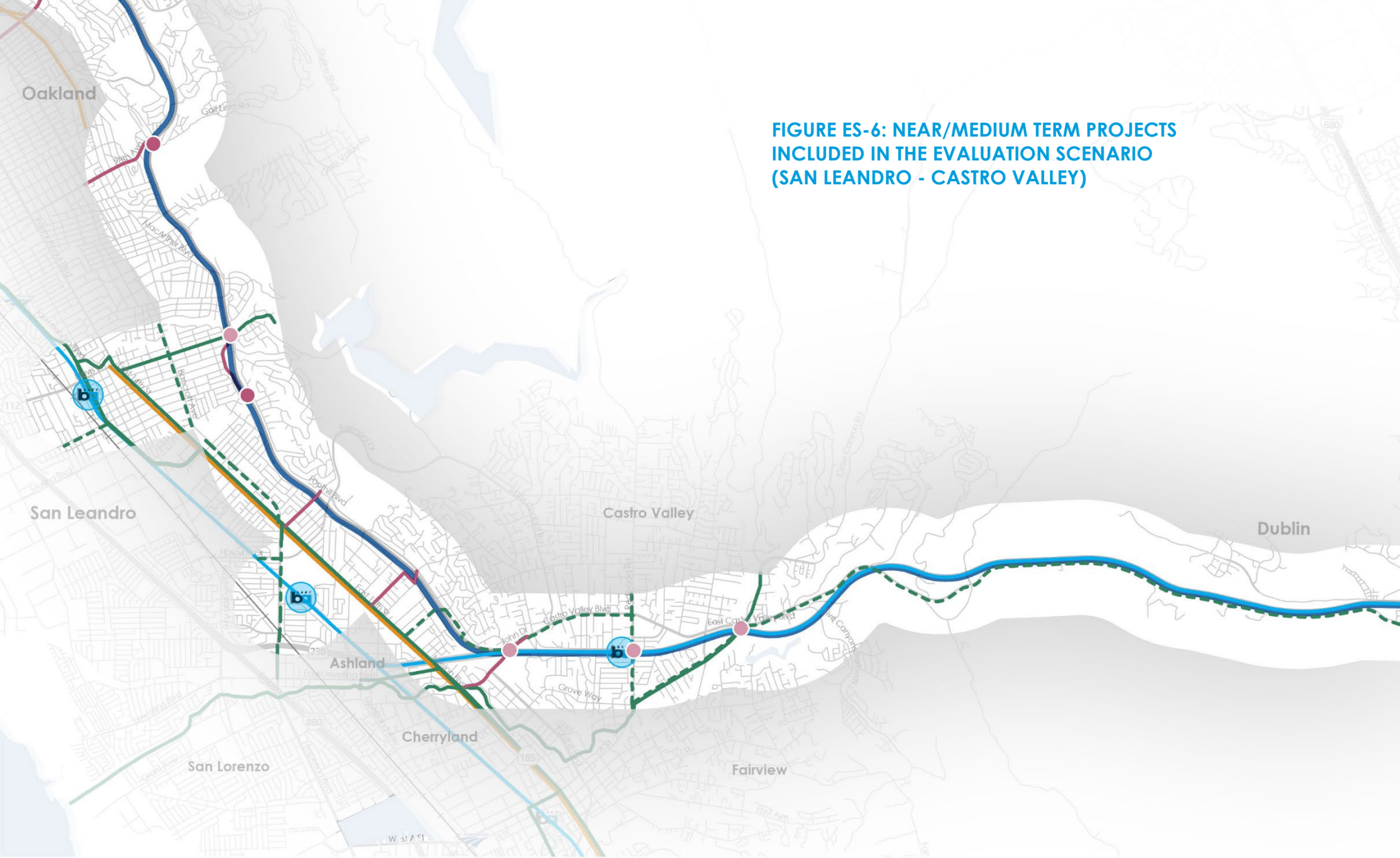


FIGURE ES-7: NEAR/MEDIUM TERM PROJECTS INCLUDED IN THE EVALUATION SCENARIO (TRI-VALLEY)

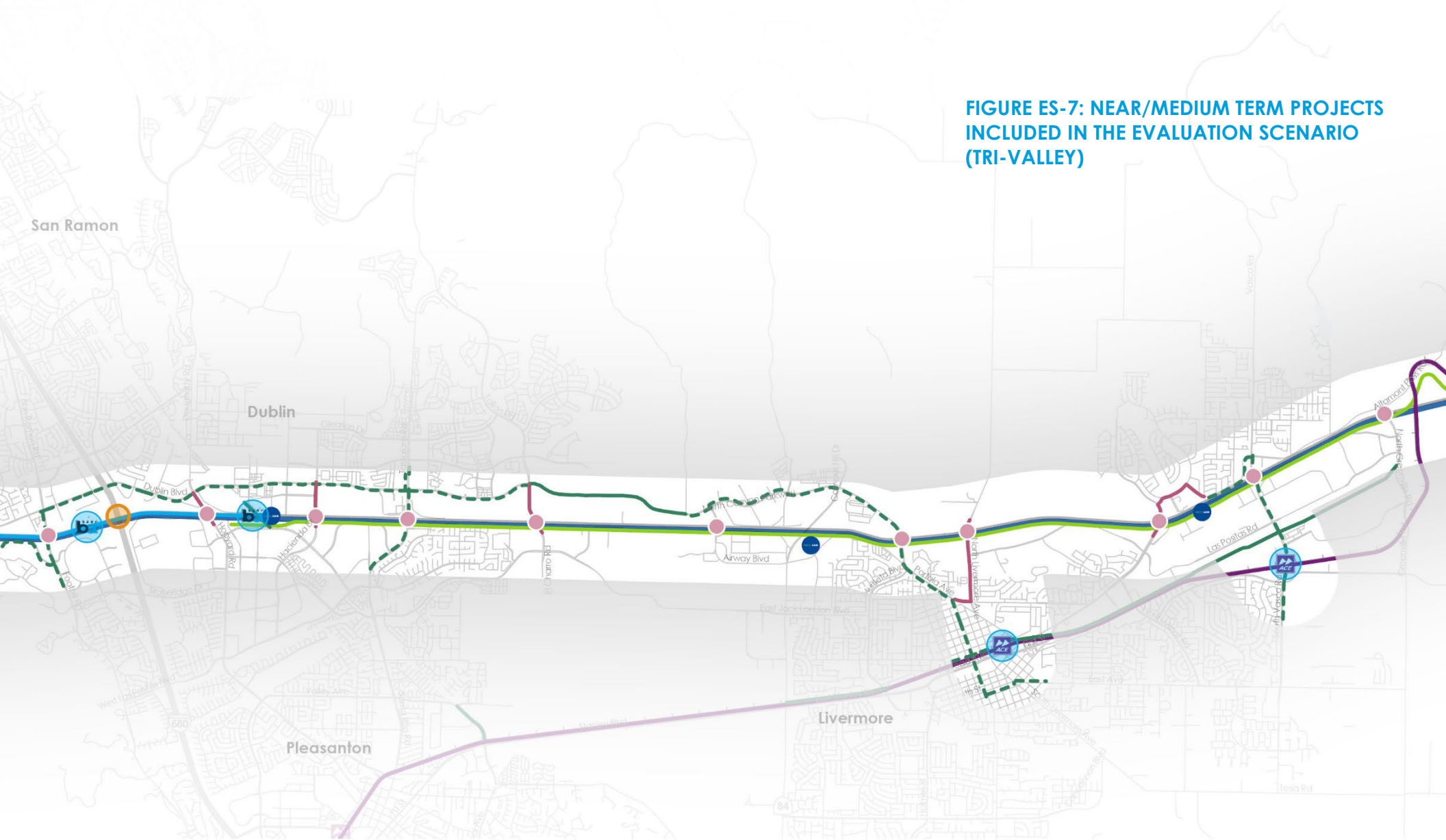


FIGURE ES-8: NEAR/MEDIUM TERM PROJECTS INCLUDED IN THE EVALUATION SCENARIO (ALTAMONT PASS)

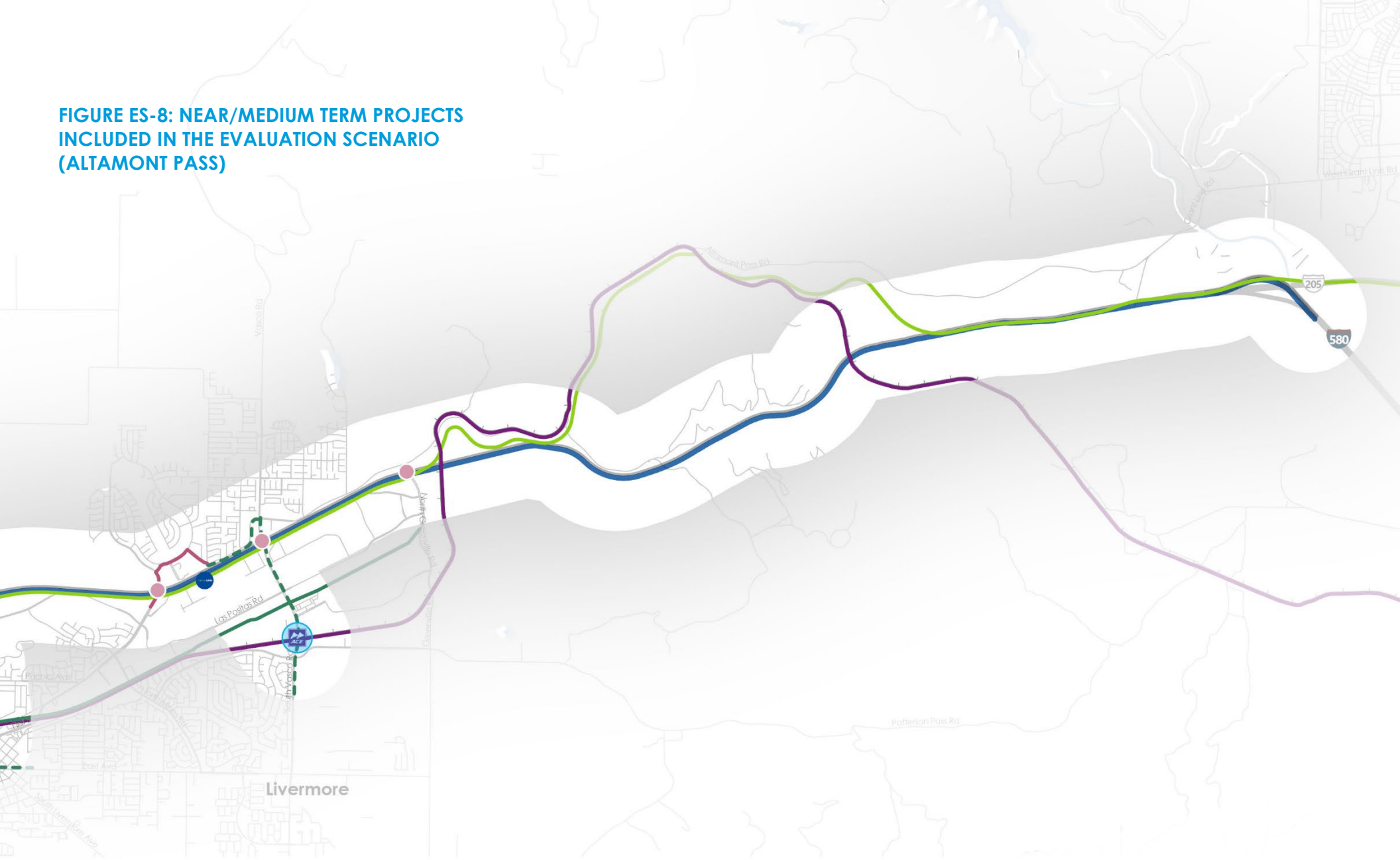


Table ES-2: Near- and Medium-Term Corridor Strategy Projects

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[1]	Near Term (<5 years)	Medium Term (5-10 years)
Bikeways and Trails	Countywide Multi-Use Trails	Build out and close all gaps along the countywide multi-use trails, including the East Bay Greenway, East Lewelling Boulevard, Greenway and Mandela Connector, Iron Horse Trail, San Leandro Creek Trail, San Lorenzo Creek Trail, improving connections to existing Greenways and the Bay Trail. Improvements include lighting, fencing, barrier railing, intersection improvements, sidewalk widening and pedestrian and bicyclist crossing treatments.	$381	X	X
Bikeways and Trails	Countywide Bikeways Network (CBN)	Construct the CBN, a fully connected All Ages and Abilities network across the county, with bikeways along or parallel to Mandela Pkwy, West Ave, Telegraph Ave, 40th Street, Grand Ave (Oakland), Lakeshore Ave, MacArthur Blvd, 14th Ave, Fruitvale Ave, High Street, Bancroft Ave, Williams Street, Halcyon Drive, Hesperian Blvd, Foothill Blvd, 167th Ave, Castro Valley Blvd, Redwood Road, Dublin Canyon Road, Foothill Road, Dublin Blvd, Santa Rita Road, North Canyons Pkwy, Portola Ave, North L Street, 5th Street, East Ave, Northfront Road, and South Vasco Road.	$574	X	X
Bikeways and Trails	Priority Freeway Barrier Closures	Provide All Ages and Abilities connections between the CBN and freeway crossings and interchanges identified as top- and mid-priority barriers to safe travel in the Caltrans D4 Bike Plan, including Beach Street, Hollis Street, Peralta Street, Mandela Pkwy, Piedmont Ave, Harrison Street, Oakland Ave, Lake Park Drive, Park Blvd, Edwards Ave, 98th Ave, and Grand Ave (San Leandro). Also provide All Ages and Abilities connections through interchanges identified as safety barriers in the Plan's needs assessment, including 35th Ave, 150th Ave, 164th Ave, Castro Valley Blvd, Dougherty Road/Hopyard Road, Hacienda Drive, El Charro Road, North Livermore Ave, and First Street/Springtown Blvd.	$166	X	X

[1] Note: Listed project costs represent high-level cost estimates subject to change, may not align with cost estimates in technical memo because project-sponsor provided costs are used where available. Asterisks indicate projects costs represent capital costs only for transit projects, consistent Plan Bay Area 2050+ cost estimates.

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[1]	Near Term (<5 years)	Medium Term (5-10 years)
Bikeways and Trails	East Bay Greenway (Phase 2)	Implement a linear park type regional trail facility that runs in the BART/Union Pacific Railroad (UPRR) Oakland Subdivision corridor from Fruitvale BART to South Hayward BART (13 miles).	$515		X
Bikeways and Trails	Freeway Barrier Closures	Provide all ages and abilities connections between the CBN and freeway crossings and interchanges identified in the Caltrans D4 Bike Plan as low-priority barriers to safe travel, including Oakland Avenue, Chetwood Street, Tassajara Creek, Kuhnle Avenue, Greenville Road, Heritage Road, Airway Boulevard and Sutter Street.	NA		X
Multimodal Corridors	Multimodal Corridor Enhancements	Install multimodal improvements, including bus-only lanes for both local and Transbay buses, Class IV separated bikeways, bicycle-pedestrian intersection improvements, and streetscape improvements with opportunities for green infrastructure and art opportunities along 40th Street, San Pablo Avenue and West Grand Avenue. The project will also include bus stop consolidation, and new loading zones.	$235	X	
Multimodal Corridors	Dublin Blvd - North Canyons Parkway Extension	Extend Dublin Boulevard in Dublin from its current terminus at the intersection with Fallon Road to North Canyons Parkway at the intersection with Doolan Road in Livermore. The project is planned to accommodate four to six vehicular travel lanes and will include landscaped medians, Class I multi-use path and Class IV bicycle facilities connecting to bike lanes on Fallon Road and Dublin Boulevard west of Fallon Road, sidewalks, and signalized intersections. Protected intersections will be provided at Fallon Road, Croak Road, and Doolan Canyon Road. Reroute LAVTA's 30R through the Dublin Blvd-North Canyons Pkwy extension and to serve the Vasco Rd ACE station; transit vehicles will run in general-purpose lanes, with access to queue jump lanes at intersections along Dublin Blvd-North Canyons Pkwy.	$160	X	

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[1]	Near Term (<5 years)	Medium Term (5-10 years)
Multimodal Corridors	East 14th/Mission and Fremont Blvd Corridor	Implement multimodal upgrades along East 14th/Mission and Fremont Blvd. This includes dedicated transit infrastructure, safety improvements for bicycle and pedestrians, and upgrades to park-and-ride infrastructure at BART stations. Project also includes BRT extension to the South Hayward BART station, new rapid bus service between the San Leandro and Warm Springs BART stations, and frequency upgrades (10-minute peak headways on Line 10).	$546*		X
Multimodal Corridors	MacArthur Blvd Multimodal Improvements	Construct an eastbound bus-only lane and protected bike lane on MacArthur Blvd between Grand Ave and Lakeshore Ave, including a protected intersection at Grand Ave.	$4		X
New Rail Service	Valley Link Initial Operating Phase	Construct the initial operating phase of Valley Link, a 22-mile passenger rail transit system connecting the northern San Joaquin Valley to the BART system at the Dublin/Pleasanton BART station. The project includes four new stations at Dublin/Pleasanton, Isabel, Southfront Road, and the Mountain House Community. The system would match BART Blue Line frequencies during the peak periods and operate at 45-minute frequencies during off-peak periods	$2,375*		X
Transit Access	Dublin/Pleasanton BART Station Access Enhancements	Improve bicycle and pedestrian access to the Dublin/Pleasanton BART station by closing a gap between two existing segments of the Iron Horse Trail in Dublin and Pleasanton, including a two-way cycle track and a separated paved pedestrian path; improved and pedestrian-scale lighting; additional secure bicycle parking; wayfinding; and landscaping and storm water management. Provide seamless and coordinated transfers between BART, Valley Link, and connecting bus routes into the station.	$20	X	

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[1]	Near Term (<5 years)	Medium Term (5-10 years)
Transit Access	Rail Station Area Access Enhancements	Improve bicycle and pedestrian access to rail transit stations, including the MacArthur, San Leandro, Bay Fair, Castro Valley, and West Dublin/Pleasanton BART stations and Livermore and Vasco ACE stations. Project cost estimate assumes 10 miles of all-ages and abilities facilities.	$154	X	X
Transit Priority Infrastructure	Corridor Transit Priority Improvements	Implement dedicated transit-only lanes, curb ramp and sidewalk improvements, improved bus stops, and ITS facilities that allow for queue jump lanes, bicycle and vehicle detection, and communications infrastructure along Broadway, Foothill Boulevard, Fruitvale Avenue, MacArthur Boulevard, and Shattuck Ave/Martin Luther King Jr Way Corridor.	$247	X	
Transit Priority Infrastructure	San Pablo Avenue Rapid Bus	Implement improvements to existing bus service along San Pablo Avenue between Oakland and Richmond. Improvements include dedicated lanes, improved stop infrastructure, merging of local/rapid stops, and frequency upgrades (5 minute peak headways on route 72)	$396*	X	
Transit Service Improvements	ACE Medium-Term Service Increase	Provide one additional daily roundtrip on ACE between Merced and San Jose.	$346*	X	
Transit Service Improvements	BART Core Capacity	Implement the BART Core Capacity project, which includes train control modernization, rail car procurement, necessary traction power upgrades, and frequency boosts that provide up to 30 ten-car trains per hour in each direction through the Transbay Tube, with 12-minute frequencies during peak period service.	$4,419*	X	
Mainline	I-580/I-680 Interchange Near-Term Safety Improvements	Construct near-term safety improvements approaching and through the I-580/I-680 Interchange to improve safety and provide traffic relief on one of the most significant bottlenecks on the freeway system.	$40	X	

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[1]	Near Term (<5 years)	Medium Term (5-10 years)
Mainline	Safety Enhancements at Priority Interchanges	Conduct planning studies assessing and defining potential safety improvements focused on vision zero enhancements at ramp terminal intersections for safety priority interchanges along I-580 identified in the safety needs assessment, including at: I-80, Fruitvale Ave, High St, Grand Ave (San Leandro), I-238/Castro Valley Blvd, Redwood Rd, Hopyard Rd/Dougherty Rd, Hacienda Dr, Fallon Rd/El Charro Rd, Livermore Ave, First St/Springtown Blvd, and N Vasco Rd/S Vasco Rd.	$25-40 each		X
Technology Program	Technology Enhancements to connect arterials with freeways for connected and autonomous vehicles	Implement technology enhancements to monitor and enhance bus service along the Dublin Boulevard corridor, including enhancing fiber communications, future connected/autonomous shuttle projects, installing on-board and roadside units, and implementing advanced signal systems to tackle corridor wide congestion, travel delays and operational challenges along I-580.	$29	X	
Fares and Tolls	Means-based fares and tolls	Implement a 50% fare discount received by individuals in the two lowest income quartiles, and 50% toll discounts received by individuals in the lowest income quartile.	TBD		X

THE CORRIDOR STRATEGY RECOMMENDS FURTHER STUDY OF LONG-TERM TRANSIT, MANAGED LANE, AND RAMP MODIFICATION PROJECTS

Recommended long-term investments in the Corridor Strategy consist of projects that require additional study and refinement related to impacts to freeway operations, cost effectiveness, and equity benefits prior to moving forward with implementation. Long-term projects include:

- Dedicated busway on the I-580 mainline in Oakland
- Express lane conversions in central and east Alameda County
- Transbay bus service and priority infrastructure improvements
- Castro Valley-Downtown Oakland express bus service
- I-580 ramp infrastructure modifications

These were evaluated at a high level in this CMCP as discussed. The full set of long-term recommendations is provided in **Table ES-3** below with general cost estimates.

Table ES-3: Long-Term Corridor Strategy Projects

Project Name	Project Description
I-580 Busway	Further study of a busway along I-580. The busway project evaluated by the Plan consisted of center-running bus lanes between I-980 and 35th Ave in Oakland and four busway stations with transition ramps between the freeway mainline and street level at Grand Avenue, 14th Avenue/Park Avenue, Fruitvale Avenue and 35th Avenue, corresponding to a cost of about $1.4 billion in YOE dollars.
AC Transit Transbay Service Improvements	Further study of improvements to AC Transit Transbay service, including frequency boosts and transit signal priority on existing routes serving the I-580 corridor and service expansions utilizing a potential future busway. The Plan evaluated all-day 15-minute frequencies and transit signal priority on existing Lines C, CA, CB, D, E, J, P, and V. The initial service plan for the busway evaluated by the Plan included seven new Transbay routes along 98th Ave, 14th Ave, Seminary Ave, Fruitvale Ave, High Street, Park Blvd/5th Ave, and MacArthur Blvd/35th Ave/Redwood Rd, as well as replacement of the Transbay route NL with a new intra-Oakland route between Foothill Square and the 12th Street Oakland City Center BART station. Frequency boosts on existing Transbay routes were estimated to cost about $18 million annually in YOE dollars. New Transbay and intra-Oakland routes were assumed to operate at all-day frequencies of 15 minutes, which is estimated to cost about $59 million annually in YOE dollars. Transit signal priority on local streets utilized by existing routes and the new routes evaluated in the Plan was estimated to cost about $519 million in YOE dollars.
Castro Valley-Downtown Oakland Express Bus Service	Further study of new express bus service between Castro Valley BART and 19th Street Oakland BART. The initial service plan evaluated by the Plan assumed all-day 15-minute frequency, which is estimated to cost about $8 million annually in YOE dollars.

Project Name	Project Description
General Purpose to Express Lane Conversions	Further study of general-purpose to express lane conversion on I-580. The express lane conversion project evaluated by the Plan converted a general-purpose lane in each direction of travel to an express lane along I-580 between Keller Avenue and I-680 and between Greenville Road and the San Joaquin County line, corresponding to an estimated project cost of $429 million in YOE dollars.
Freeway Ramp Removal or Modifications	Further study of modification or removal of ramps with outdated designs with documented safety concerns, including the Broadway and Webster St off-ramps, Grand Ave (Oakland) off-ramp, Dimond Ave on-ramp, and Excelsior Ave on-ramp, corresponding to an estimated project cost of $23 million in YOE dollars.

IMPLEMENTATION OF THE CORRIDOR STRATEGY WOULD RESULT IN A MORE SUSTAINABLE, SAFER, AND MORE EQUITABLE I-580 CORRIDOR

Corridor Strategy recommendations were evaluated to assess their performance in advancing the Plan goals and objectives, including the key focus areas of sustainability, health and safety, and equitable outcomes. The Corridor Strategy would address sustainability primarily through major investments in transit service that would accommodate increased travel demand and person throughput with reduced VMT and no change to roadway travel times. Health and safety on the corridor would be improved directly by investments in the All Ages and Abilities bike network, speed reduction policies, and ramp modifications; the Corridor Strategy would also result in cleaner air and reduced collisions by reducing VMT. Implementation of the Corridor Strategy recommendations would also improve equitable outcomes by investing substantial resources in improving safety and access in equity priority communities and providing means-based fares and tolls to reduce the cost of transportation for low-income travelers.

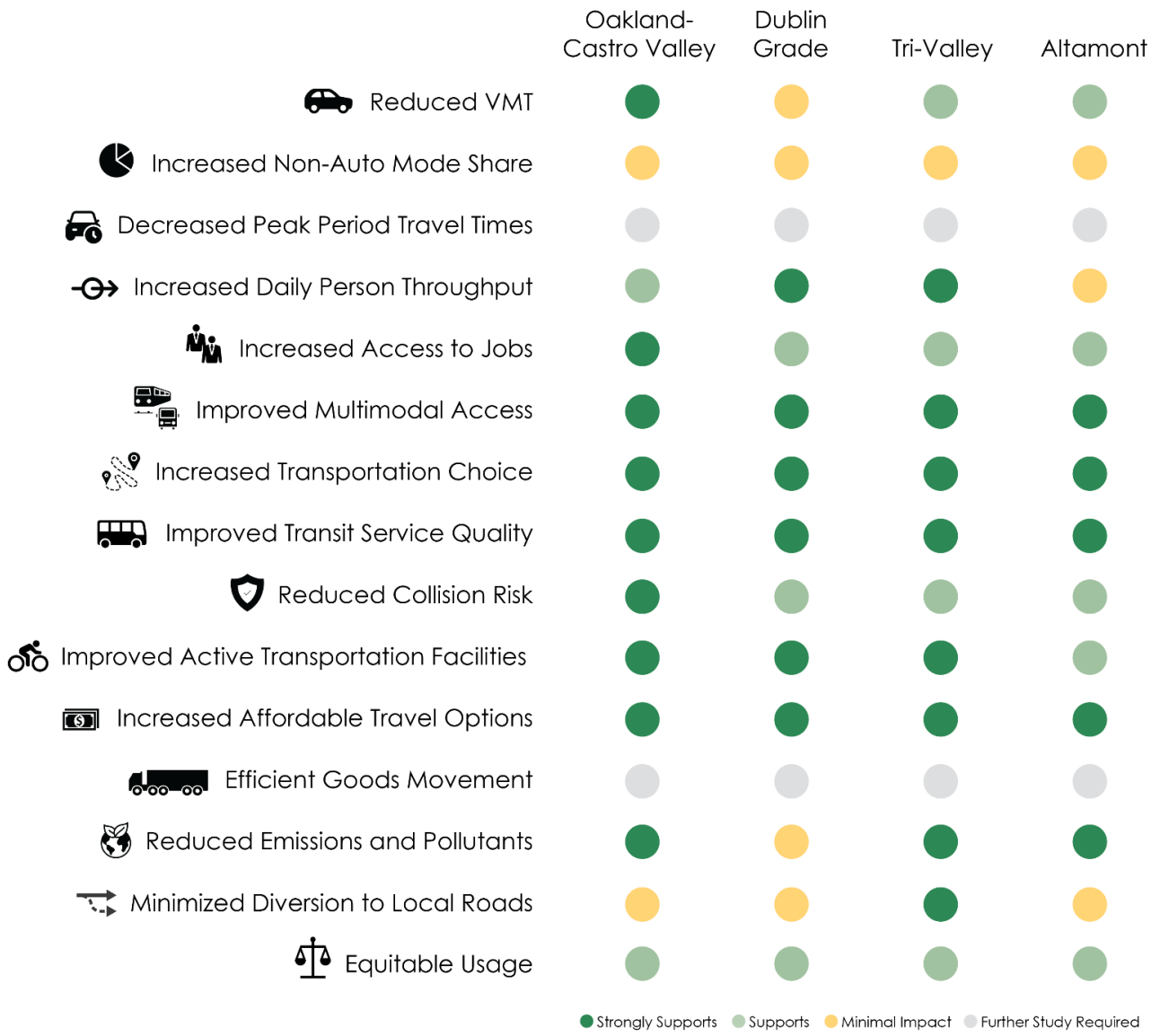
The full findings of the evaluation of the Corridor Strategy are summarized in **Figure ES-6**.

THE FUTURE OF HIGHWAY PLANNING IS UNCERTAIN, BUT THE FOCUS ON SAFETY AND REPAIRING COMMUNITIES WILL REMAIN ESSENTIAL

The complexity of freeway corridor planning has increased as goals for the highway system have become more multifaceted and multimodal, moving beyond simple measures related to automobile congestion and towards a holistic consideration of the needs of communities, the environment, and a broader transportation system. This complexity is especially manifested on freeway mainlines, which generate a substantial number of needs that require tradeoffs between goals. The Plan illuminated many of these tradeoffs but did not consider per mile pricing due to the need for the completion of regional studies on this topic that are ongoing. Future planning and decision-making on the I-580 mainline would consider pricing as applicable based on regional and state policies under development at this time.

Decisions on these tradeoffs will define the future of the county's and region's highway network and transportation system more broadly and will guide the best path forward for planning on freeways themselves. In the meantime, improving safety and repairing communities disrupted by the highway system should be a focus for planning and investment, as this will remain a critical need regardless of how other policies may change. The Corridor Strategy defined in this document therefore represents a solid foundation for improving travel in the I-580 corridor.

FIGURE ES-9: SUMMARY OF CORRIDOR STRATEGY PERFORMANCE IN 2035



01 Introduction

Park Boulevard Undercrossing of I-580

CORRIDOR STRATEGY PURPOSE

This Comprehensive Multimodal Corridor Plan (the Plan) holistically assesses the options to improve travel conditions and safety, sustainability, and equity in the study area over the next 20 years as travel demand continues to grow from significant projected development activity. The Plan applies policy guidance from the Alameda Countywide Transportation Plan (CTP) and regional and state agencies around developing major corridor plans to provide up to date recommendations for transportation investment and policy in the corridor.

To address state requirements and recommended best practices, the Plan follows all guidance for a CMCP including process, technical approach, content and engagement activities.

The Plan focuses on strategies that add commute choices beyond the single-occupant vehicle as well as others that will enhance safety, air quality, and equity. In acknowledgement of the key role that parallel rail transit lines and arterials play in this corridor, and the interactions between these facilities and the freeway, it also assesses multimodal safety and bus priority treatments and station access enhancements.

The primary outcome of the Plan is the Corridor Strategy, a comprehensive set of recommended multimodal projects and policies that improve health and safety, sustainability, and equity by providing and enhancing travel options for transit riders, pedestrians, and bicyclists while recommending I-580 transit and managed lanes projects for further study and refinement.

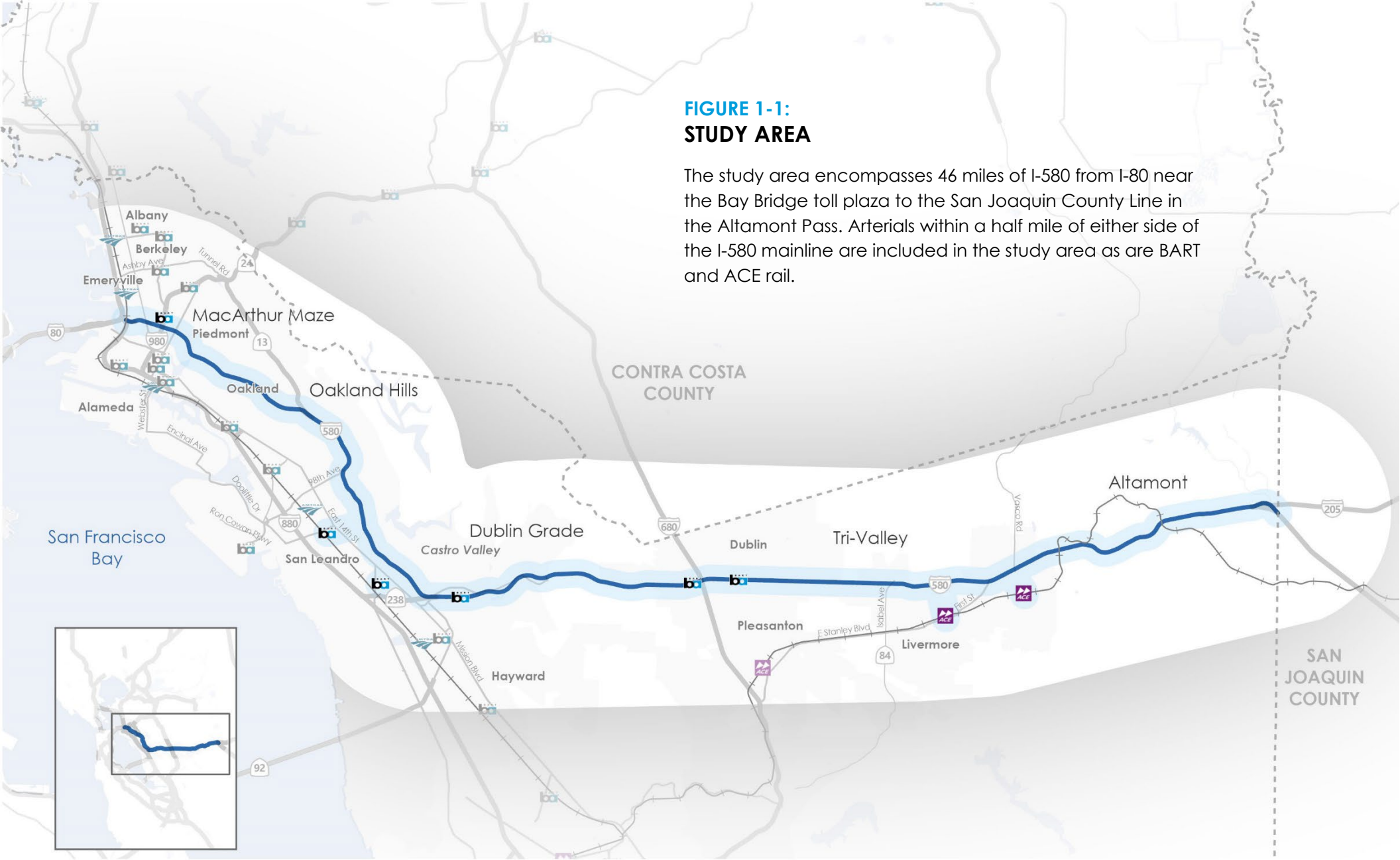
CORRIDOR OVERVIEW

Interstate 580 (I-580) is a major travel corridor in Alameda County. For the purposes of this analysis, the study area extends 46 miles from I-80 near the San Francisco Bay Bridge toll plaza to the Altamont Pass at the border with San Joaquin County and generally includes all transportation facilities within one-half mile of the freeway and around rail transit stations. The study area is depicted in **Figure** 1-1.

The I-580 corridor is the primary east-west connector in Alameda County. It consists of the highway, several long-distance transit services, including the BART Blue and Green Lines, ACE rail, and AC Transit Transbay routes (inter-county express buses), and parallel arterials, most notably MacArthur Boulevard. The corridor also includes extensive local bus services provided by AC Transit and LAVTA/Wheels.

FIGURE 1-1:
STUDY AREA

The study area encompasses 46 miles of I-580 from I-80 near the Bay Bridge toll plaza to the San Joaquin County Line in the Altamont Pass. Arterials within a half mile of either side of the I-580 mainline are included in the study area as are BART and ACE rail.



The corridor is most heavily used as it approaches the Bay Bridge, where multiple BART lines and highways converge. Near downtown Oakland, the mainline and BART serve approximately 275,000 daily bidirectional person trips.[9]

I-580 is a significant truck route, carrying over 18,000 trucks per day that not only travel to and from the Port of Oakland, but also serve industrial areas and deliver goods to businesses and consumers throughout the Bay Area.[10] The corridor's freight significance is underscored by its designation as a part of the Primary Highway Freight Network, a nationally significant network of freight routes.

Finally, about a quarter of the region's gateway traffic, or 151,000 average daily vehicles, enters and exits the region on I-580 via the Altamont Pass.[11]

PRIOR CORRIDOR PLANNING

Alameda CTC has made significant investments and constructed improvements along I-580 over the past two decades, including construction and operation of express lanes in the Tri-Valley.

A key component of prior planning efforts is the I-580 and I-680 Work Program, which was developed to support planning and project delivery along these corridors.

WORK PROGRAM FOR THE I-580 AND I-680 CORRIDORS

In September 2018, staff presented a summary of planning and project development efforts along I-580 and I-680 as part of a work program for these two corridors. Key efforts related to I-580 from this work program, including their status, are as follows:

- A managed lanes feasibility assessment from the Bay Bridge to I-238 called a "Design Alternatives Assessment" (completed by MTC in partnership with Alameda CTC and presented to the Commission in September 2019)
- A Project Study Report for the I-580/I-680 Interchange (completed in 2009)
- The I-580 Express Lanes implementation in the Tri-Valley and its After Study (presented to the Commission in September 2018 and finalized for the state legislature)
- Project development of Valley Link (currently underway, led by the Tri-Valley – San Joaquin Valley Regional Rail Authority)
- San Joaquin County I-205 Managed Lane Project (currently underway, led by San Joaquin Council of Governments and Caltrans District 10)

The work program recommended advancing planning in subsequent years for two additional segments of HOV and/or HOT lanes on I-580 – the Dublin Grade (from I-238 to I-680) and Altamont Pass (from Greenville Road in Livermore to I-205 in San Joaquin County) – to ultimately create a connected network of managed lanes and supportive transit and transportation demand management (TDM) services. This Plan fulfills this recommendation.

The I-580 Design Alternatives Assessment (DAA) from the Bay Bridge to I-238 recommended extending the carpool lane from the Bay Bridge Toll Plaza to east of the I-980/SR-24 interchange in the near-term and converting a general-purpose lane to an express lane farther east to I-238 in the mid-term. This assessment noted that arterial transit improvements, including express bus and park-and-ride lots, should also be developed for the near-term. MTC has since incorporated the carpool lane extension near the Toll Plaza

as part of the Bay Bridge Forward effort and the project is advancing through project development.

Since presentation of the 2018 work program and completion of the I-580 DAA in North County, there has been a significant evolution in policy at the state, regional, and local levels, including a focus on reducing VMT and greenhouse gas emissions and more robust consideration of equity and safety. These themes were strongly reflected in the 2020 CTP which sets policy priorities for transportation in Alameda County. This change in approach warrants a fresh look at the I-580 corridor. Additionally, the previous plans have not articulated details on how to create attractive, affordable, seamless multimodal connections that will truly spur the mode shift required to convert a general-purpose lane and reduce vehicle miles traveled. There are large implementation gaps related to express bus service, station access, integration with park-and-ride lots, and impacts to and integration with parallel arterials.

CORRIDOR PLAN CONTENTS

The Plan contains the following chapters:

- Chapter 1 – Introduction
- Chapter 2 – Planning Context
- Chapter 3 – Planning Approach
- Chapter 4 – Corridor Strategy Development
- Chapter 5 – Corridor Strategy Recommendations and Next Steps

STAKEHOLDERS & PARTNERS

The development of the Plan relied on input from the public, community-based organizations (CBOs), major cities, and agencies within the study area. A detailed description of the stakeholder engagement process and key stakeholder input is provided in Chapter 4. Key CBO partners included the following:

- Bike-Walk Castro Valley (Castro Valley)
- Black Cultural Zone (Oakland)
- Castro Valley Matters (Castro Valley)
- Cherryland Community Association (Cherryland)
- Community Impact Lab (San Leandro)
- Grove Way Neighborhood Association (Cherryland)

Alameda CTC led the development of the Plan in close coordination with Caltrans and MTC through monthly meetings. The Technical Advisory Committee (TAC) was also formed to collaborate on the Corridor Strategy development and guide decision making. The TAC included representatives from the following agencies:

- AC Transit
- Alameda County Public Works
- Altamont Corridor Express (ACE)
- BART
- Caltrans
- City of Dublin
- City of Emeryville
- City of Hayward
- City of Livermore
- City of Oakland
- City of Pleasanton
- City of San Leandro
- Livermore Amador Valley Transit Authority (LAVTA)
- Metropolitan Transportation Commission (MTC)
- Tri-Valley–San Joaquin Valley Regional Rail Authority (Valley Link)

02 Planning Context

Commercial Development at San Leandro BART

FACTORS SHAPING GROWTH

Transportation and community needs in the I-580 corridor are driven by existing and proposed land use, demographics, and regional growth policies. This first section of the chapter presents information about the distribution of population and employment that has shaped existing transportation patterns and describes proposed job and housing development plans that could affect future transportation needs in the corridor. Although short-term trends in travel behavior were disrupted during the pandemic, land use density and overall travel patterns within the corridor remain similar to pre-pandemic conditions.

The I-580 corridor is part of a mature transportation network that serves a diverse regional economy. To some extent, future growth will be shaped by wider regional, state, and even national policy. This Plan is intended to guide the way in which these large-scale policies play out in the corridor by informing local-level decisions about how to best support mobility and access for people living and working here.

The defined Study Area for this Plan includes the area within a half mile of the freeway right-of-way and select adjacent rail stations. Where possible, the demographic and statistical data presented in this section are analyzed for the defined Study Area. In cases where data are not sufficient at a smaller scale, the analysis focuses on conditions in a wider zone, typically within one to four miles of I-580.

POPULATION & EMPOYEMENT

According to the U.S. Census, Alameda County is home to nearly 1.7 million residents, and it is the second most diverse county in California.[12] Nearly 60 percent of the population are people of color and about 15 percent are seniors.[13]

Over 1.2 million Alameda County residents live within four miles of the I-580 freeway, and roughly 20 percent of the population, or about 364,000 residents, live within the Study Area adjacent to the I-580 corridor. Population density near I-580 is portrayed in **Figure 2-1**.

Approximately 924,000 Alameda County residents are currently in the labor force, and the county has 812,000 jobs within its boundaries.[14] About 563,000 jobs in Alameda County are within four miles of the I-580 freeway, and 153,000 of these jobs are within the Study Area. There are also approximately 425,000 jobs in downtown San Francisco, many of which attract workers who live near I-580. The distribution of employment near I-580 is portrayed in **Figure 2-2**. A summary of the number of jobs located in the key employment centers of the corridor is provided in **Table 2-1**.

FIGURE 2-1:
POPULATION IN THE CORRIDOR

Population is primarily concentrated west of the Dublin Grade, with moderately high densities mostly west of I-580 in Oakland and San Leandro and lower densities east of the freeway in the Oakland Hills. Population density is generally lower in the eastern half of the corridor, although future growth is expected to occur in these areas, particularly near BART stations and in the suburban areas that are directly adjacent to I-580 in the Tri-Valley.

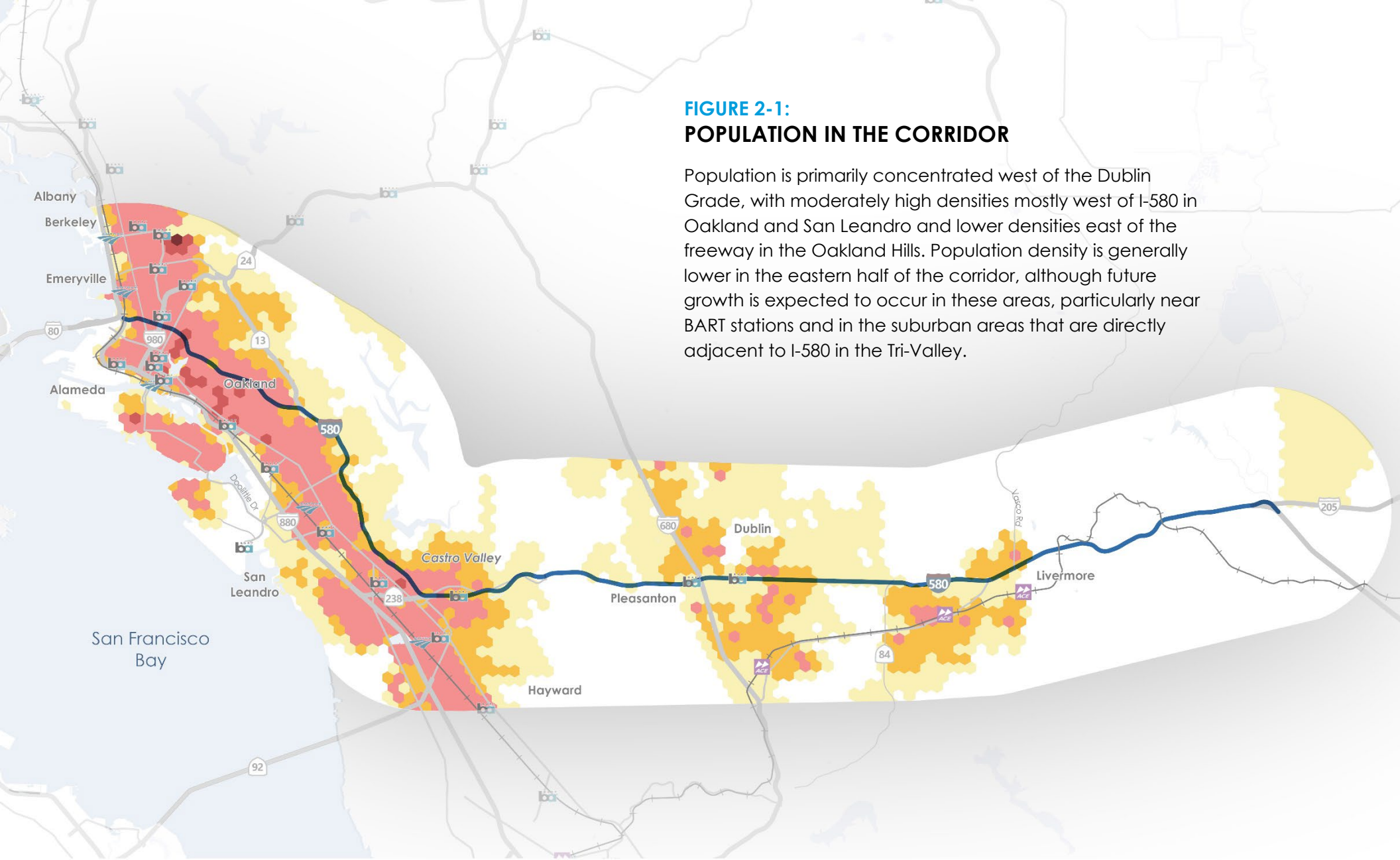
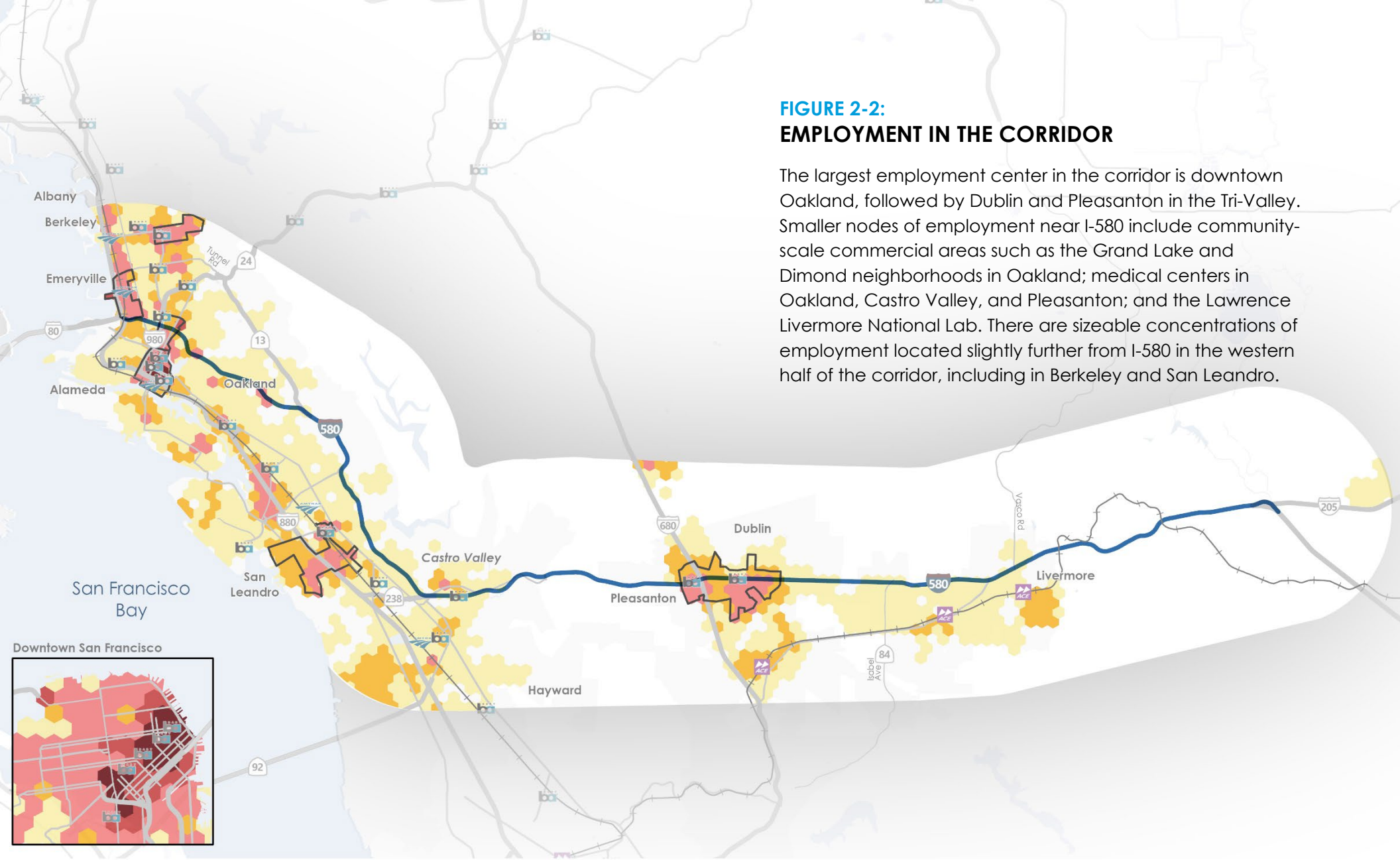


FIGURE 2-2:
EMPLOYMENT IN THE CORRIDOR

The largest employment center in the corridor is downtown Oakland, followed by Dublin and Pleasanton in the Tri-Valley. Smaller nodes of employment near I-580 include community-scale commercial areas such as the Grand Lake and Dimond neighborhoods in Oakland; medical centers in Oakland, Castro Valley, and Pleasanton; and the Lawrence Livermore National Lab. There are sizeable concentrations of employment located slightly further from I-580 in the western half of the corridor, including in Berkeley and San Leandro.



Source: LEHD 2019.
Note: each hexagon is about 0.12 square miles.

Table 2-1: Employment Centers in or near the Corridor

Employment Center	Total Jobs
Downtown San Francisco	425,000
Downtown Oakland	83,000
Pill Hill/North Oakland	19,000
Emeryville	26,000
Berkeley	21,000
San Leandro	24,000
Dublin/Pleasanton	42,000
San Ramon	14,000

Source: 2019 Census LEHD

LAND USE

Current land use in the corridor is characterized using the Caltrans 2020 Smart Mobility Framework (SMF) Guide to quickly identify needs and challenges that are most likely to be present in different areas and determine the types of transportation projects that might be most appropriate for supporting smart mobility goals and VMT reduction given the local context.[15]

Figure 2-3 shows a map of SMF place types for existing conditions in the corridor using the place type that best fits most of each census tract. The dominant land use is the Suburban Community place type. In the middle part of the corridor, the census tracts designated as Suburban also contain some high intensity land uses such as the Oakland International Airport and the warehouses and light manufacturing in the industrial areas to the west and south of I-580. These areas often generate a large amount of transportation activity, even with relatively low population density. At the eastern end of the corridor, the census tracts designated as Suburban are primarily a mix of lower density residential, office, and commercial uses, which tend to have dispersed travel patterns across a wide area rather than concentrated centers of economic activity. At the western end of the corridor, Urban Community place types are found in the cities of Oakland, Alameda, Emeryville and Berkeley.

ACTIVITY CENTERS & TRIP GENERATORS

The I-580 corridor serves many different types of trips over its 46-mile length. During the morning and evening peak periods, many travelers are commuters headed to and from their workplaces. As shown in **Figure 2-2**, the two largest employment centers for the corridor are the central business districts in downtown San Francisco and downtown Oakland. Downtown San Francisco attracts many workers from the Inner East Bay, the majority of whom travel via transit, while Downtown Oakland has more workers who commute via automobile, despite having a smaller number of jobs.

Aside from these urbanized employment centers on the western end of the corridor, the Tri-Valley area in the eastern part of the corridor is a multi-centered employment destination. Office parks, such as Bishop Ranch in San Ramon and the Hacienda Business Park in Pleasanton, are home to the corporate headquarters for companies such as Chevron and Safeway, and some of the county's largest employers, including Peoplesoft and Dell. The Lawrence Livermore National Laboratory and Sandia National Laboratories' California site are both located in Livermore. A relatively smaller amount of traffic passes through the Tr-Valley from the Altamont Pass to reach destinations in the South Bay and on the Peninsula as noted in **Figure 2-9.**

Key non-work trip generators in the corridor include educational, medical, government, commercial, and

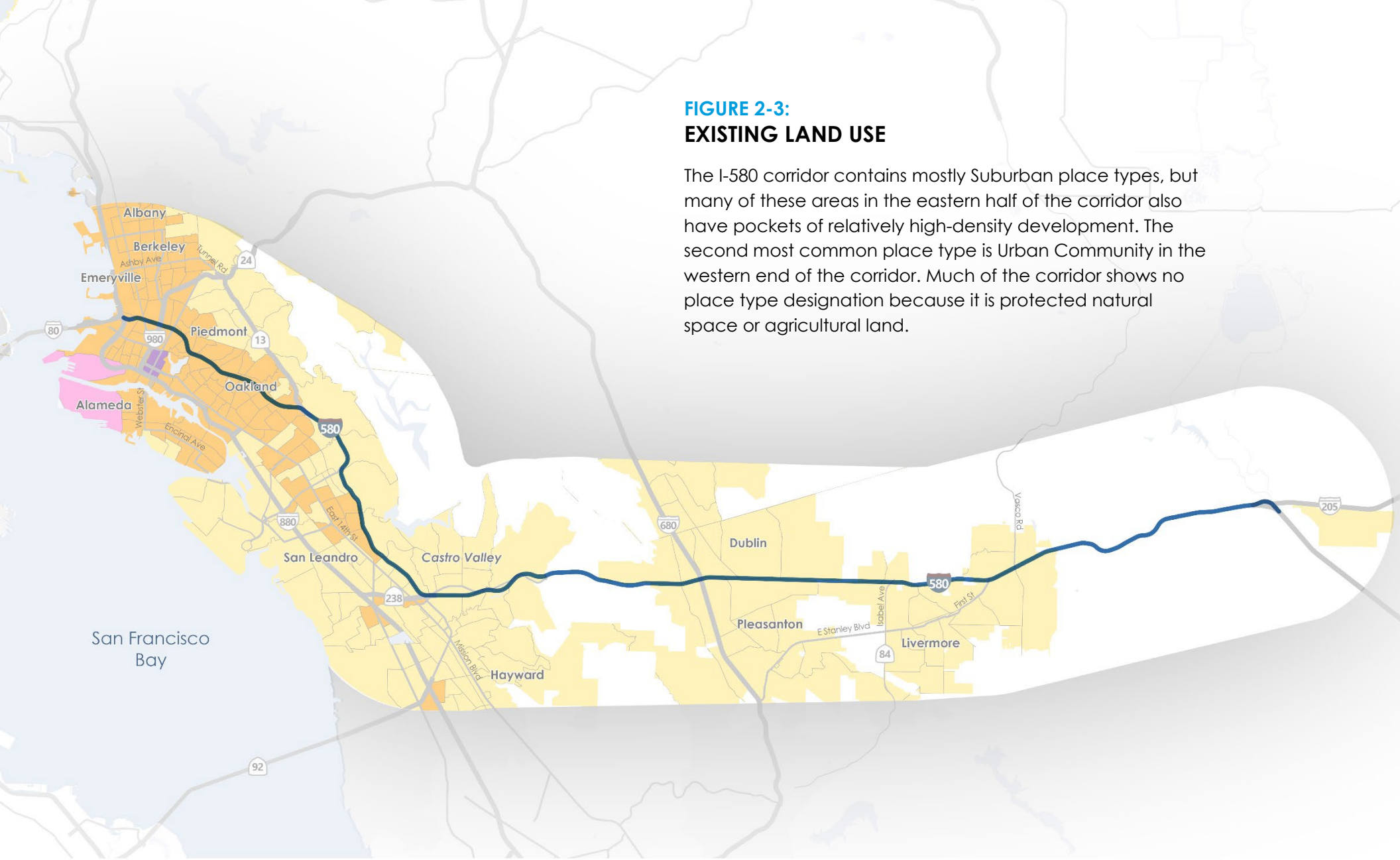
recreational destinations. There are three colleges located within the Study Area, and both UC Berkeley and Laney College are within several miles of I-580. There are eight hospitals, three courthouses, and multiple major shopping centers in the corridor, including Bay Street in Emeryville, Bay Fair Center, Stoneridge Mall, and the Livermore Premium Outlets. Recreation opportunities in the Study Area include Lake Merritt, the Oakland Zoo, and Anthony Chabot Regional Park, while the Oakland Coliseum and Alameda County Fairgrounds are both within a few miles of I-580. Oakland International Airport is five miles from I-580, with a transit connection available from the Coliseum BART station.

Goods movement generates the third major trip type in the corridor, with truck trips carrying freight to and from the Port of Oakland, Oakland International Airport, and other industrial locations in southern Alameda County. Many of these truck trips are containerized truckload freight bound for logistics facilities in western San Joaquin County, but a good number of truck trips are smaller scale deliveries serving light manufacturing and localized distribution centers in more urbanized areas in and near the corridor.

Except for passenger buses and paratransit vehicles, trucks over 9,000 pounds are not allowed to operate on I-580 over an 8.7-mile segment between Foothill Boulevard in San Leandro to Grand Avenue in Oakland. As a result, container trucks travel from I-205 along I-580 through the Tri-Valley, and then use I-238 and I-880 to access industrial locations and port facilities in western Alameda County.

FIGURE 2-3:
EXISTING LAND USE

The I-580 corridor contains mostly Suburban place types, but many of these areas in the eastern half of the corridor also have pockets of relatively high-density development. The second most common place type is Urban Community in the western end of the corridor. Much of the corridor shows no place type designation because it is protected natural space or agricultural land.



Source: Caltrans, 2022.

FUTURE GROWTH AND DEVELOPMENT

Alameda County is the second largest county by population in the nine-county Bay Area. With the adoption of supportive land use policies, the county's total population is forecast to exceed 2 million people by 2040. The latest regional transportation plan, known as Plan Bay Area 2050, projects that Alameda County households will increase by 53 percent to 847,000 households and jobs will increase 36 percent to 1,182,000 by 2050.[16]

Although the pace of population growth has slowed since about 2016, Alameda County is still on track to accommodate 22 percent of all growth in the region over the next three decades as projected by Plan Bay Area 2050. Regional estimates show that the greatest increase in households is expected to occur in the Tri-Valley, while the greatest increase in jobs growth will occur in communities like Hayward and San Leandro in central Alameda County.[17] The I-580 corridor passes through some of the densest concentrations of existing jobs and residents in the county as well as these high-growth areas. While concentrated growth has numerous benefits, it may also increase stress on the transportation system.

Neighboring counties are also projected to continue growing relative to 2015, in some cases faster than Alameda County. Forecast changes in total households and total jobs in each county between 2015 and 2050 are portrayed in **Table 2-2**. San Francisco and Santa Clara are the only two Bay Area counties projected to grow faster than Alameda County. The Tracy area (which borders Alameda County to the east) had the fastest job growth of any part of San Joaquin County prior to the pandemic, with growth expected to continue and reach a net increase of 69 percent between 2015 and 2050.[18] Despite the immediate impacts that the global COVID-19 pandemic has had on economic growth, the region remains economically competitive and must continue to plan for the transportation needs of additional residents and workers over the next several decades.

Table 2-2: Forecast Growth by County, 2015-2050

County	Change in Households	Change in Jobs
Alameda	+53%	+36%
San Francisco	+58%	+36%
Santa Clara	+73%	+46%
Contra Costa	+44%	+32%
San Joaquin	+42% *	+38%

* Data for San Joaquin County is the forecast change in residential population, not households.
Sources:
Plan Bay Area 2050 (MTC)[19]
San Joaquin Council of Governments[20]

PLAN BAY AREA 2050 GROWTH GEOGRAPHIES

Plan Bay Area 2050 defines Growth Geographies as "geographic areas used to guide where future growth in housing and jobs would be focused under the plan's strategies over the next 30 years. These geographies are identified for growth either by local jurisdictions or because of their proximity to transit or access to opportunity."[21] The four types of Growth Geographies analyzed in Plan Bay Area 2050 are as follows:

- Transit-Oriented Communities
- Priority Development Areas
- Priority Production Areas

- Transit-Rich Areas & High-Resource Areas

TRANSIT-ORIENTED COMMUNITIES POLICY

MTC adopted the Transit-Oriented Communities (TOC) Policy in 2022 to support more car-free mobility in the Bay Area, with a focus on increasing access near affordable housing developments and in equity priority communities (EPCs). To achieve this, the TOC Policy increases density requirements for new development, incentivizes the adoption of supportive housing policies and parking management policies, and supports planning for improved multimodal transit station access.

The TOC Policy applies to areas within a half mile of rail stations, bus rapid transit stops, and ferry terminals. Within the I-580 corridor study area, the TOC Policy covers all six BART stations, both ACE rail stations, and the adjacent stops on the AC Transit Tempo bus rapid transit line in downtown San Leandro. While MTC is still finalizing implementation guidance, certain transportation funding may be prioritized for jurisdictions that comply with the TOC Policy as soon as 2026.

PRIORITY DEVELOPMENT AREAS

MTC defines Priority Development Areas (PDAs) as "areas generally near existing job centers or frequent transit that are locally identified (i.e., identified by towns, cities or counties) for housing and job growth." As of 2010, the PDAs in Alameda County contained 44 percent of all jobs in the county, and the 2020 Countywide Transportation Plan (CTP) found that PDAs are projected to have 69 percent of all job growth and 72 percent of all household growth through 2040.

The PDAs in the I-580 corridor are depicted in **Figure 2-4**. Some PDAs in the corridor are centered on existing regional rail stations, such as Castro Valley BART and the Livermore ACE station. Other PDAs are focused on existing commercial nodes, such as East 14th Street near Bay Fair Mall or along Dublin Boulevard north of I-580. Of the 48 designated PDAs in Alameda County, 23 are partially or entirely within the Study Area, and they include over 456,000 residents and almost 267,000 jobs.

Alameda CTC's most recent PDA Investment and Growth Strategy, published in 2021, notes that a total of 68 deed-restricted housing projects have been identified in the development pipeline, which will produce 5,570 new affordable units; the majority of these were entitled as of August 2020. A total of 90 percent of identified affordable developments in the pipeline fall within a PDA, and 67 percent of planned projects from the 2020 CTP that are in PDAs are within a half mile of at least one of these developments. This Plan explores how to ensure that new transportation investments proposed for the I-580 corridor continue to support additional housing growth in the county's PDAs.

PRIORITY PRODUCTION AREAS

As defined by MTC, "Priority Production Areas (PPAs) identify clusters of industrial businesses [prioritized] for economic development investments and protection from competing land uses."[22] There are six PPAs in the corridor, as shown in **Figure 2-4**:

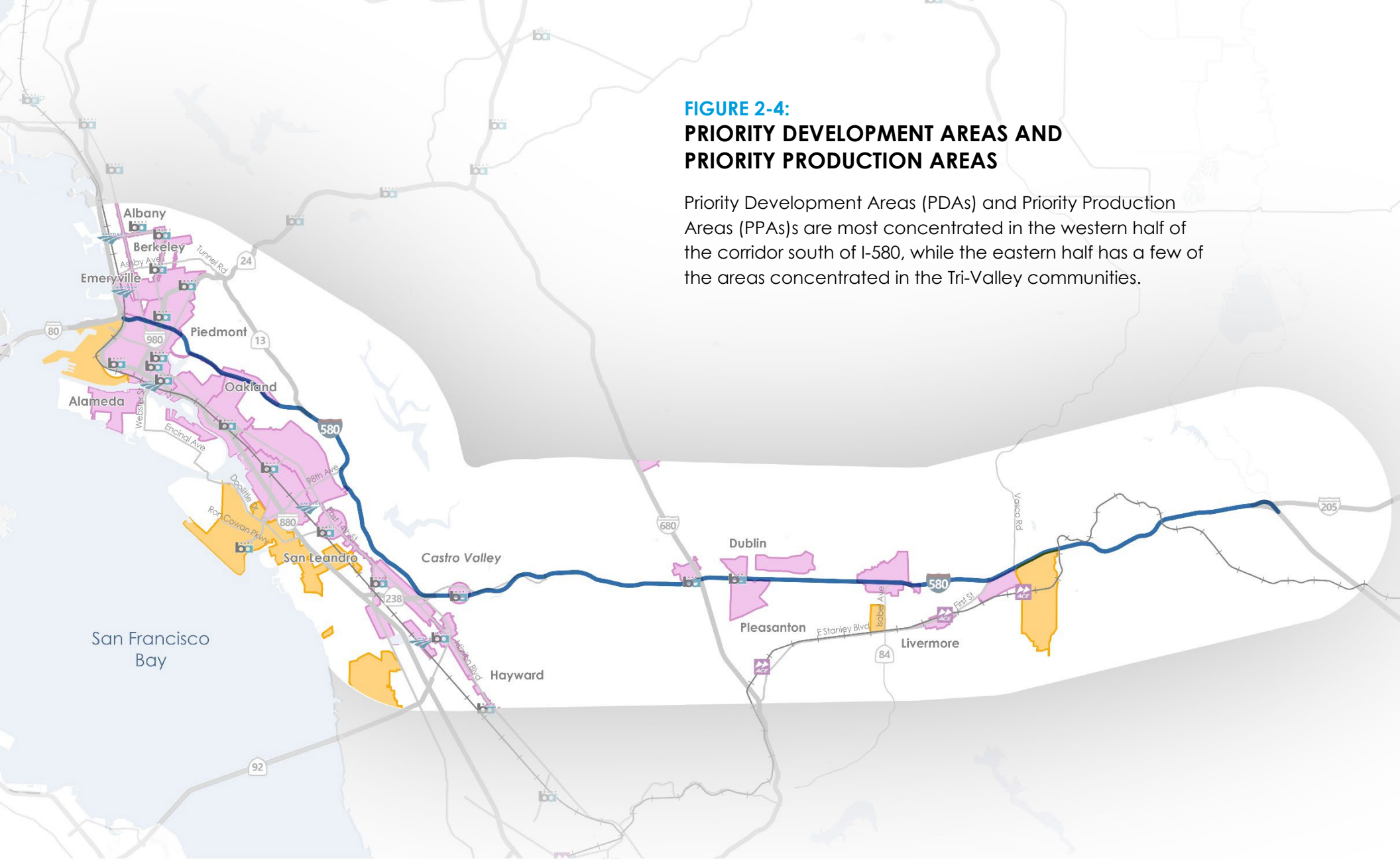
- Port PPA – covers all of the Port of Oakland at the westernmost end of the corridor
- Airport PPA – includes the Oakland International Airport and industrial areas to the south and east
- San Leandro PPA – a small area on the waterfront near San Lorenzo Creek
- Hayward PPA – on the edge of the corridor near the Hayward Executive Airport and Dumbarton Bridge
- Westside PPA (Livermore) – south of I-580 near the Livermore Municipal Airport
- Eastside PPA (Livermore) – adjacent to the I-580 right-of-way between Vasco Road & Greenville Road and includes the Lawrence Livermore Lab complex

TRANSIT-RICH AREAS & HIGH-RESOURCE AREAS

Two additional growth geographies highlight potential opportunity areas outside of formal PDAs. Locations with high quality transit service are termed Transit-Rich Areas (TRAs), while locations with well-resourced schools and access to jobs as well as baseline transit service are termed High-Resource Areas (HRAs). Depending on the level of transit service offered, some areas qualify as both TRAs and HRAs. Most of the areas within the I-580 corridor that meet these criteria have already been designated as PDAs, however, there are TRAs and HRAs in Berkeley, Alameda, Oakland, San Leandro, Hayward, Castro Valley, Dublin, and San Ramon.[23]

FIGURE 2-4:
PRIORITY DEVELOPMENT AREAS AND PRIORITY PRODUCTION AREAS

Priority Development Areas (PDAs) and Priority Production Areas (PPAs)s are most concentrated in the western half of the corridor south of I-580, while the eastern half has a few of the areas concentrated in the Tri-Valley communities.



BART Station
Amtrak Station
ACE Station
Commuter Rail

Priority Development Areas
Priority Production Areas

Source: MTC, PBA 2050, 2020.

0 5 Miles

THE I-580 CORRIDOR TODAY

The previous section described some of the demographic and land use factors that have and will continue to influence travel patterns in the corridor in the decades ahead. Before identifying actionable corridor improvements and investments, the Plan began with a Needs Assessment to summarize conditions in the I-580 corridor today and identify the transportation needs of residents and businesses that rely on the corridor to meet their day-to-day needs. This section describes the key findings of this assessment related to travel patterns and operational performance of the corridor, as well as the key areas where further improvement is needed.

Needs identified for this strategy focus on improvements that will realize the 2020 CTP vision of healthy, safe, and livable communities while equitably accommodating growing travel demand. The corridor needs outlined in this section are organized by the following nine topics:

1. Climate Change
2. Travel Markets
3. Congestion Impacts
4. Freight
5. Equity
6. Transit Network and Capacity
7. Transit Access and Performance
8. Bicycle and Pedestrian Safety and Access
9. Automobile and Multimodal Safety

CLIMATE CHANGE

ASSESSMENT SUMMARY:

INTERSTATES ARE MAJOR CONTRIBUTORS TO REGIONAL VMT GROWTH TRENDS EXCEEDING STATE MANDATED BENCHMARKS TO ACHIEVE CLIMATE GOALS.

CORRIDOR NEED:

IDENTIFY PROJECTS, PROGRAMS, AND POLICIES THAT MITIGATE ADVERSE CLIMATE IMPACTS BY REDUCING TRANSPORTATION-RELATED GHGS.

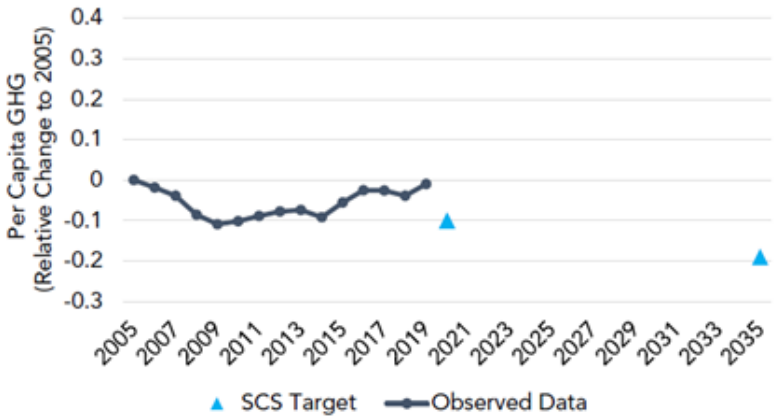
The State of California is working towards its goals for reducing greenhouse gas (GHG) emissions. The transportation sector accounts for over a third of the state's GHG emissions, the majority of which are attributable to passenger vehicles. The California Air Resources Board (CARB) regularly reports on the state's primary measures for tracking progress towards climate goals: changes in vehicle miles traveled (VMT) and associated GHG emissions. Their 2022 report found that statewide, VMT has been going up, not down as required. Compared to 2005, Californians are still driving more and carpooling less for work trips; the number of vehicles per household is increasing; transit ridership is falling; and people are walking and biking less.[24]

The 2022 CARB progress report notes that the pace, location, and mix of housing construction all contribute substantially to the challenges in meeting daily transportation needs with less driving. The report also notes that coordinated investments in electric vehicles can help to reduce transportation-related GHGs. However, CARB's assessment clearly indicates that these efforts alone are insufficient; fundamental changes in the transportation system itself are needed to help residents meet their travel needs in ways that do not increase VMT and GHGs to support our climate goals.

Prior to the pandemic, the Bay Area had made better progress than most other regions in California on decreasing single-occupant driving and increasing use of public transit. However, as shown below in **Figure 2-5**, the Bay Area is still not on track to meet the statutory targets for reductions in per capita GHGs. The historical trends point in the wrong direction for reducing emissions, and the disruptions of the COVID-19 pandemic did not reverse these patterns.

In Alameda County, residents drove longer distances than the regional average for the Bay Area (26.1 miles vs. 22.9 miles) in 2015.[25] More recently, overall driving in the county has increased, with countywide VMT on freeways now surpassing pre-pandemic levels. Total VMT on Alameda County freeways increased 8 percent between 2019 and 2023 outpacing the typical 1 to 2 percent annual increase in countywide VMT that was observed prior to the pandemic.[26]

FIGURE 2-5:
TRENDS IN BAY AREA GHG PER CAPITA



Source: 2018 Progress Report: California's Sustainable Communities and Climate protection Act, CARB

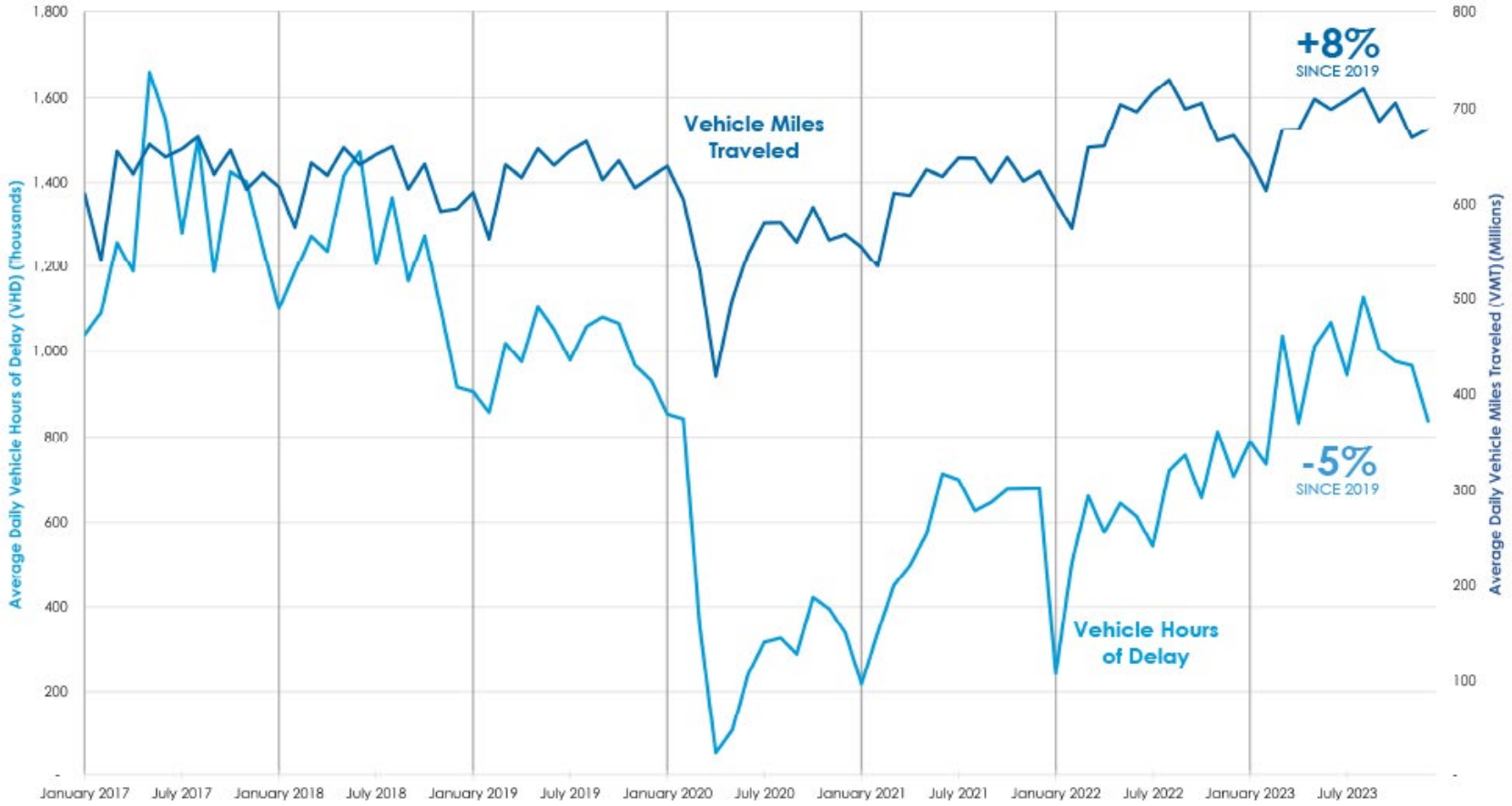
Workers in Alameda County and the Bay Area are also working from home at higher rates than the rest of the country, suggesting that this increase in VMT may be caused by more home-based driving trips and shifting mode preferences. Alameda County trends in VMT and vehicle hours of delay (VHD) are depicted in **Figure 2-6**.

The consequences of climate change are expected to produce more extreme environmental conditions in the corridor. In 2018, Caltrans published a Climate Change Vulnerability Assessment for District 4 that described how higher temperatures will affect Caltrans designs and operations in the corridor. Planners and engineers will need to address new constraints on materials selection (especially for pavement), ground conditions (e.g., when excavating for walls & foundations), worker health and safety, landscaping and vegetation control, and the need for protected facilities for transit riders. Another climate-related finding from the 2018 report is the possibility that more intense storms could threaten existing infrastructure in the corridor. Heavy rainfall and flooding can wash out freeway structures such as culverts and bridges, which would limit access and require costly repairs.[27]

Following the vulnerability assessment, Caltrans developed and published the Adaptation Priorities Report in 2020, which directs state investments in adaptation and prioritizes asset management for District 4. Caltrans classified all state-owned structures into one of five relative priority levels, based on a variety of factors including the level of exposure to different climate risks, asset condition, and the level of impact that structural failure would have on the overall state highway system. The structures most urgently in need of upgrades were assigned "Priority Level 1." The I-580 corridor contains multiple Priority Level 1 structures, including one large culvert and two small culverts (both in the eastern half of the corridor near the Altamont Pass) and four roadway segments (two each on the easternmost and westernmost ends of the corridor). The Priority Level 1 structures are all indicated in the map in **Figure 2-7**.[28]

"Emissions from passenger vehicle travel per capita have been increasing, and California will not achieve the necessary GHG reductions to meet mandates for 2030 and beyond without significant changes to how communities and transportation systems are planned, funded, and built."
– 2020 Alameda Countywide Transportation Plan

FIGURE 2-6:
TRENDS IN ALAMEDA COUNTY VMT AND DELAY



Source: 2022 Multimodal Monitoring Report, Alameda CTC.

Finally, the risk of wildfire within urban areas has been more noticeable in recent years as multiple communities in California have faced devastating disasters. **Figure 2-7** shows the areas near the I-580 corridor that CAL FIRE has designated as Moderate, High, or Very-High fire hazard exposure zones based on factors such as potential fuels, fire weather conditions, and terrain in each area. The I-580 corridor passes through the Very-High risk zones in the Oakland Hills and the Altamont Pass. There is also a small Moderate risk zone between Castro Valley and Dublin and a larger Moderate risk zone between Dublin and Livermore. In addition, because I-580 is the major east-west corridor in Alameda County, it is likely to be a key route for evacuating residents and supporting fire-fighting activities in the event of a major fire anywhere in the county.[29]

NATURAL LANDS AND SUSTAINABILITY

As part of the periodic regional planning process, MTC has identified all formally protected conservation lands and the locations of critical wildlife habitat in Alameda County.

PRIORITY CONSERVATION AREAS

Conservation lands in the corridor include recreational areas (such as the East Bay Regional Parks District) and protected watersheds (such as the East Bay Municipal Utilities District), primarily on the periphery of the corridor. In coordination with local jurisdictions, some of these natural areas are formally designated as Priority Conservation Areas (PCAs) defined as "locations designated for the protection of natural habitats and the preservation of open space for future generations. This includes farming, ranching, recreational and resource lands."[30] There are multiple PCAs in the I-580 corridor including locations in the Oakland/Berkeley Hills, Pleasanton, and Livermore.

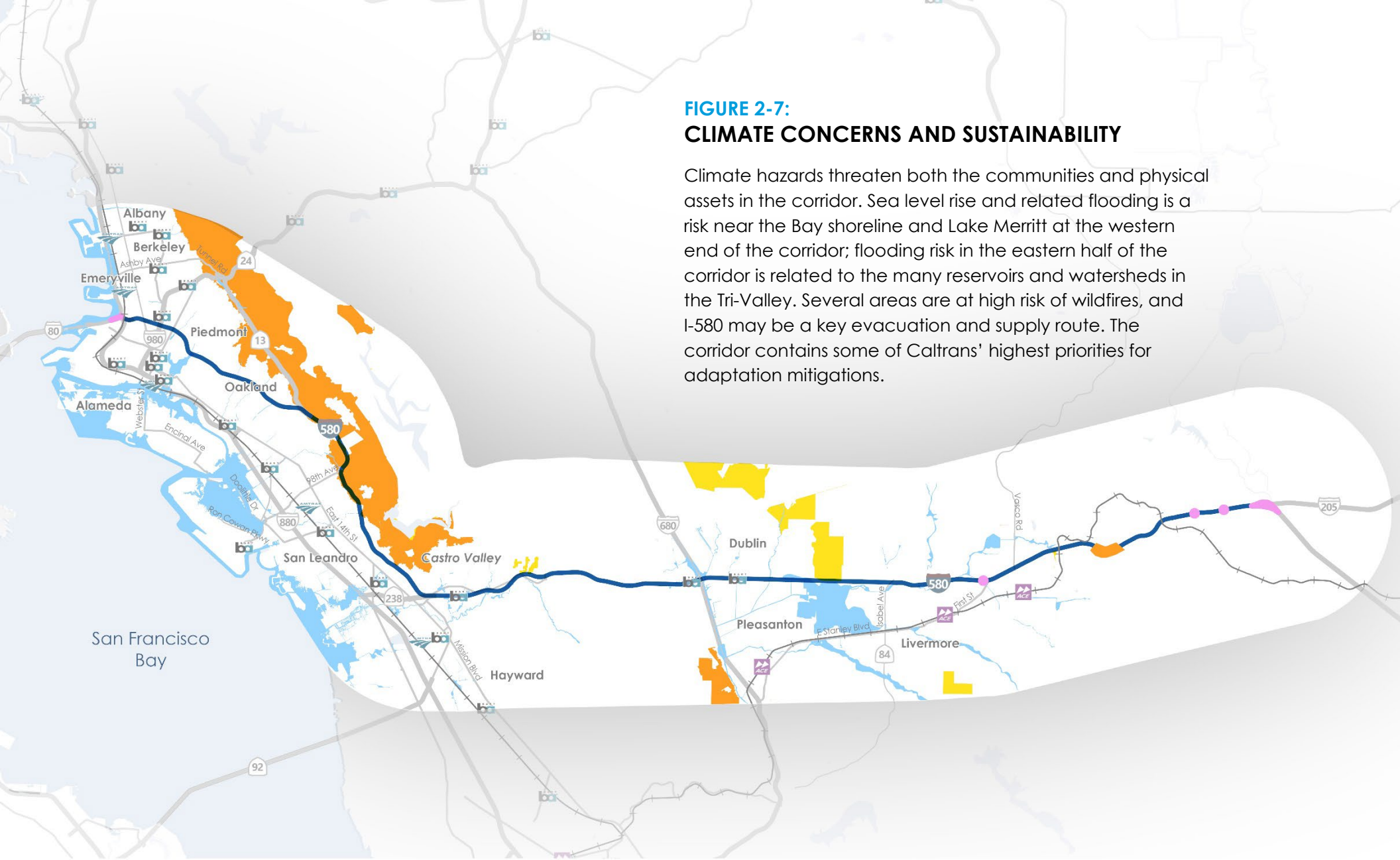
WILDLIFE CROSSINGS

The critical wildlife habitat in the corridor includes some conservation lands in the Oakland Hills, as well as large portions of the Dublin Grade and Altamont Pass, some of which directly abut the I-580 right of way.[31] The East Bay Hills provide habitat for several rare, threatened, endangered, and special-status species, including the California red-legged frog, California tiger salamander, Alameda whipsnake, and mountain lion. The two places where I-580 bisects these hills – known as the Dublin Grade and the Altamont Pass – see high rates of roadkill relative to other freeways in the county.[32] I-580 also creates a total barrier at Hollis Creek, located within the Dublin Grade, which is populated by two species of fish native to California – the threatened Central Coast Steelhead and the endangered Central Coast Coho Salmon.[33]

The lack of wildlife crossings along I-580 poses a danger to both the endangered wildlife as well as people driving the corridor. The impacts of transportation projects on wildlife can also trigger the need to develop mitigations under the California Environmental Quality Act (CEQA), AB 2344, or the federal and state Endangered Species Acts.

FIGURE 2-7:
CLIMATE CONCERNS AND SUSTAINABILITY

Climate hazards threaten both the communities and physical assets in the corridor. Sea level rise and related flooding is a risk near the Bay shoreline and Lake Merritt at the western end of the corridor; flooding risk in the eastern half of the corridor is related to the many reservoirs and watersheds in the Tri-Valley. Several areas are at high risk of wildfires, and I-580 may be a key evacuation and supply route. The corridor contains some of Caltrans' highest priorities for adaptation mitigations.



BART Station
Amtrak Station
ACE Station
Commuter Rail
High Flood Risk Areas

Fire Hazard Risk
Moderate
High

Priority Adaptation Locations
Priority 1 Culverts
Priority 1 Roadways

Source: CalFIRE 2022. Caltrans District 4 Adaptation Priorities Report 2020, Caltrans 2022. FEMA 2022.

0 — 5 Miles

TRAVEL MARKETS

ASSESSMENT SUMMARY:

DRIVERS ON I-580 ARE TRAVELING TO A WIDE VARIETY OF DESTINATIONS THROUGHOUT THE CORRIDOR.

MOST DRIVERS ON I-580 MAKE SHORT AND MEDIUM LENGTH TRIPS.

CORRIDOR NEED:

PROVIDE TRANSIT AND ACTIVE TRANSPORTATION OPTIONS FOR LOCAL AND MEDIUM LENGTH TRIPS.

Alameda County's multimodal transportation system accommodates a significant share of the San Francisco Bay Area's commuter travel. Roughly one-third of regional commutes involve Alameda County in some way, either traveling within, to, from, or through the county.[34] However, travel on the I-580 corridor does not necessarily mirror these countywide patterns. There is very little travel that runs the entire length of the corridor, and most travel starts and ends within Alameda County. For example, only 25 percent of westbound travelers in the morning peak start in San Joaquin County or the Tri-Valley and are bound for locations beyond Alameda County; more than 50 percent are headed to destinations in Central Alameda County.

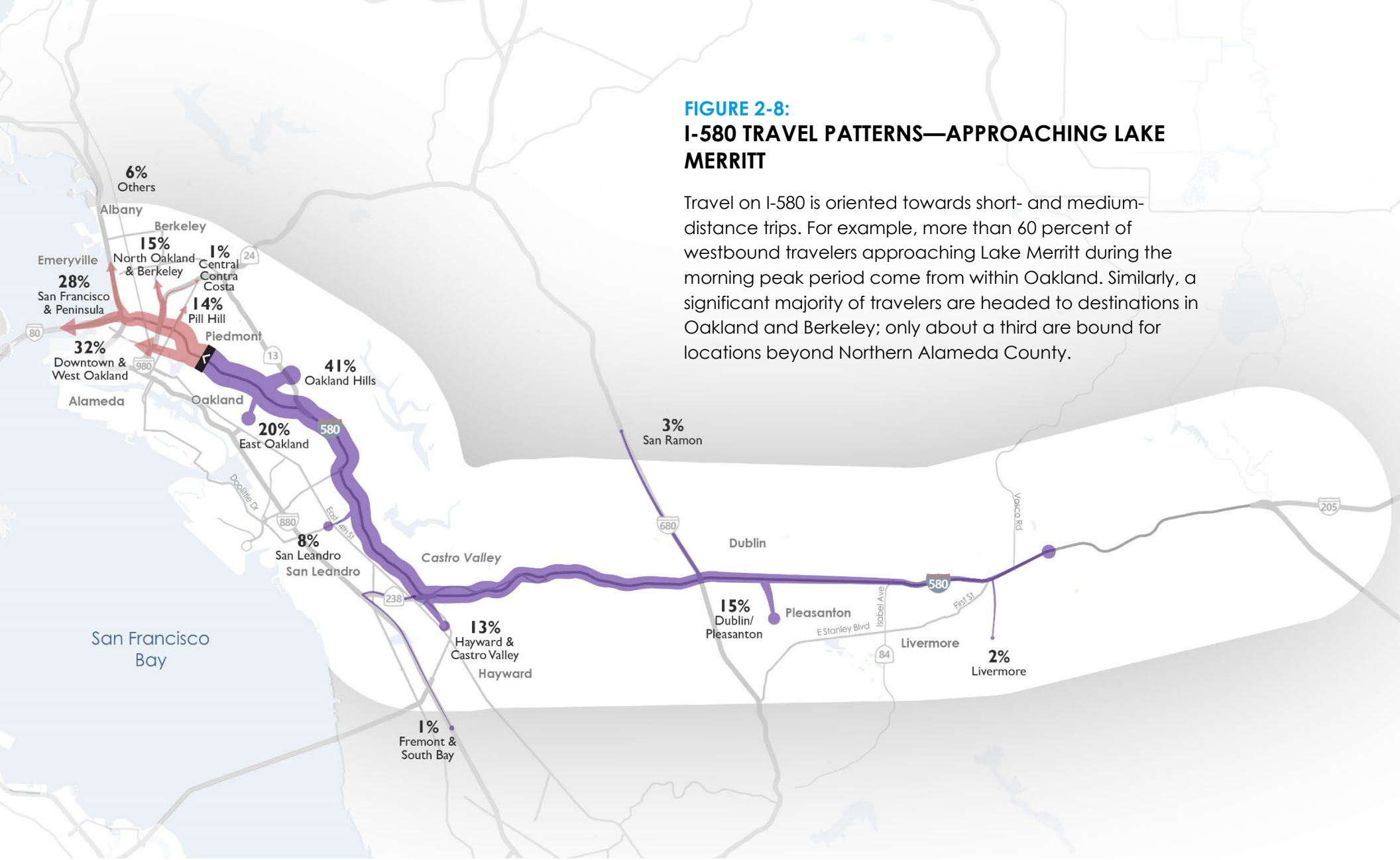
In the aggregate, travel on I-580 reflects an "everywhere to everywhere" pattern, consistent with the generally low to moderate densities and auto-oriented nature of most of the corridor outside of the major urban centers in San Francisco and downtown Oakland.

Nearly half of in-commuting from San Joaquin County is bound for the Tri-Valley. There is also some demand for travel to the Peninsula and South Bay – 16% of AM trips go south via I-680. There is little demand for Inner East Bay destinations from the Central Valley. At the other end of the corridor, the highest amount of auto travel to downtown San Francisco is from a small area around I-580 in central and northern Oakland. South of San Leandro, travel to downtown San Francisco accounts for approximately 20 percent of vehicles, which decreases to 10 percent for travelers coming over the Dublin Grade.

Travel flows at key locations within the corridor are depicted in **Figure 2-8** and **Figure 2-9**. As can be seen in the maps, most trips that use I-580 are connecting origins and destinations that are relatively close to one another. These shorter trips have the greatest potential to be shifted to more sustainable modes such as transit and bicycling, suggesting that there are meaningful opportunities to reduce VMT and congestion in the corridor.

FIGURE 2-8:
I-580 TRAVEL PATTERNS—APPROACHING LAKE MERRITT

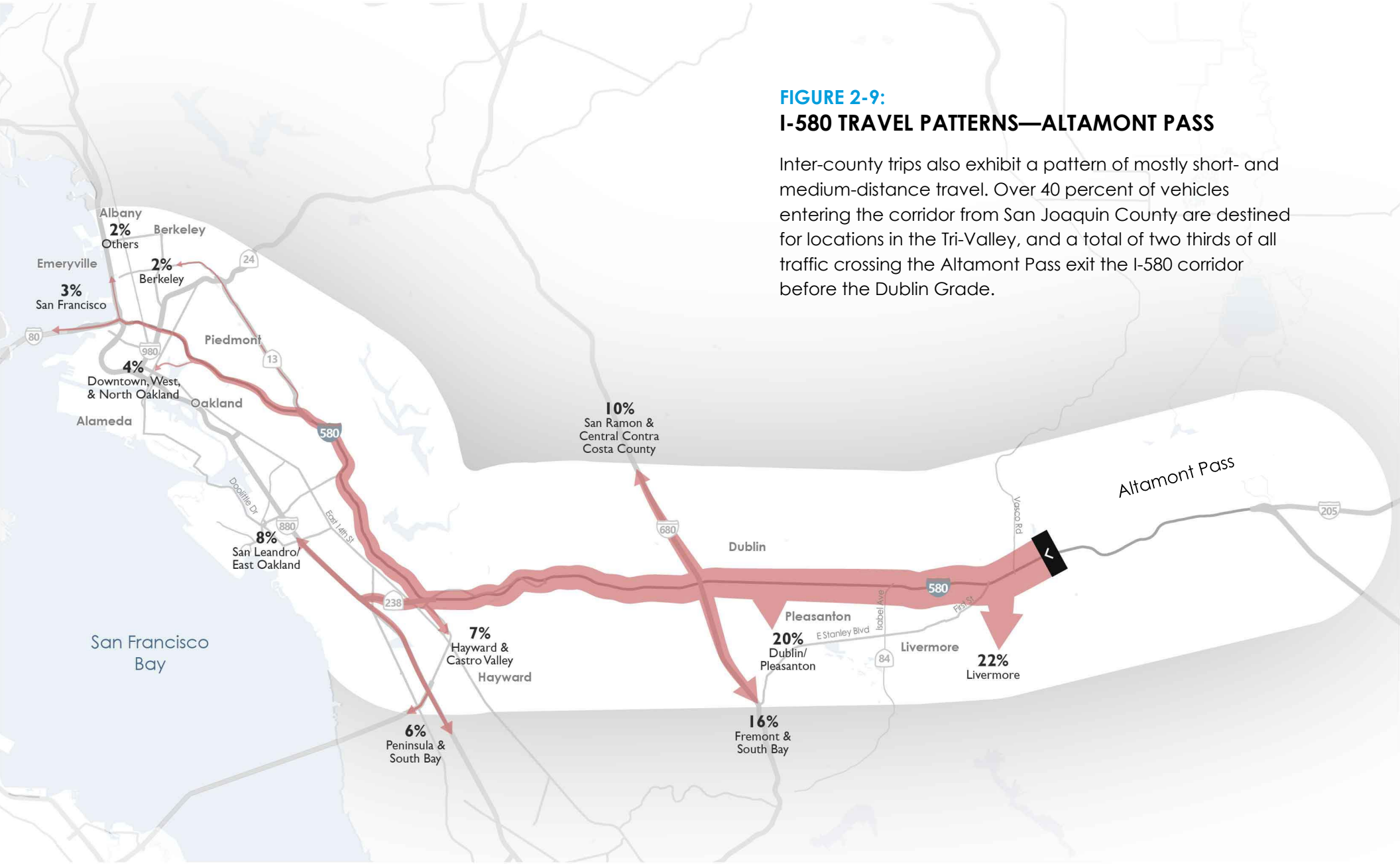
Travel on I-580 is oriented towards short- and medium-distance trips. For example, more than 60 percent of westbound travelers approaching Lake Merritt during the morning peak period come from within Oakland. Similarly, a significant majority of travelers are headed to destinations in Oakland and Berkeley; only about a third are bound for locations beyond Northern Alameda County.



Source: Streetlight, 2019.

FIGURE 2-9:
I-580 TRAVEL PATTERNS—ALTAMONT PASS

Inter-county trips also exhibit a pattern of mostly short- and medium-distance travel. Over 40 percent of vehicles entering the corridor from San Joaquin County are destined for locations in the Tri-Valley, and a total of two thirds of all traffic crossing the Altamont Pass exit the I-580 corridor before the Dublin Grade.



Source: Streetlight, 2019.

Regional Affordability and Jobs-Housing Balance

Economic inequality and the housing crisis are two major factors that shape life in the Bay Area. Despite multiple waves of economic growth in recent decades, the boom-and-bust cycles of the local economy have not affected everyone equally. Prior to the pandemic and as recently as 2021, the Bay Area had the greatest income inequality of any region in California.[35] Much of this inequality is driven by the fact that the job and housing markets favor highly educated and highly paid workers.[36]

Economic growth drives population growth and housing demand which, in light of decades of insufficient housing production, has contributed to exacerbated cost of living pressures and the displacement and destabilization of established neighborhoods. MTC notes in Plan Bay Area 2050 that "home locations also influence the job, transportation, healthcare and recreation options available to us, as well as health impacts like exposure to pollution."[37]

Residents who are priced out of urban communities often choose to live on the fringes of the metropolitan region. The Great Recession slowed down displacement trends but did not stop them. As recently as 2019, communities in western San Joaquin County were booming with new housing construction, much of it occupied by Bay Area workers.[38] The pandemic has once again shifted housing market patterns, as the ability of some residents to work remotely has disrupted the traditional commute flow that tethers workers to urban employment centers.

At the local level, Alameda County jurisdictions have taken actions to promote infill housing and support existing residents to help lessen displacement pressures. All 15 Alameda County jurisdictions have adopted housing policies related to affordable housing, anti-displacement, and supporting low-income residents.[39] The City of Oakland was the first Bay Area jurisdiction to be designated as a "Prohousing" community by the California Department of Housing and Community Development (HCD), which will provide them with preference in the scoring of competitive housing, community development, and infrastructure programs administered at the state level.

Improving affordability in the wake of the jobs-housing imbalance will require multiple solutions, from expanding affordable travel options to increasing housing supply for residents of all income levels.

CONGESTION IMPACTS

ASSESSMENT SUMMARY:

HIGH TRAFFIC VOLUMES AND LOW CARPOOL MODE SHARE ALONG THE CORRIDOR RESULT IN CROWDED FREEWAY CONDITIONS AND SLOW TRAVEL SPEEDS.

CORRIDOR NEED:

REDUCE NEGATIVE IMPACTS FROM CONGESTION, INCLUDING POOR TRAVEL TIME RELIABILITY.

As noted previously, traffic volumes in the corridor are a mix of many drivers making short and intermediate distance trips, traveling between many dispersed activity centers. Though individual trips may not be long, traffic flows between subareas of the corridor can overlap and create areas of very high vehicle volumes even where there is no major activity center nearby. Once vehicle volumes match the total capacity of the roadway, small increases in traffic can lead to severe congestion, with drastic reductions in speed and exponential increases in delay for all travelers.

A map of annual average daily vehicle counts on the corridor as of 2019 is presented in **Figure 2-10**. The highest vehicle volumes are seen in the Tri-Valley. Traffic counts over the Altamont Pass are lower relative to other parts of the corridor, but the combination of vehicles moving to and from San Joaquin County with local auto trips in the Tri-Valley creates a sustained area of high total volumes between Dublin and Pleasanton and Livermore. There is also a high number of vehicles traveling over the Dublin Grade as different routing patterns in the corridor all use this same segment of the freeway to reach various locations and interchanges on either side of this bottleneck.

As roadways become more crowded, travel speeds slow down for all users, including both drivers and bus riders. The maps in **Figure 2-11** and **Figure 2-12** show the 2022 average travel speeds on I-580 during the peak hour of the morning and evening commute periods, respectively. The slowest speeds are generally seen upstream of interchange bottlenecks and other high traffic merge points in the corridor where vehicle demand exceeds available capacity. Examples include slow speeds westbound in the morning and eastbound in the evening approaching the interchange with I-680. Once the merges are complete through an area of congestion approaching a bottleneck, traffic often returns to free flow speeds until the next high demand merge point. Complex weaving sections can also exacerbate congestion hot spots. This is particularly evident in the westernmost end of the corridor, where the numerous merges and challenging roadway geometry through the section known as the MacArthur Maze tend to slow traffic in the peak direction in both the morning and the evening.

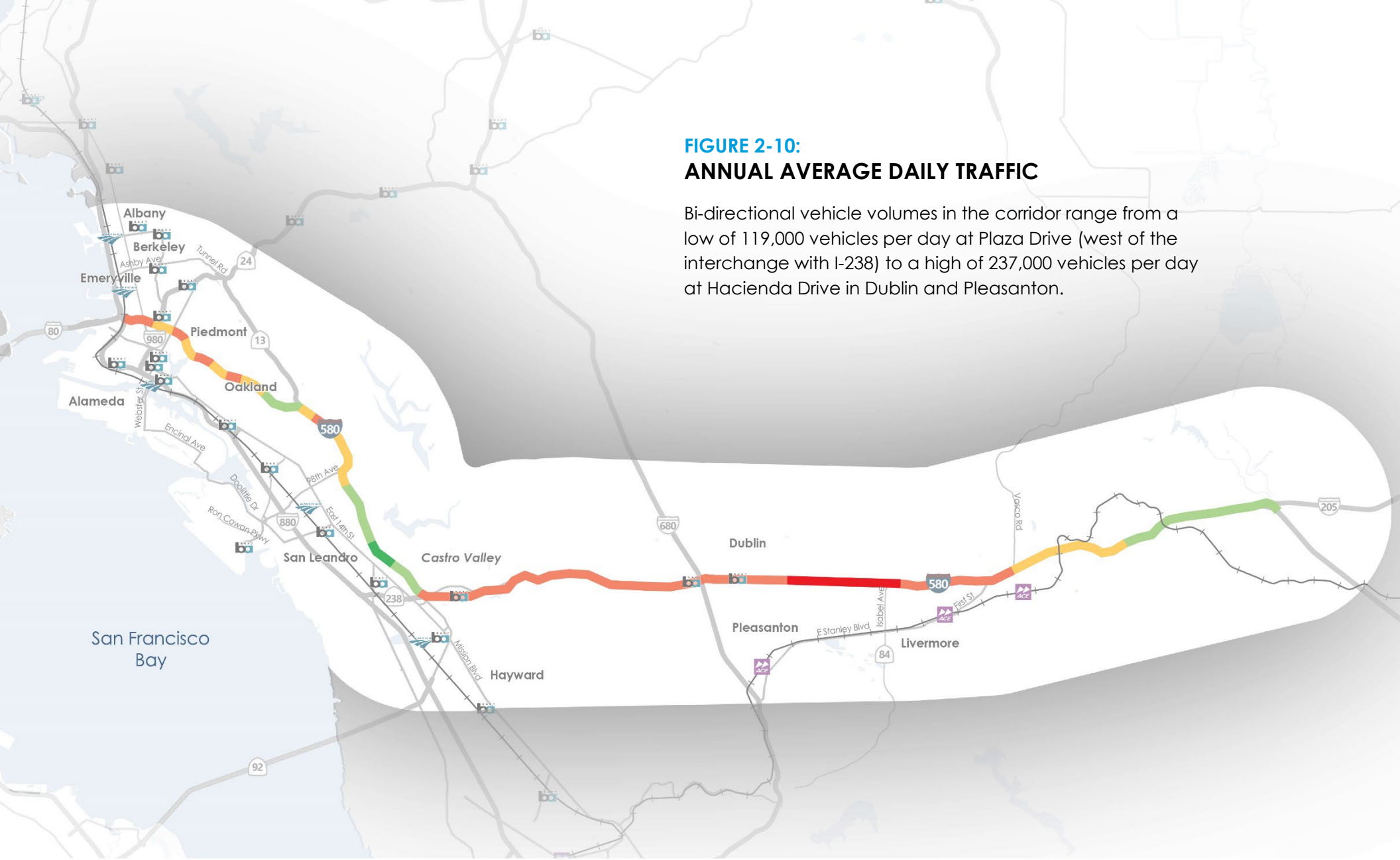


FIGURE 2-10:
ANNUAL AVERAGE DAILY TRAFFIC

Bi-directional vehicle volumes in the corridor range from a low of 119,000 vehicles per day at Plaza Drive (west of the interchange with I-238) to a high of 237,000 vehicles per day at Hacienda Drive in Dublin and Pleasanton.

BART Station
Amtrak Station
ACE Station
Commuter Rail

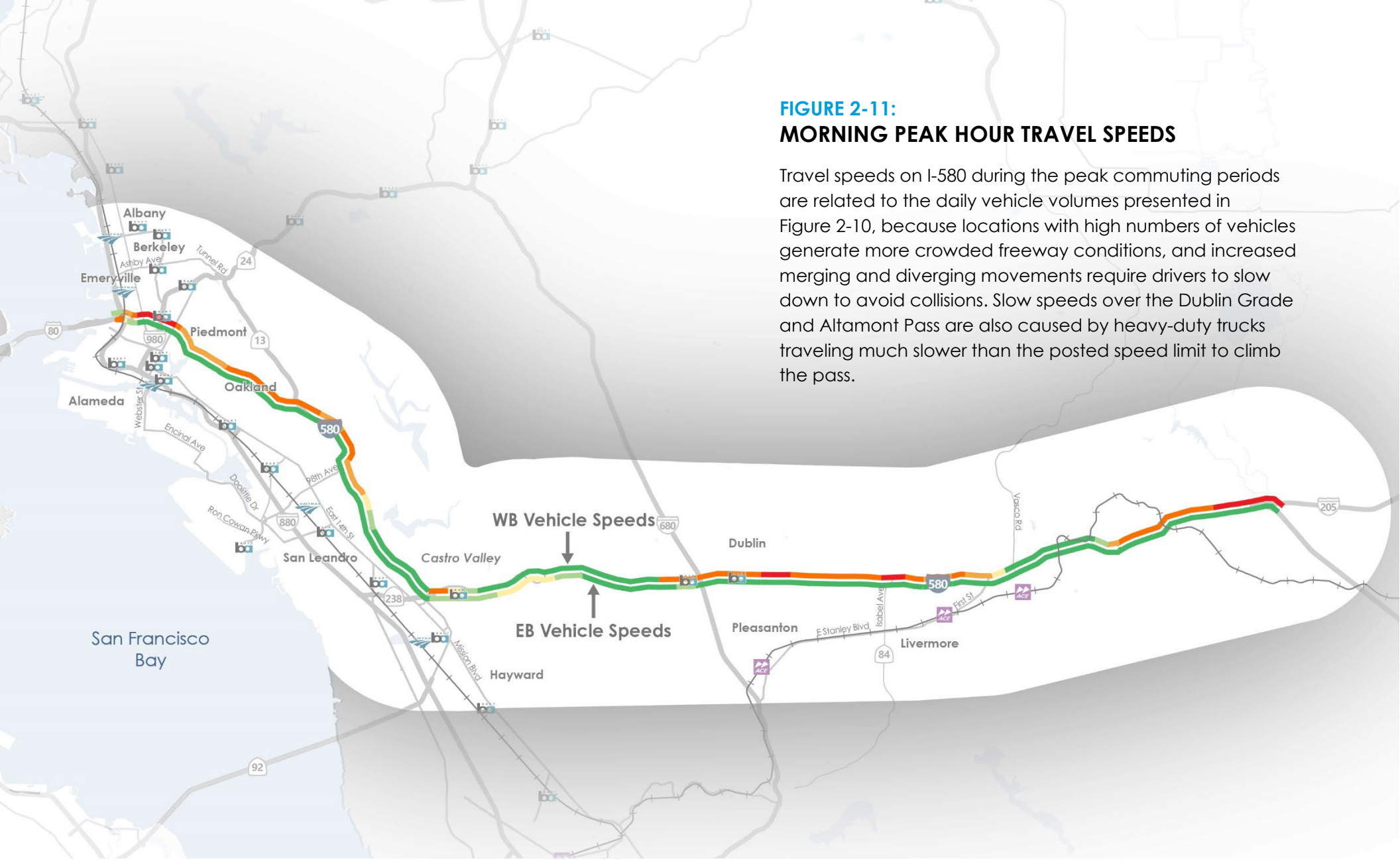
Annual Average Daily Traffic (AADT)
- ≤ 125,000
- 126,000 - 150,000
- 151,000 - 175,000
- 176,000 - 200,000
- > 200,000

Source: Caltrans 2019.

0 5 Miles

FIGURE 2-11:
MORNING PEAK HOUR TRAVEL SPEEDS

Travel speeds on I-580 during the peak commuting periods are related to the daily vehicle volumes presented in Figure 2-10, because locations with high numbers of vehicles generate more crowded freeway conditions, and increased merging and diverging movements require drivers to slow down to avoid collisions. Slow speeds over the Dublin Grade and Altamont Pass are also caused by heavy-duty trucks traveling much slower than the posted speed limit to climb the pass.



BART Station
Amtrak Station
ACE Station
Commuter Rail

Average Travel Speeds

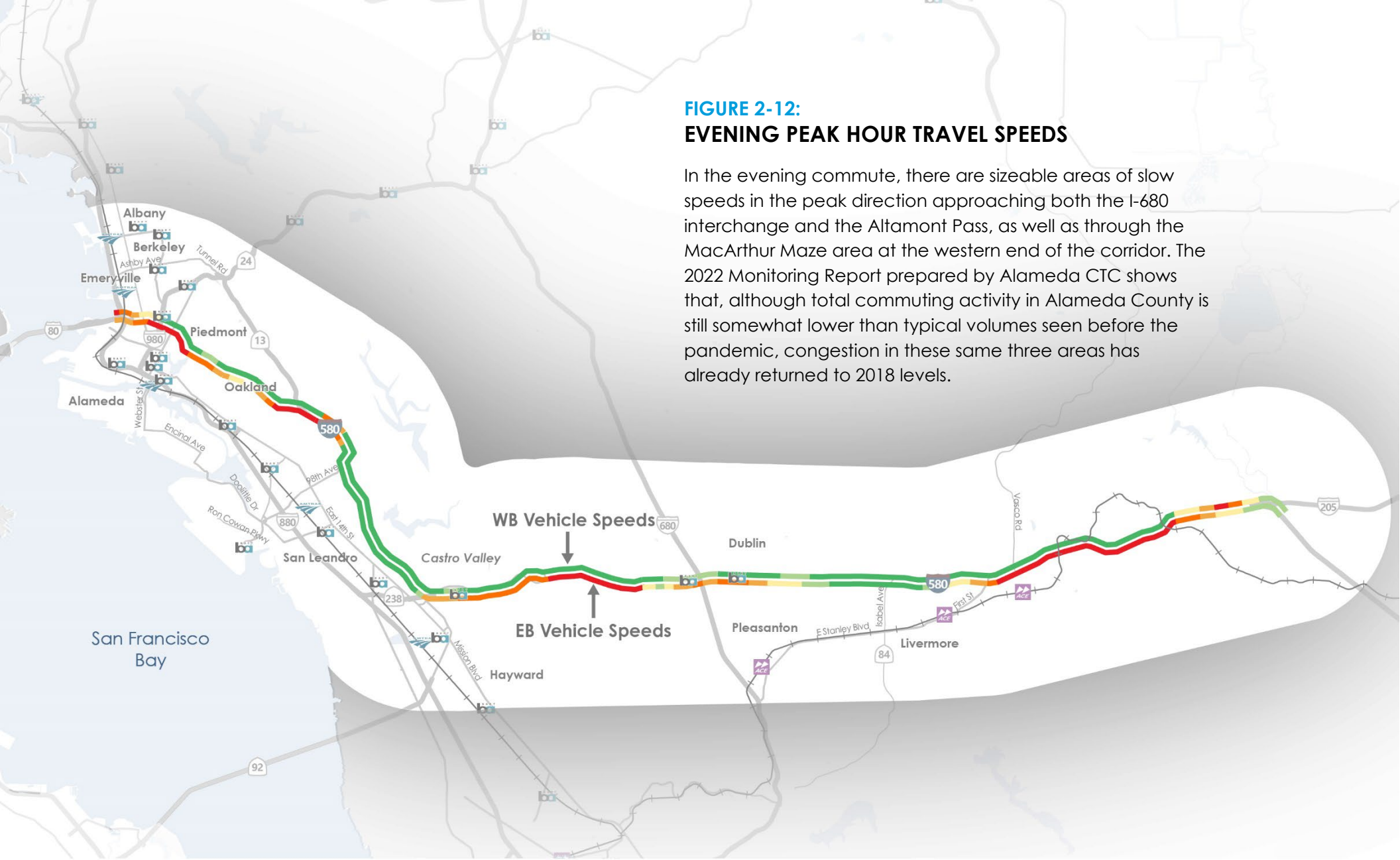
> 60 mph	41 - 49 mph
55 - 59 mph	30 - 41 mph
49 - 54 mph	< 30 mph

Source: INRIX 2022
Note: Speed data includes general purpose and managed lanes.

0 Miles 5

FIGURE 2-12:
EVENING PEAK HOUR TRAVEL SPEEDS

In the evening commute, there are sizeable areas of slow speeds in the peak direction approaching both the I-680 interchange and the Altamont Pass, as well as through the MacArthur Maze area at the western end of the corridor. The 2022 Monitoring Report prepared by Alameda CTC shows that, although total commuting activity in Alameda County is still somewhat lower than typical volumes seen before the pandemic, congestion in these same three areas has already returned to 2018 levels.



BART Station
Amtrak Station
ACE Station
Commuter Rail

Average Travel Speeds

- > 60 mph
- 55 - 59 mph
- 49 - 54 mph
- 41 - 49 mph
- 30 - 41 mph
- < 30 mph

Source: INRIX 2022
Note: Speed data includes general purpose and managed lanes.

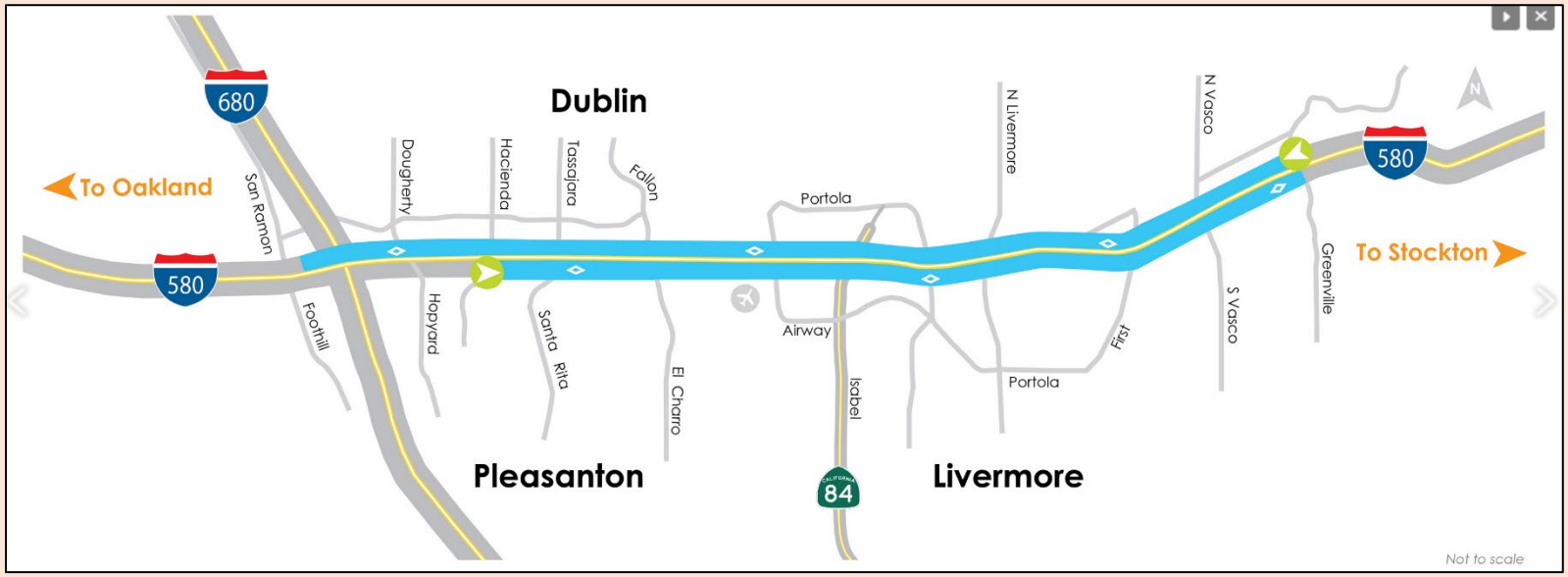
0 5 Miles

Express Lanes on I-580

As part of the Bay Area Express Lanes network, Alameda CTC has developed High Occupancy Toll lanes (HOT lanes, also known as Express lanes) on I-580 through the Tri-Valley. Unlike traditional High Occupancy Vehicle (HOV) or carpool lanes, drivers who do not meet the occupancy criteria to use the lanes for free can pay to access the lanes when excess capacity is available.

In the westbound direction, the Express Lane extends 12 miles from Greenville Road to just before the I-680 overpass in Dublin. In the eastbound direction, the Express Lane zone extends 10 miles from Hacienda Drive in Pleasanton to Greenville Road in Livermore. Most of the segment from El Charro Road / Fallon Road to South Vasco Road has two Express Lanes, and the remaining portion is a single Express Lane. [40] The overall configuration is depicted in **Figure 2-13**. [41]

FIGURE 2-13:
CURRENT I-580 EXPRESS LANES NETWORK



Source: Alameda CTC

FREIGHT

ASSESSMENT SUMMARY:

I-580 IS THE KEY FREIGHT AND ECONOMIC CONNECTION BETWEEN THE BAY AREA AND THE CENTRAL VALLEY.

AIR QUALITY IN ALAMEDA COUNTY EQUITY COMMUNITIES IS DEGRADED BY POLLUTION FROM FREIGHT AND VEHICLE TRAFFIC IN THE CORRIDOR.

CORRIDOR NEED:

IMPROVE FREIGHT ACCESS TO PORT OF OAKLAND AND INDUSTRIAL AREAS AND SUPPORT TRANSITION OF THE INDUSTRY TO CLEAN FUELS.

The Bay Area is an import and export hub of regional, statewide, and national significance, handling both inbound containerized consumer goods and manufacturing components coming from overseas as well as outbound agricultural products from California bound for international markets. Alameda County is literally at the center of this activity, and I-580 is a critical corridor in the region's goods movement network because it helps connect major port infrastructure at the western end of the county (the Port of Oakland, Oakland International Gateway rail terminal, and the Oakland International Airport) with the warehouses, distribution centers, and long-distance highway and rail routes in the Central Valley.

The Port of Oakland is one of the top ten busiest container ports in the country, handling over 2.5 million Twenty-foot Equivalent Units (TEU) each year prior to the pandemic and 99 percent of all containerized goods in Northern California. The Oakland International Airport is home to West Coast hubs for both FedEx and UPS and is the 14th busiest cargo airport in the United States.[42] The western end of I-580 has a weight restriction that limits truck travel between Grand Avenue in Oakland and the San Leandro city limit. Trucks headed to and from freight destinations in northern Alameda County currently travel on I-880 and I-238 through Oakland and San Leandro to make the connection between these industrial areas and the Central Valley.

Truck volumes and travel patterns were analyzed as part of the Northern Alameda County Truck Access Management Plan (NACTAMP) study, which found that the Port of Oakland accounts for the greatest proportion of truck trips in Northern Alameda County (23 percent), and that 18 percent of truck trips between Northern Alameda County and destinations outside the east bay are traveling to or from Tracy and the Central Valley along I-580 near I-205. Limiting the analysis to only the truck traffic that leaves Alameda County altogether, 41 percent of truck trips generated by Oakland International

Airport and 46 percent of truck trips generated by the Port of Oakland utilize I-580 as their regional gateway.

Maps of truck origin and destination flows derived from StreetLight GPS data are presented in the next two figures. **Figure 2-14** portrays eastbound heavy-duty truck flows at a point just east of I-238 in San Leandro and **Figure 2-15** portrays westbound heavy-duty truck flows at a point just east of Vasco Road in Livermore, at the bottom of the Altamont Pass.

These figures do not fully represent activity associated with the Port of Oakland because the data set only captures the first destination/stop in the corridor for trucks westbound and the last destination/stop for trucks eastbound. Many trucks' first or last stop is at another location than the Port of Oakland, so the level of activity with that destination is underrepresented in the figures.

As shown in the figures, most of the truck trips at these two screenlines are headed to and from points in or beyond San Joaquin County, with more than 70 percent of all trucks passing through the I-238 interchange crossing via the Altamont Pass. Origins and destinations in the western half of the corridor are more dispersed, with a significant share in the markets in and beyond central and southern Alameda County. These trips are likely serving light manufacturing facilities, warehouses, and local businesses in these areas; these locations may also be intermediate stops for transloading and logistics operations that trigger the end of a GPS trace before the truck continues to its final destination.

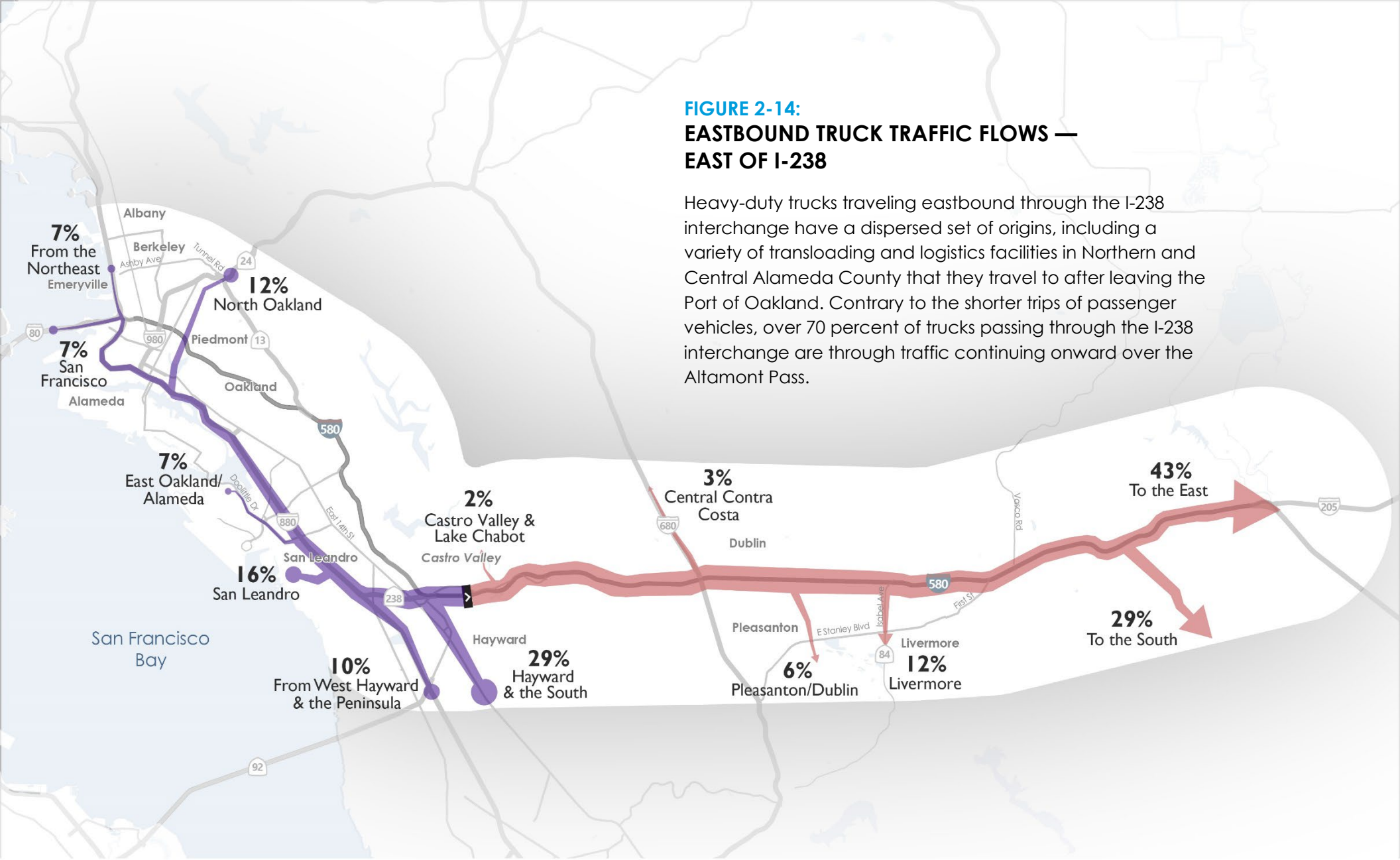
The high truck volumes in the Tri-Valley are often traveling in some of the slowest speed segments of I-580. **Figure 2-16** depicts Caltrans-reported annual average daily truck volumes at selected locations in the I-580 corridor. StreetLight data shows that most trucks traveling westbound on I-580 make their trips during the morning peak and the majority of eastbound trucks travel during the evening peak, precisely when commuters are also making these same movements. As a result, many trucks experience the slow travel speeds of these heavily congested times, and they do not have the option of using the Express Lanes to bypass congestion and delays.

As the economy continues to grow in the years ahead, it will likely become even more challenging to maintain an efficient and reliable freight network in the county. The 2020 CTP found that Bay Area international trade volumes are expected to grow to 159 million tons by 2040, an increase of over 140 percent from 2012 volumes. According to the federal Freight Analysis Framework, the tonnage of domestic goods traveling in the Bay Area is expected to be 40-70 percent higher than 2019 levels by 2050.

> "Most of the highway corridors in Alameda County experience high levels of peak-period congestion and poor reliability with particularly poor performance on segments of I-80, I-580, I-680, and I-880. While trucks generally try to avoid peak periods, the trips of trucks traveling on these corridors are long enough that it has become increasingly difficult to avoid the peak."
> – 2016 Alameda County Goods Movement Plan

FIGURE 2-14:
EASTBOUND TRUCK TRAFFIC FLOWS — EAST OF I-238

Heavy-duty trucks traveling eastbound through the I-238 interchange have a dispersed set of origins, including a variety of transloading and logistics facilities in Northern and Central Alameda County that they travel to after leaving the Port of Oakland. Contrary to the shorter trips of passenger vehicles, over 70 percent of trucks passing through the I-238 interchange are through traffic continuing onward over the Altamont Pass.



BART Station
Amtrak Station
ACE Station
Commuter Rail

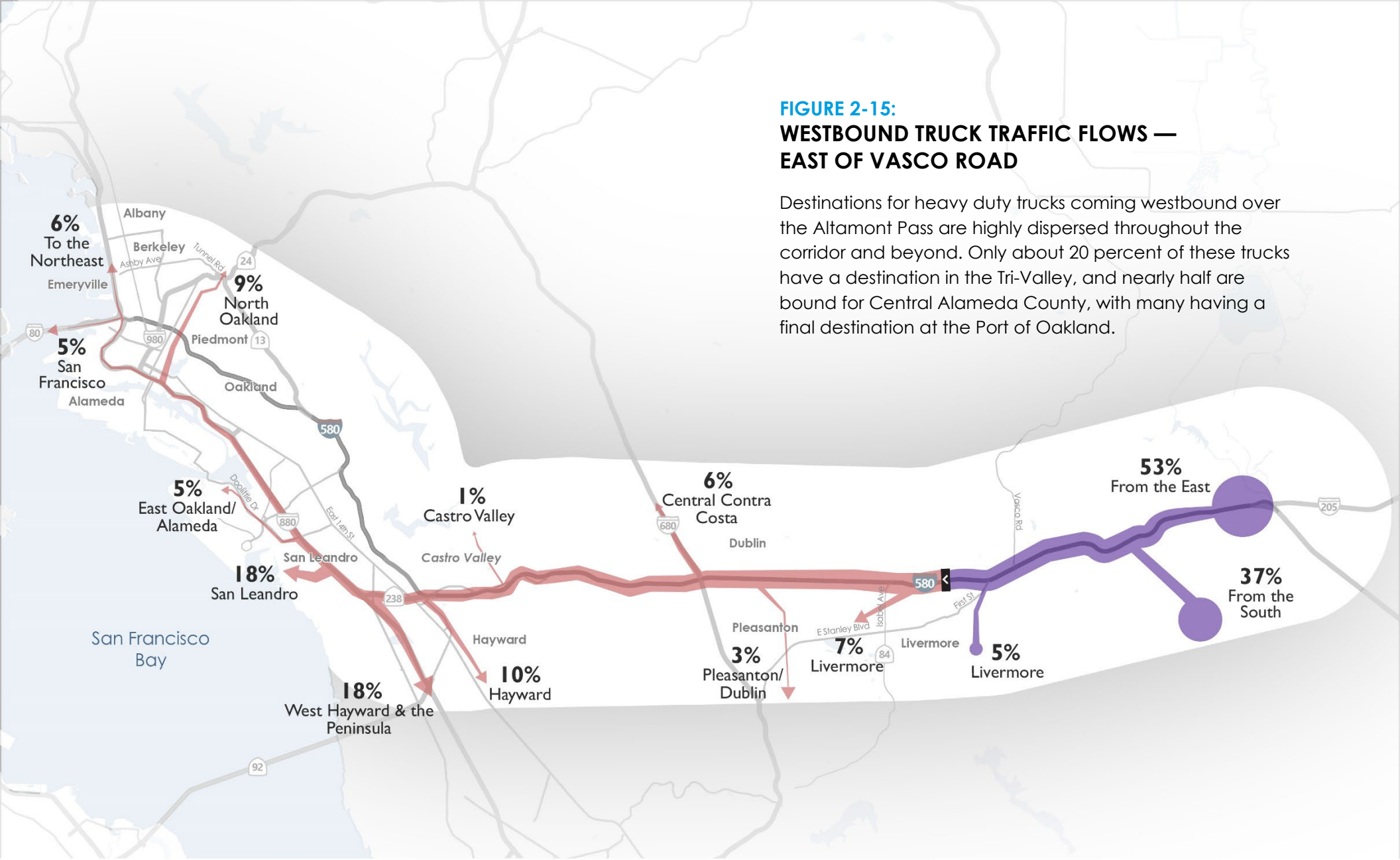
Approaches/Origins
Departures/Destinations
Screenline

Source: Streetlight, 2019.
Note: This figure represents over 90% of all heavy truck trips.

0 Miles 5

FIGURE 2-15:
WESTBOUND TRUCK TRAFFIC FLOWS — EAST OF VASCO ROAD

Destinations for heavy duty trucks coming westbound over the Altamont Pass are highly dispersed throughout the corridor and beyond. Only about 20 percent of these trucks have a destination in the Tri-Valley, and nearly half are bound for Central Alameda County, with many having a final destination at the Port of Oakland.



Source: Streetlight, 2019.
Note: This figure represents over 90% of all heavy truck trips.

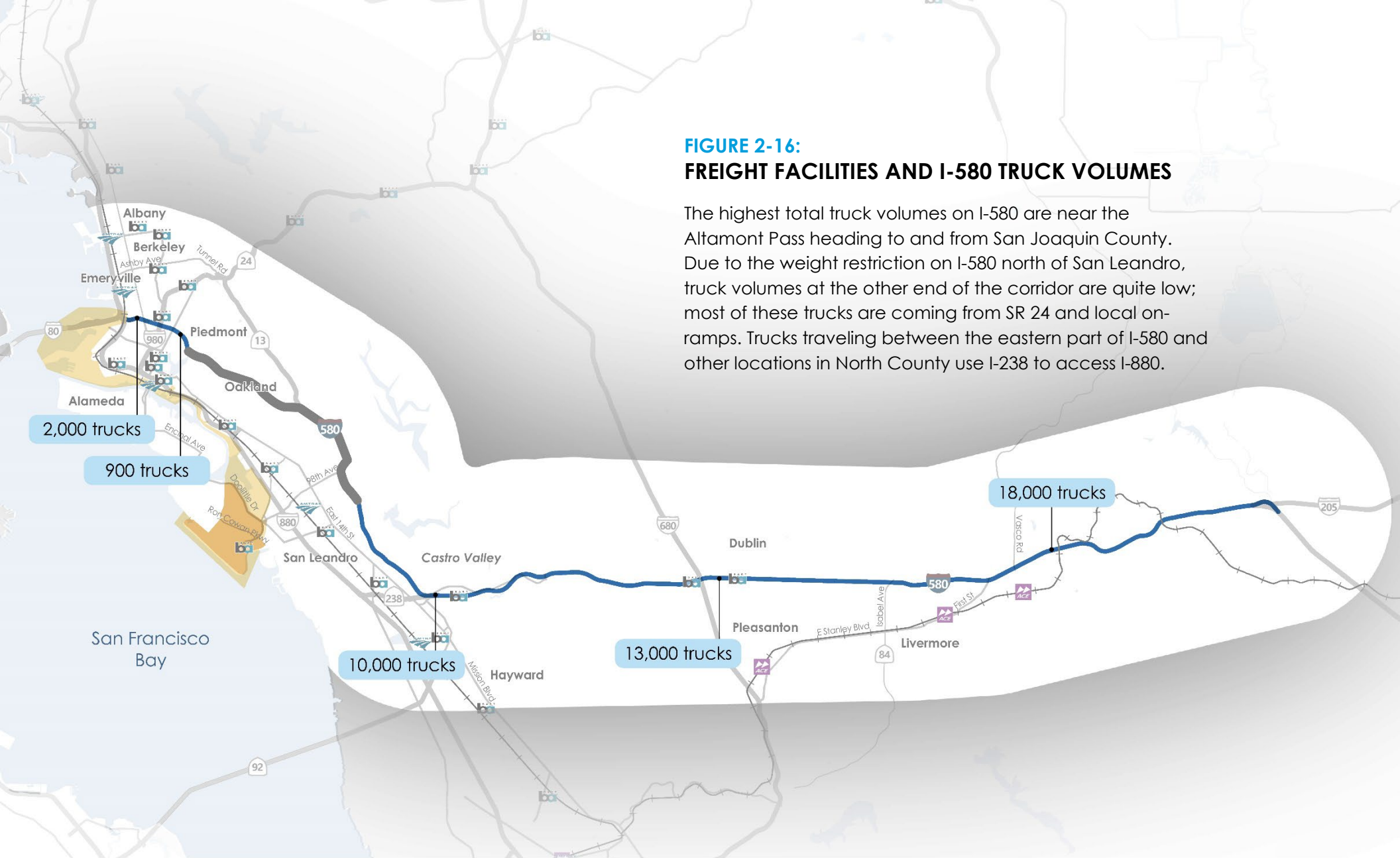


FIGURE 2-16:
FREIGHT FACILITIES AND I-580 TRUCK VOLUMES

The highest total truck volumes on I-580 are near the Altamont Pass heading to and from San Joaquin County. Due to the weight restriction on I-580 north of San Leandro, truck volumes at the other end of the corridor are quite low; most of these trucks are coming from SR 24 and local on-ramps. Trucks traveling between the eastern part of I-580 and other locations in North County use I-238 to access I-880.

Source: Caltrans 2020.

EQUITY

ASSESSMENT SUMMARY:

THE WESTERN HALF OF THE CORRIDOR INCLUDES NUMEROUS EQUITY COMMUNITIES WHOSE LOW-INCOME RESIDENTS TEND TO TAKE SHORTER TRIPS AND HAVE STRONG CONNECTIONS TO NORTHERN ALAMEDA COUNTY AND SAN FRANCISCO ACTIVITY CENTERS.

CORRIDOR NEED:

IMPLEMENT EQUITABLE PLANNING PROCESSES AND INVEST IN SOLUTIONS THAT ADDRESS NEEDS PROPOSED AND/OR PRIORITIZED BY EQUITY COMMUNITY RESIDENTS.

MAINTAIN AND ENHANCE ACCESS AND MOBILITY BETWEEN EQUITY COMMUNITIES AND MAJOR ACTIVITY CENTERS IN NORTHERN ALAMEDA COUNTY AND SAN FRANCISCO.

Identifying communities in Alameda County that have experienced underinvestment or have been disproportionately and negatively impacted by past transportation projects is a necessary first step towards prioritizing future investments that can begin to remedy these historical inequities.

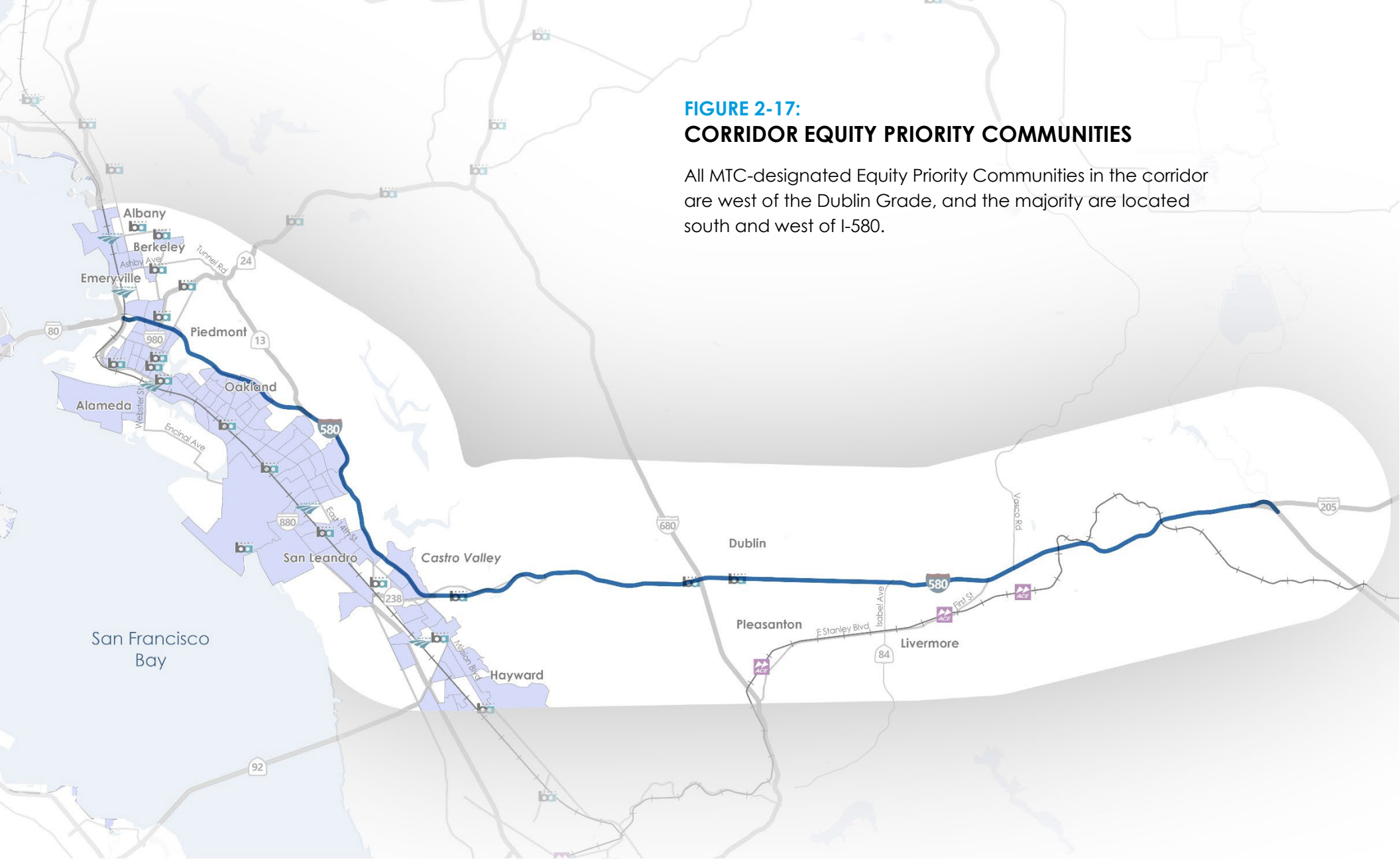
In the Bay Area, MTC designates census tracts with the highest levels of regional inequities as equity priority communities (EPCs). In Plan Bay Area 2050, the long- range transportation plan for the region, MTC defines EPCs as census tracts with at least 28 percent low-income residents and at least 70 percent minority residents, or tracts that meet the low-income threshold as well as three or more of the following:

- 12 percent or more residents with limited English proficiency
- 8 percent or more residents over age 75
- 15 percent or more zero-vehicle households
- 18 percent or more single-parent households
- 12 percent or more residents with disabilities
- 14 percent rent-burdened households

As shown in **Figure 2-17**, I-580 passes through or is immediately adjacent to numerous EPCs in the corridor. Based on the MTC definition, approximately 30 percent of Alameda County residents live in an EPC.[43] A total of 32 EPCs, about one third of the county total, are within the I-580 corridor. These areas are home to more than 166,000 residents, which is over 37 percent of the county's total equity community population.

FIGURE 2-17:
CORRIDOR EQUITY PRIORITY COMMUNITIES

All MTC-designated Equity Priority Communities in the corridor are west of the Dublin Grade, and the majority are located south and west of I-580.



BART Station
Amtrak Station
ACE Station
Commuter Rail
Equity Priority Communities

Source: MTC, 2021.

0 5 Miles

Residents of these communities bear the burdens of freeway traffic and congestion—including noise, pollution, and safety risks—even though many of the vehicles on I-580 come from outside their neighborhoods. As just one example, **Figure 2-18** shows the relative pollution burden in the corridor as calculated in the latest version of the CalEnviroScreen tool.

Many communities immediately adjacent to I-580 experience a relatively low pollution burden due to the significant amount of open space and residential areas in the western and central portions of the corridor. In contrast, neighborhoods along I-880 are the most heavily burdened parts of the county. This is partly due to existing weight restrictions on I-580 between Grand Avenue and San Leandro, which force all trucks traveling between I-580, the Port of Oakland, and nearby industrial facilities to divert to using I-880 instead. Revisions to the weight restrictions are not being considered within this CMCP, as they are the subject of a separate study effort.

Future investments in the corridor should be directed towards lessening these burdens by directly reducing the level of exposure with local input and context-sensitive design of future transportation projects in the area.

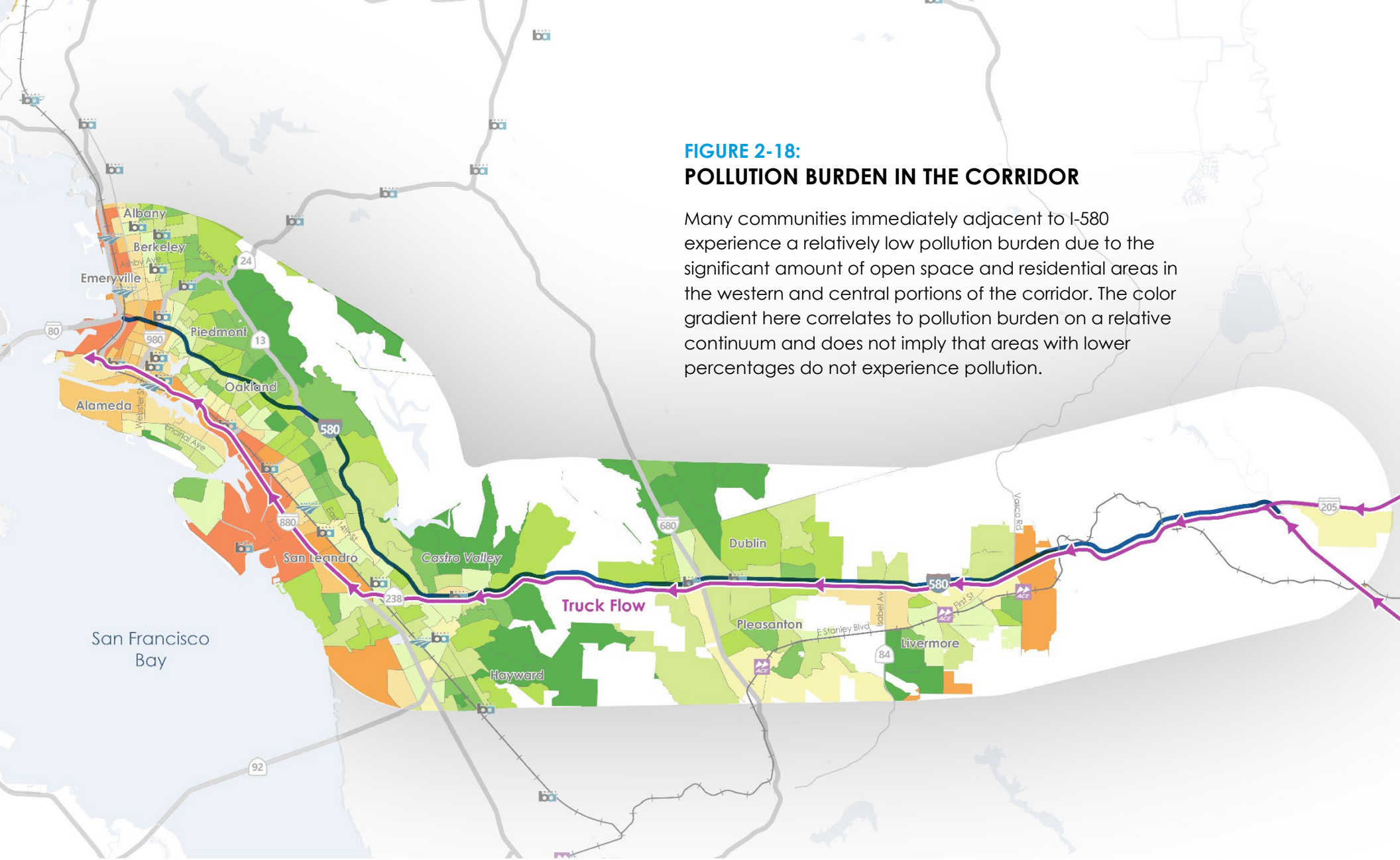


FIGURE 2-18:
POLLUTION BURDEN IN THE CORRIDOR

Many communities immediately adjacent to I-580 experience a relatively low pollution burden due to the significant amount of open space and residential areas in the western and central portions of the corridor. The color gradient here correlates to pollution burden on a relative continuum and does not imply that areas with lower percentages do not experience pollution.

Source: CalEnviroScreen 4.0.

Investments recommended by this Plan should also directly support the comparatively more local travel needs of equity communities. Based on analysis of travel data, low- to moderate-income households along the I-580 corridor tend to commute shorter distances compared to higher-income commuters, and most commute locally, within and to adjacent cities. In addition to these short-distance commute trips, there are also notable medium-distance commute markets for low- to moderate-income households between Northern Alameda County and San Francisco and between Northern Alameda County and Central Alameda County.

An example of these travel patterns is portrayed in **Figure 2-19**, which shows the origin location of work trips by automobile to the employment center in downtown Oakland. Most of the work trips originate in locations that are designated as equity communities. These findings are supported by analysis completed for the East Oakland Mobility Action Plan (EOMAP, 2022), which found that nearly 40 percent of driving trips originating in East Oakland were shorter than two miles, with 67 percent of trips staying in Oakland and 13 percent of trips bound for San Leandro. Over 90 percent of all trips originating in the plan study area stayed within Alameda County.

Despite the tendency to take shorter trips, previous outreach efforts with equity communities along the I-580 corridor revealed that most residents prefer to drive to access jobs, education, healthcare, and other daily needs. In East Oakland, over 70 percent of residents either drive alone or carpool to get to their destinations (EOMAP, 2022). Participants in the EOMAP outreach process said they want it to be easier to get to key destinations via car, because it is often faster and more direct than transit or other options and because poorly maintained streets create an uninviting environment for walking and biking. About a third of Central County EPC residents surveyed through the Alameda County Community-Based Transportation Plan (CBTP, 2020), indicated that driving in their neighborhood was problematic, either taking too long and being unreliable or often delayed because of traffic incidents or poor roadway conditions.

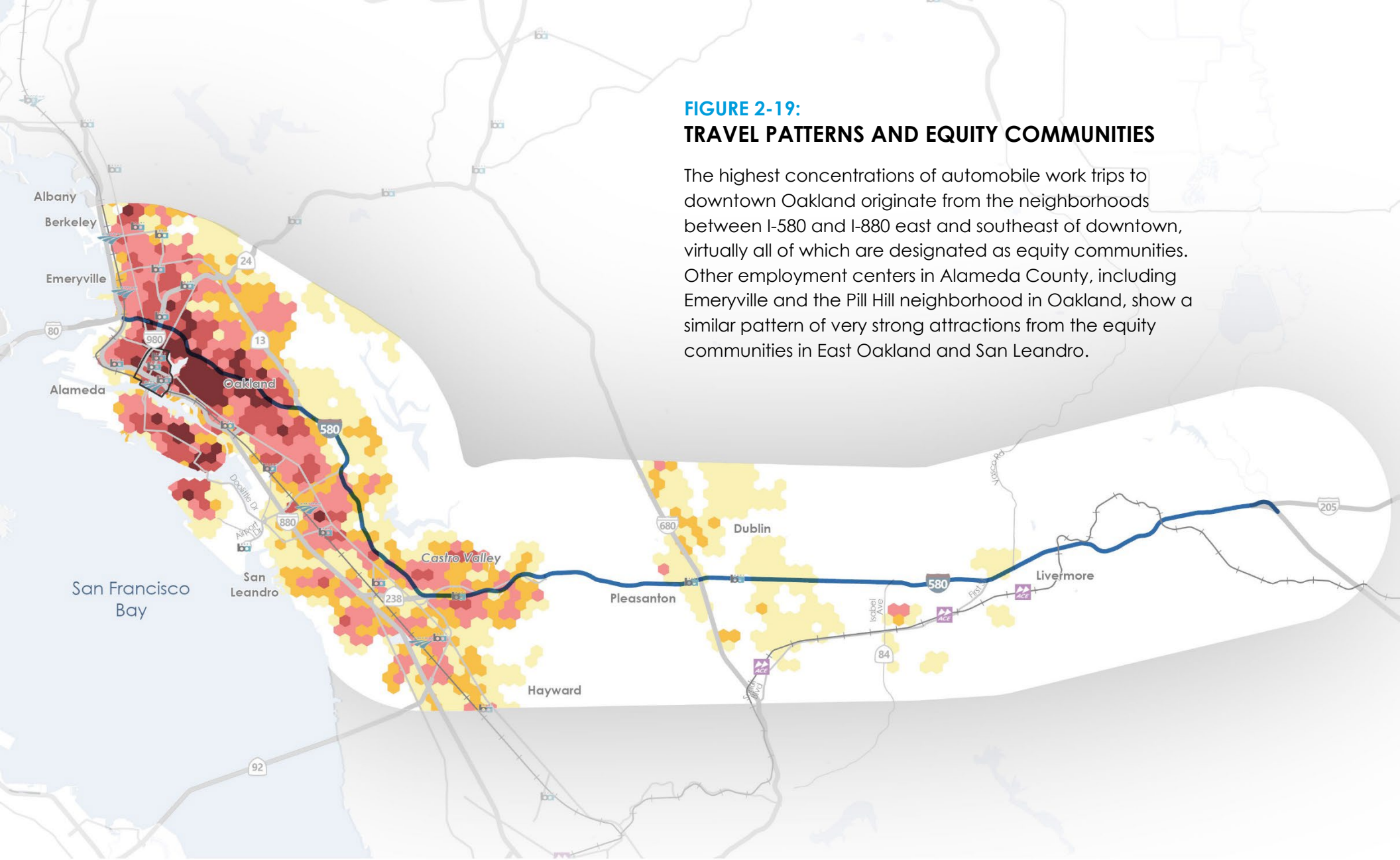
Although most EPC residents drive for most trips, many residents do rely on or are interested in using transit or other modes of transportation to get around. More than half of the Central County survey responses for the CBTP focused on transit, citing the relatively dispersed transit system compared to services in North County and a lack of frequent, coordinated service. There is also a need for improved access to amenities near transit stops, including bicycle and pedestrian access, improved wayfinding, secure bike parking, and electric bike charging facilities.

These driving, transit, and bicycle and pedestrian access needs were confirmed through a focus group with community-based organization (CBO) partners representing equity community residents along the I-580 corridor.

"To mitigate historic underinvestment in low-income communities and communities of color, Alameda CTC is committed to prioritizing funding to provide safe, accessible, and affordable mobility for these communities."
– 2020 Countywide Transportation Plan

FIGURE 2-19:
TRAVEL PATTERNS AND EQUITY COMMUNITIES

The highest concentrations of automobile work trips to downtown Oakland originate from the neighborhoods between I-580 and I-880 east and southeast of downtown, virtually all of which are designated as equity communities. Other employment centers in Alameda County, including Emeryville and the Pill Hill neighborhood in Oakland, show a similar pattern of very strong attractions from the equity communities in East Oakland and San Leandro.



BART Station
Amtrak Station
ACE Station
Commuter Rail
Downtown Oakland

Auto Work Trips to Downtown Oakland
1 - 5
5 - 10
10 - 25
25-50
50+

Source: LEHD 2019.
Note: each hexagon is about 0.12 square miles.

Miles
0
5

TRANSIT NETWORK AND CAPACITY

ASSESSMENT SUMMARY:

MOST TRAVELERS ON THE CORRIDOR HAVE ACCESS TO TRANSIT SERVICE, BUT A FEW KEY GAPS IN THE NETWORK EXIST. THOSE GAPS AND BART CAPACITY CONSTRAINTS AND SERVICE ORIENTATION LIMIT MODE SHIFT POTENTIAL.

CORRIDOR NEED:

CLOSE GAPS IN HIGH QUALITY TRANSIT SERVICE FOR UNDERSERVED MARKETS. INCREASE CAPACITY ON BART AND ALIGN SERVICE WITH MARKETS TO ENCOURAGE MODE SHIFT.

Transit service in the corridor is provided by two rail and six bus systems, with levels of service appropriate to the land use and demographic context in most communities. As shown in **Figure 2-20** and **Figure 2-21**, the combined frequency of bus and rail service is high to medium in the more urban parts of the corridor where households are more likely to not have a car. However, gaps in high quality service exist in Castro Valley, Central County, and the Tri-Valley where the combined frequency of bus and rail service is generally low.

While transit service is reasonably matched to the land use and demographics for most communities in the corridor, there are areas with large enough flows of travel that warrant additional transit service to encourage mode shift. As described previously, most travel in the corridor is to and from neighboring areas rather than along the full length of the corridor, suggesting that any new or expanded transit services should be targeted at filling those gaps in the network that align with areas of high travel demand.

In the western half of the corridor, the Transit Assessment identified several specific links that warrant further exploration, such as the market for travel between Castro Valley and downtown Oakland, and improved transbay services from Park Boulevard and 14th Avenue in the San Antonio/Ivy Hill/Cleveland Heights neighborhoods and possibly Fruitvale, High Street, or 98th Avenue as well.

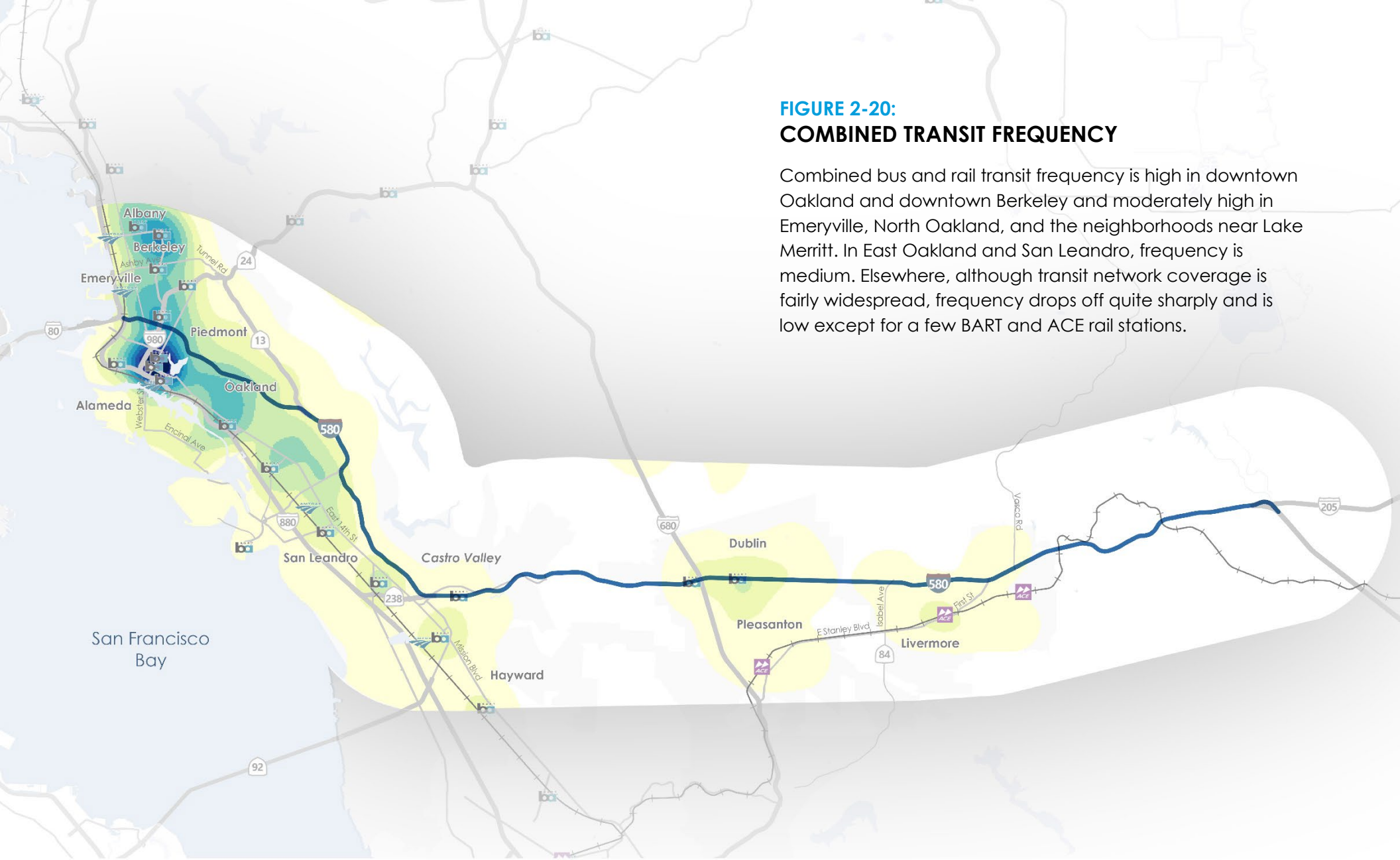
In the Tri-Valley, communities are not well connected by transit over the Altamont pass to the communities in Northern San Joaquin County. More than 40 percent of drivers traveling westbound over the pass in the morning are bound for the Tri-Valley, but there are currently low levels of transit service to make this trip. Existing transit services are time-intensive with a few access points provided on either side of the pass. There is a need to improve this connection with higher quality transit to entice more travelers to shift modes.

BART service and routing tends to prioritize traditional commute patterns into and out of San Francisco at the expense of intra-East Bay travel and with lowest frequencies outside of peak hours. A notable example is that transfers at

Bay Fair Station are currently optimized for travelers changing from the Orange Line (Fremont-Richmond) to the Green Line (to San Francisco), which bypasses downtown Oakland. Passengers who are traveling from Blue Line stations in Dublin/Pleasanton or Castro Valley to downtown Oakland must wait 12 extra minutes between trains, which makes their travel times equivalent to traveling to downtown San Francisco, despite the shorter distance.

FIGURE 2-20:
COMBINED TRANSIT FREQUENCY

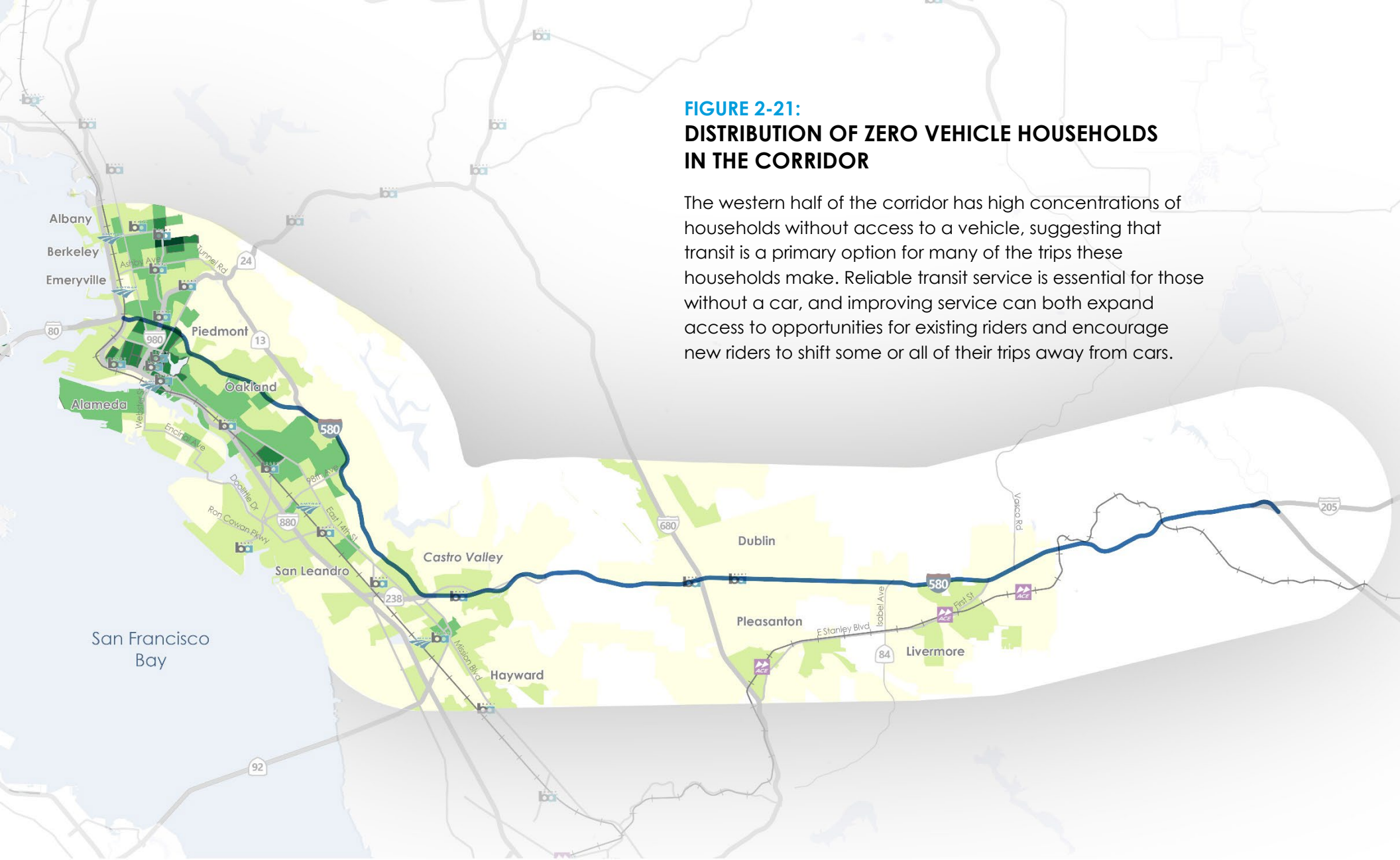
Combined bus and rail transit frequency is high in downtown Oakland and downtown Berkeley and moderately high in Emeryville, North Oakland, and the neighborhoods near Lake Merritt. In East Oakland and San Leandro, frequency is medium. Elsewhere, although transit network coverage is fairly widespread, frequency drops off quite sharply and is low except for a few BART and ACE rail stations.



Source: GTFS, 2022.

FIGURE 2-21:
DISTRIBUTION OF ZERO VEHICLE HOUSEHOLDS IN THE CORRIDOR

The western half of the corridor has high concentrations of households without access to a vehicle, suggesting that transit is a primary option for many of the trips these households make. Reliable transit service is essential for those without a car, and improving service can both expand access to opportunities for existing riders and encourage new riders to shift some or all of their trips away from cars.



BART Station
Amtrak Station
ACE Station
Amtrak & ACE Rail

Percent Zero Vehicle Households
- 6% or less
- 6.1% - 14%
- 14.1% - 29%
- 29.1% - 54%
- 54.1% or more

Source: MTC, 2021.

0 5 Miles

TRANSIT ACCESS AND PERFORMANCE

ASSESSMENT SUMMARY:

EVEN IN AREAS WELL-SERVED BY TRANSIT WITH HIGH TRANSIT FREQUENCIES, TRAVELERS CHOOSE TO DRIVE TO MOST DESTINATIONS FOR CONVENIENCE AND TRAVEL TIME BENEFITS.

CORRIDOR NEED:

IMPROVE TRANSIT ACCESS, SPEED, RELIABILITY, AND SAFETY.

Despite comparatively high route coverage and service levels for many travel markets in the I-580 corridor, transit does not have a high mode share except for a select few Transbay markets, and even the mode shares on the best bus performing routes within the Study Area are low relative to other corridors in Alameda County. Prior to the pandemic, during the AM peak period at the MacArthur Maze, single-occupancy vehicles (SOVs) accounted for about 92 percent of people using I-580, while HOV 3+ and buses each accounted for only 4 percent of person trips.

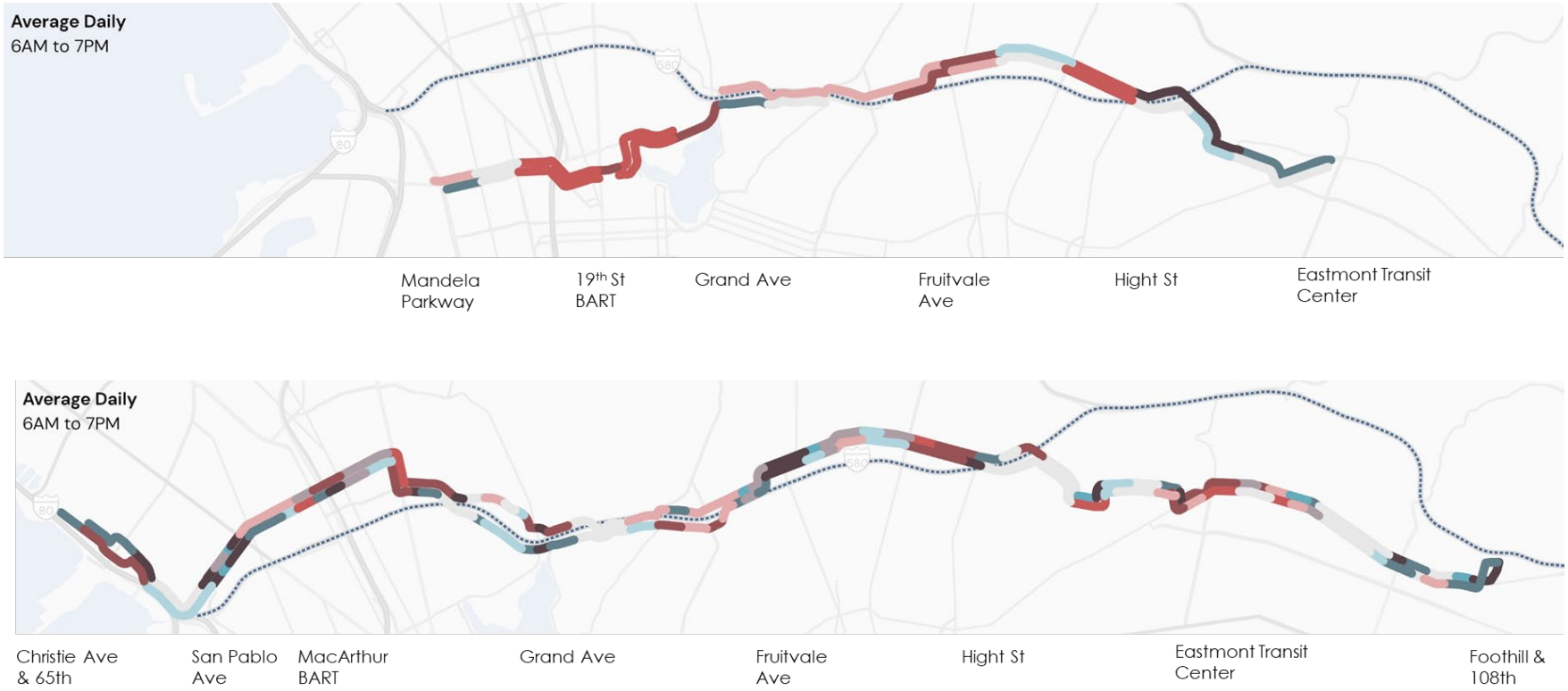
Specific conditions that contribute to the low transit mode share are slow and unreliable speeds for bus travel and barriers to transit station access in many locations. Unlike most other interstate corridors in Alameda County, BART is not easily accessible for many corridor residents, particularly those living in the densely populated western half of the I-580 corridor. There are six BART stations in Oakland that are located a mile or more from the corridor, requiring a bus connection or other mode to take rail transit—this is not a viable option for many of the local travel market trips. Bus service in the corridor generally travels in mixed-flow traffic without effective signal timing, so it can take a long time to reach employment centers and other activities on transit. Improved bus service levels and high-quality bus connections to BART could help to increase overall transit use along the corridor.

LOCAL BUS SPEED AND RELIABILITY

Many of the local-serving transit routes in the western half of the corridor experience unreliable and slow travel speeds. Analysis of performance data found a combination of low speeds and reliability on the two primary routes that parallel I-580 along MacArthur Boulevard as shown in **Figure 2-22**.

Bus ridership on these local-serving routes could potentially be increased through access upgrades and faster travel times. Line 57 has a very dense stop spacing and a high proportion of stops with barriers to pedestrian access that should be reviewed for potential opportunities for improvement. In its dual role as both a Local and a Transbay route, the NL has very long run times, and reliability for local riders can be hampered by congestion and operational issues on the San Francisco – Oakland Bay Bridge and approaches segment.

FIGURE 2-22:
LOCAL BUS SPEED AND RELIABILITY – AC TRANSIT NL ROUTE AND LINE 57



In the eastern portion of the corridor, local bus service is provided by the Livermore Amador Valley Transit Authority (LAVTA). Prior to the pandemic, the agency served approximately 8,000 riders per weekday, with over half of its ridership using two rapid routes that connect to the Dublin/Pleasanton BART station.[44] Ridership decreased during the pandemic but has been steadily returning. In FY2022-23, total passengers on LAVTA's fixed-route services reached 69 percent of FY2018-19 levels.[45] By mid-2024, LAVTA will offer fixed-route service on nine local routes, two rapid routes, and three express routes. Thirteen of these routes connect to at least one BART or ACE station in the I-580 corridor, providing some connectivity for long-distance trips.[46] Improvements to frequency and schedule coverage may help residents use transit for more of their shorter trips as well.

TRANSBAY BUS SPEED AND RELIABILITY

The Plan includes a focus on Transbay opportunities because these bus lines coincide with the most congested segments of I-580 and serve the highest density areas of the corridor presenting the highest mode shift potential, and MTC is actively working on extending the San Francisco-Oakland Bay Bridge approach carpool lane eastward to help buses travel faster. These routes also experience slow speeds and lack of reliability due to operating in the congested traffic conditions shown on **Figure 2-22** and circuitous routing to freeway access points. One symptom of this dynamic is the relatively low AM peak period utilization of the Transbay routes in the corridor – several routes are below 50 percent and a few more are below 75 percent as shown in **Table 2-3**.

Ridership on these routes could be improved while also improving the experience of existing customers through potential operational and routing adjustments. Examples include more direct routing through downtown Oakland for the Line NL and better access to and from I-580 for Lines C and CB. Route restructuring to simplify the operating pattern could improve reliability for the NX group of lines and the NL. More significant gains in ridership could be possible with major infrastructure improvements that would make the bus service more time-competitive with BART, such as the development of a managed lane facility or a dedicated busway in the western half of the corridor connecting to the priority HOV access lane to the Bay Bridge.

Table 2-3: Transbay Ridership and Capacity Utilization

AC Transit Route	Daily Transbay Riders	AM Peak Riders	AM Peak Capacity Utilization
NX4	390	197	91%
NX3	350	154	71%
NX2	270	-	-
V	760	388	108%
NX	310	283	71%
NX1	190	-	-
B	280	89	41%
P	940	328	114%
E	400	135	47%
C	440	227	79%
CB	280	137	76%
NL	3,120	467	86%

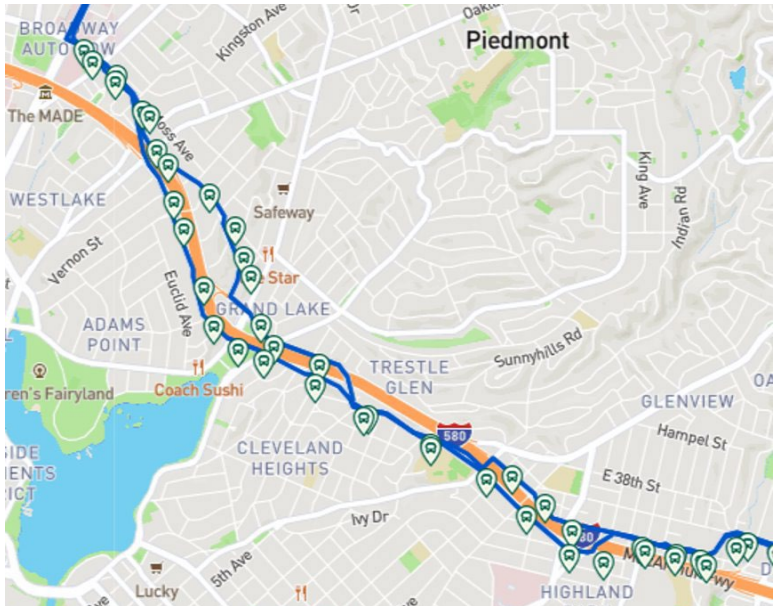
Source: 2019 data from AC Transit. [47]

BARRIERS TO BUS STOP ACCESS

The physical size and scale of I-580 creates extra challenges for those trying to access transit services in the corridor. The

extra travel distance and interactions with vehicles traveling at high speeds can discourage people from choosing transit even when it might otherwise meet their needs. As just one example, the Transit Needs Assessment found that I-580 poses barriers to accessing Line 57 stops, particularly in segments where the bus service operates on different sides of the freeway in each direction, as shown below in **Figure 2-23**.

FIGURE 2-23:
TRANSIT ACCESS BARRIERS NEAR I-580—LINE 57



BARRIERS TO RAIL STATION ACCESS

Access limitations also affect the relative ease of using rail transit at several locations in the corridor. To illustrate this point, rail stations in the Study Area were analyzed to see which nearby areas could be accessed by bicycle within a ten-minute travel time; this area is known as the "bike shed" for the station. Maps of the bike sheds for the rail stations in the Study Area are presented in **Figure 2-24** (Oakland), **Figure 2-25** (San Leandro and Castro Valley), and **Figure 2-26** (Tri-Valley). As can be seen across the three maps, some rail stations have very symmetrical bicycle access from all directions, while others have areas that are physically very close to a station but not within the bike shed. Factors affecting the size and shape of bike sheds include disconnected street grids, surrounding travel and roadway conditions that may require a bicyclist to dismount and walk to travel safely, and I-580 itself acting as a barrier. The same barriers likely challenge those walking to the station. These constraints make walking and biking to transit less attractive and feasible, even for trips that are not physically far from the station.

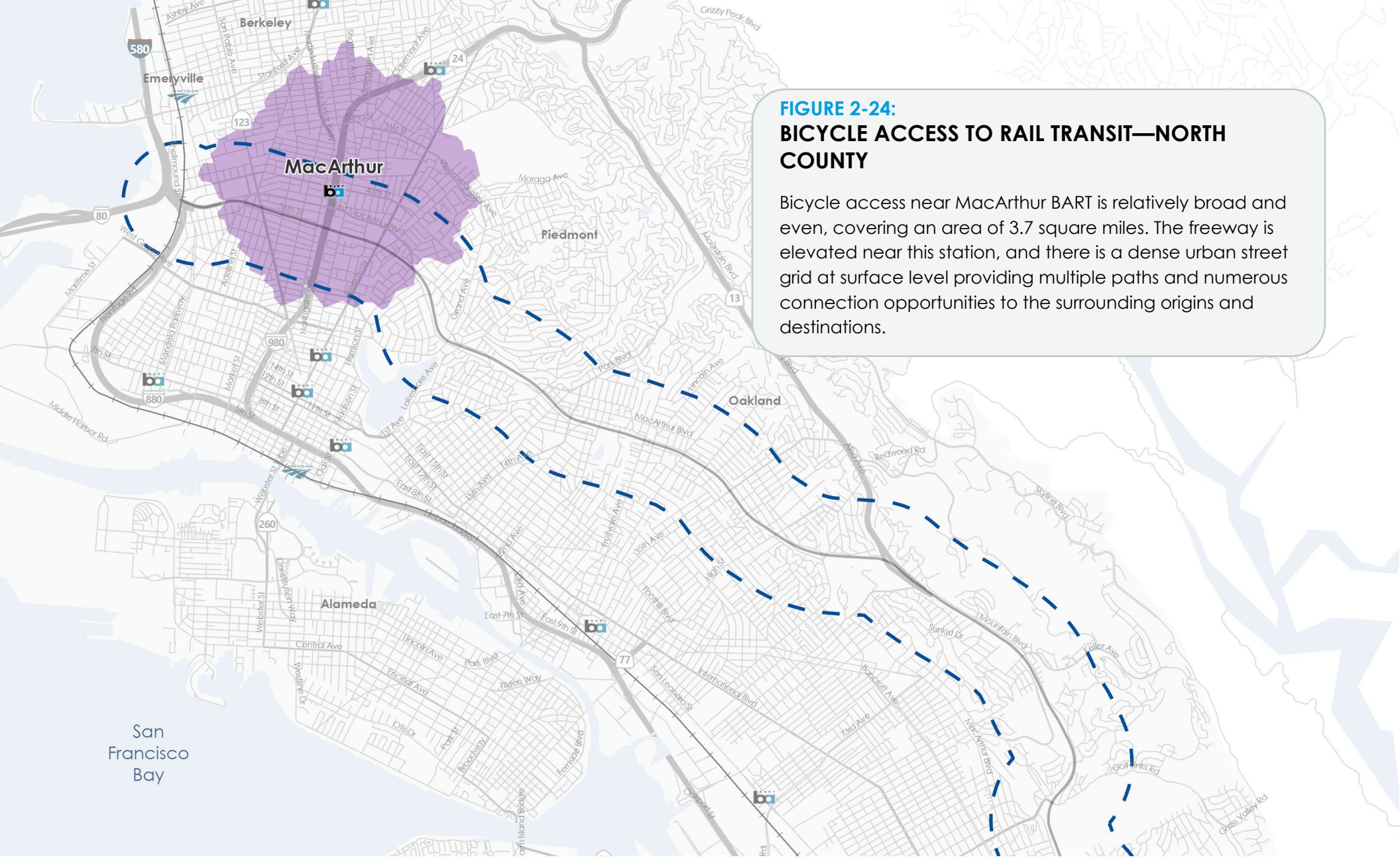


FIGURE 2-24:
BICYCLE ACCESS TO RAIL TRANSIT—NORTH COUNTY

Bicycle access near MacArthur BART is relatively broad and even, covering an area of 3.7 square miles. The freeway is elevated near this station, and there is a dense urban street grid at surface level providing multiple paths and numerous connection opportunities to the surrounding origins and destinations.

Source: Fehr & Peers, 2022

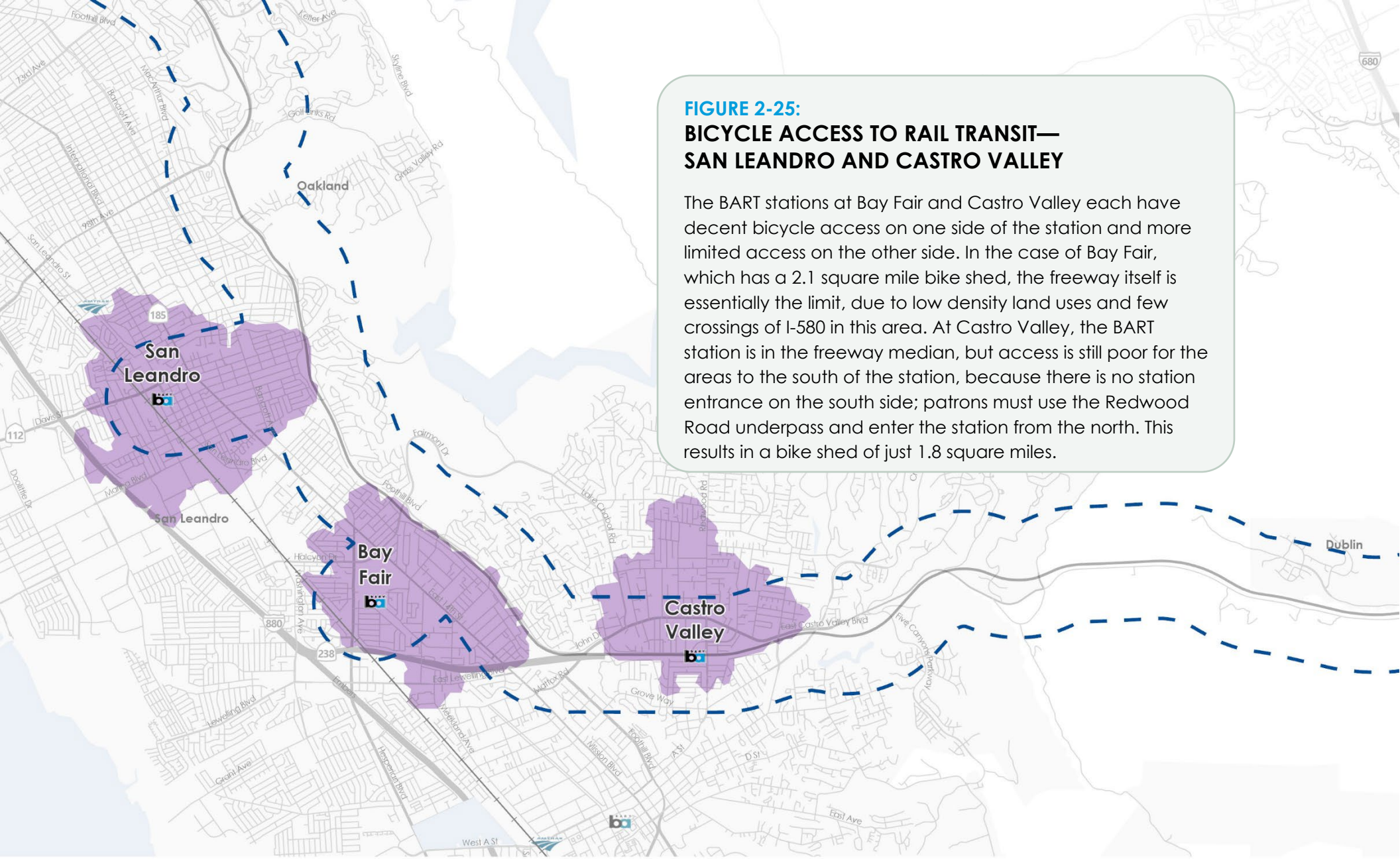


FIGURE 2-25:
BICYCLE ACCESS TO RAIL TRANSIT— SAN LEANDRO AND CASTRO VALLEY

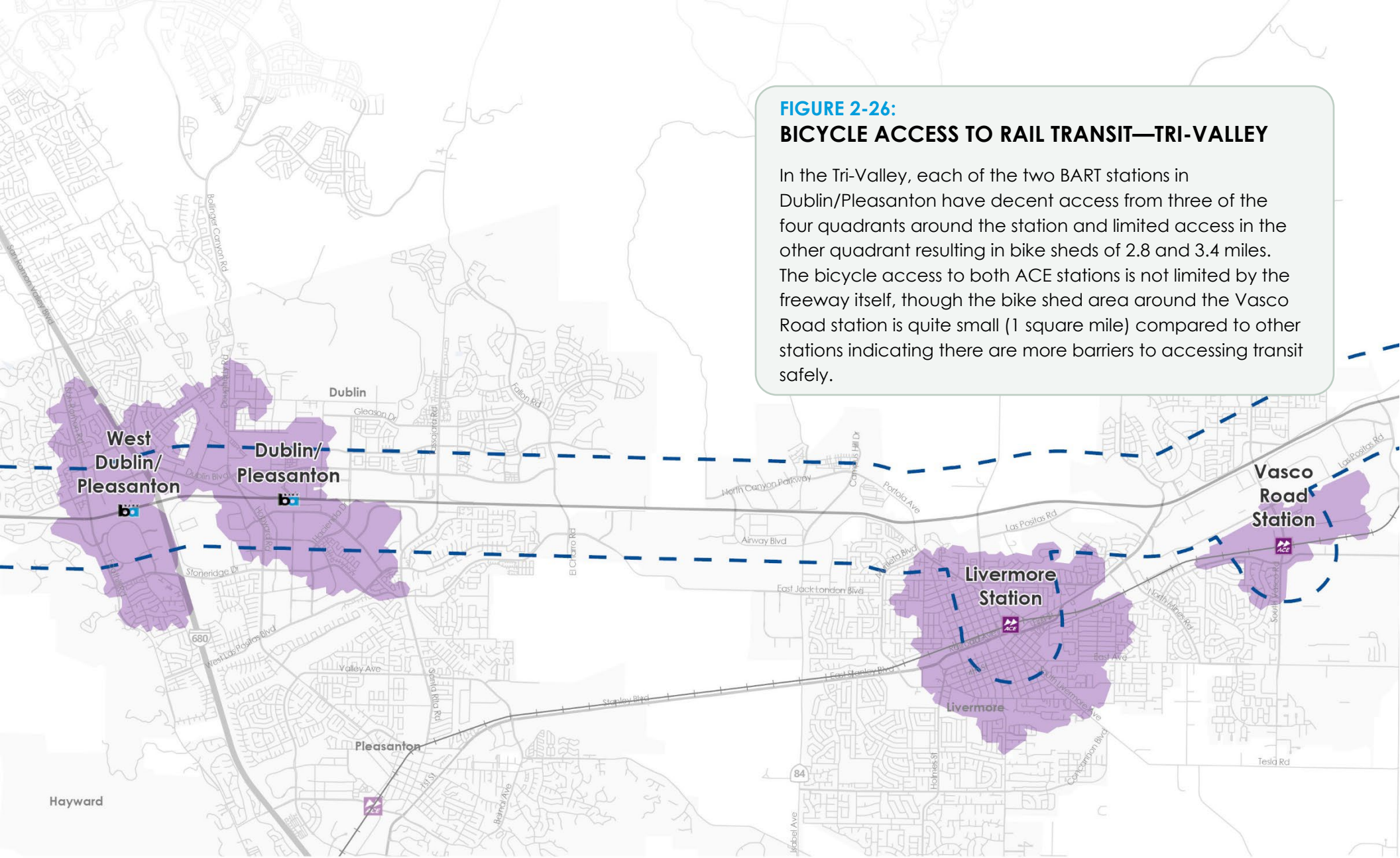
The BART stations at Bay Fair and Castro Valley each have decent bicycle access on one side of the station and more limited access on the other side. In the case of Bay Fair, which has a 2.1 square mile bike shed, the freeway itself is essentially the limit, due to low density land uses and few crossings of I-580 in this area. At Castro Valley, the BART station is in the freeway median, but access is still poor for the areas to the south of the station, because there is no station entrance on the south side; patrons must use the Redwood Road underpass and enter the station from the north. This results in a bike shed of just 1.8 square miles.

Source: Fehr & Peers, 2022

FIGURE 2-26:

BICYCLE ACCESS TO RAIL TRANSIT—TRI-VALLEY

In the Tri-Valley, each of the two BART stations in Dublin/Pleasanton have decent access from three of the four quadrants around the station and limited access in the other quadrant resulting in bike sheds of 2.8 and 3.4 miles. The bicycle access to both ACE stations is not limited by the freeway itself, though the bike shed area around the Vasco Road station is quite small (1 square mile) compared to other stations indicating there are more barriers to accessing transit safely.



Source: Fehr & Peers, 2022

Study Area

BART Station

Amtrak Station

ACE

10-min Bike Sheds from Regional Rail

0 2 Miles

Travel Demand Management in the I-580 Corridor

Transportation demand management (TDM) strategies can help different types of travelers shift away from SOVs and towards more sustainable modes such as transit and carpooling. TDM strategies typically focus on reducing or removing common barriers to choosing a mode other than driving alone, such as cost, travel time, and/or convenience. Examples of different TDM strategies currently in use in the I-580 corridor are provided below.

Transit Strategies:

- **AC Transit EasyPass** is a program where employers and other East Bay institutions can arrange to pay for bus passes for their members that provide unlimited rides, often at no cost to the pass-holder.
- **Alameda CTC Student Transit Pass Program** provides free bus transit passes for eligible students at participating public middle schools and high schools in Alameda County. The program served over 16,000 students in the 2021-22 school year.
- **LAVTA "Try Transit" program** gives all students free access to their Wheels bus service for the first two weeks of each school year to help encourage students to become regular transit riders.

Ridesharing Strategies:

Carpooling and Vanpooling can save time compared to driving alone when there are convenient meeting points and dedicated lanes that offer a faster travel time for HOVs. There are eight park-and-ride facilities within the Study Area, all located within or near the interstate right of way, but large portions of the corridor lack managed lanes that might encourage higher rates of carpooling.

Casual Carpool is an informal type of carpooling that primarily occurs in the transbay portion of the I-580 corridor, due to the bridge toll discount and preferential lanes available to HOVs at the Bay Bridge Toll Plaza. Pre-COVID, about 1,350 daily casual carpools on I-580 served 4,000 people during each AM peak period; 70 percent of trips were via eight pickup locations along I-580 itself while 30 percent of the trips were via four pickup locations along SR 24.[48]

Employer Shuttles have become a common workplace benefit for large employers in the Bay Area, and many workers now have the option of a dedicated coach service directly to their job site, often with Wi-Fi and other amenities on board.

Other Supportive Strategies:

Alameda CTC Guaranteed Ride Home Program reimburses workers who choose not to drive alone to their job site for the cost of emergency rides they may need when their planned commute mode is not available.

Remote Work Arrangements became much more common during the pandemic, either part-time or full-time. Workers who skip commuting one or more days a week help reduce congestion during peak hours. Preliminary estimates by the Bay Area Council suggest that commuting volumes may settle at about 30 percent below their pre-pandemic levels, although regional planners anticipate continued economic growth over the long run, which will gradually add more workers back to the transportation system.[49]

BICYCLE AND PEDESTRIAN SAFETY & ACCESS

ASSESSMENT SUMMARY:

THE ACTIVE TRANSPORTATION CONTINUOUS, HIGH-QUALITY BIKE NETWORK WITHIN THE CORRIDOR IS LIMITED AND FRAGMENTED, AND I-580 CREATES A MAJOR BARRIER TO BICYCLE AND PEDESTRIAN CIRCULATION.

CORRIDOR NEED:

CREATE SAFER AND MORE CONNECTED BICYCLE AND PEDESTRIAN INFRASTRUCTURE THROUGHOUT THE CORRIDOR.

The "everywhere-to-everywhere" travel pattern and lack of direction towards a major focal point in the corridor makes it harder to coordinate transit and carpools as alternatives to driving. However, investments to support pedestrians, people on bicycles, and other micromobility users can both expand access to transit as well as provide additional travel options for many users who may currently avoid these modes due to safety concerns.

The Alameda CTC All Ages and Abilities Policy, approved in December 2022, sets the highest expectation for safety and comfort on the Countywide Bikeways Network (CBN) to ensure that people of all ages and physical abilities are safe and feel safe walking, biking, rolling, and riding transit. The policy is implemented using a Design Guide so that future improvements on the 400-mile CBN will be accessible to all. [50] The policy and guide encourage the use of separated infrastructure for people walking and biking and the addition of other treatments, such as lighting and visibility improvements, to improve safety outcomes, particularly for vulnerable road users. These investments will improve the ease and comfort of using non-motorized modes, which helps more people consider these options for more of their trips.

Maps of the existing All Ages and Abilities Bicycle Network within the I-580 corridor are portrayed in **Figure 2-27** (Oakland), **Figure 2-28** (Castro Valley and Dublin Grade), **Figure 2-29** (Tri-Valley), and **Figure 2-30** (Altamont Pass). As can be seen in the figures, the current network along the corridor is most concentrated in Emeryville, Oakland, and Dublin, while bikeshare stations are limited to the northernmost end of the corridor northwest of Lake Merritt. The maps also show the extent of large sections of the corridor that do not have any high-quality routes available, and crossings of I-580 are few and far between. Travelers wanting to cross the freeway are often forced to travel extra distances to reach a freeway crossing, sometimes out of their desired direction of travel, which adds to their overall travel time. Even when crossings are available, they may have safety risks such as fast-moving traffic, limited separation, poor condition of sidewalks and bike lanes, or insufficient lighting and low visibility.

CALTRANS BICYCLE AND PEDESTRIAN ANALYSIS

In the past several years, Caltrans District 4 has inventoried the needs of pedestrians and bicyclists and prioritized locations for capital improvements that will support walking and biking near state-owned highway facilities in the Bay Area. The 2018 Caltrans District 4 Bike Plan uses the concept of "permeability" to describe the extent to which people can move across the freeway at their desired location without significant out-of-direction travel or undue safety burdens. Specifically, "where more low-stress crossings are available, the highway network is more permeable — it is easier for bicyclists to cross."[51]

The Caltrans District 4 Bike Plan has identified a total of 11 priority locations in the I-580 corridor for bicycle-related improvements. The two top tier recommendations near I-580 include interchange reconstructions at Castro Valley Boulevard in Castro Valley and Santa Rita Road in Dublin/Pleasanton.[52]

Similarly, the Caltrans District 4 Pedestrian Plan identified 18 locations in the I-580 corridor where pedestrian improvements are recommended. The highest priority improvements in the corridor from the Pedestrian Plan are the crossings at Harrison Street, 35th Avenue, and High Street in Oakland, and Strobridge Road in Castro Valley. Corridor-based pedestrian improvements are also recommended for two state highway facilities that connect to I-580, including Highway 123 (San Pablo Avenue) in Emeryville and Highway 84 (Isabel Avenue) in Livermore.[53]

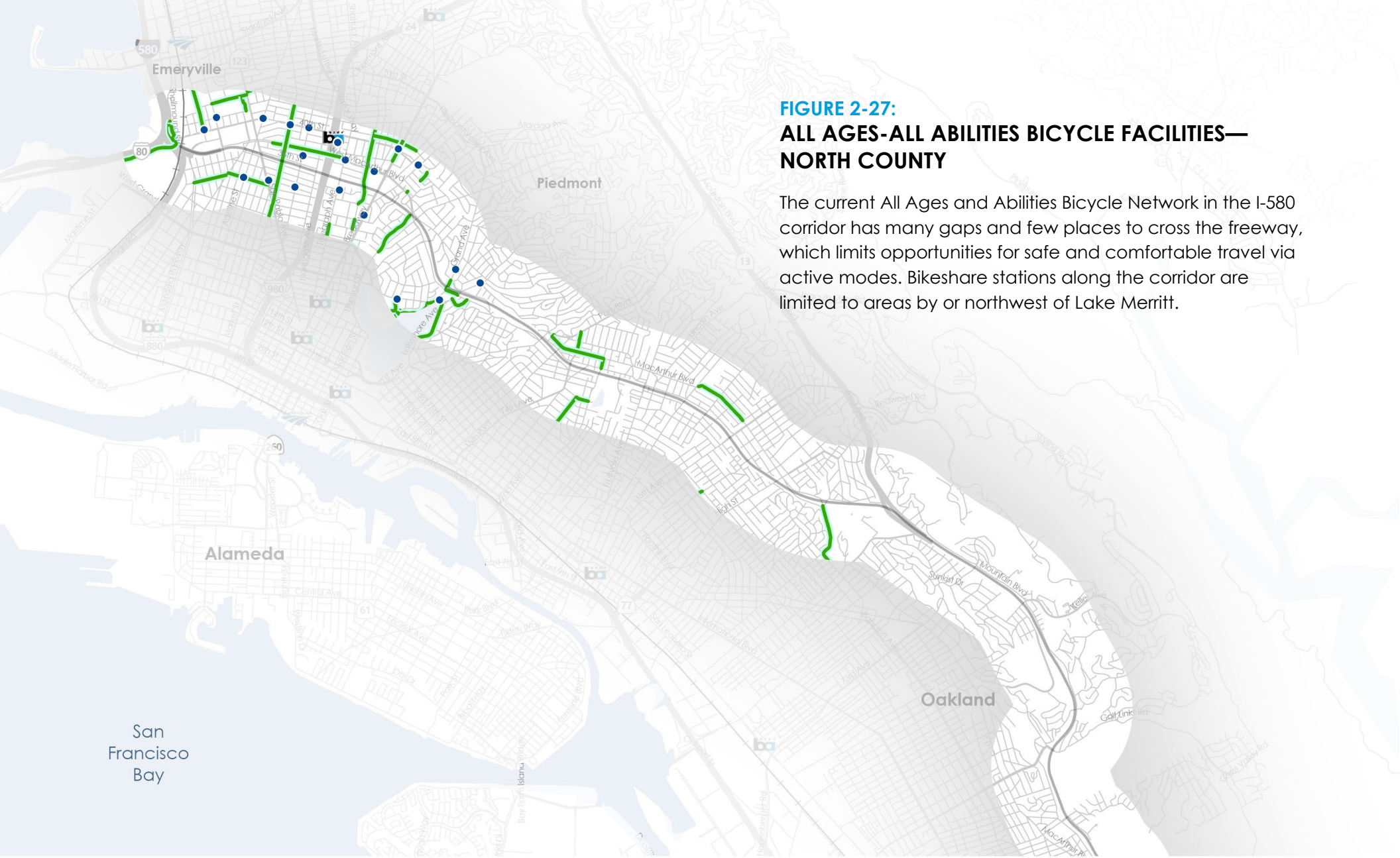


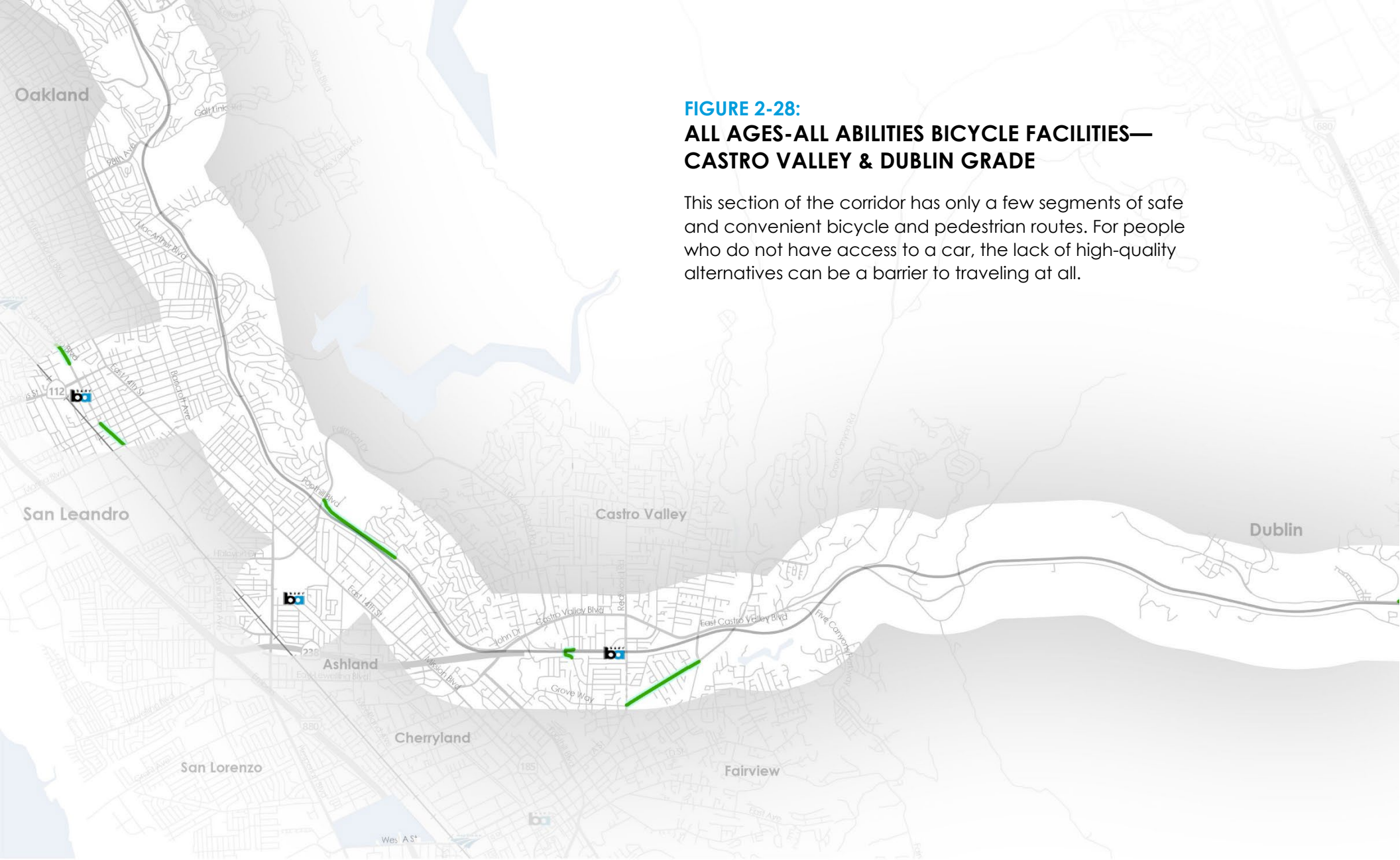
FIGURE 2-27:
ALL AGES-ALL ABILITIES BICYCLE FACILITIES—NORTH COUNTY

The current All Ages and Abilities Bicycle Network in the I-580 corridor has many gaps and few places to cross the freeway, which limits opportunities for safe and comfortable travel via active modes. Bikeshare stations along the corridor are limited to areas by or northwest of Lake Merritt.

Source: Alameda CTC Countywide Active Transportation Plan, 2019. Lyft Bikes and Scooters, LLC 2024

FIGURE 2-28:
ALL AGES-ALL ABILITIES BICYCLE FACILITIES—CASTRO VALLEY & DUBLIN GRADE

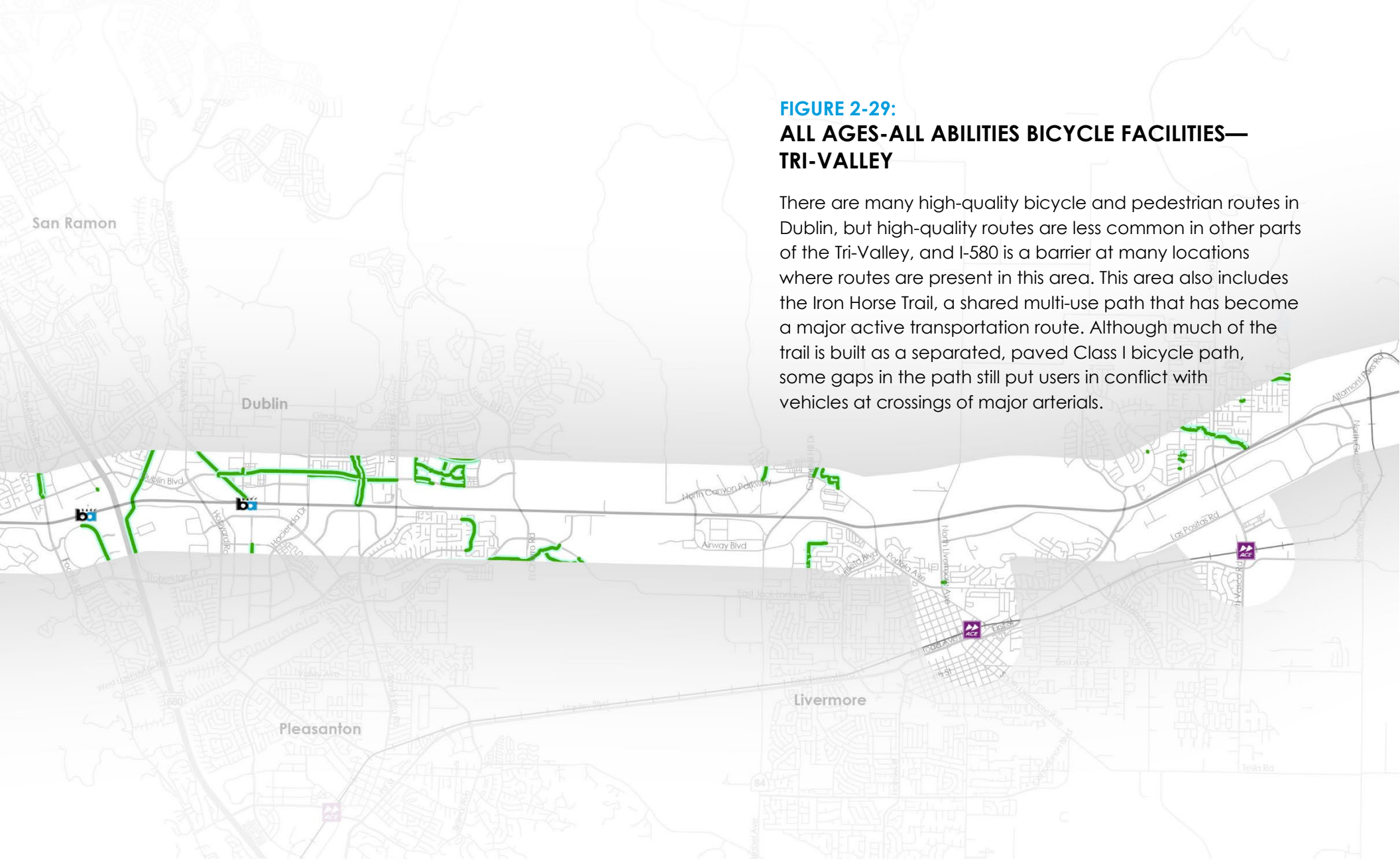
This section of the corridor has only a few segments of safe and convenient bicycle and pedestrian routes. For people who do not have access to a car, the lack of high-quality alternatives can be a barrier to traveling at all.



Source: Alameda CTC Countywide Active Transportation Plan, 2019.

FIGURE 2-29:
ALL AGES-ALL ABILITIES BICYCLE FACILITIES—TRI-VALLEY

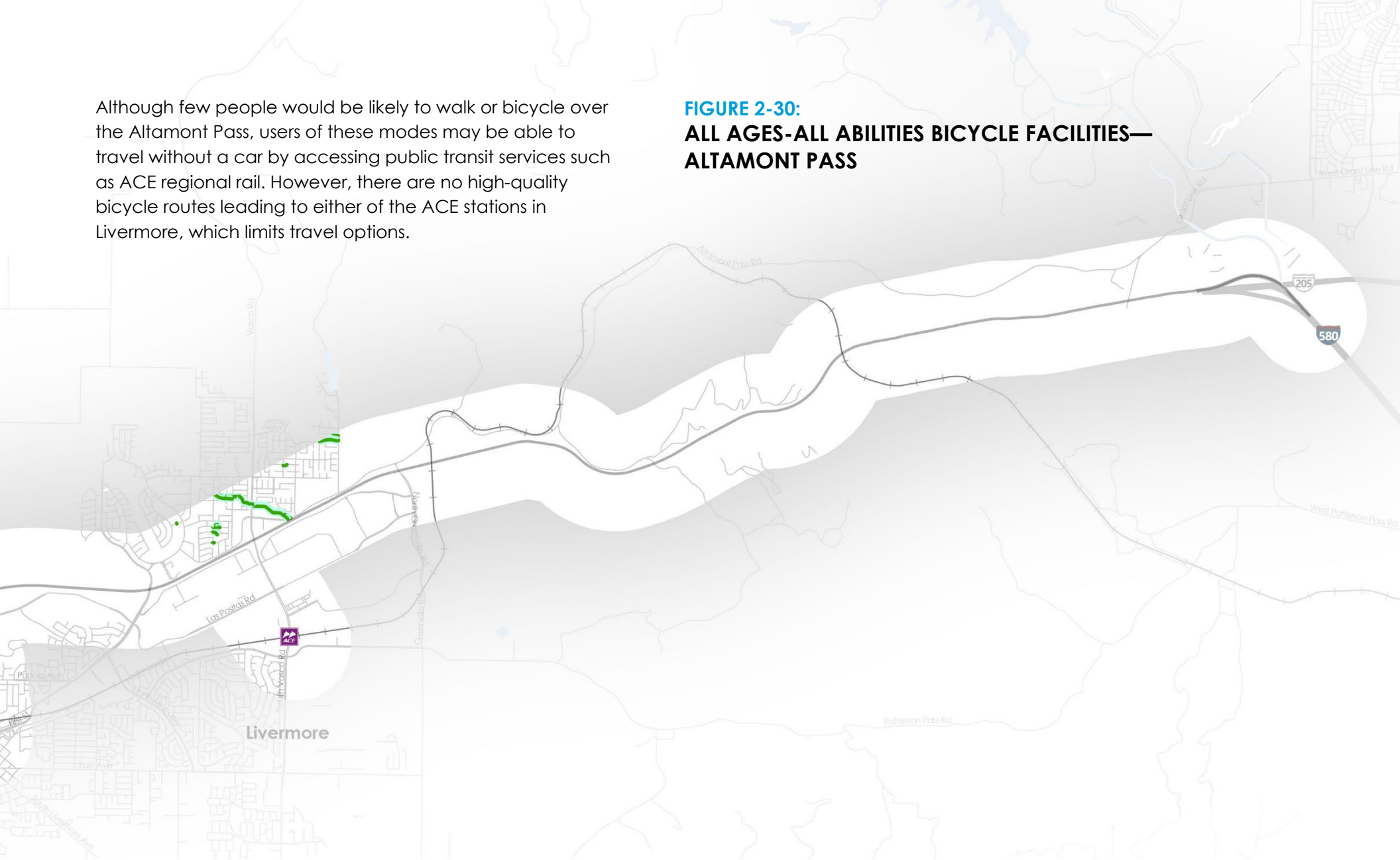
There are many high-quality bicycle and pedestrian routes in Dublin, but high-quality routes are less common in other parts of the Tri-Valley, and I-580 is a barrier at many locations where routes are present in this area. This area also includes the Iron Horse Trail, a shared multi-use path that has become a major active transportation route. Although much of the trail is built as a separated, paved Class I bicycle path, some gaps in the path still put users in conflict with vehicles at crossings of major arterials.



Source: Alameda CTC Countywide Active Transportation Plan, 2019.

Although few people would be likely to walk or bicycle over the Altamont Pass, users of these modes may be able to travel without a car by accessing public transit services such as ACE regional rail. However, there are no high-quality bicycle routes leading to either of the ACE stations in Livermore, which limits travel options.

FIGURE 2-30:
ALL AGES-ALL ABILITIES BICYCLE FACILITIES—ALTAMONT PASS



Study Area
BART Station
Amtrak Station
ACE Station
Commuter Rail
Existing All Ages and Abilities Bicycle Network

Source: Alameda CTC Countywide Active Transportation Plan, 2019.

0 2 Miles

AUTOMOBILE & MULTIMODAL SAFETY

ASSESSMENT SUMMARY:

TRAVELERS ON I-580 ARE EXPOSED TO UNSAFE SPEEDS AND SEVERAL HIGH-INJURY AREAS THAT CONTRIBUTE TO SEVERE COLLISIONS.

CORRIDOR NEED:

MANAGE SPEEDS AND UPDATE RAMP TERMINAL INTERSECTIONS AND HIGH-INJURY SEGMENTS OF THE I-580 MAINLINE.

Safety in the I-580 corridor is a concern across all modes of travel, including for non-motorized users and motorists on nearby surface streets as well as for travelers on the freeway itself. The 2020 CTP identified two key findings related to safety issues in Alameda County:

- A small subset of streets represents a large share of transportation-related injuries and deaths, and these streets tend to be disproportionately located in historically disadvantaged communities.
- High speeds are a major cause of injuries and deaths on the interstate and local roadways.

SAFETY RISKS FOR BICYCLISTS AND PEDESTRIANS

Alameda CTC's High Injury Network (HIN) identifies the subset of streets in Alameda County where risks to bicyclists and pedestrians is highest, based on a combination of the volume and severity of crashes involving these road users. The HIN represents the 4 percent of roads in Alameda County where 59 percent of bicycle injury collisions and 65 percent of pedestrian injury collisions occur. These locations are considered the highest priority for improvements designed to make walking and bicycling safer. The HIN in the I-580 corridor is presented in **Figure 2-31** (Oakland), **Figure 2-32** (Castro Valley and Dublin Grade), and **Figure 2-33** (Tri-Valley).

The Safety Needs Assessment conducted for this Plan also analyzed crash volumes and existing hazards for pedestrians and bicyclists in the corridor. The analysis found that 78 percent of collisions between motorists and bicycles in the corridor occur at ramp terminal intersections, i.e., the intersections between surface streets and the on-ramps and off-ramps leading to and from the freeway. Based on factors such as traffic volumes, speeds, or other conditions that lead to elevated crash risk, a total of 20 ramp terminal intersections were selected as the highest priority for improvements designed to increase safety. These intersection locations are also depicted in **Figure 2-31**, **Figure 2-32**, and **Figure 2-33**.

Adding more crossings over I-580 would reduce the excess distance that people walking and bicycling would need to

travel to reach their destinations, which, in turn, reduces their exposure to crashes at these dangerous locations. Systemic improvements at all ramp terminal intersections could include projects such as upgraded lighting, consistent sidewalks, and separation between non-motorized travelers and vehicles along the freeway crossing segment.

The California Office of Traffic Safety found Alameda County to have among the highest number of people injured and killed while biking and walking in 2022 (in the top 15th percentile compared to other California counties, ranking 6th out of the 58 counties in California).

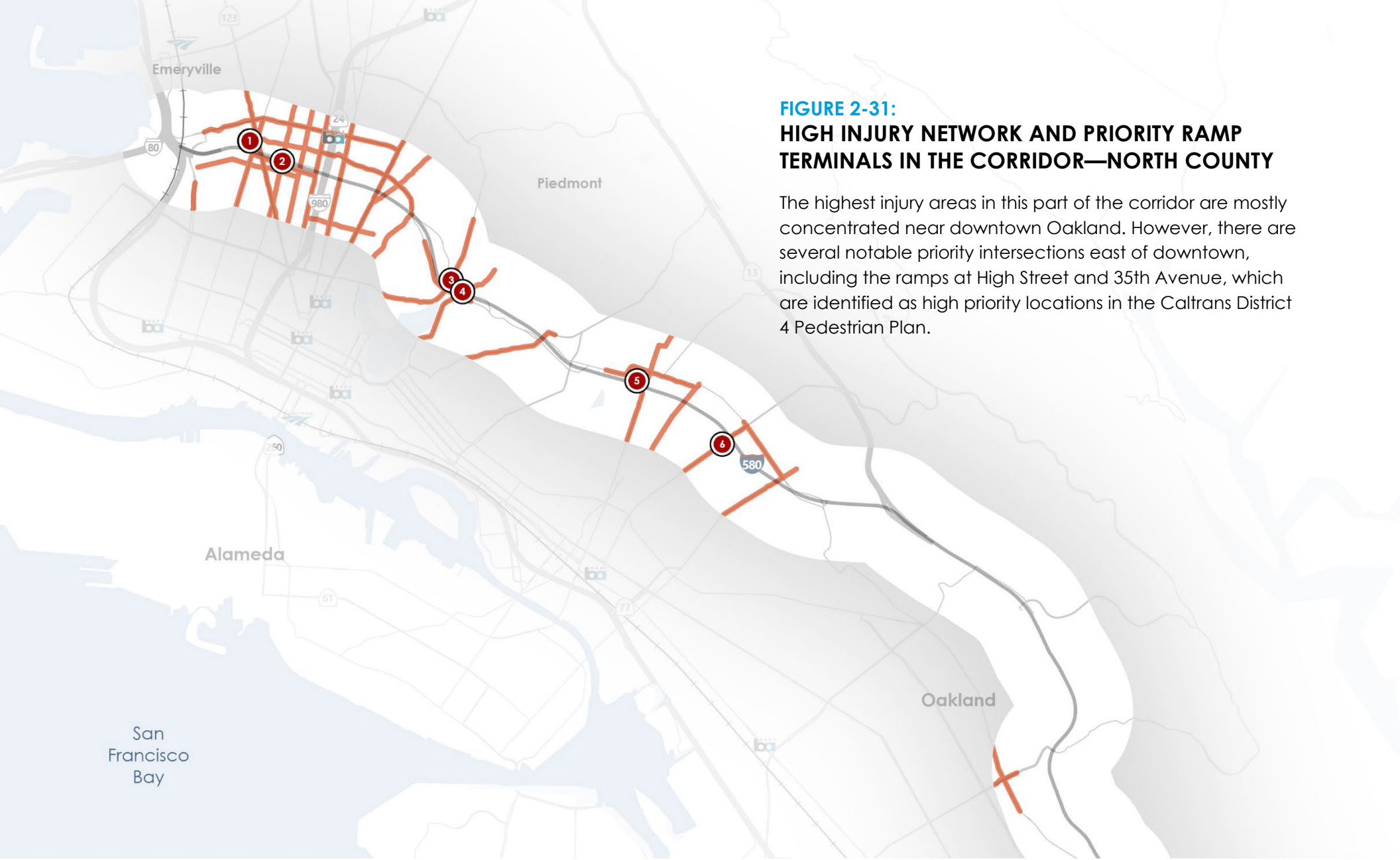


FIGURE 2-31:

HIGH INJURY NETWORK AND PRIORITY RAMP TERMINALS IN THE CORRIDOR—NORTH COUNTY

The highest injury areas in this part of the corridor are mostly concentrated near downtown Oakland. However, there are several notable priority intersections east of downtown, including the ramps at High Street and 35th Avenue, which are identified as high priority locations in the Caltrans District 4 Pedestrian Plan.

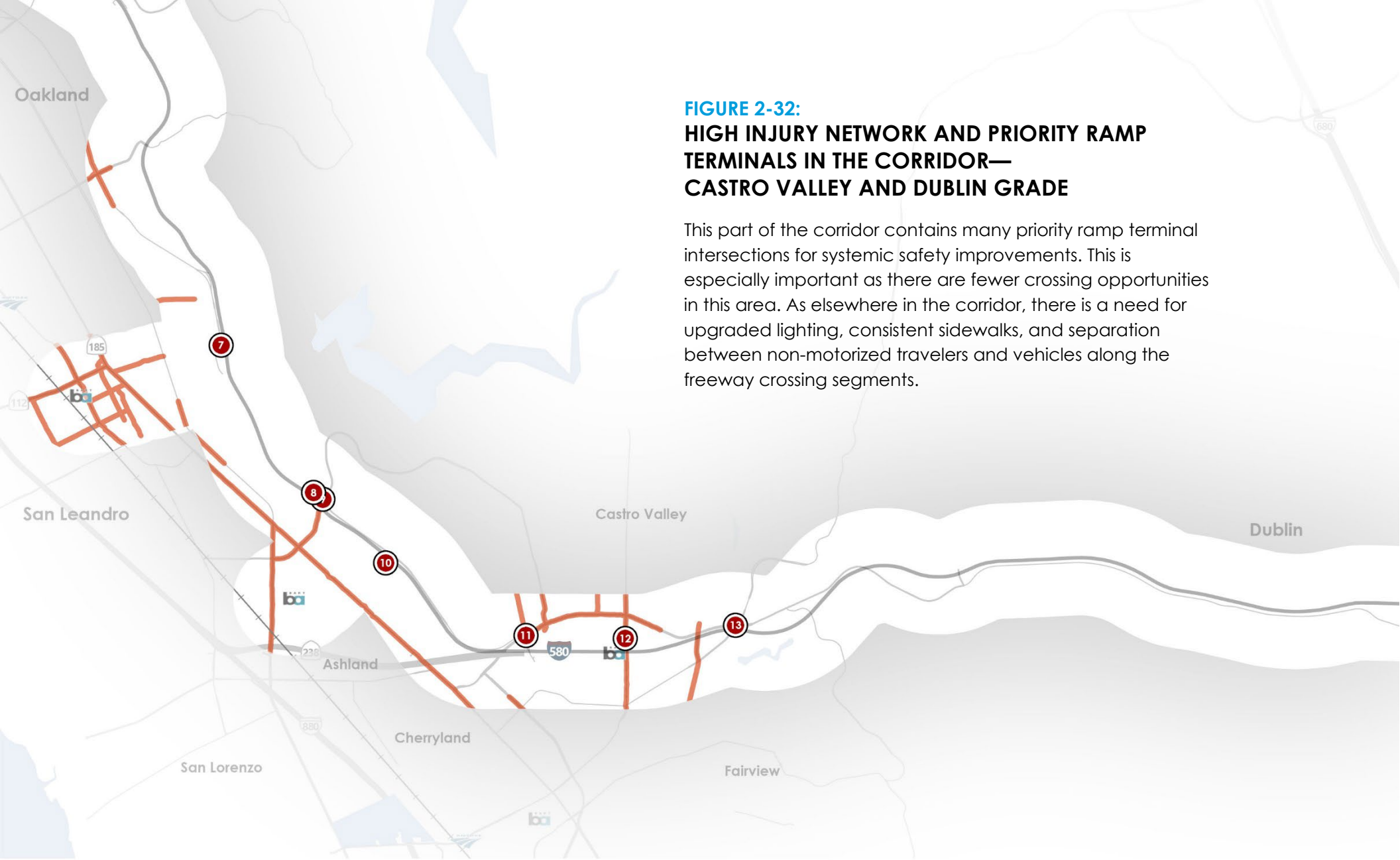


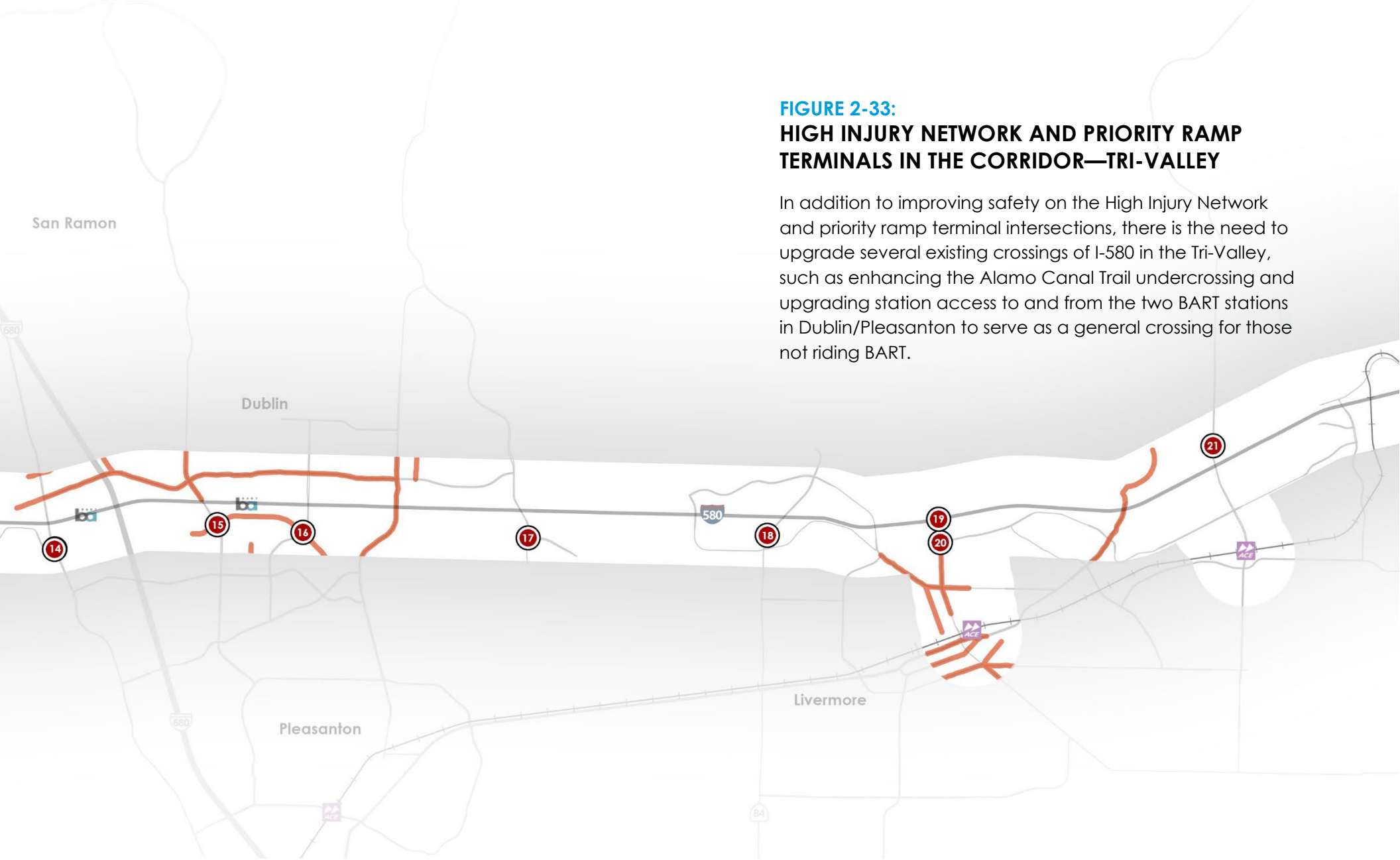
FIGURE 2-32:

HIGH INJURY NETWORK AND PRIORITY RAMP TERMINALS IN THE CORRIDOR— CASTRO VALLEY AND DUBLIN GRADE

This part of the corridor contains many priority ramp terminal intersections for systemic safety improvements. This is especially important as there are fewer crossing opportunities in this area. As elsewhere in the corridor, there is a need for upgraded lighting, consistent sidewalks, and separation between non-motorized travelers and vehicles along the freeway crossing segments.

FIGURE 2-33:
HIGH INJURY NETWORK AND PRIORITY RAMP TERMINALS IN THE CORRIDOR—TRI-VALLEY

In addition to improving safety on the High Injury Network and priority ramp terminal intersections, there is the need to upgrade several existing crossings of I-580 in the Tri-Valley, such as enhancing the Alamo Canal Trail undercrossing and upgrading station access to and from the two BART stations in Dublin/Pleasanton to serve as a general crossing for those not riding BART.



Source: Alameda CTP 2020, TIMS 2016-2020.

SAFE ROUTES TO SCHOOL

The Alameda County Safe Routes to Schools (SR2S) Program is part of a national network of local programs that encourage students to walk, bicycle, and take transit to and from school, with the intertwined goals of reducing congestion and harmful pollutants from driving, as well as increasing the physical activity of students.

Since 2006, Alameda CTC has championed this program, which now serves over 260 public elementary, middle, and high schools in the county. The SR2S program teaches traffic safety and safe behaviors, provides support from site coordinators, and holds events designed to raise awareness and encourage use of more sustainable travel modes.[54]

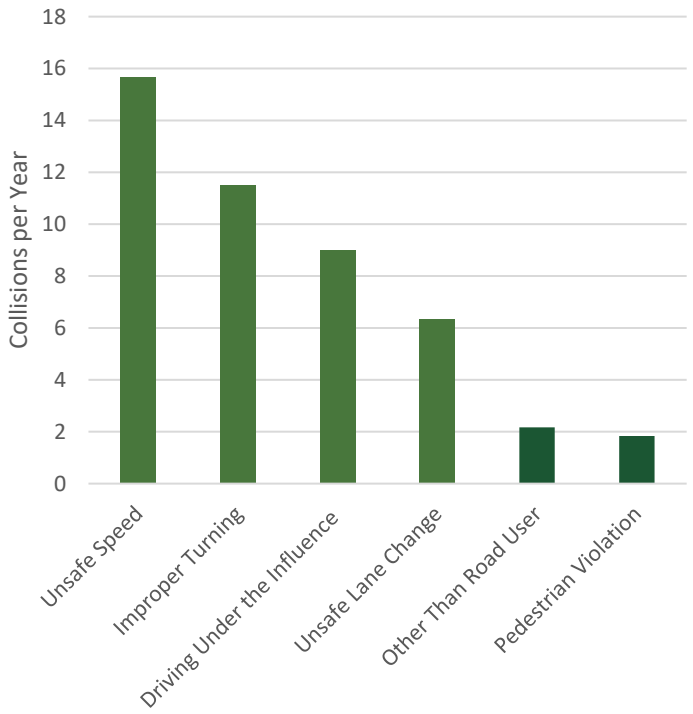
In the most recently completed SR2S Program Evaluation Report, the absence of safe and complete infrastructure was cited as a key reason that families avoided walking or rolling to school. Although parents generally have a positive attitude towards the idea of walking or rolling to school, many are worried that speeding cars and poor driving behavior on streets near schools make it too dangerous to choose non-motorized modes and want physical improvements to help reduce these risks.[55]

The access and safety improvements recommended in this Plan should be coordinated with the needs of the participating schools in the corridor to leverage the effectiveness of the SR2S program and stimulate even greater mode shift in future years.

SAFETY ISSUES FOR MOTORISTS

The most significant safety issues to motorists in the corridor are on the I-580 mainline due to several factors, most prominently high speeds and driving under the influence of alcohol or drugs. The Plan included an analysis of all types of collisions in the corridor between 2014 and 2019. It revealed that 59 percent of all collisions were rear-end collisions and that 56 percent of all collisions were associated with unsafe speeds (see **Figure 2-34**).

FIGURE 2-34:
PRIMARY FACTORS IN COLLISIONS ON I-580 FOR THE YEARS 2014-2019



Source: Fehr & Peers analysis of 2014-2019 TIMS data

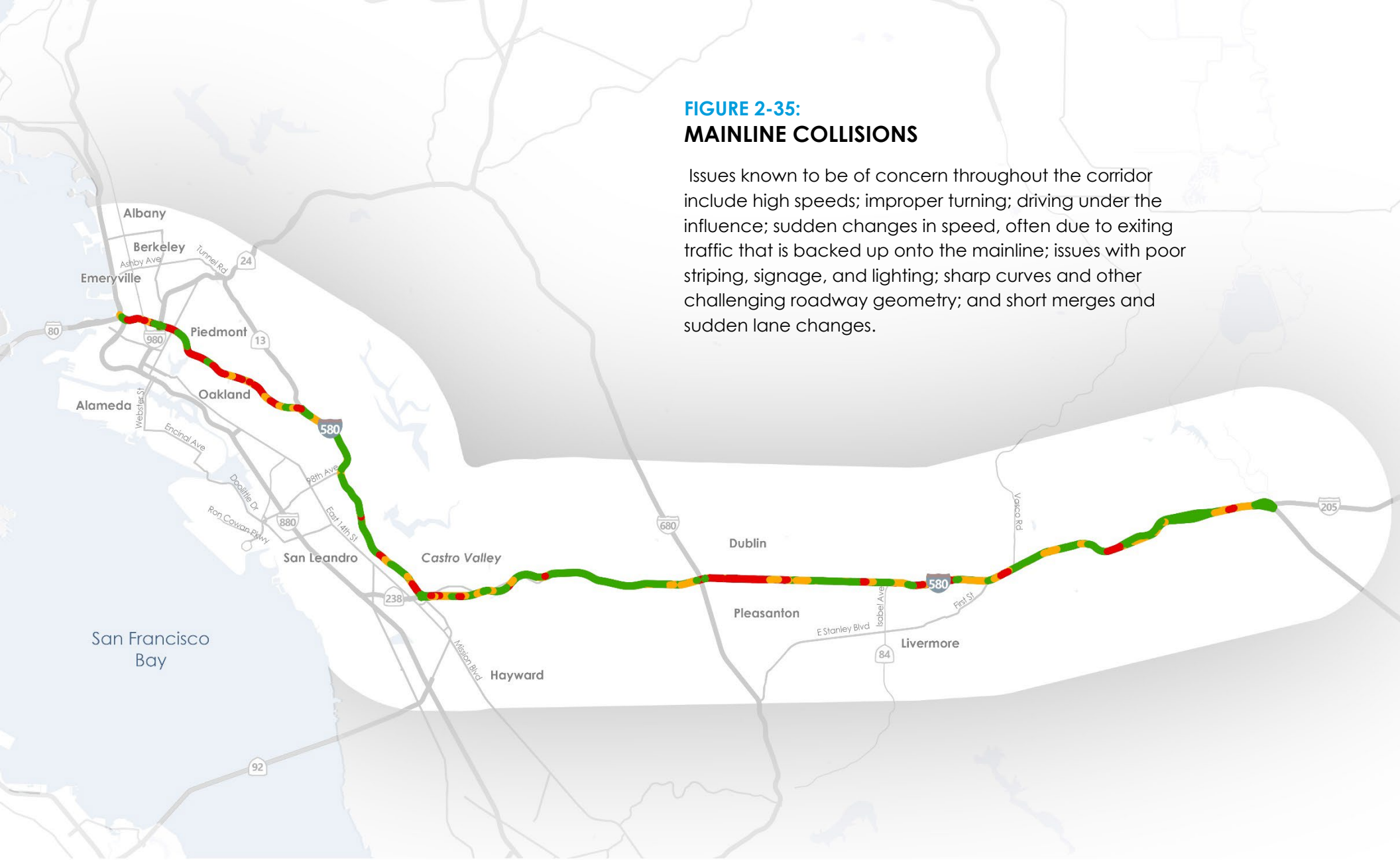
The collision data was mapped to quarter-mile freeway segments and each segment was rated on a scale from zero to one in terms of the number and severity of the collisions that occurred there, to help identify the areas of high injury.

A map of the collision severity scores for the I-580 mainline is presented in **Figure 2-35**. As shown in the figure, there are high collision severity scores near all the interchanges along I-580, likely due to the increase in merging, weaving, and lane changes in these areas. Improvements to smooth traffic flows could reduce these risks.

The western area of the corridor shows high collision severity scores between interchanges, particularly west of SR 13. This likely occurs because some of the roadway and ramp geometry is more difficult for motorists to navigate at prevailing travel speeds. There is another area of elevated crash risk in the relatively straight section of I-580 that runs through the Tri-Valley, which could be attributable to sudden changes in speed related to peak hour congestion. Through the Altamont Pass section of the corridor, elevation changes and roadway geometry likely contribute to increased crash risk, together with sudden lane changes and changes in speed as drivers attempt to avoid trucks that are slowing in preparation for the climb over the pass.

FIGURE 2-35:
MAINLINE COLLISIONS

Issues known to be of concern throughout the corridor include high speeds; improper turning; driving under the influence; sudden changes in speed, often due to exiting traffic that is backed up onto the mainline; issues with poor striping, signage, and lighting; sharp curves and other challenging roadway geometry; and short merges and sudden lane changes.



Crash Severity Score by Percentile

- 0% - 59%
- 60% - 79%
- 80% - 100%

Source: TIMS 2016-2020.

0 5 Miles

Broadband and ITS/TOS

Transportation Systems Management and Operations (TSMO) strategies focus on operational improvements that maintain and/or restore the performance of the existing transportation system for all users and modes of travel. TSMO strategies, include both day-to-day system management of recurring congestion and management of non-recurrent congestion due to localized incidents or major events. TSMO strategies help agencies balance facility supply and demand to efficiently move people and goods along highly congested urban corridors and provide flexible solutions that can adapt to changing conditions.

TSMO strategies rely on the deployment of a variety of monitoring, coordination, and communications technologies to improve traffic flow between local streets, expressways, and the highway system. These technological applications are broadly referred to as Intelligent Transportation Systems (ITS) and Transportation Operations Systems (TOS).

Table 2-4 summarizes the ITS/TOS elements currently employed on I-580 within the Study Area. They include closed-circuit television (CCTV), Changeable Message Signs (CMS), Extinguishable Message Signs (EMS), Highway Advisory Radio (HAR), Ramp Meters (RMs), and Traffic Monitoring Stations (TMS).

In addition to existing ITS/TOS infrastructure, a statewide effort is underway to upgrade and expand broadband infrastructure, which has become an essential element of communication and an engine of economic activity, educational opportunity, civic engagement, access to health care, teleworking, and much more.

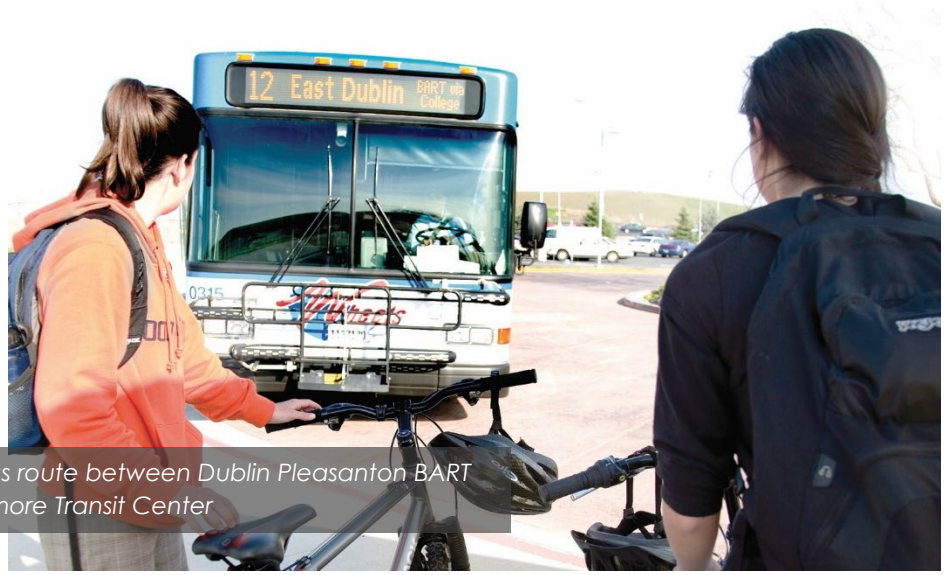
The state has designed a 10,000-mile network of recommended routes for broadband investment known as the "Middle Mile" network, and the entire extent of I-580 in Alameda County is part of the network design. [56] Caltrans has developed a three-tier set of Strategic Priority Corridors for near-term buildout of the network, and at this time, I-580 is not included at any of the top three priority tiers.[57]

Table 2-4: ITS/TOS Elements in the I-580 Corridor

Element Type	Westbound I-580	Eastbound I-580	Corridor Total
CCTV	15	15	30
CMS	5	5	10
EMS	4	5	9
HAR	1	3	4
RM	21	20	41
TMS	46	54	100

Abbreviations: CCTVs = Closed Circuit Televisions, CMS = Changeable Message Sign, EMS = Extinguishable Message Sign, HAR = Highway Advisory Radio, RM = Ramp Meters, TMS = Traffic Monitoring Stations,
Source: Caltrans District 4.

03 Planning Approach



Wheels bus route between Dublin Pleasanton BART and Livermore Transit Center

POLICY GUIDANCE

The Plan advances improvements to the corridor that are in alignment with local, regional, and state policies for our transportation system. This section describes the specific policy documents that informed the overall technical approach for the Plan and the subsequent development of a framework for deciding which investments will best address the context and needs described in Chapter 2.

ALAMEDA CTC 2020 COUNTYWIDE TRANSPORTATION PLAN

In December 2020, Alameda CTC adopted its most recent **Countywide Transportation Plan (2020 CTP)**.[58] The 2020 CTP developed the TRANSPORTATION VISION that Alameda County residents, businesses, and visitors will be served by a premier transportation system that supports a vibrant and livable Alameda County through a connected and integrated multimodal transportation system promoting sustainability, access, transit operations, public health, and economic opportunities. The CTP adopted four key goals for the county's transportation system:

- Accessible, Affordable, Equitable
- Safe, Healthy, Sustainable
- High Quality & Modern
- Economic Vitality

The improvements in this Plan will advance 12 of the 25 recommended strategies from the 2020 CTP.

REGIONAL PLANS

At the regional level, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) formally approved **Plan Bay Area 2050 (PBA 2050)** in October 2021. PBA 2050 is a 30-year plan to "improve housing, the economy, transportation and the environment across the Bay Area's nine counties." PBA 2050 was developed based on five guiding principles (Affordable, Connected, Diverse, Healthy, and Vibrant) and proposes a program of $1.4 trillion in total regional investments in housing, transportation, the economy, and the environment over the next three decades.[59]

PBA 2050 sets out 35 high-level strategies to help coordinate the various investments that were proposed by local agencies into a single, integrated system for the Bay Area as a whole. Many of the strategies in PBA 2050 are in close alignment with the 2020 CTP, but in some cases, the region has identified strategies that go beyond what the Commission adopted in the 2020 CTP. This Plan explores how the regional strategies in PBA 2050 might be implemented in

the corridor and tests ideas for refining the strategies to suit the local context.

STATE POLICIES AND PLANS

The **California Transportation Plan 2050 (Caltrans CTP 2050)**, last updated in 2021, provides the overall blueprint for developing transportation infrastructure that prioritizes equity, safety, environmental sustainability, multimodal integration, and efficiency. The Caltrans CTP centers on people-focused policies, strategies, and investments that help create a safe, resilient, and universally accessible transportation system supportive of vibrant communities, racial and economic justice, and improved public and environmental health by laying out the current trends, challenges, opportunities, and eight overall goals for development of the statewide transportation system.[60]

In July 2021, the California State Transportation Agency (CalSTA) adopted its **Climate Action Plan for Transportation Infrastructure (CAPTI)**, which is "a holistic framework and statement of intent for aligning state transportation infrastructure investments with state climate, health, and social equity goals, built on the foundation of the "fix-it-first" approach established in SB1." [61] CAPTI includes 10 guiding principles, 8 strategies, and 41 implementing actions that will "advance more sustainable, equitable, and healthy modes of transportation, such as walking, biking, transit, and rail, as well as accelerate the transition to zero-emission vehicle technology." [62] This Plan is closely aligned with five of the CAPTI actions, and the emerging priorities evident in CAPTI serve as a helpful guide for the types of projects and programs that will be most competitive for state transportation funding.

The **Caltrans Smart Mobility Framework (SMF)** lays out a vision for how local decision-making can help achieve many of the goals of the Caltrans CTP 2050, including widely accessible multimodal travel choices, livable communities, and a robust and sustainable economy. The SMF supports development of compact and sustainable communities by linking development policies to transportation systems and housing choices. Caltrans' Smart Mobility 2010: A Call to Action for the New Decade provides concepts and tools that jurisdictions can use to incorporate smart mobility principles into all phases of transportation decision-making.[63] Caltrans Smart Mobility Framework Guide 2020 introduces revised strategies, performance measures, and analytical methods for implementing smart mobility that are organized around the themes of network management, multimodal choices, speed suitability, accessibility and connectivity, and equity. As presented in Chapter 2, the 2020 guide describes the application of five distinct "place types" based on location, land use, density, and other characteristics that help planners identify transportation planning and project development priorities across the state.[64]

> "The state must be strategic and thoughtful when expanding the existing system as we cannot afford to invest in projects that ultimately run up our long-term maintenance costs without bringing an outsized benefit to climate, health, and equity goals."
> – Climate Action Plan for Transportation Infrastructure, 2021

At a larger scale, the **2021 Interregional Transportation Strategic Plan (ITSP)** and the **2022 Addendum to the ITSP** are policy framework documents that help guide development of Comprehensive Multimodal Corridor Plans (CMCPs), like this Plan, in explicit alignment with other statewide policies and plans including Climate Action Plan for Transportation Infrastructure (CAPTI), California Transportation Plan 2050 (Caltrans CTP 2050), Caltrans Freight Mobility Plan (CFMP), and the Caltrans State Rail Plan (CSRP). The ITSP identifies specific strategies that will help I-580 serve its function as a priority interregional highway, as reflected in the recommended investments in the Corridor Strategy. The ITSP also establishes the scoring criteria that will be used to prioritize transportation investments for the biennial Interregional Transportation Investment Plan (ITIP). Future project sponsors can use these criteria to identify the elements of the Corridor Strategy that are best positioned for inclusion in the ITIP.

The **2021 California Climate Adaptation Strategy** is a cross-sector coordination effort that helps the state prepare for the impacts of a changing climate in all regions and at all levels of government. This triennial plan is organized around six climate resilience priorities, each with a variety of supporting goals and actions designed to foster local-level engagement, increase understanding of potential impacts and available responses, and develop organizational capacity to implement solutions. In 2017, the California Office of Planning and Research released an implementation guidebook called **Planning and Investing for a Resilient California** that includes a four-step process and a set of resilient decision-making principles to help state-level agencies modify their internal processes to incorporate climate considerations.

This Plan leverages the work that Caltrans has already completed in its 2019 Climate Change Vulnerability Assessment and 2020 Adaptation Priorities Report for District 4, both of which have been used to identify the corridor investments that will help maintain the integrity of the transportation facilities in the corridor in the years ahead.

The **2022 Scoping Plan for Achieving Carbon Neutrality** is the third update to California's 2008 Climate Change Scoping Plan under AB32 (the Global Warming Solutions Act of 2006). It lays out an ambitious roadmap for de-carbonizing the economy to dramatically reduce greenhouse gases, air pollution, and fossil fuel use over the next two decades. The 2022 plan notes that the transportation sector is the largest contributor to the greenhouse gases generated in the state, so the scoping plan includes a portfolio of strategies for transitioning to zero-emission vehicles, supporting alternatives to driving alone, and reducing overall VMT.

FEDERAL REGULATIONS AND GUIDANCE

As the designated Congestion Management Agency for Alameda County, the Alameda CTC conducts regular performance monitoring of all travel modes in alignment with the **FHWA Congestion Management Process** and related state-level regulations. This continuous improvement approach supports MTC in its metropolitan transportation planning efforts by evaluating current conditions, coordinating among project sponsors and key stakeholders, and prioritizing investments designed to reduce congestion in Alameda County. Many of the recommendations in the Corridor Strategy were first identified during the CMP process.

SB 1 and the Solutions for Congested Corridors Program

The Solutions for Congested Corridors Program (SCCP) is one of several transportation funding programs created by the Road Repair Accountability Act of 2017, also known as Senate Bill (SB) 1.[65] The SCCP focuses investment towards improving major corridors in the state by funding projects that improve transportation choices, preserve local community character, and create opportunities for neighborhood enhancement.

The SCCP is a competitive grant program administered by the California Transportation Commission (CTC) that receives applications and makes awards on a biennial basis. Primary evaluation criteria for project selection include a project's impact on congestion relief, the incorporation of a variety of modes, minimization of VMT, and maximization of throughput. Secondary evaluation criteria relate to qualitative and quantitative measures of a project's co-benefits, including benefits to safety, accessibility, economic development (e.g., job creation and retention), air quality and greenhouse gases, and efficient land use, as well as project delivery considerations.[66]

For projects to be eligible for funding from the SCCP, they must be included in both the applicable Regional Transportation Plan (RTP) and a new type of planning document, a CMCP. This Plan is a CMCP for the I-580 corridor.

The CTC has adopted guidelines for the content of CMCPs that reflect the statutory requirements specified in SB 1 The guidelines for the SCCP program as a whole also include a list of recommended application content that helps CTC staff to evaluate candidate projects and encourages project sponsors to pursue a holistic and multimodal planning process that achieves a balanced transportation system consistent with the intent of the program established by SB 1. The guidelines highlight six overarching objectives of the corridor planning process that agencies should prioritize in their work:

1. Defining multimodal transportation deficiencies and opportunities for optimizing system operations.
2. Identifying the types of projects necessary to reduce congestion, improve mobility, and optimize multimodal system operations along highly traveled corridors.
3. Identifying funding needs.
4. Furthering state and federal ambient air standards and GHG emission reduction standards pursuant to the California Global Warming Solutions Act of 2006 and SB 375.
5. Preserving the character of local communities and creating opportunities for neighborhood enhancement.
6. Identifying projects that achieve a balanced set of transportation, environmental, and community access improvements.

The SCCP guidelines also include a self-certification checklist and a list of five statutory requirements that all CMCPs must meet:

1. Be designed to reduce congestion in highly traveled corridors by providing more transportation choices for residents, commuters, and visitors to the area of the corridor while preserving the character of the local community and creating opportunities for neighborhood enhancement projects.
2. Reflect a comprehensive approach to addressing congestion and quality of life issues within the affected corridor through investment in transportation and related environmental solutions.
3. Be developed in collaboration with state, regional, and local partners.
4. Evaluate the following criteria, as applicable - safety, congestion, accessibility, economic development and job creation and retention, air quality and greenhouse gas emissions reduction, and efficient Land Use.
5. Be consistent with the goals and objectives of the Regional Transportation Plan.[67]

CORRIDOR GOALS AND OBJECTIVES

The 2020 Alameda Countywide Transportation Plan (CTP) established four goals for Alameda County's transportation system that underpin the I-580 Transit & Multimodal Strategy:

- Accessible, Affordable and Equitable
- Safe, Healthy and Sustainable
- High Quality and Modern Infrastructure
- Support Economic Vitality

The 2020 CTP goals, together with regional and state policy objectives for CMCP development, provide the basis for the goals & objectives of this Corridor Strategy. Six of the goals are directly aligned with application criteria from the Solutions for Congested Corridors Program, and the seventh goal highlights Alameda CTC's commitment to equity as a fundamental part of this Corridor Strategy.

GOAL 1: IMPROVE SUSTAINABILITY

REDUCE VMT

REDUCE GHG EMISSIONS

GOAL 2: IMPROVE HEALTH & SAFETY

REDUCE CRITERIA POLLUTANTS

REDUCE THE NUMBER AND SEVERITY OF COLLISIONS

GOAL 3: IMPROVE ACCESSIBILITY

IMPROVE JOB ACCESS

INCREASE AVAILABILITY OF AFFORDABLE ALTERNATIVES TO DRIVING ALONE

GOAL 4: ENHANCE TRAVEL RELIABILITY & EFFICIENCY

IMPROVE TRAVEL TIME RELIABILITY

IMPROVE TRANSIT ON-TIME PERFORMANCE

INCREASE CORRIDOR PERSON THROUGHPUT

GOAL 5: STRENGTHEN ECONOMIC VITALITY

INCREASE EMPLOYMENT ACCESS

IMPROVE THE EFFICIENCY OF GOODS MOVEMENT

GOAL 6: SUPPORT EFFICIENT LAND USE & EXISTING COMMUNITIES

PROMOTE MULTIMODAL TRAVEL THAT SUPPORTS EFFICIENT LAND USE

SUPPORT PLACEMAKING AND EXISTING COMMUNITIES

GOAL 7: ADVANCE EQUITY IN PLANNING PROCESS & OUTCOMES

INCREASE ACCESSIBILITY IN EQUITY PRIORITY COMMUNITIES

IMPROVE SAFETY IN EQUITY PRIORITY COMMUNITIES

IMPROVE MOBILITY IN EQUITY PRIORITY COMMUNITIES

REDUCE ENVIRONMENTAL BURDENS IN EQUITY PRIORITY COMMUNITIES

PERFORMANCE CRITERIA

A set of quantitative and qualitative performance measures were developed to assess the ability of a preliminary evaluation scenario and the final Corridor Strategy to satisfy the plan's seven goals and objectives. Quantitative measures were estimated using technical tools such as the Bi-County Travel Demand Model, and qualitative measures utilized methods such as spatial analysis or the assessment of likely scenario impacts on a selection of representative travelers.

The performance measures were used to evaluate the performance of the full package of projects, programs, and policies that were included as part of a single scenario or strategy. Individual projects were not evaluated at the same level of detail. The quantitative and qualitative performance measures are presented in **Table 3-1** and **Table 3-2**, respectively.

Table 3-1: Quantitative Performance Measures for the Corridor Strategy

Measure	Does the Strategy…?	Goal 1: Sustain-ability	Goal 2: Health & Safety	Goal 3: Accessi-bility	Goal 4: Reliability & Efficiency	Goal 5: Economic Vitality	Goal 6: Land Use & Com-munities	Goal 7: Equitable Process & Outcomes
VMT	Reduce VMT in the corridor?**	✓						✓
Mode Share	Increase non-automobile mode share in the corridor?**	✓					✓	✓
Throughput	Increase the number of travelers moving through the corridor?	✓			✓	✓		
Jobs	Increase the number of jobs accessible in 30 minutes from select locations?**			✓		✓		✓
Equitable Usage	Result in a proportionate share of low-income travelers utilizing planned investments compared to the corridor population overall?						✓	✓
Accessibility	Improve multimodal access, including first-/last-mile to transit?**	✓	✓	✓	✓		✓	✓

** Indicates measures were evaluated for EPCs in addition to full corridor. This supports understanding of the equity benefits and impacts of the corridor scenario(s) and informs adjustments that may be needed to offset impacts.

Table 3-2: Qualitative Performance Measures for the Corridor Strategy

Measure	Does the Strategy…?	Goal 1: Sustain-ability	Goal 2: Health & Safety	Goal 3: Accessi-bility	Goal 4: Reliability & Efficiency	Goal 5: Economic Vitality	Goal 6: Land Use & Com-munities	Goal 7: Equitable Process & Outcomes
Auto Demand	Reduce vehicle travel demand?	✓	✓		✓		✓	
Key Trips/ Choices	Improve travel options between key origin-destination pairs?**	✓		✓		✓	✓	✓
Transit	Improve capacity and quality of transit service?**	✓	✓	✓	✓	✓		✓
Active Transportation	Improve the quality, availability, and connectivity of active transportation facilities?**	✓	✓	✓			✓	✓
Safety	Reduce collision risk on the corridor?**		✓					✓
Economy	Improve freight-supportive facilities?					✓		
Affordability	Increase affordable travel options between key origin-destination pairs?**			✓		✓	✓	✓
Health/ Sustainability	Improve air quality and decrease pollutants?**	✓	✓					✓
Diversion	Reduce traffic diverting to local streets and roads?		✓				✓	

** Indicates measures were evaluated for EPCs in addition to full corridor. This supports understanding of the equity benefits and impacts of the corridor scenario(s) and informs adjustments that may be needed to offset impacts.

ANALYSIS METHODOLOGY

Potential projects and programs of projects were analyzed using a variety of data sources and analytical methods. Information utilized in the development of the Plan was compiled from several data sources which are listed below.

DATA TYPES

- Relevant plans and studies
- Population, employment, and demographic data
- Traffic volume, speed, and congestion data
- VMT and emissions data
- Vehicle occupancy and capacity
- Transit service, ridership, and reliability data
- Bicycle and pedestrian network data
- High Injury Network and collision data
- Big data pertaining to traffic speed, congestion, and travel patterns for passenger and commercial vehicles

DATA SOURCES

- Corridor transportation system owner/operators
  - AC Transit (2019)
  - BART (2022)
  - ACE (2022)
  - Caltrans (2022)
- US Census and American Community Survey (2018)
- Plan Bay Area 2050 (MTC)
- California Air Resources Board (2018)
- Peak period observations, INRIX (2022)
- TIMS (2016-2020)
- StreetLight Data (2019)

MODELS & OTHER TOOLS

The Alameda Contra Costa Bi-County Model (AlaCC) is the primary analysis tool used to evaluate potential major investment projects for the Plan. AlaCC is a regional activity-based travel demand model derived from MTC's Travel Model One (Version 1.5) with additional network and land use zonal detail for the two counties. AlaCC produces key transportation system performance indicators that are used to evaluate potential major investment projects including vehicle miles traveled, travel time, and person and vehicle throughput.

Two horizon years were included in the AlaCC model for this Plan. The first represents a 2020 base year and the second represents 2035 – the evaluation year. 2035 was selected as the evaluation year because most land use changes and Plan Bay Area 2050 policies are expected to be in place at that time, and because the focus of the Plan is on projects and programs to advance over the next decade.

The Plan also uses TravelAccess+, a GIS based tool created by Fehr & Peers, to quantify bicycle travel sheds to rail stations in the study area before and after the implementation of a program of bike projects.

ANALYSIS GEOGRAPHY

The Plan evaluates performance at the corridor-level and within four geographical subareas outlined below and shown in **Figure 3-1**:

- Subarea 1: Oakland-Castro Valley (Bay Bridge Toll Plaza to I-238)
- Subarea 2: Dublin Grade (I-238 to I-680)
- Subarea 3: Tri-Valley (I-680 to Greenville Road)
- Subarea 4: Altamont (Greenville Road to County Line)

Corridor performance is also assessed at screenlines along I-580 and key parallel roadways to capture variation in the performance of the transportation network along the corridor. Road segments parallel to I-580 are included to capture potential interactions such as traffic diversion and VMT shifts. Screenlines on the I-580 mainline are listed by segment below and shown in **Figure 3-2.**

Subarea 1

- Screenline 1: I-80 to I-980/SR 24
- Screenline 2: I-980/SR 24 to SR 13
- Screenline 3: SR 13 to Lake Chabot Road/Estudillo Avenue
- Screenline 4: Estudillo Avenue to I-238

Subarea 2

- Screenline 5: I-238 to East Castro Valley Boulevard
- Screenline 6: East Castro Valley Boulevard to I-680

Subarea 3

- Screenline 7: I-680 to SR 84

Subarea 4

- Screenline 8: North Vasco Road to SR 205

FIGURE 3-1: STUDY SUBAREAS

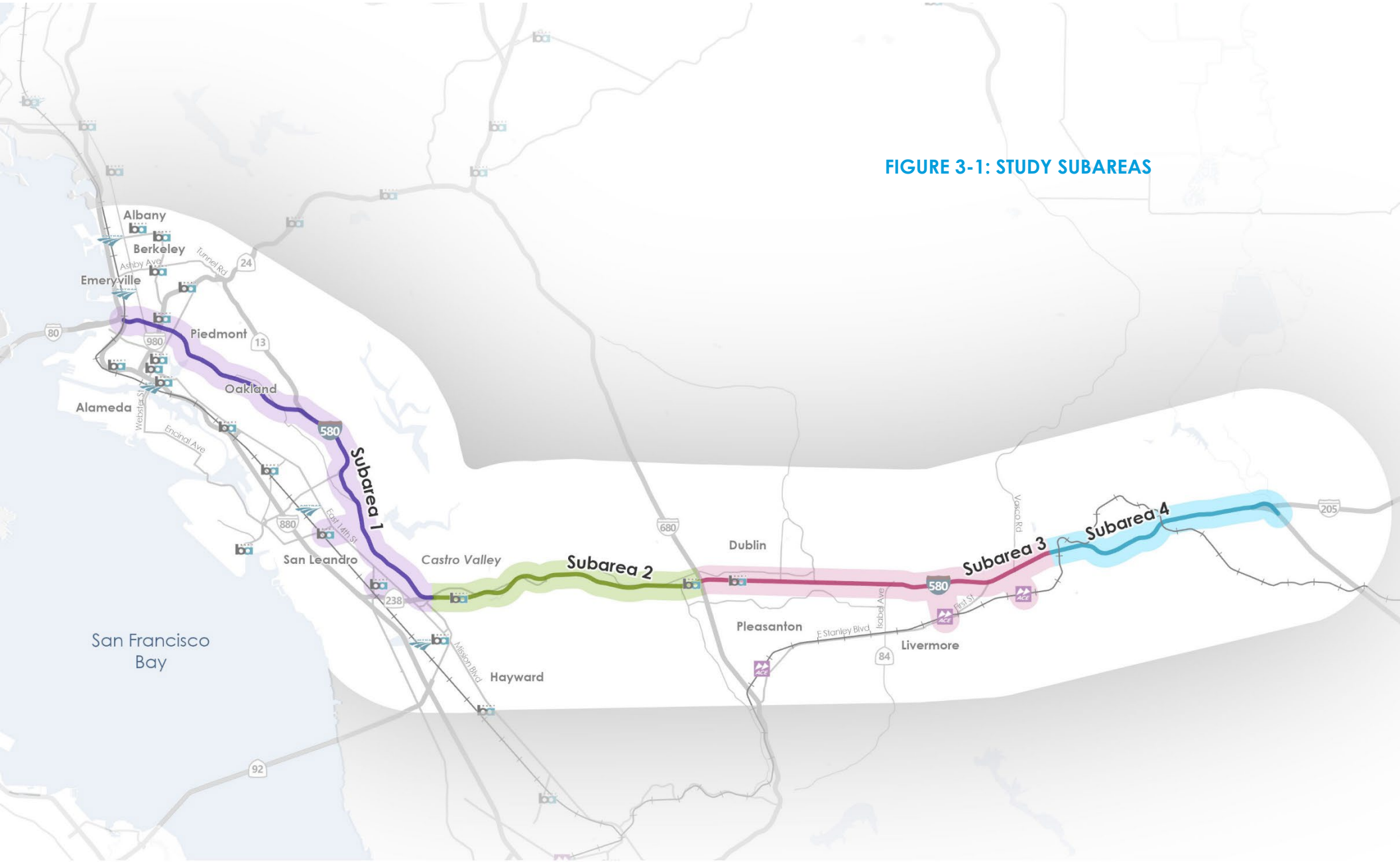
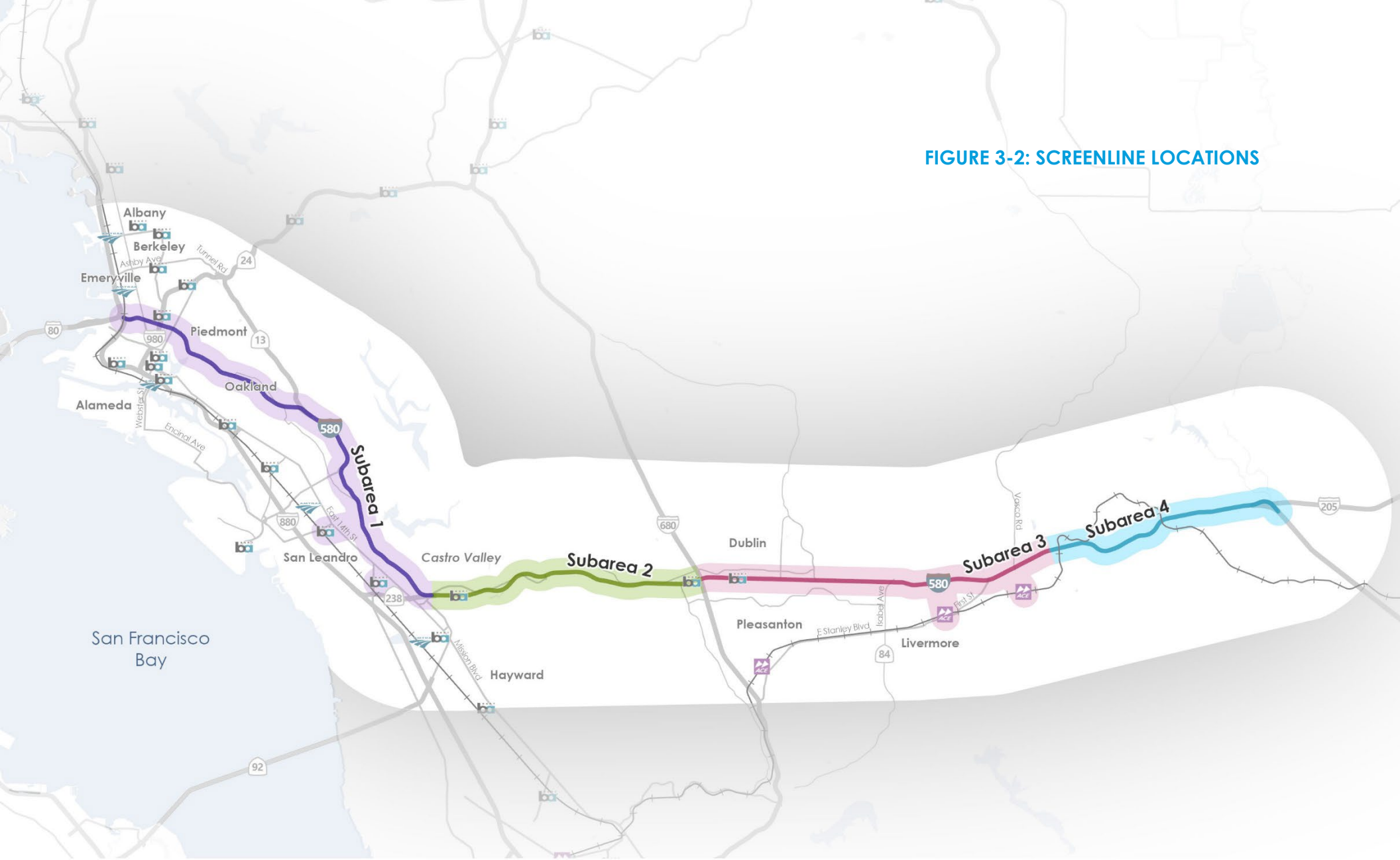


FIGURE 3-2: SCREENLINE LOCATIONS

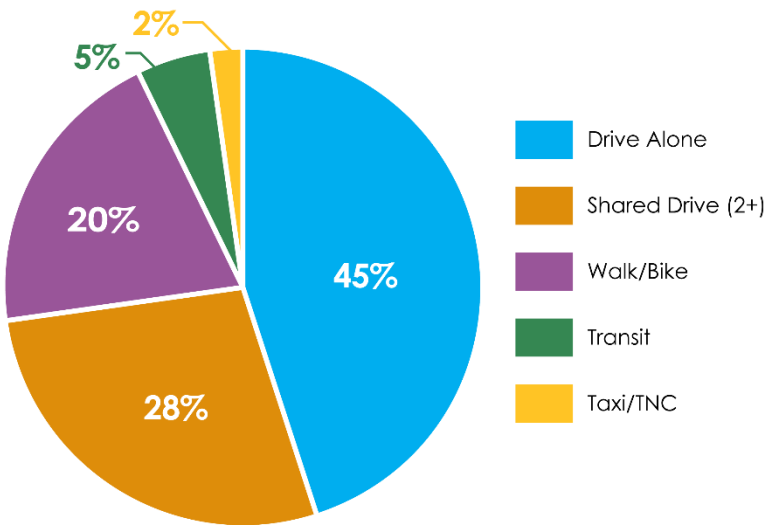


EXISTING CORRIDOR PERFORMANCE

The AlaCC model was used to assess existing (2020 pre-COVID) corridor performance across the quantitative performance measures described in **Table 3-1**. Key performance measures for existing corridor performance are described below and a full description of existing corridor performance is provided in the **Technical Evaluation Memo.**

Most existing travel in the study area is by automobile – 73 percent of daily trips by residents in the study area are made by driving modes. Approximately 5 percent of daily trips are made by transit, and there are approximately 645,000 daily transit boardings on routes that serve the corridor. Existing study area mode share is shown in **Figure 3-3.**

FIGURE 3-3: EXISTING STUDY AREA RESIDENT MODE SHARE



Source: AlaCC Model, 2024

Table 3-3 shows total person throughput by period at screenlines along the corridor and **Figure 3-4** shows daily person throughput by mode. At this level of travel, personal vehicles generate approximately 10.6 million daily network VMT.

Table 3-3: Total Person Throughput by Period (2020)

Screenline	Daily	AM Peak	PM Peak
I-80 to I-980/SR24	274,500	94,100	83,100
MacArthur Boulevard to SR13	165,400	52,500	50,900
SR13 to Lake Chabot Road	134,900	43,700	40,600
Estudillo Avenue to I-238	111,500	36,500	33,800
I-238 to East Castro Valley Boulevard	80,000	23,100	24,100
East Castro Valley Boulevard to I-680	99,300	29,100	28,500
I-680 to SR 84	93,900	26,500	26,900
North Vasco Road to SR 205	90,500	24,600	23,600

Source: AlaCC Model, 2024.

VMT per capita is higher in the eastern portion of the corridor where land use patterns are more dispersed and transit services are less frequent. Daily VMT per resident and daily VMT per worker are above the countywide and study area average in Subareas 2, 3, and 4. As shown in **Table 3-4**, this is partly due to longer trip distance in the eastern half of the corridor –the average trip distance for personal vehicle trips starting or ending in Subarea 4 is 16.3 miles as compared to 6.6 miles for trips starting or ending in Subarea 1.

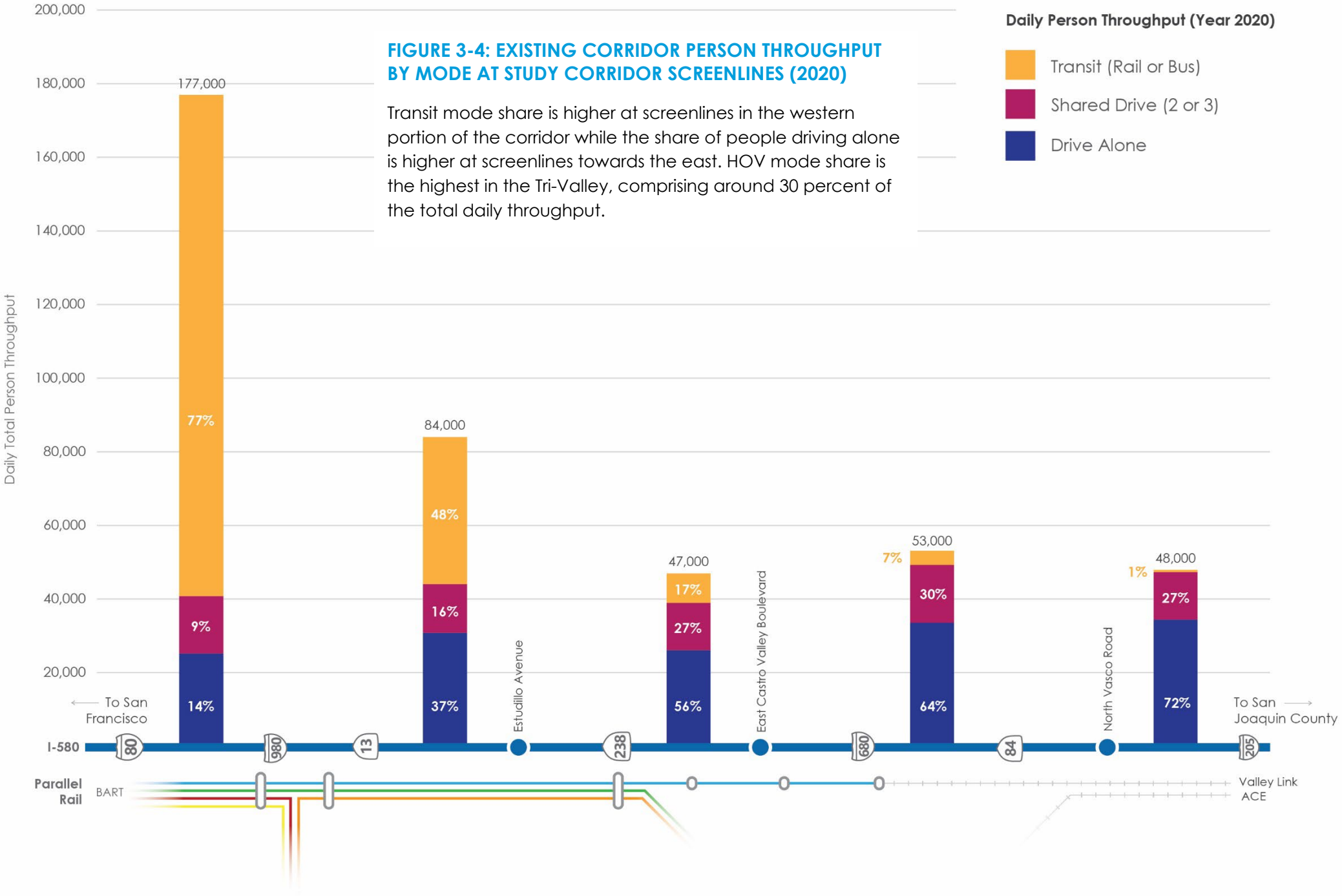
Table 3-4: Daily VMT Per Capita and Average Trip Distance (2020)

Geography	Daily VMT per Resident	Daily VMT per Worker	Average Trip Distance (Miles)
Countywide	14.6	26.6	7.6
Study Area	14.1	28.0	7.4
Subarea 1	12.0	24.1	6.6
Subarea 2	19.0	30.0	9.2
Subarea 3	18.4	33.3	8.6
Subarea 4	35.5	37.5	16.3

Source: AlaCC Model, 2024

FIGURE 3-4: EXISTING CORRIDOR PERSON THROUGHPUT BY MODE AT STUDY CORRIDOR SCREENLINES (2020)

Transit mode share is higher at screenlines in the western portion of the corridor while the share of people driving alone is higher at screenlines towards the east. HOV mode share is the highest in the Tri-Valley, comprising around 30 percent of the total daily throughput.



04 Corridor Strategy Development

This chapter describes how projects were developed and advanced to the final Corridor Strategy based on public and stakeholder engagement and findings from the technical evaluation. This process and the timeline are shown in **Figure 4-1**.

OVERVIEW OF ENGAGEMENT ACTIVITIES

Community and stakeholder input was gathered through a mix of in person activities in the study area, virtual and in person meetings with stakeholders, and online public engagement activities. This included the following:

- Five meetings with key businesses and institutions
- Three focus groups with Community-Based Organizations (CBOs)
- Three pop-up events
- An interactive, online web map
- A series of regular meetings with the TAC, the project management team (PMT), Oakland DOT, AC Transit, and BART

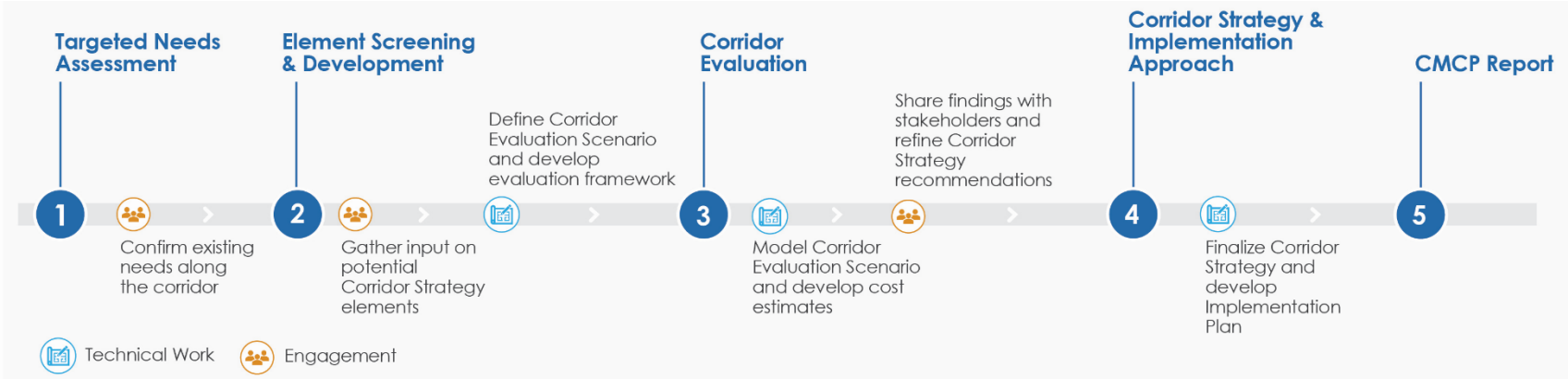
Engagement consisted of three phases: 1) confirming existing transportation needs and challenges on and along the corridor; 2) gathering input on draft Corridor Strategy elements; and 3) refining the strategy, recommendations, and implementation priorities.

PUBLIC ENGAGEMENT

A key focus of the engagement process was receiving input from members of EPCs living near the I-580 corridor in Oakland, San Leandro, and Central Alameda County. To ensure representation from these communities, staff from six CBOs operating in EPCs along the I-580 corridor were invited to participate in focus groups. CBOs also supported outreach and coordination of the pop-up events. CBOs were compensated for these activities and for promoting engagement opportunities with their networks.

Public feedback was also collected through an online interactive web map, providing an opportunity for community members who were unable to attend pop-up events to provide input on the Plan. The web map allowed community members to provide location-specific feedback on transportation challenges and needs and was available in English, Spanish, and Chinese.

FIGURE 4-1: CORRIDOR STRATEGY DEVELOPMENT PROCESS AND TIMELINE



KEY INSTITUTIONAL STAKEHOLDERS AND CBO PARTNERS

KEY BUSINESS, INSTITUTION, AND ASSOCIATION STAKEHOLDERS

- Alta Bates Summit Medical Center
- California State University East Bay
- California Trucking Association
- East Bay EDA
- East Bay Leadership Council
- Hacienda Business Park
- Harbor Trucking Association
- Infrastructure Task Force
- Innovation Tri-Valley Leadership
- Kaiser Permanente
- Lawrence Livermore National Laboratory
- Oakland Zoo

COMMUNITY-BASED ORGANIZATION PARTNERS

- Bike-Walk Castro Valley (Castro Valley)
- Black Cultural Zone (Oakland)
- Castro Valley Matters (Castro Valley)
- Cherryland Community Association (Cherryland)
- Community Impact Lab (San Leandro)
- Grove Way Neighborhood Association (Cherryland)

AGENCY AND STAKEHOLDER ENGAGEMENT

The PMT, consisting of Caltrans District 4, MTC, and Alameda CTC planning staff, met regularly throughout the planning process to provide guidance and provide review of technical products and proposed outreach plans.

The TAC was convened to provide input and direction on the Plan at each of the three engagement phases. Its membership was comprised of the following partner agencies:

- AC Transit
- Alameda County Public Works
- Altamont Corridor Express (ACE)
- BART
- Caltrans
- City of Dublin
- City of Emeryville
- City of Hayward
- City of Livermore
- City of Oakland
- City of Pleasanton
- City of San Leandro
- Livermore Amador Valley Transit Authority (LAVTA)
- Metropolitan Transportation Commission (MTC)
- Tri-Valley–San Joaquin Valley Regional Rail Authority (Valley Link)

In addition to the TAC, agencies were consulted individually over the course of plan development, as needed.

CORRIDOR NEEDS ASSESSMENT

The Plan undertook a needs assessment to identify the transportation needs of residents and businesses that rely on the I-580 corridor. The technical needs assessment was complemented with outreach to stakeholders and one CBO focus group. Findings from the technical needs assessment are documented in Chapter 2, while findings from stakeholder and CBO outreach are described below.

PHASE 1 INPUT: NEEDS AND OPPORTUNITIES ACTIVITIES

The primary goal of engagement in Phase 1 was to identify and confirm transportation access, safety, and mobility in the study area with the key business, institution, community, and agency stakeholders.

CBO partners were invited to take part in a focus group, while business and institutional stakeholders participated in group or one-on-one virtual meetings. The TAC was engaged in a virtual meeting, where member agencies provided input on existing corridor opportunities, challenges, and travel needs.

The following sections, organized by key topics, provide highlights of input received in this round of engagement.

TRANSIT

All stakeholders expressed that additional transit services are needed in the corridor. CBOs and the TAC both emphasized the need for improved transit service focused on serving local trips and meeting post-pandemic travel needs, including increased off-peak travel. Some business stakeholders and members of the TAC emphasized the need for mega-regional services, given the role I-580 plays in connecting the Bay Area to the Central Valley.

Business and institutional stakeholders noted some uncertainty surrounding TDM programs due to new commute patterns in a hybrid work and school environment.

BICYCLE AND PEDESTRIAN ACCESS AND SAFETY

CBOs highlighted the need for improved pedestrian and bicyclist safety, particularly across I-580 and at I-580 interchanges. These concerns were echoed by TAC members who requested the Plan recommend multimodal safety improvements at interchanges.

FREEWAY SAFETY

Participants in the CBO focus group emphasized the need for improved on-ramp/off-ramp safety for motorists and the need to maintain good roadway conditions, and address potholes and debris after large storms.

GOODS MOVEMENT AND FREIGHT

Given that I-580 serves as a key goods movement and freight corridor, two meetings were held with trucking associations, including representatives from the Harbor Trucking Association and the California Trucking Association. Discussions were focused on fleet electrification, infrastructure needs, and safety conditions. Participants identified that there are large upfront costs associated with electrification to convert fleets to zero-emission trucks. Travel range was also identified as a concern, as real-world range is often shorter than planned and charging times for electric trucks are typically 4-6 hours, requiring overnight charging.

Limited truck parking availability in Alameda County and the Altamont Pass was also identified as a challenge, with stakeholders expressing a preference for multi-use stops that include restrooms, showers, food, and fueling facilities. Female truckers also expressed security concerns regarding parking areas.

CBOs noted that freight traffic has negative impacts on local streets, citing issues with noise, emissions, and safety. CBOs requested dedicated truck lanes be considered for inclusion in the evaluation.

CORRIDOR EVALUATION SCENARIO DEVELOPMENT PROCESS

The technical analysis leading to the definition of the final Corridor Strategy included a qualitative evaluation of elements and the development of high-level concepts that would have the potential for significant mode-shift to transit including a busway in the median of I-580. Agency stakeholders and CBOs provided feedback on draft concepts in a series of virtual meetings.

EVALUATION SCENARIO DEFINITION

The Evaluation Scenario analyzed a set of projects, policies, and programs for their effectiveness of supporting travel demand along the I-580 corridor while reducing VMT and encouraging mode shift away from single-occupancy vehicles.

Evaluation Scenario elements were identified based on existing plans and studies, input from CBO and agency stakeholder, as well as the needs assessment described in Chapter 2. Two elements with the potential to transform travel patterns along the corridor – a busway and express lanes – were developed as part of this process and included in the Evaluation Scenario.

Studies that formed the basis for Evaluation Scenario elements included:

- Plan Bay Area 2050
- 2020 CTP
- I-580 Design Alternatives Analysis (DAA)
- Caltrans District 4 Bicycle Plan
- Alameda Countywide Bikeways Network (CBN)
- Local Station Area plans (Bay Fair TOD Specific Plan, Isabel Neighborhood Specific Plan, Tri-Valley Hub Network Integration Study)
- BART Walk and Bicycle Network Gap Study

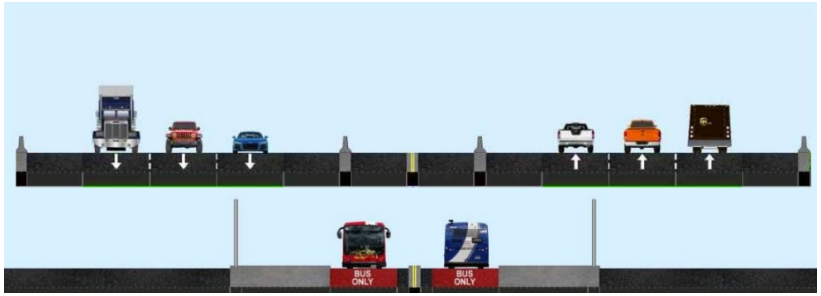
Needs assessments related to travel demand, transit operations, and safety were conducted to supplement these studies, and additional elements were developed to address gaps related to transit and safety needs. Some newly developed elements include an express bus service to Castro Valley, ramp modifications, and high-quality bicycle facilities providing connections to the CBN where I-580 acts as a barrier for vulnerable road users.

The needs assessment found that low utilization of Transbay services during the AM peak is due to slow and unreliable speeds for buses traveling on I-580. To address this gap, the Evaluation Scenario includes a concept for converting general-purpose lanes to a dedicated busway on the I-580 mainline as shown in **Figure 4-2**, and estimates effects on transit ridership, VMT, and mode share**.** Based on feedback from AC Transit, Caltrans, and OakDOT that emphasized the need for high frequency service, the evaluation assumes that all routes utilizing the busway would operate at 10–15 minute headways.

The needs assessment also identified high traffic volumes and low carpool mode share as factors that contribute to congested conditions on the freeway mainline. In the AM peak, congested conditions are observed in the westbound direction over the Altamont Pass, through the Tri-Valley and through Oakland. Congested conditions are observed at these same locations in the eastbound direction during the PM peak. The evaluation assesses potential mode share,

accessibility, and VMT effects from converting a general-purpose lane to an express lane on I-580 over the Dublin Grade and Altamont Pass, to understand at a planning level if this gap can be addressed by extending the existing express lane over new segments. The express lane elements included in the Corridor Strategy represent general-purpose lane conversions rather than the construction of new lanes to limit VMT and support mode shift towards higher-occupancy vehicles. Based on CBO and public feedback, a means-based tolling structure was evaluated alongside express lanes.

FIGURE 4-2: CONCEPTUAL BUSWAY CROSS-SECTION



A parallel needs assessment was conducted along MacArthur Boulevard in Oakland to identify safety hotspots for people walking and biking and locations with the highest need for improvements to transit operations. This analysis led to the identification of transit priority elements between Grand Avenue and Lakeshore Avenue, as well as the identification of road diet opportunities between 82nd Avenue and 90th Avenue and between 98th Avenue and Foothill Boulevard.

Evaluated projects are shown in **Figure 4-3,** and public and stakeholder feedback that influenced elements included in the Evaluation Scenario is detailed below.

PHASE 2 STAKEHOLDER FEEDBACK – ELEMENT SCREENING AND DEVELOPMENT

The primary goal for the second phase of engagement was to confirm the elements considered for inclusion in the evaluation with partner agencies and collect community input on the proposed elements.

Stakeholder engagement consisted of two small group meetings with TAC members in east and central county; meetings with AC Transit, BART, and OakDOT; and a workshop with Caltrans and MTC.

Public engagement consisted of one CBO focus group and three pop-ups in EPCs along the corridor between February and April 2023. CBOs helped coordinate pop-up workshops in East Oakland, San Leandro, and Central Alameda County, and promoted the opportunity to provide input at these events. A total of 256 unique comments was gathered from 136 community members at these events.

An interactive web map was also available online from June to July of 2023 and shared via the CBO partners, TAC agencies, and Alameda CTC. The map received more than 1,000 unique visitors and gathered a total of 270 comments from community members. Overall, the web map comments reflect a desire for improved transportation options that are more accessible, efficient, and safe for all users.

The elements under consideration and the concepts for the busway and other transit service improvements were shared with stakeholders via a TAC meeting and a series of one-on-one meetings with the most affected agencies.

Findings from the element screening and development process are described below.

INCLUSIVE ENGAGEMENT

POP-UP ENGAGEMENT EVENTS

The project team coordinated with CBOs to identify pop-up engagement events for community members in East Oakland, San Leandro, and Central Alameda County, and promote the opportunity to provide input at these events.

The pop-up engagement events were organized in coordination with the CBOs to ensure that the input mechanisms and engagement approaches were responsive to the accessibility and cultural needs of the community as it pertained to language, culture, and mobility access.

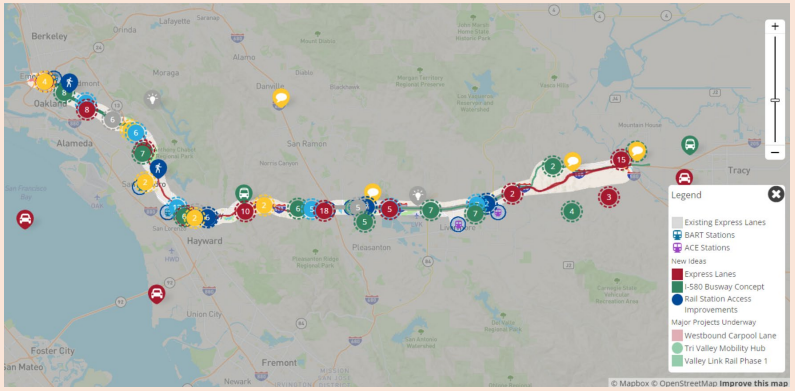
The pop-up engagement occurred at the following community events:

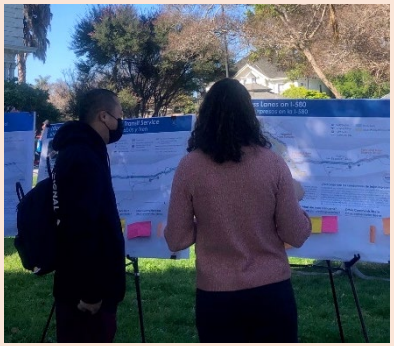
- Black Cultural Zone Community Dinner at Arroyo Viejo Recreation Center in Oakland (March 31, 2023)
- Cherryland Eggstravaganza at Meek Estate Park in Cherryland (April 1, 2023)
- Downtown San Leandro Farmers' Market (April 12, 2023)

Ideas presented to community members at these events included improved bus and rail service encompassing a busway on the I-580 mainline, express lanes on I-580, and better bicycle and pedestrian access. A total of 136 community members were actively engaged during the pop-ups resulting in a total of 256 unique comments.

INTERACTIVE WEB MAP

An online interactive engagement map offered community members the opportunity to identify existing challenges along the I-580 corridor and prioritize potential strategies and projects for inclusion in the Corridor Strategy. The web map showed major projects underway along the corridor as well as other ideas being considered for inclusion in the Strategy. The web map was open for comments from June 1 to June 30, 2023, and received over 270 comments.





BUSWAY AND TRANSIT FEEDBACK

Stakeholders, including AC Transit, Caltrans, MTC, and OakDOT expressed support for evaluating a general-purpose lane to busway conversion on the western portion of I-580. OakDOT and Caltrans both noted that the busway should be supported with high frequency service and cautioned that station access would be challenging, given that much of I-580 is elevated. The agencies emphasized that it would be important to gather community feedback on the busway.

Input collected through the web map, at the pop-up workshops, and during the CBO focus group indicated support for a busway, if implemented thoughtfully. CBO partners suggested adding greenery to the bus stations, implementing effective wayfinding, expanding the busway westward, and engaging with communities of color throughout the design and implementation process.

BART and cities in the eastern part of the planning area stressed the importance of evaluating transit station access, noting that BART station access projects at the Dublin/Pleasanton BART station have received funding. This support was echoed by both Caltrans and CBO partners.

EXPRESS LANES FEEDBACK

Participants in the CBO focus groups and pop-ups raised concerns that express lanes would add additional barriers for low-income drivers, but many were willing to support express lanes if implemented in conjunction with a means-based toll structure. Some suggested that the lanes should be shared by buses and carpools while others also emphasized the importance of exclusive bus lanes to incentivize ridership. Comments in the web map noted concern with congestion with the reduction in general-purpose lanes and support for adding new lanes.

BICYCLE AND PEDESTRIAN ACCESS AND SAFETY FEEDBACK

Local agency stakeholders, particularly in the eastern part of the study area, expressed strong support for evaluating bicycle and pedestrian safety improvements at interchanges.

CBO focus group participants provided positive feedback on bicycle and pedestrian safety elements. CBOs emphasized the need for improved bike and pedestrian safety measures, particularly on roads leading to I-580 and near BART stations, parks, schools, and low-income housing. Web map participants also called for improved bicycle and pedestrian infrastructure, including safer bike paths and pedestrian crossings.

FREEWAY SAFETY FEEDBACK

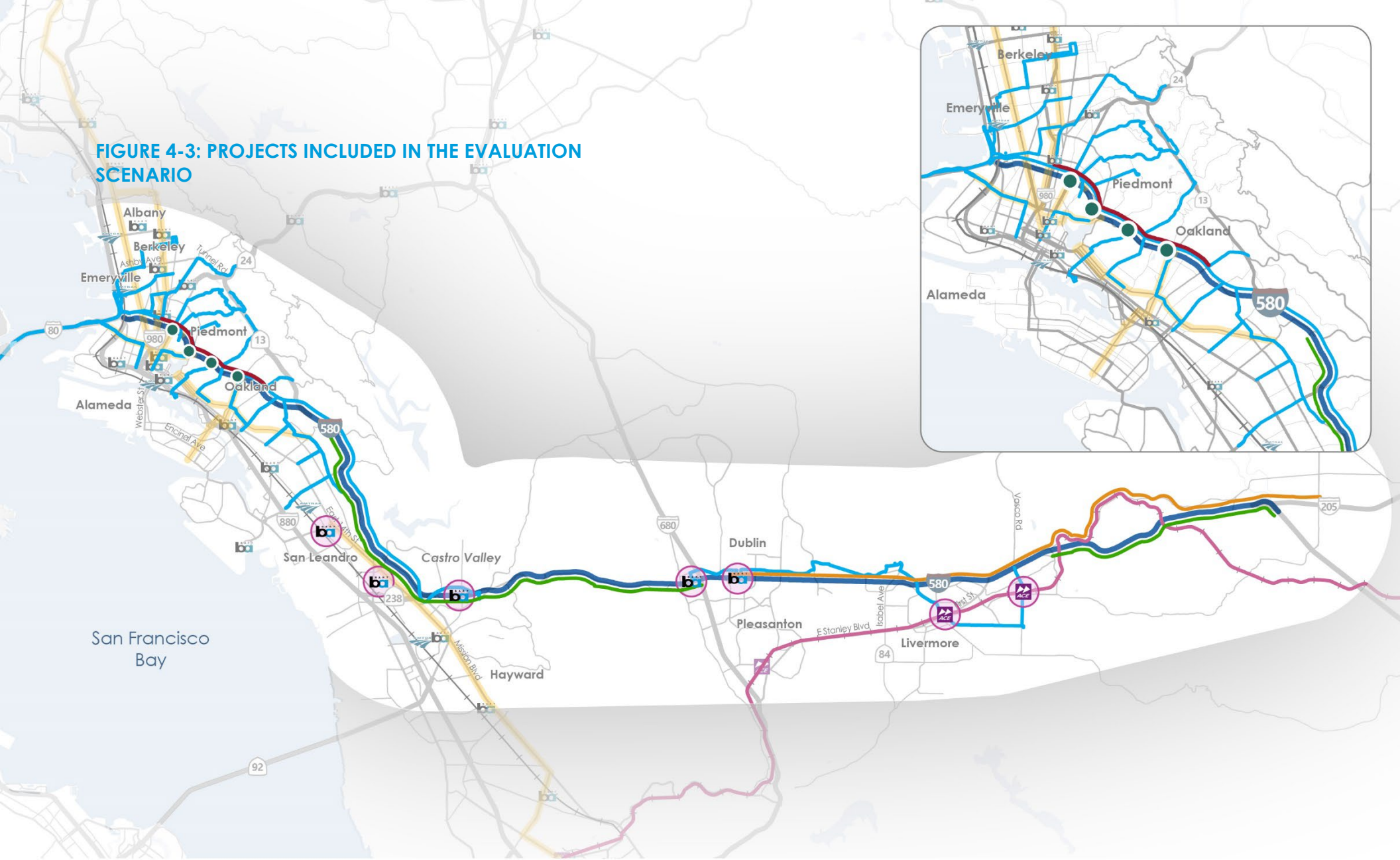
Caltrans and MTC expressed support for further study of elements to improve safety on the I-580 mainline. Policies and projects recommended for further study include reduced speed limits, additional study of the I-580/I-680 interchange, and additional study of weaving sections.

CBO participants expressed mixed views on automated speed enforcement, citing concerns with the disproportionate burden of fines on low-income drivers and privacy. Other safety recommendations included utilizing digital freeway signage for public education.

GOODS MOVEMENT AND FREIGHT FEEDBACK

Although the needs assessment and engagement processes identified the need for clean fueling facilities along the corridor, clean fueling elements were not included in the evaluation because the private sector has taken the lead on implementing these projects.

FIGURE 4-3: PROJECTS INCLUDED IN THE EVALUATION SCENARIO



I-580
Amtrak & ACE Rail
BART Station
Amtrak Station
ACE

Mainline Projects
Busway
Express Lanes
Ramp Modifications

ACE Service Improvements
New Valley Link Rail
Station Access/Mobility Hub Improvements

Bus Service Improvement/ Frequency Upgrade/Realignment
Multimodal Corridor Improvements

0 5 Miles

EVALUATION SCENARIO FINDINGS

Elements evaluated for advancement to the Corridor Strategy were assessed using the Alameda Contra Costa Bi-County Model (AlaCC).[68] Consideration was also given to capital and operating cost estimates and input from the public and agency stakeholders in determining Corridor Strategy recommendations.

The evaluation found that general-purpose lane conversions to support a busway and express lanes would modestly reduce study area VMT, improve access to jobs, increase person throughput, and result in increased transit ridership. However, a high level of corresponding investment is needed to achieve these outcomes, and additional operational analysis is needed to support development of express lane and busway freeway projects.

TECHNICAL RESULTS

The following section summarizes cost estimates and changes to VMT, transit boardings, throughput, and accessibility under the Evaluation Scenario, as estimated by the AlaCC model, as compared to a no build scenario referred to as the Comparison Scenario.[69]

While the AlaCC model assesses performance at the planning level for the busway and express lanes elements, additional analysis is needed to assess the impact of mainline elements on freeway operations and evaluate metrics such as travel time, queuing, and delay.

A summary of key results at the corridor level is included in **Table 4-1**. Full details on results at the screenline and subarea level, the evaluation methodology, analysis scenarios, and cost estimates are also included in the **Technical Evaluation Memo.**

COST ESTIMATES

The busway and express lanes are high-cost projects that would require substantial changes to existing freeway infrastructure. Planning level cost estimates suggest that constructing the express lanes would cost approximately $430 million and constructing the busway and stations would cost $1.4 billion.[70]

The busway could be constructed without median stations at a substantially lower cost, but evaluation results suggest that this design concept would result in approximately 23 percent less, or 7,200 fewer, daily boardings.

High-frequency bus service on the busway would also be needed to effectively support mode shift. The Evaluation Scenario studied the effect of transit service increases with at least 15-minute all-day headways on Transbay buses, seven new Transbay bus routes, and a new intra-East Bay express bus service, at an annual operating cost of approximately $75 million.

VMT

Overall, the evaluated elements would reduce VMT in the study area by 0.9 percent as shown in **Table 4-1**. VMT is reduced by 2.3 percent in the Oakland-Castro Valley subarea,[71] driven by a very high level of investment in bus service. In the Tri-Valley and over the Altamont Pass, VMT is reduced by 1.1 percent. This is largely due to mainline capacity reductions that result in a decrease in driving alone within the eastern half of the corridor.

Although the busway and express lane elements reduce capacity on the I-580 mainline, the evaluation suggests that complementary investments, including reducing speed limits to 25 miles per hour on local streets and improving transit frequency would minimize vehicle diversion to parallel roadways. Notably, VMT on parallel roads decreases by 2.7 percent in the Tri-Valley with the implementation of Valley Link service and more frequent and better connected LAVTA service.

TRANSIT BOARDINGS

Within the evaluation, reduced auto capacity on the I-580 mainline is complemented with increased transit frequency, transit speed improvements through transit priority infrastructure, and new transit services that lead to an increase in transit boardings. As shown in **Table 4-1**, these improvements result in approximately 81,000 additional bus boardings.

ACCESSIBILITY

Evaluated elements increase the number of jobs accessible to study area residents. The increase in job accessibility from transit investments is very high. For example, as shown in **Table 4-1,** with the evaluated investments in transit service, 75,000 additional jobs are accessible within a 30-minute transit trip for a subset of Oakland residents living in the MacArthur Boulevard Corridor, San Antonio, Fruitvale, Fruitvale and Dimond Areas, and Eastmont Town Center/International Boulevard TOD PDAs. Jobs accessible to these residents within a 30-minute car ride decrease by 6,000, likely due to capacity reductions from converting a general-purpose lane to a busway.

Express lanes also increase the number of jobs accessible to study area residents who are willing to pay the express lane toll or carpool, emphasizing the value of increasing transportation choices for study area residents. Residents of all study area PDAs can access 3,000 more jobs within a 30-minute car ride, even though overall auto capacity on the I-580 mainline is reduced.

PERSON THROUGHPUT

Evaluated elements lead to increases in daily person throughput in the Oakland-Castro Valley, Dublin Grade, and Tri-Valley subareas without adding roadway capacity. Gains in person throughput are highest in areas where freeway capacity reductions are accompanied by investments in transit service.

Daily person throughput increases by up to 6.3 percent in Oakland-Castro Valley due to increases in carpooling and bus and rail ridership, which offset declines in drive alone throughput on the interstate. Over the Dublin Grade, daily throughput increases by up to 10.7 percent. This is driven by increases in throughput across all modes, particularly carpool and BART. Tri-Valley daily person throughput increases by up to 9 percent and is the result of increased throughput on parallel BART, ACE, and Valley Link service.

As shown in **Figure 4-3**, with evaluated elements, the largest gains in person throughput on transit would be in the Tri-Valley, where the share of people traveling by transit grows from 3 percent in the Comparison Scenario to 13 percent in the Evaluation Scenario. Person throughput by carpool and drive alone is largely unchanged across the corridor with evaluated projects.

Table 4-1: Key Metrics summarizing Evaluation Scenario Performance

Metric	Without Evaluated Projects	With Evaluated Projects	Net Change	% Change
Daily Network VMT	12,308,000	12,200,000	-108,000	-0.9%
Bus Boardings[1]	294,000	375,000	81,000	27.5%
Jobs accessible to Study Area PDA residents within…				
a 30-min car ride	2,138,000	2,141,000	3,000	0.1%
A 30-min transit trip	1,344,000	1,356,000	12,000	0.9%
Jobs accessible to residents of a subset of Oakland PDAs[2] within…				
a 30-min car ride	1,750,000	1,744,000	-6,000	-0.3%
A 30-min transit trip	687,000	762,000	75,000	10.9%

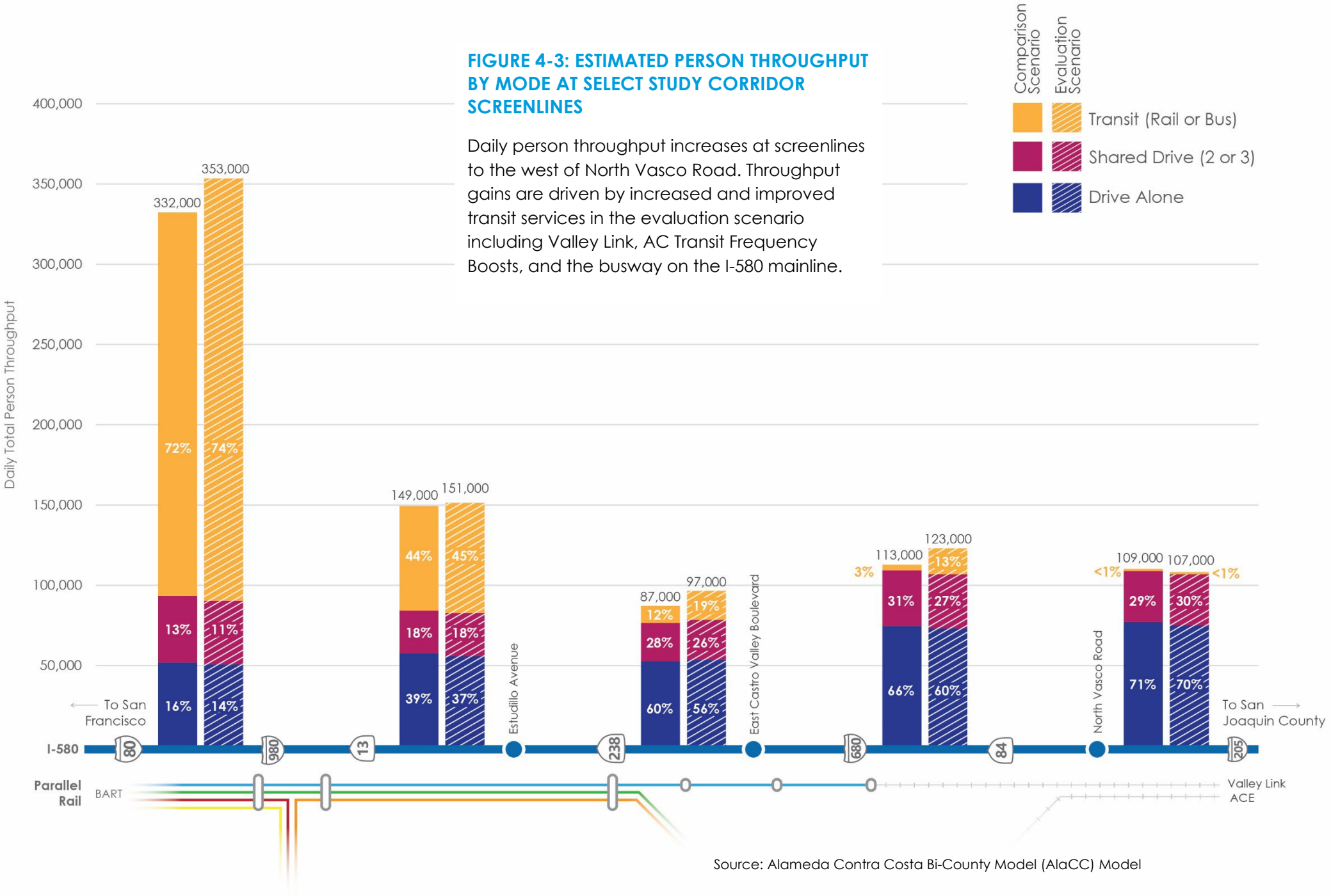
Source: Fehr & Peers, 2024

Notes:

3. Bus operators include AC Transit and LAVTA.
4. Oakland PDAs include portions of the MacArthur Boulevard Corridor, San Antonio, Fruitvale, Fruitvale and Dimond Areas, and Eastmont Town Center/International Boulevard TOD.

FIGURE 4-3: ESTIMATED PERSON THROUGHPUT BY MODE AT SELECT STUDY CORRIDOR SCREENLINES

Daily person throughput increases at screenlines to the west of North Vasco Road. Throughput gains are driven by increased and improved transit services in the evaluation scenario including Valley Link, AC Transit Frequency Boosts, and the busway on the I-580 mainline.



Source: Alameda Contra Costa Bi-County Model (AlaCC) Model

PHASE 3 STAKEHOLDER FEEDBACK – REVIEW EVALUATION RESULTS AND REFINE CORRIDOR STRATEGY

As illustrated by **Figure 4-1,** the primary goal of the final round of engagement was to review the evaluation results for proposed Corridor Strategy elements and take input on which elements should be advanced to the final Corridor Strategy.

CBO partners provided feedback on the evaluated elements at a virtual focus group. The full TAC was engaged at virtual meetings and follow up conversations were held with staff from Caltrans, MTC, AC Transit, BART, and the City of Dublin. Stakeholder and CBO input is described below.

BUSWAY

There was strong support for the busway from Caltrans, AC Transit and CBOs. AC Transit, Caltrans, and CBOs all indicated a preference for a median-running busway, with agency stakeholders noting that a bus on shoulder concept may result in limited bus speeds due to the need to minimize the speed differential between the bus lane and adjacent travel lanes. CBOs expressed a desire for the busway design to be dynamic to allow the busway lane to be used flexibly during emergencies. CBOs also emphasized the need for greening and sound buffers to improve the passenger experience at busway stations.

Given the high cost of constructing the busway, Caltrans noted that constructing a median-running busway would be contingent on a significant rebuild of existing freeway infrastructure. AC Transit also expressed interest in identifying cost efficiencies, including constructing the busway without mainline stations or phasing the project such that stations would be constructed at a later date.

Caltrans noted that it is not possible to assess the operational impact of converting a general-purpose lane to a busway with the planning level analysis completed for this Plan. As a result, Caltrans would require additional microsimulation analysis to understand potential impacts on freeway operations and travel conditions in the remaining general-purpose lanes.

EXPRESS LANES

As with the busway, Caltrans expressed support for express lanes but would require further assessment of potential project impacts to interstate operations prior to implementation. Caltrans would require a microsimulation analysis to ascertain the impact of converting a general-purpose lane to an express lane to mainline operations.

Caltrans also noted that it is not viable to convert general-purpose lanes to express lanes under existing state law and recommended holding project development until Caltrans issues updated guidance on managed lanes under Deputy Directive 43R2 that's currently under development.

CBO participants reiterated the need for careful attention to impacts on low-income and vehicle-reliant individuals. There remained strong interest in a means-based approach to tolling alongside a desire for more robust public education on how to use FasTrak, the regional electronic tolling system.

OTHER EVALUATION SCENARIO PROJECTS

CBO participants offered input on other elements, including bus frequency increases and reliability improvements. They emphasized the need for improved on-time performance to build rider trust prior to service expansion. CBOs supported the creation of a new express bus from Oakland to Castro Valley. Participants suggested projects to improve the bus

stop experience, including additional seating, shade, and clear signage with wait times.

CBOs also recommended elements that improve access to BART for pedestrians and bicyclists, including developing projects to extend the 10-minute bike shed to the Cherryland community and improving first- and last-mile travel options. Agency stakeholders echoed support for advancing local projects focused on expanding access to the final Corridor Strategy. BART staff were in support of station access enhancements at all BART stations, and the City of Dublin confirmed local support for station access enhancements at the Dublin/Pleasanton BART station.

The City of Dublin also expressed strong support for multimodal safety projects at freeway interchange. This was reiterated by CBOs who noted the importance of including safety-related projects in the Corridor Strategy such as safer roadway designs at off-ramps and on-ramps, traffic calming measures at freeway exits, and longer crossing times at busy intersections.

EVALUATION SCENARIO RECOMMENDATIONS

Based on evaluated corridor performance, project cost, and stakeholder input, the Plan recommends including the busway, associated increases in transit service, and new express lanes in the Corridor Strategy as projects for additional study. This would enable mainline projects to be evaluated in the context of road pricing policies that are still being explored at the regional and state level, such as all lane tolling and mileage-based user fees. Future study of these projects will also allow for additional operational analysis to facilitate a better understanding of potential project impacts to interstate operations as well as more detailed incorporation of elements to enhance equity benefits.

05 Corridor Strategy Recommendations and Next Steps


MacArthur BART near the SR-24/I-580 Interchange

This chapter presents the Corridor Strategy recommendations, with a focus on the near- and mid-term elements, describes how they address gaps identified through the needs assessment and public and stakeholder outreach, and summarizes the performance of the Corridor Strategy in advancing the goals and objectives outlined in Chapter 3.

The Corridor Strategy includes a set of recommendations consisting of projects, policies, and programs that together advance the Plan goals. Projects were included in the strategy based on a review of previous plans and studies; new analyses assessing travel demand, transit operations, and safety needs on the corridor; stakeholder feedback; and findings from the Evaluation Scenario.

The Corridor Strategy recommendations are described below and organized into the following categories:

- Transit and Intermodal Recommendations
- Active Transportation and Local Roadway Connectivity Recommendations
- Safety Recommendations
- Elements for Further Study and Refinement

TRANSIT AND INTERMODAL RECOMMENDATIONS

One of the key findings from analysis of the Corridor Strategy is that investments in transit priority, access, and service frequency can generate more transit trips in this corridor, especially when paired with the changes to mainline I-580 tested in the Evaluation Scenario. The Corridor Strategy recommends further exploring new transit service tested in the Evaluation Scenario and advancing transit investments that address gaps in existing corridor need.

Recommendations to advance transit projects that address existing need are shown in **Figure 5-1** and include the following:

- Transit priority to support local bus service in the form of lanes and signal operations
- Better multimodal access to BART and rail stations
- Increased BART and ACE frequencies included in Plan Bay Area 2050
- New rail service to connect communities over the Altamont Pass

The Corridor Strategy also proposes transit priority infrastructure on local roadways to address the bus speed and reliability issues that result in long and unpredictable travel times for bus riders.

TRANSIT PRIORITY INFRASTRUCTURE

Currently, buses along the corridor generally travel in mixed-flow traffic without effective signal timing, resulting in slow and unreliable bus travel. The transit priority recommendations in the Corridor Strategy aim to speed up bus service by implementing bus-only lanes and transit signal priority. Efficient and reliable bus service, including high-quality bus connections to BART, could help increase transit mode share along the corridor.

BUS-ONLY LANES

Provide bus-only lanes on West Grand Avenue, Thomas L. Berkley Way, Harrison Street, Grand Avenue, San Pablo Avenue, Broadway, Mission Boulevard/East 14th Street, and MacArthur Boulevard.

DUBLIN BOULEVARD-NORTH CANYONS PARKWAY EXTENSION

Rerouting LAVTA's 30R through the Dublin Boulevard-North Canyons Parkway extension and to serve the Vasco Road ACE station.

NEW RAIL SERVICE

The Corridor Strategy aims to close gaps in high-passenger rail service by recommending the new Valley Link rail service that connects the San Joaquin Valley to the BART system.

VALLEY LINK

Construct the initial operating phase of Valley Link, a 22-mile passenger rail transit system connecting the northern San Joaquin Valley to the BART system at the Dublin/Pleasanton BART station. The project includes four new stations at Dublin/Pleasanton, Isabel, Southfront Road, and the Mountain House Community. The system would match BART Blue Line frequencies during the peak periods and operate at 45-minute frequencies during off-peak periods. up

SERVICE FREQUENCY IMPROVEMENTS

The Corridor Strategy aims to improve transit reliability and encourage mode shift by increasing frequencies on BART and ACE.

BART CORE CAPACITY

Implement the BART Core Capacity project, which includes operating up to 30 ten-car trains per hour in each direction through the Transbay Tube and providing 12-minute frequencies during peak period service.[72]

ACE FREQUENCY BOOST

Provide one additional daily roundtrip on ACE between Merced and San Jose.

STATION ACCESS

The interstate poses a physical barrier for those attempting to access transit services in the corridor by increasing travel distances and exposing people walking and biking to high-speed freeway bound vehicles. The Corridor Strategy includes station access recommendations to improve the convenience and safety of traveling to regional rail stations in the corridor.

TRANSIT STATION ACCESS IMPROVEMENTS

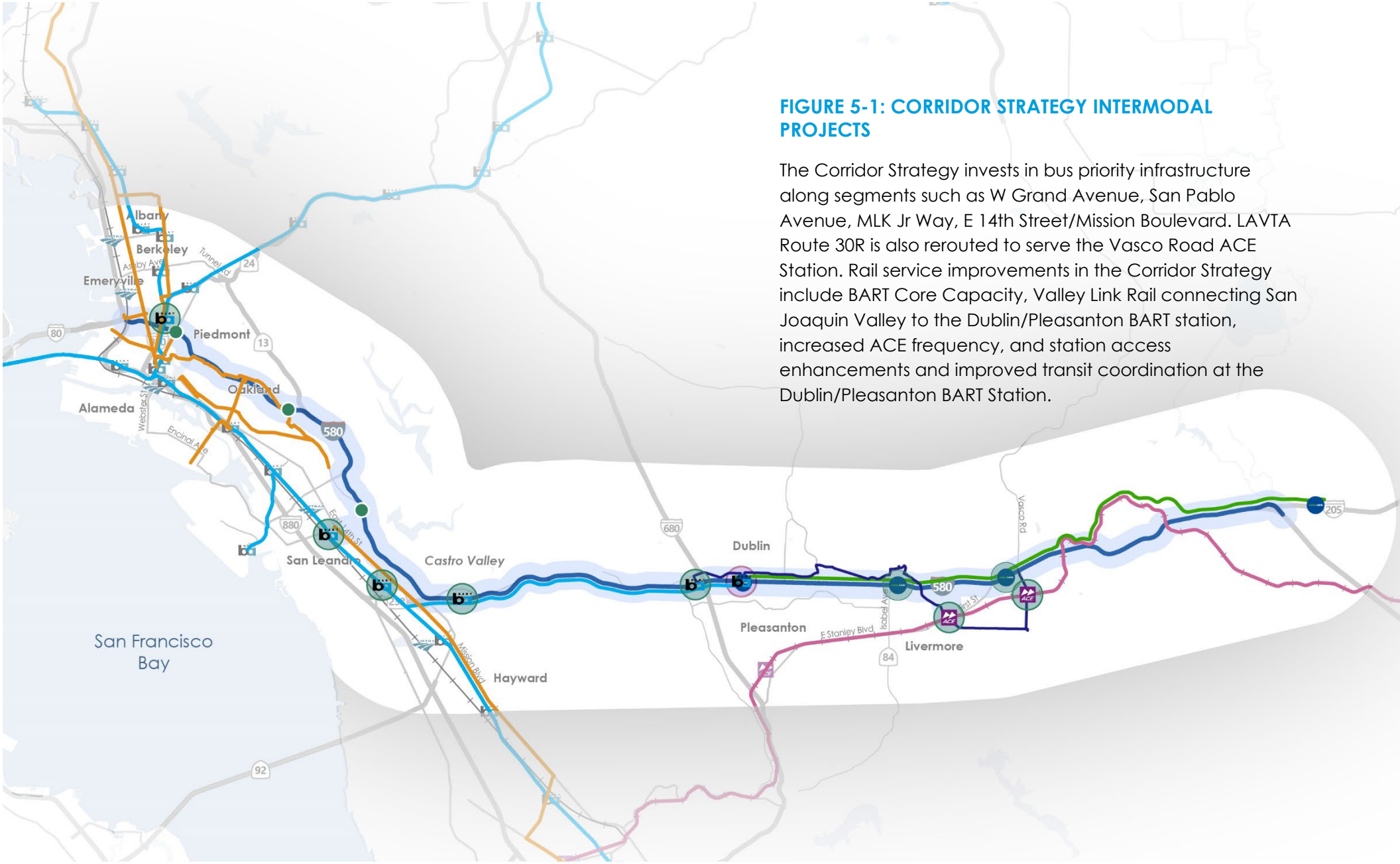
Advance station access enhancements at regional rail stations within the Study Area. Improvements may include wayfinding enhancements; seamless and coordinated transfers between regional rail and local transit services; last-mile integrations such as bikeshare; improvements to bicycle and pedestrian facilities; and other measures to enhance pedestrian, bicycle, and transit access to rail stations.

DUBLIN/PLEASANTON BART STATION ACCESS ENHANCEMENTS AND SERVICE COORDINATION

Implement station access improvements at the Dublin/Pleasanton BART station, including connecting the Iron Horse Trail to BART. Improve transit service coordination at the Dublin/Pleasanton BART station to allow for easy transfers for north-south and east-west travel. This includes seamless and coordinated transfers between BART and Valley Link, and connecting bus services.

FIGURE 5-1: CORRIDOR STRATEGY INTERMODAL PROJECTS

The Corridor Strategy invests in bus priority infrastructure along segments such as W Grand Avenue, San Pablo Avenue, MLK Jr Way, E 14th Street/Mission Boulevard. LAVTA Route 30R is also rerouted to serve the Vasco Road ACE Station. Rail service improvements in the Corridor Strategy include BART Core Capacity, Valley Link Rail connecting San Joaquin Valley to the Dublin/Pleasanton BART station, increased ACE frequency, and station access enhancements and improved transit coordination at the Dublin/Pleasanton BART Station.



ACTIVE TRANSPORTATION AND LOCAL ROADWAY CONNECTIVITY RECOMMENDATIONS

I-580 has many opportunities to provide comfortable, convenient, and connected complete streets facilities for people, walking, biking, and taking transit or passenger rail. The needs assessment and engagement processes found that the active transportation network in the corridor is fragmented, and large sections of the corridor do not have any high-quality, separated bike facilities. The interstate itself also poses a barrier to active transportation, and community connections more broadly, as it is difficult to cross by walking or biking. Freeway traffic from on- and off-ramps dominates neighborhoods around I-580, such as on Grand Avenue and MacArthur Boulevard, creating safety risks for those walking and biking.

To address these needs and reconnect communities fragmented by the interstate, the Corridor Strategy recommends the following types of projects from the Caltrans District 4 Bike Plan to improve access and connectivity across I-580: 1) high- and mid- priority intersection improvement projects; 2) a subset of lower-priority intersection improvement projects with a documented history of safety issues.

Elements from the Caltrans District 4 Pedestrian Plan can be included in recommended corridor projects, such as the CBN, since pedestrian needs have been identified at locations along these corridors. For example, Caltrans identified a need for pedestrian improvements at the I-580 interchange with Foothill Road, which is along the CBN.

Recommended active transportation projects also include investments in major corridors and trails to expand the All Ages and Abilities bikeway network and gap closure projects that, when fully built out, will create a connected active transportation network around I-580. Active transportation projects are shown in **Figure 5-2** through **Figure 5-4**.

In alignment with the Alameda CTC All Ages and Abilities Policy, active transportation recommendations include other safety enhancements such as improved crossings, lighting, and sidewalk maintenance.

ALL AGES AND ABILITIES

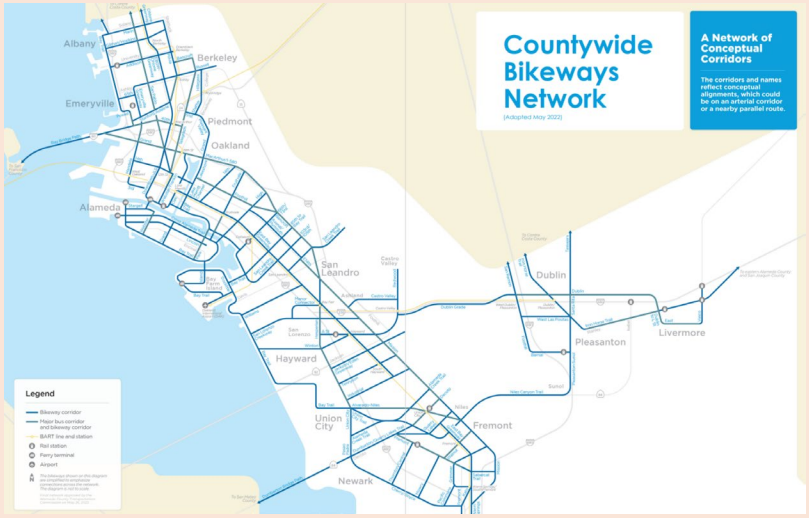
All Ages and Abilities (AAA) is a policy and design approach that aims to make transportation options accessible, safe, and comfortable for all users, including children and families, older adults, people with disabilities, those using mobility devices, and non-drivers who walk, bike, and take transit. Alameda CTC adopted its All Ages and Abilities Policy in December 2022, aligned with the Safe System approach and MTC's policy for a regional Active Transportation Network.

AAA pedestrian facilities are well-lit, free of potholes and gaps, provide shade and refuge from weather, have adequate sidewalk width and curb cuts for mobility devices and strollers to navigate, and offer street furniture for resting and waiting. Selection of AAA bicycle infrastructure for streets depends on contextual factors including vehicle speeds and volumes, with greater separation needed between vehicles and bicyclists on fast-moving streets.

COUNTYWIDE BIKEWAYS NETWORK

The Countywide Bikeways Network (CBN) establishes a vision for a 400-mile cohesive, consistent, and connected network of high-quality bicycle facilities throughout Alameda County. The CBN is aligned with the Safe System approach and Alameda CTC's AAA Policy.

Alameda CTC adopted design expectations for the CBN in 2022, with goals of building design consistency across Alameda County and setting the highest standard for safety and comfort. The design expectations identify the National Association of City Transportation Officials (NACTO)'s Contextual Guidance for Selecting All Ages and Abilities guide as the go-to framework for determining the most suitable bicycle facility on a given street, based on specific road conditions including vehicle traffic, volume, and speed. Additionally, the design expectations address modal separation, durable materials, intersection protection, transit coordination and prioritization, and accessible design. The design expectations are meant to be applied in a context-sensitive manner.



CALTRANS DISTRICT 4 BIKE PLAN

The draft Caltrans D4 Bike Plan is expected to be complete in 2025 and identifies priority locations along the State Highway System in the Bay Area where infrastructure investments would most benefit people bicycling.

The plan ranks priority projects into tiers of prioritization based on three metrics that have been scored and weighted: safety, mobility and equity. The projects include interchange improvements, ramp treatments, and bike crossings. Separated bike crossings include overcrossings and undercrossings and offer full separation from automobiles. The D4 Bike Plan also includes best practices for the development of bikeways on Caltrans facilities.

MAJOR CORRIDORS AND TRAILS

Major corridors and trails are recommended to provide attractive alternatives to driving around this heavily traveled corridor. The topography of I-580 and suburban nature of development requires high quality walking and biking facilities for safety and mode shift.

COUNTYWIDE BIKEWAYS NETWORK

Construct the proposed All Ages and Abilities CBN that intersects the study area, including projects adopted in the 2020 CTP such as East 14th Street/Mission Boulevard Corridor Project, East Lewelling Boulevard Streetscape Improvements, San Pablo Avenue Corridor Project, East Bay Greenway, Emeryville Greenway, Iron Horse Trail, San Leandro Creek Trail and San Lorenzo Creek Trail as well as improvements on other CBN corridors that intersect the study area. The CBN corridors as shown in **Figure 5-2** through **Figure 5-4** are conceptual and bikeway alignment and design would be developed in collaboration with local jurisdictions.

ACTIVE TRANSPORTATION BARRIERS

To reconnect communities along I-580, the Corridor Strategy recommends a suite of walking and biking investments that will reduce barriers and close gaps in the network.

CALTRANS DISTRICT 4 BIKE PLAN

Construct the high and medium priority I-580 intersection or ramp improvement projects proposed in the Caltrans District 4 Bicycle Plan update with the goal of improving safety for bicycle users in the corridor and advancing Vision Zero goals. The Corridor Strategy also recommends constructing the low tier projects recommended in the District 4 Bike Plan at locations with an identified safety need. Priority recommendations from the District 4 Bicycle Plan include improvements at I-580 interchanges at Beach Street, Hollis Street, Peralta Street, Mandela Parkway, Piedmont Avenue, Harrison Street, Oakland Avenue, Lake Park Drive, Park Boulevard, Edwards Avenue, 98th Avenue, and Grand Avenue (San Leandro).

GAP CLOSURES

Close the gap between the I-580 corridor and the CBN with All Ages and Abilities bikeways, enhancing safety for bicycle users in the study area. This includes connecting the CBN to the intersection or ramp improvement projects included in the Caltrans District 4 Bike Plan as well as projects at I-580 interchanges at 35th Avenue, 150th Avenue/Foothill Boulevard, Mattox Rd/Castro Valley Boulevard, Dougherty Rd/Hopyard Rd, Hacienda Dr, El Charro Rd, North Livermore Avenue, and First Street/Springtown Boulevard.

LOCAL ROADWAY CONNECTIVITY

Rounding out the recommendations for this category is extending a parallel roadway to I-580 and delivering the suite of multimodal features included with the roadway, including new bicycle lanes and a shared use path, transit priority infrastructure, and technology enhancements. This project reduces the distance traveled by LAVTA Wheels bus 30R, one of its highest ridership routes, by approximately one mile by traveling on this new road instead of on I-580, and increases reliability of the connection to the Dublin/Pleasanton BART and future Valley Link station.

DUBLIN BOULEVARD – NORTH CANYONS PARKWAY EXTENSION

Extend Dublin Boulevard approximately 1.5 miles eastward, from the current terminus of Dublin Boulevard at the Fallon Road intersection to the Doolan Road/North Canyons Parkway intersection at the Livermore city line. The project will include landscaped medians, a Class I multi-use path and Class IV bicycle facilities, protected intersections, sidewalks, and signalized intersections. The project will also include transit priority infrastructure including queue jump lanes at intersections.

TECHNOLOGY ENHANCEMENTS

Implement technology enhancements to further enhance bus service along the Dublin Boulevard corridor, including enhancing fiber communications, enabling future connected/autonomous shuttle projects, installing on-board and roadside units, and implementing advanced signal systems to tackle corridor-wide congestion, travel delays, and operational challenges along I-580.

FIGURE 5-2: BIKE PROJECTS INCLUDED IN THE CORRIDOR STRATEGY (NORTH COUNTY)

Recommendations in the Oakland area help reduce gaps in the bike network by creating more opportunities to safely cross the I-580. These projects connect the All Ages and Abilities Bicycle network to freeway intersections at locations such as Peralta Street, Piedmont Avenue, Harrison Street, Lakeshore Avenue, and Park Boulevard.

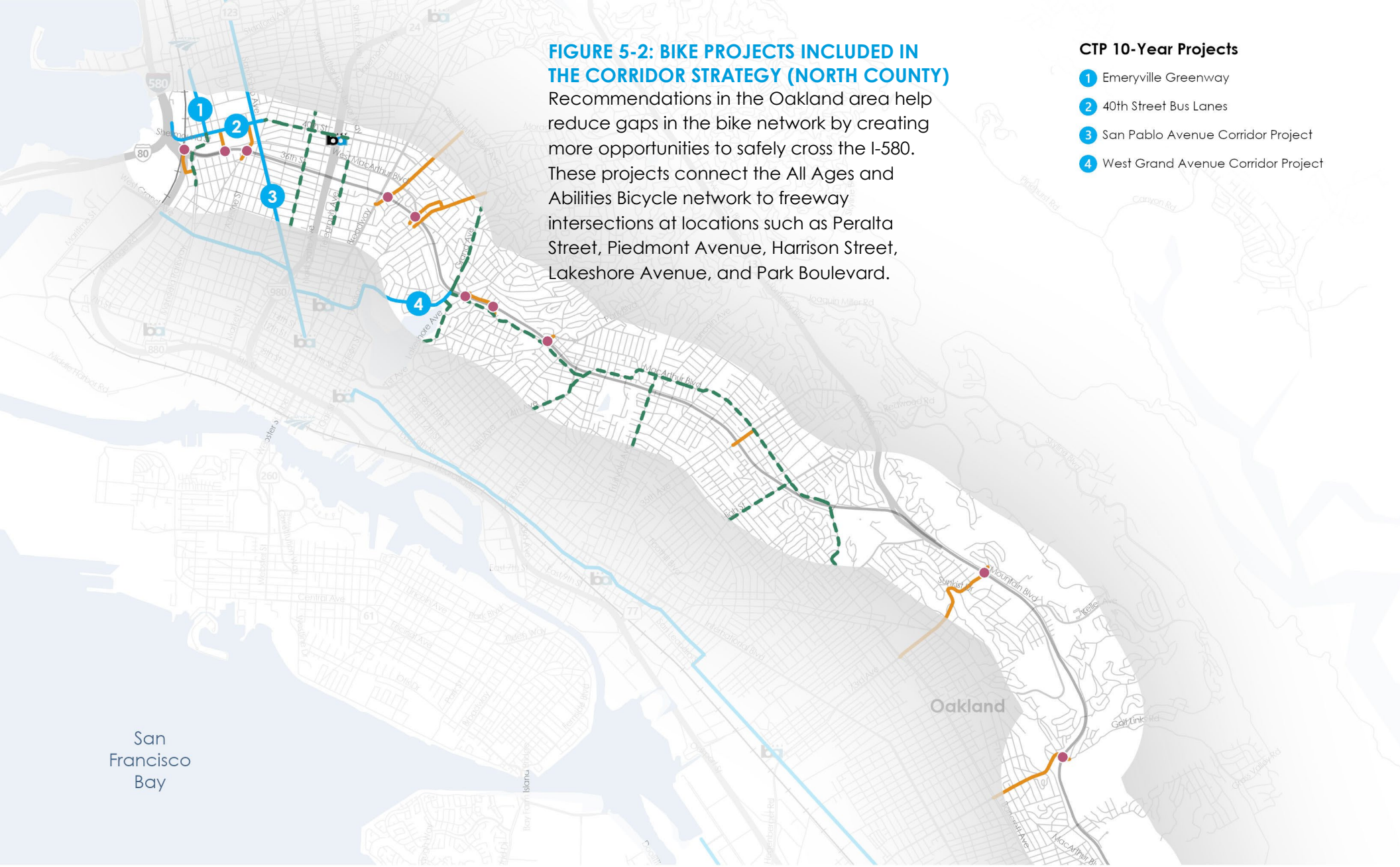


FIGURE 5-3: BIKE PROJECTS INCLUDED IN THE CORRIDOR STRATEGY (SAN LEANDRO-CASTRO VALLEY)

This section of the corridor has very few existing All Ages and Abilities Bikeways. The East Bay Greenway and the CBN alignment along Dublin Canyon Road provide improved bike routes along the freeway, and several projects such as undercrossing projects at Grand Avenue and 98th Avenue, and overcrossing at Redwood Road increase bike connectivity across the freeway.

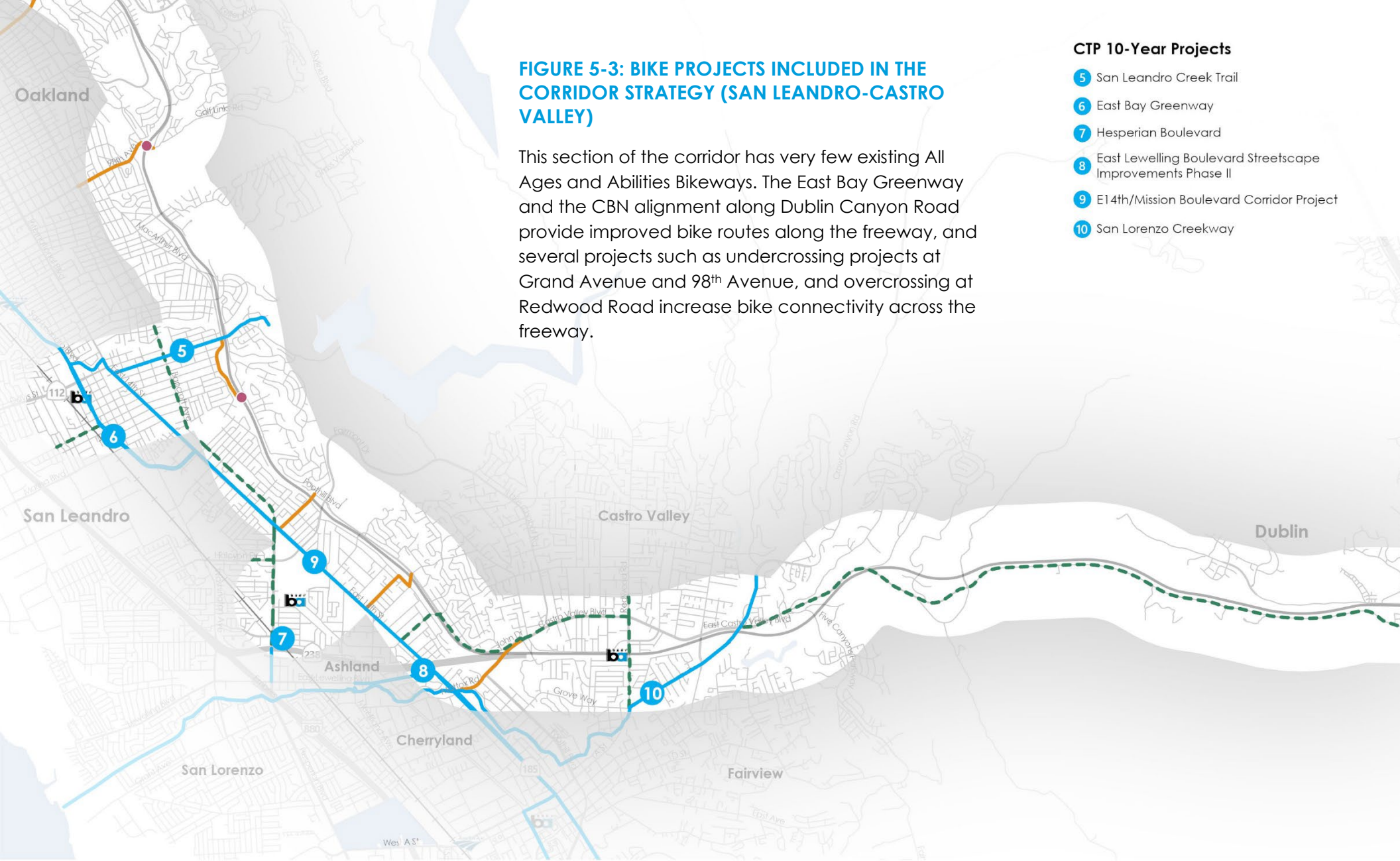
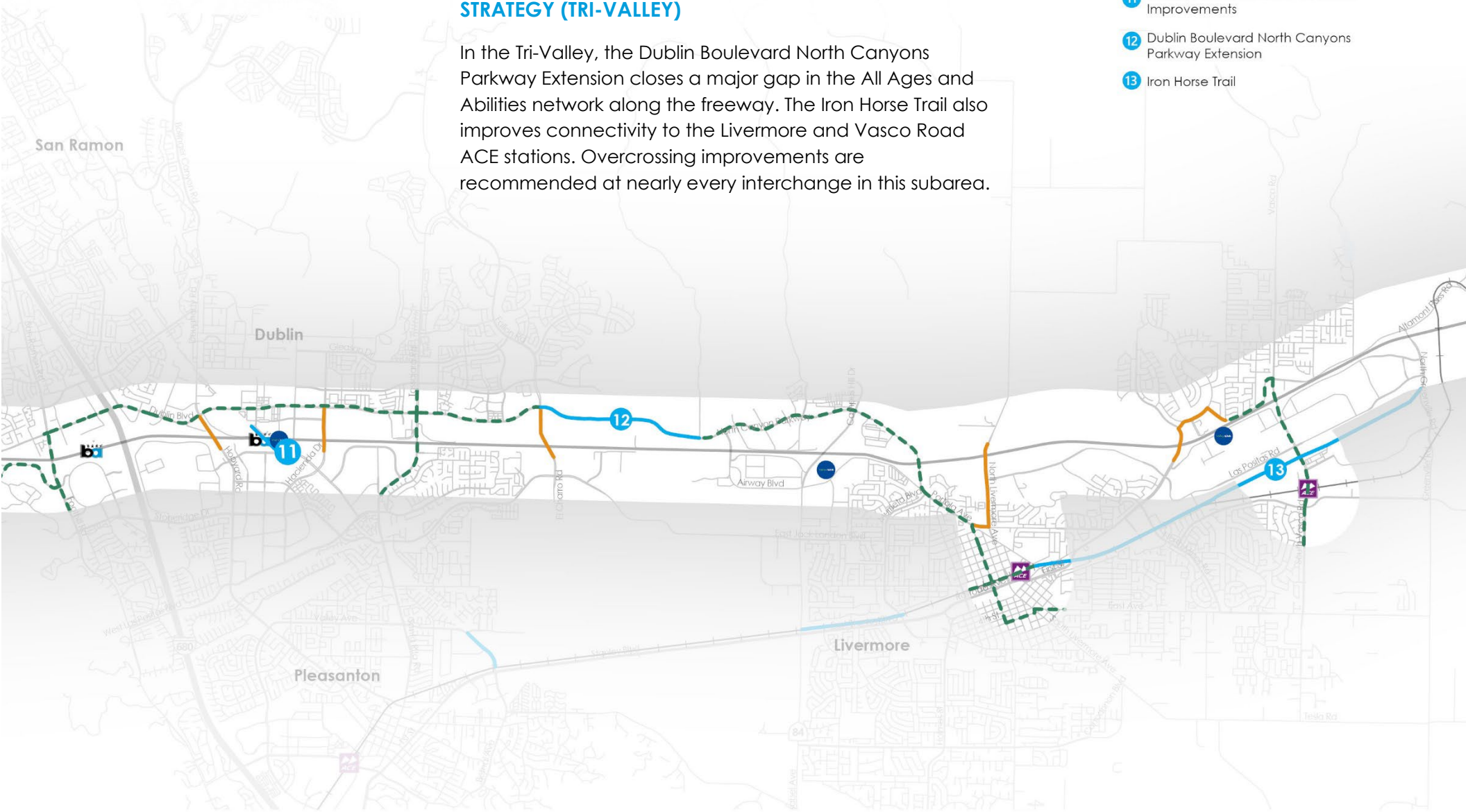


FIGURE 5-4: BIKE PROJECTS INCLUDED IN THE CORRIDOR STRATEGY (TRI-VALLEY)

In the Tri-Valley, the Dublin Boulevard North Canyons Parkway Extension closes a major gap in the All Ages and Abilities network along the freeway. The Iron Horse Trail also improves connectivity to the Livermore and Vasco Road ACE stations. Overcrossing improvements are recommended at nearly every interchange in this subarea.



SAFETY RECOMMENDATIONS

Safety is a concern for travel by all modes along the corridor as underscored by both the needs assessment and confirmed through public engagement. Community groups and the public recommended improving walking and biking facilities at I-580 interchanges and improving safety for all users at on- and off-ramps.

The Corridor Strategy recommends projects that address identified safety needs at freeway interchanges. Further study of priority interchanges identified in the needs assessment is also recommended to identify potential safety improvements at known collision hot spots and reduce barriers to bicycle and pedestrian travel posed by I-580.

Improvements to the I-580/I-680 interchange are also recommended to address design conditions that create safety issues for motorists merging between two major interstates and for all users at on- and off-ramps. Other safety recommendations for the corridor include regulations to reduce speed limits. Based on feedback from the public and CBOs, it is recommended that speed limits are enforced with automated technology. Safety recommendations are shown in **Figure 5-5**.

INTERCHANGE PROJECTS

Interchanges along I-580 were also found to be places of high injury, likely due increases in merging and lane changing in those areas, as well as roadway and ramp geometry in those areas that can be difficult for motorists to navigate at prevailing travel speeds. The interchange projects recommended in the Corridor Strategy aim to slow traffic and improve safety at priority interchanges along I-580.

SAFETY IMPROVEMENTS APPROACHING AND THROUGH THE I-580/I-680 INTERCHANGE

Advance near-term safety improvements approaching and through the I-580/I-680 Interchange to enhance safety and provide traffic relief.

PRIORITY INTERCHANGES

Conduct planning studies to identify potential safety improvements including improvements to walking and biking facilities and measures to calm traffic at priority locations where I-580 ramps intersect with local streets, which was a key need identified in the focus group discussions with community organizations. Interchanges include those identified in the safety needs assessment as follows: I-80, Fruitvale Avenue, High Street, Grand Avenue (San Leandro), I-238/Castro Valley Boulevard, Redwood Road, Hopyard Road/Dougherty Road, Hacienda Drive, Fallon Road/El Charro Road, Livermore Avenue, First Street/Springtown Boulevard, and North Vasco Road/South Vasco Road.

ROADWAY POLICIES AND PROGRAMS

REDUCE SPEED LIMITS

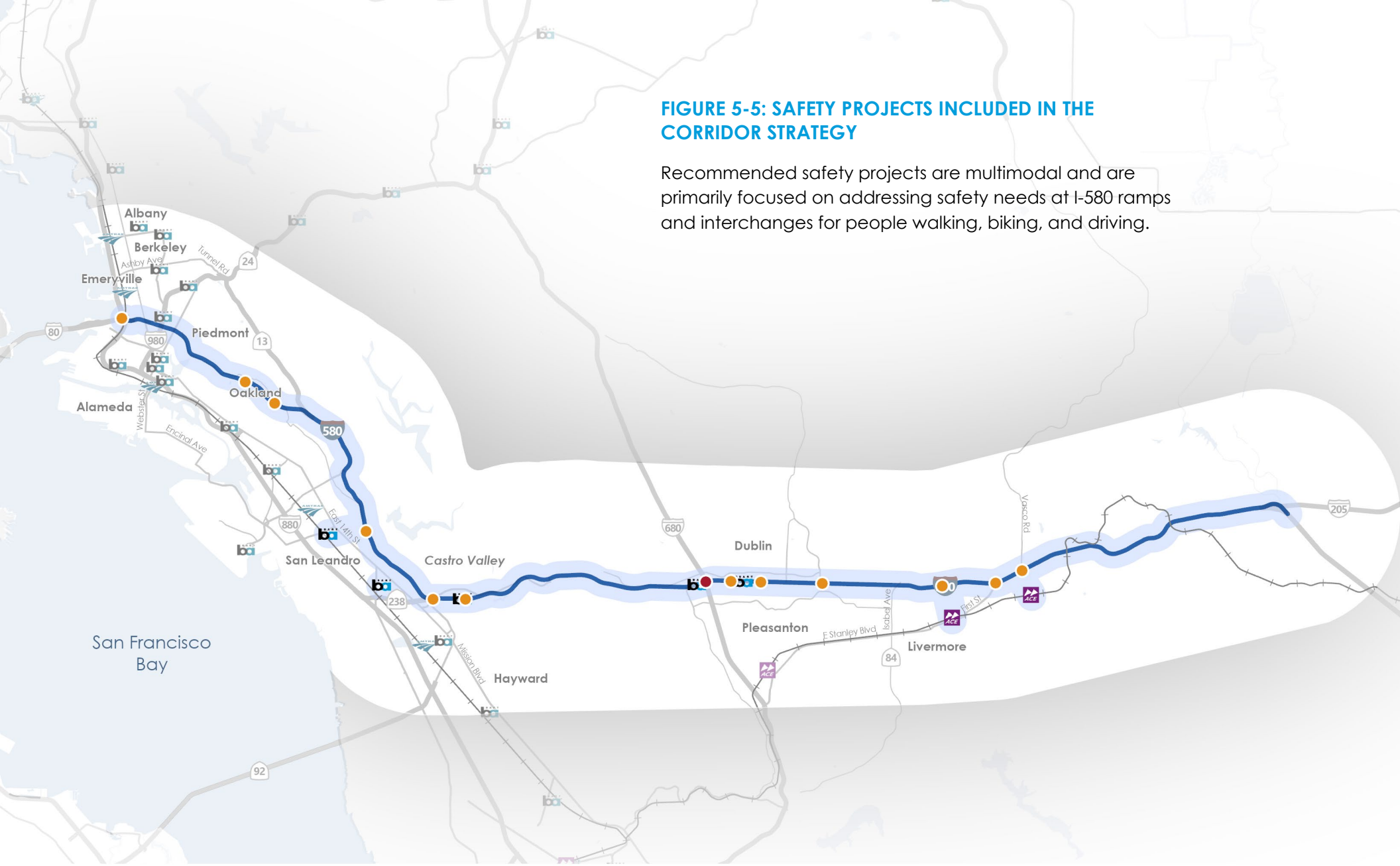
Reduce speed limits to 55 miles per hour on I-580 and 25 miles per hour on local streets, consistent with Vision Zero best practices and Plan Bay Area 2050, using street redesign and traffic calming measures to slow traffic, as well as automated speed enforcement where needed. Design enforcement activities to target those behaviors and locations most linked to death and serious injury among vulnerable road users.

APPLY THE SAFE SYSTEM APPROACH

Consistent with strategies recommended in the 2020 CTP and Alameda CTC's All Ages and Abilities Policy, continue to apply the Safe System Approach to all projects and programs to improve the safety of streets and active transportation facilities for all users.

FIGURE 5-5: SAFETY PROJECTS INCLUDED IN THE CORRIDOR STRATEGY

Recommended safety projects are multimodal and are primarily focused on addressing safety needs at I-580 ramps and interchanges for people walking, biking, and driving.



ELEMENTS FOR FURTHER STUDY AND REFINEMENT

As shown in **Figure 5-6**, the Corridor Strategy recommends three projects along the corridor for further study and long-term implementation: the busway and supportive transit service and infrastructure improvements, express lanes, and ramp infrastructure modifications.

I-580 BUSWAY

Convert a general-purpose lane in each direction of travel to a center-running busway between the I-980 interchange and the 35th Avenue in interchange in Oakland with stations at Grand Avenue, 14th Avenue/Park Avenue, Fruitvale Avenue and 35th Avenue.

Transit improvements that would enhance bus operations such as TSP should be advanced independent of the busway, as these projects would also enhance existing bus service.

TRANSBAY AND EXPRESS BUS SERVICE EXPANSION

Expand bus service along the I-580 corridor by:

- Providing seven new Transbay routes along 98th Avenue, 14th Avenue, Seminary Avenue, Fruitvale Avenue, High Street, Park/5th and MacArthur/35th/Redwood.
- Replacing Transbay route NL with a new Intra-Oakland route between Foothill Square and 12th Street Oakland City Center BART.
- Providing a new express bus route between Castro Valley BART and 19th Street Oakland BART.

TRANSBAY FREQUENCY BOOSTS

Provide all-day 15-minute frequency on AC Transit Transbay routes serving the study area (Lines C, D, E, J, P, and V).

TRANSIT SIGNAL PRIORITY (TSP)

Implement TSP along Solano Avenue/Shattuck Avenue, University Avenue, Martin Luther King Jr Way, Fruitvale Avenue, Foothill Boulevard, 73rd Avenue, Bancroft Avenue, East 14th Street, and other local streets used by Transbay routes serving the study area.

EXPRESS LANE CONVERSIONS

Convert a general-purpose lane in each direction of travel to an express lane along I-580 between Keller Avenue and I-680 and between Greenville Road and the San Joaquin County line.

RAMP INFRASTRUCTURE

Ramps are sites of high safety risk as they create interactions between fast-moving vehicles entering and exiting the freeway, non-motorized users, and motorists on nearby surface streets. The Corridor Strategy recommends reconfiguring and removing ramps in Oakland where risks to bicyclists and pedestrians are highest.

FREEWAY RAMP RECONFIGURATION

Signalize the I-580 eastbound off-ramp/Broadway intersection and modify the off-ramp geometry to allow off-ramp vehicles to turn left onto Broadway northbound. Remove the slip lane portion of the eastbound off-ramp at the Webster Street intersection, forcing all traffic through the proposed signalized intersection at I-580 eastbound off-

ramp/Broadway. Remove cul-de-sac on 34th Street and convert to a two-way street.

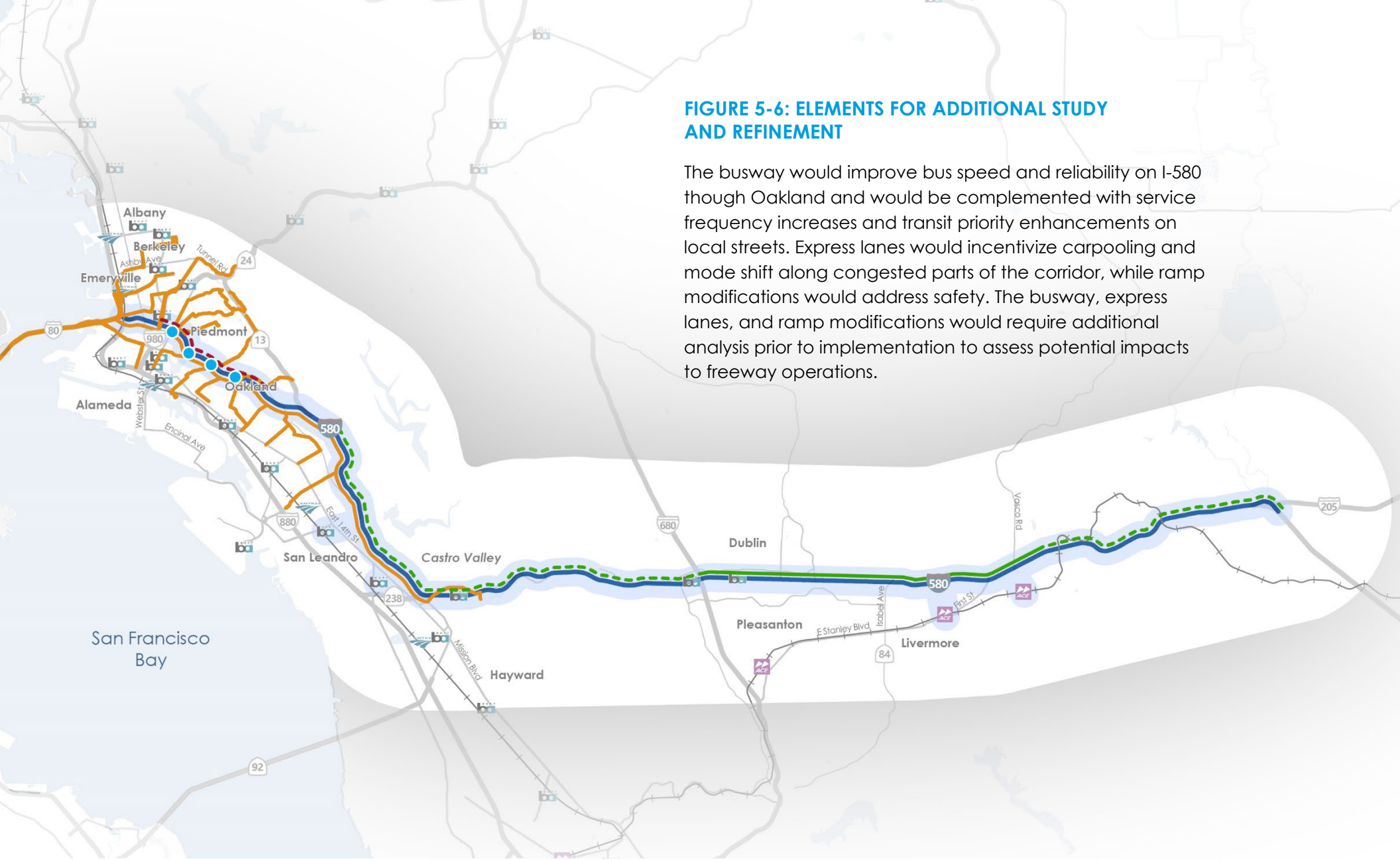
FREEWAY RAMP REMOVAL

Remove the following freeway ramps:

- I-580 westbound off-ramp at Grand Avenue
- I-580 westbound slip on-ramp at Dimond Avenue
- I-580 westbound slip on-ramp at Excelsior Avenue

FIGURE 5-6: ELEMENTS FOR ADDITIONAL STUDY AND REFINEMENT

The busway would improve bus speed and reliability on I-580 though Oakland and would be complemented with service frequency increases and transit priority enhancements on local streets. Express lanes would incentivize carpooling and mode shift along congested parts of the corridor, while ramp modifications would address safety. The busway, express lanes, and ramp modifications would require additional analysis prior to implementation to assess potential impacts to freeway operations.



CORRIDOR STRATEGY PERFORMANCE

The Corridor Strategy recommendations were evaluated using the methodology described in Chapter 3 to assess its performance in advancing the Plan goals and objectives. Of the seven goals, sustainability, health and safety, and equity were major focus areas of the recommendations. As shown in **Figure 5-7**, the Corridor Strategy would represent substantial progress towards these goals.

Sustainability of travel on the corridor is addressed primarily through major investments in transit service. With these investments, the corridor was found to accommodate increased travel demand and person throughput with no change to travel times and reduced VMT.

Health and safety on the corridor would be directly improved by recommended investments in the All Ages and Abilities bike network, speed reduction policies, and ramp modifications. Additionally, the lower VMT resulting transit investments and other multimodal improvements would result in cleaner air and reduce the frequency of collisions through lower exposure to collision risk.

The Corridor Strategy would improve equitable outcomes through direct investments in accessibility, safety, and mobility in Equity Priority Communities. Users of the recommended improvements on the I-580 mainline are expected to have similar incomes as study area residents, indicating that the benefits of these major investments would be equitably distributed. The Corridor Strategy further supports equity through means-based fares and tolls that reduce the cost of transportation for low-income travelers.

CORRIDOR STRATEGY PERFORMANCE SUMMARY

The following section summarizes evaluation findings and describes expected changes to corridor performance in 2035, if Corridor Strategy recommendations are implemented.

Note that the quantitative findings are from the Evaluation Scenario, which includes projects recommended for further study. As shown on **Figure 5-7,** some metrics could not be evaluated, and not all metrics resulted in clear results for all users of the corridor. For these reasons, the main changes to the interstate are recommended for further study to address the issues raised in this Corridor Strategy.

FIGURE 5-7: SUMMARY OF CORRIDOR STRATEGY PERFORMANCE IN 2035

GOAL 1: IMPROVE SUSTAINABILITY

Reduce VMT

The Corridor Strategy would reduce growth in VMT within the study area with no reductions to the number of trips taken. The Corridor Strategy reduces VMT in the study area by 0.9 percent, EPCs by 1.3 percent, and PDAs by 1.2 percent.

Reduce Greenhouse Gas Emissions

The Corridor Strategy would reduce greenhouse gas emissions by about 2 percent (17 annual tons of CO2 equivalent).

GOAL 2: IMPROVE HEALTH & SAFETY

Reduce criteria pollutants

The Corridor Strategy would reduce emissions of criteria pollutants – carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide – by reducing VMT in the study area.

Reduce the number and severity of collisions

The Corridor Strategy would reduce the risk of collisions with people walking and bicycling by improving active transportation facilities and investing in projects that close gaps in the active transportation network. The recommended ramp modification projects would also enhance traffic safety at interchanges with a documented history of severe collisions for drivers.

$2.7 billion invested in All Ages and Abilities bicycle

The Corridor Strategy also supports the policy in Plan Bay Area 2050 to reduce freeway speed limits to 55 miles per hour and local speed limits to 25 miles per hour. Lower speeds would reduce both the frequency and severity of collisions for all travelers regardless of mode.

GOAL 3: IMPROVE ACCESSIBILITY

Improve Job Access

The Corridor Strategy would improve job access by making an additional 3,000 jobs accessible within a 30-minute car ride and an additional 2,000 jobs accessible within a 45-minute transit trip. Increases in job accessibility from PDAs is even more pronounced. For example, 75,000 additional jobs are accessible within a 30-minute transit trip for a subset of Oakland Priority Development Area (PDA) residents in the long-term scenario.

Corridor Strategy investments in the All Ages and Abilities bicycle network would also expand regional access to jobs by improving bicycle connections to transit stations.

As shown in **Table 5-1** and **Figure 5-8** through **Figure 5-10**, these investments lead to a 32 percent increase in the area within 10-minute bike access to regional transit stops.

Increase Availability of Affordable Alternatives to Driving Alone

The Corridor Strategy increases affordable alternatives to driving by investing in new transit service, increased transit frequency, and bicycle projects that enhance the connectivity of the All Ages and Abilities bicycle network and improve walking and biking access to transit stations. The Corridor Strategy would result in an additional 86,000 daily transit boardings, suggesting that with recommended projects, affordable transportation options like transit become more attractive.

The Corridor Strategy pairs transportation improvements with policies such as means-based fares that would lower the cost of alternatives to driving for people with low incomes.

Almost **85% of near- and medium-term investment** is focused on projects that **improve transit facilities or access to transit.**

GOAL 4: ENHANCE TRAVEL RELIABILITY & EFFICIENCY

Improve Transit On-Time Performance

The Corridor Strategy would improve transit on-time performance through bus priority treatments such as a busway, TSP, and bus priority lanes to reduce bus delay and improve reliability.

Transit On-Time Performance is addressed through **$1.5 billion of funding for transit priority treatments**

Increase Corridor Person Throughput

Under the Corridor Strategy, person throughput increases in the Oakland-Castro Valley, Dublin Grade, and Tri-Valley subareas during the AM and PM peak periods.

Increases in throughput through Oakland are primarily driven by investments in bus service, while throughput gains in the Tri-Valley are driven by investment in rail. Increases in throughput along the Dublin Grade result from a combination of investment in rail service and express lanes.

Table 5-1: Comparison of 10-Min Existing and Corridor Strategy Bike Sheds

Transit Station	Existing 10-min Bike Shed (sq mi)	10-min Bike Shed with Corridor Strategy (sq mi)	Change
MacArthur BART	3.7	5.0	+36%
San Leandro BART	2.8	4.3	+55%
Bayfair BART	2.1	2.9	+37%
Castro Valley BART	1.8	2.7	+49%
West Dublin Pleasanton BART	2.3	3.0	+28%
Dublin Pleasanton BART	2.8	3.4	+21%
Livermore ACE	3.4	4.2	+22%
Vasco Road ACE	1.0	2.7	+170%
Dublin Pleasanton Valley Link	2.5	2.9	+15%
Isabel Station Valley Link	1.4	1.4	No Change
Southfront Road Station Valley Link	0.8	1.2	+48%
Total Area (excluding overlaps)	**22.2**	**29.3**	**+32%**

Source: Fehr & Peers

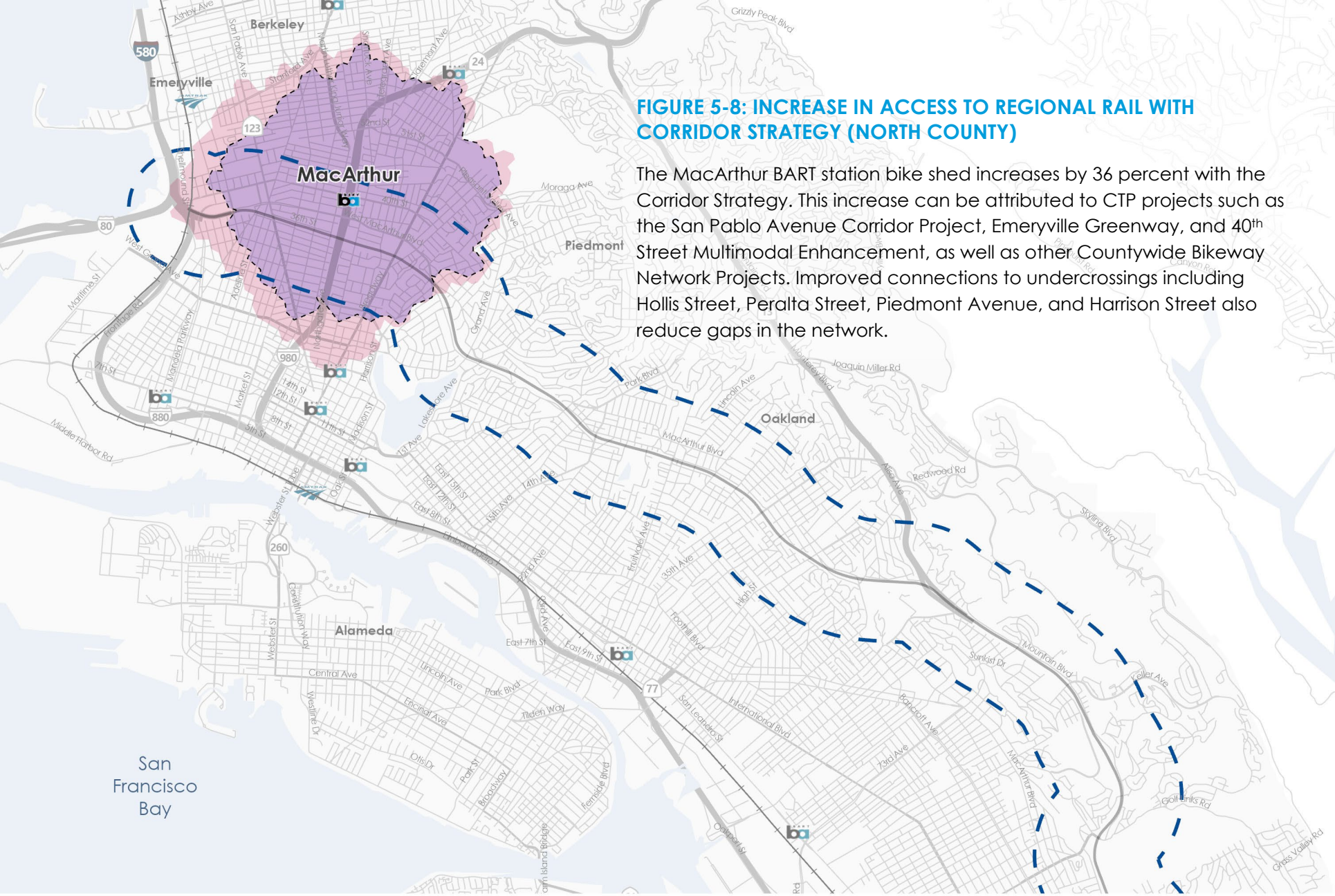


FIGURE 5-8: INCREASE IN ACCESS TO REGIONAL RAIL WITH CORRIDOR STRATEGY (NORTH COUNTY)

The MacArthur BART station bike shed increases by 36 percent with the Corridor Strategy. This increase can be attributed to CTP projects such as the San Pablo Avenue Corridor Project, Emeryville Greenway, and 40th Street Multimodal Enhancement, as well as other Countywide Bikeway Network Projects. Improved connections to undercrossings including Hollis Street, Peralta Street, Piedmont Avenue, and Harrison Street also reduce gaps in the network.

FIGURE 5-9: INCREASE IN ACCESS TO REGIONAL RAIL BASED ON CORRIDOR STRATEGY (SAN LEANDRO AND CASTRO VALLEY)

The 10-minute bike shed around San Leandro BART shows the largest increase (+55 percent) in this area with the implementation of the Corridor Strategy. This increase can be attributed to projects such as the East Bay Greenway and the San Leandro Creek Trail, as well as CBN connections along Williams Street and Bancroft Avenue. With the addition of the CBN segment along Redwood Road, the bike shed around Castro Valley BART expands to cover more area south of I-580.

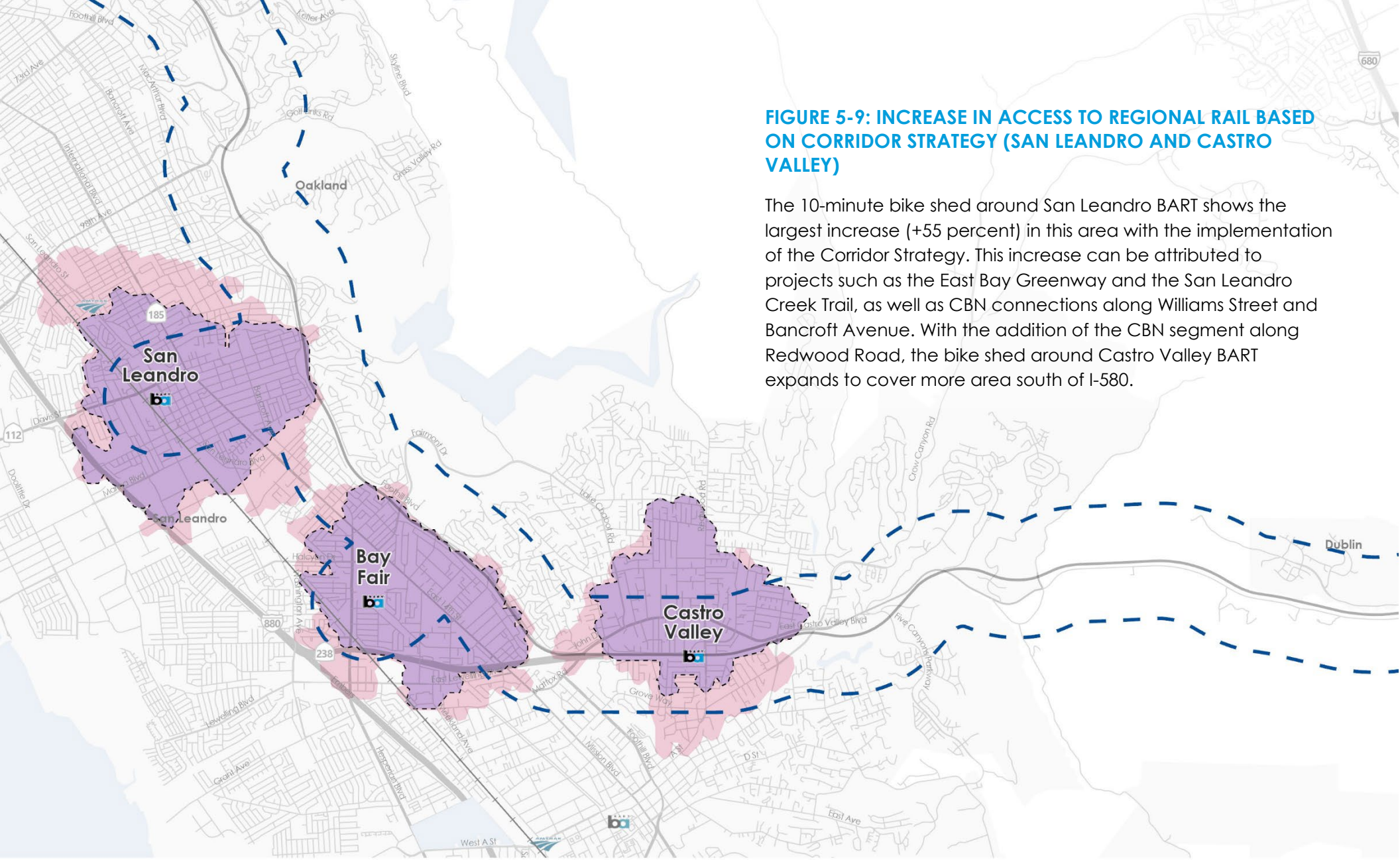
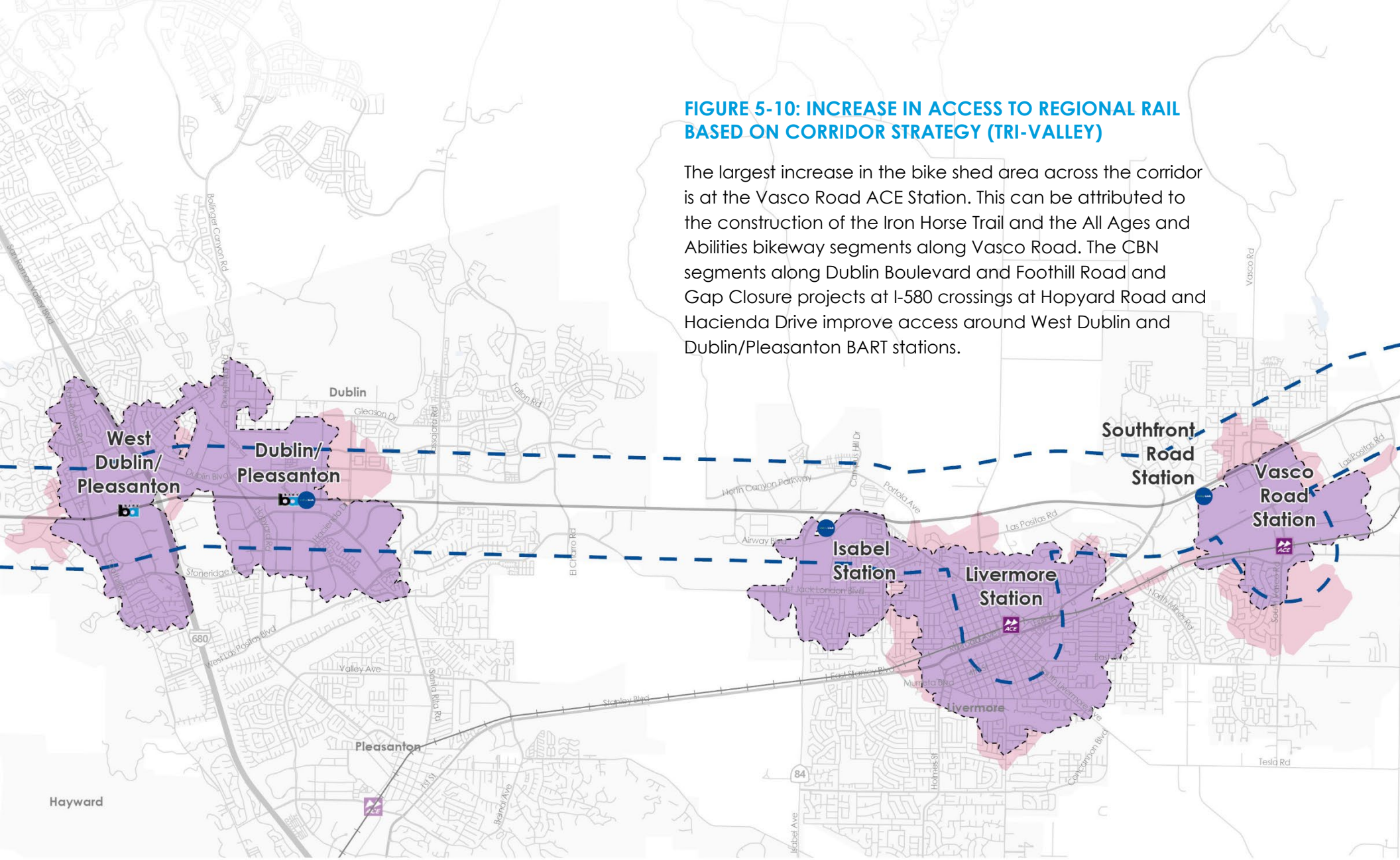


FIGURE 5-10: INCREASE IN ACCESS TO REGIONAL RAIL BASED ON CORRIDOR STRATEGY (TRI-VALLEY)

The largest increase in the bike shed area across the corridor is at the Vasco Road ACE Station. This can be attributed to the construction of the Iron Horse Trail and the All Ages and Abilities bikeway segments along Vasco Road. The CBN segments along Dublin Boulevard and Foothill Road and Gap Closure projects at I-580 crossings at Hopyard Road and Hacienda Drive improve access around West Dublin and Dublin/Pleasanton BART stations.



GOAL 5: STRENGTHEN ECONOMIC VITALITY

Increase Employment Access

The Corridor Strategy increases employment access by making an additional 3,000 jobs accessible within a 30-minute car ride and an additional 2,000 jobs accessible within a 45-minute transit trip.

GOAL 6: SUPPORT EFFICIENT LAND USE & EXISTING COMMUNITIES

Promote Multimodal Travel That Supports Efficient Land Use

The Corridor Strategy invests in bus and rail service and active transportation projects that support travel to key activity centers including existing employment centers in downtown Oakland, San Leandro, Dublin, and Pleasanton.

Over 95% of investment improves access to/from **PDAs**

Support Placemaking and Existing Communities

The Corridor Strategy supports placemaking and existing communities by investing in projects like transit station access improvements and bikeways that provide communities with opportunities to shape the local environment.

GOAL 7: ADVANCE EQUITY IN PLANNING PROCESS & OUTCOMES

Increase Accessibility in Equity Priority Communities

The Corridor Strategy would make an additional 4,000 jobs accessible within a 30-minute car ride and an additional 4,000 jobs accessible within a 45-minute transit trip for Equity Priority Community Residents.

For residents within a subset of East Oakland PDAs, which overlaps with EPCs, an additional 75,000 jobs are accessible within a 30-minute transit trip in the long-term scenario.

Over 70% of investment improves access to/from **EPCs**

Improve Safety in Equity Priority Communities

The Corridor Strategy invests in projects and policies that would improve safety in Equity Priority Communities. Three of the four ramp modification projects would be in Equity Priority Communities.

Approximately **40% of project miles to expand the All Ages and Abilities bike network** would be in Equity Priority Communities.

Collision severity and frequency would also be reduced through recommended projects and policies. Collision severity would be reduced through the automated enforcement of lower speed limits (55 miles per hour and 25

miles per hour speed limits on the interstate and local roads respectively). The Corridor Strategy would also reduce VMT in Equity Priority Communities, which would reduce the frequency of collisions.

Improve Mobility in Equity Priority Communities

The Corridor Strategy improves mobility in Equity Priority Communities through projects and policies that increase travel options for residents and reduce the cost of travel, especially in the long-term scenario.

EPCs would be served by **13 new bus routes**

Rail station access improvements, bicycle gap closure projects to facilitate travel across I-580, and investments to expand transit service south of I-580 in San Leandro and Oakland would increase the number of transportation choices available to residents in Equity Priority Communities.

Policies implementing and supporting means-based fares and tolls would also improve mobility for low-income travelers by making travel more affordable.

Reduce Environmental Burdens in Equity Priority Communities

The Corridor Strategy would reduce commercial VMT and VMT generated by personal vehicles in Equity Priority Communities by 1.3 percent and 3.1 percent respectively. This would reduce exposure to tail pipe emissions and criteria in Equity Priority Communities.

Converting general-purpose lanes on the I-580 mainline to a busway and express lanes would not result in traffic diversion to parallel roadways in Equity Priority Communities south of I-580 in Oakland and San Leandro

EVALUATION LIMITATIONS

The main analysis tool used to assess performance of the elements included in the Corridor Strategy was the AlaCC Model. The AlaCC model is a tool that assesses travel demand at the macroscopic level. This means that the tool can assess trends and metrics at an aggregated level but does not account for freeway travel dynamics at a level of detail sufficient to determine operational level impacts such as travel time changes, impacts to queueing and delays on I-580. For this reason, the travel time reliability and travel time delay were excluded from the performance metrics. Additionally, the main metric associated with freight travel, commercial vehicle VMT, is not sufficient to quantify the effects that the Corridor Strategy would have on the efficiency of commercial goods movement.

TIMELINES AND CONSIDERATIONS FOR IMPLEMENTATION

The Corridor Strategy recommends projects for implementation in the near (0-5 years), medium (5-15 years), and long term (15 years or more) as shown in **Table 5-2** and **Table 5-3**.

IMPLEMENTATION TIMELINES

Projects recommended for near term implementation are those with an identified project sponsor, clear definition, secured funding, and the project development process underway. Projects recommended in the medium term are projects that were either newly identified through this planning process and/or cannot be implemented within the next five years.

Projects recommended for long-term implementation are those with a high degree of uncertainty about project definition, need, and support. Two projects – the busway and express lanes – are recommended for long-term implementation given the amount of additional planning and coordination needed to define and advance each project.

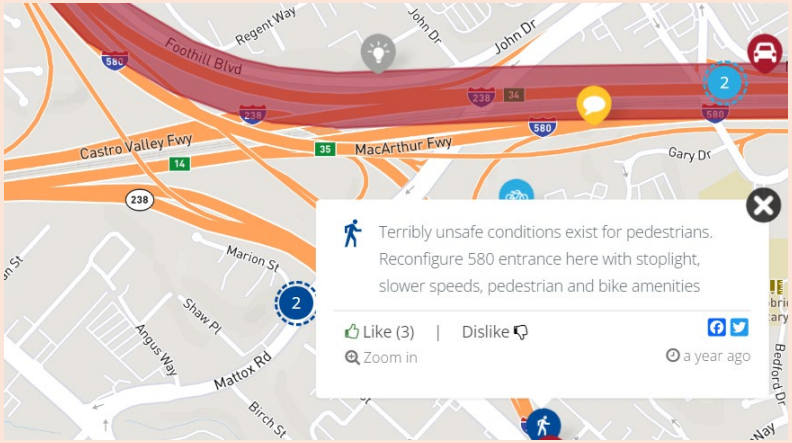
REGIONAL TRANSPORTATION PLAN CONSISTENCY

Some recommended projects are not included in Plan Bay Area 2050, the region's long range transportation plan. Recommended projects will need to be included in a future version of Plan Bay Area to receive state and federal funding.

CENTRAL COUNTY COMMUNITY CONNECTIONS PLAN

Many public comments received on the I-580 interactive web map noted that communities adjacent to I-580, I-880, and I-238 are disproportionately burdened by freeway infrastructure that poses barriers to safe and connected access to transit stations and other key destinations. Public comments describe how freeway infrastructure and high vehicle speeds create safety issues for people walking and biking on local streets and expressed a need for projects to improve bicycle facilities, slow vehicle speeds, redirect freeway traffic away from local streets, and support local placemaking.

Alameda CTC has received a Caltrans Sustainable Transportation Planning Grant to fund the Central County Community Connections Plan which will build on comments and feedback collected as part of this study, the Caltrans District 4 Bike and Pedestrian Plans, and BART's assessment of multimodal gaps in station access. The plan will identify community priorities pertaining to safety, access, resilience, and placemaking and develop concepts to improve connectivity across barriers in the study area.



OTHER IMPLEMENTATION CONSIDERATIONS

As noted under Active Transportation recommendations, needs from the Caltrans District 4 Pedestrian Plan should be reviewed as part of project development for major corridor projects and the CBN, and pedestrian spot improvements should be incorporated into these projects.

Some projects will have to overcome known challenges prior to implementation. For example, implementing bus only lanes is expected to require significant coordination between local jurisdictions and AC Transit and a high level of local support.

The needs assessment also resulted in updated recommendations that should be incorporated into existing project scopes. In particular, the needs assessment uncovered gaps in bicycle and pedestrian facilities at I-580 interchanges, and advanced recommendations for interchange barrier closure projects to the Corridor Strategy. Implementing these recommendations may require revisiting.

FULL CORRIDOR STRATEGY

The full list of projects included in the Corridor Strategy is shown in **Table 5-2** and **Table 5-3** which include detail on the project description and project cost. Note that costs are shown for informational purposes only and are subject to change as projects advance. An inflation adjustment was applied to costs from the 2020 Countywide Transportation Plan (2020 CTP) for point of reference.

Table 5-2: Near- and Medium-Term Corridor Strategy Projects

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[2]	Near Term (<5 years)	Medium Term (5-10 years)
Bikeways and Trails	Countywide Multi-Use Trails	Build out and close all gaps along the countywide multi-use trails, including the East Bay Greenway, East Lewelling Boulevard, Greenway and Mandela Connector, Iron Horse Trail, San Leandro Creek Trail, San Lorenzo Creek Trail, improving connections to existing Greenways and the Bay Trail. Improvements include lighting, fencing, barrier railing, intersection improvements, sidewalk widening and pedestrian and bicyclist crossing treatments.	$381	X	X
Bikeways and Trails	Countywide Bikeways Network (CBN)	Construct the CBN, a fully connected All Ages and Abilities network across the county, with bikeways along or parallel to Mandela Pkwy, West Ave, Telegraph Ave, 40th Street, Grand Ave (Oakland), Lakeshore Ave, MacArthur Blvd, 14th Ave, Fruitvale Ave, High Street, Bancroft Ave, Williams Street, Halcyon Drive, Hesperian Blvd, Foothill Blvd, 167th Ave, Castro Valley Blvd, Redwood Road, Dublin Canyon Road, Foothill Road, Dublin Blvd, Santa Rita Road, North Canyons Pkwy, Portola Ave, North L Street, 5th Street, East Ave, Northfront Road, and South Vasco Road.	$574	X	X

[2] Note: Listed project costs represent high-level cost estimates subject to change, may not align with cost estimates in technical memo because project-sponsor provided costs are used where available. Asterisks indicate projects costs represent capital costs only for transit projects, consistent Plan Bay Area 2050+ cost estimates.

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[2]	Near Term (<5 years)	Medium Term (5-10 years)
Bikeways and Trails	Priority Freeway Barrier Closures	Provide All Ages and Abilities connections between the CBN and freeway crossings and interchanges identified as top- and mid-priority barriers to safe travel in the Caltrans D4 Bike Plan, including Beach Street, Hollis Street, Peralta Street, Mandela Pkwy, Piedmont Ave, Harrison Street, Oakland Ave, Lake Park Drive, Park Blvd, Edwards Ave, 98th Ave, and Grand Ave (San Leandro). Also provide All Ages and Abilities connections through interchanges identified as safety barriers in the Plan's needs assessment, including 35th Ave, 150th Ave, 164th Ave, Castro Valley Blvd, Dougherty Road/Hopyard Road, Hacienda Drive, El Charro Road, North Livermore Ave, and First Street/Springtown Blvd.	$166	X	X
Bikeways and Trails	East Bay Greenway (Phase 2)	Implement a linear park type regional trail facility that runs in the BART/Union Pacific Railroad (UPRR) Oakland Subdivision corridor from Fruitvale BART to South Hayward BART (13 miles).	$515		X
Bikeways and Trails	Freeway Barrier Closures	Provide all ages and abilities connections between the CBN and freeway crossings and interchanges identified in the Caltrans D4 Bike Plan as low-priority barriers to safe travel, including Oakland Avenue, Chetwood Street, Tassajara Creek, Kuhnle Avenue, Greenville Road, Heritage Road, Airway Boulevard and Sutter Street.	NA		X
Multimodal Corridors	Multimodal Corridor Enhancements	Install multimodal improvements, including bus-only lanes for both local and Transbay buses, Class IV separated bikeways, bicycle-pedestrian intersection improvements, and streetscape improvements with opportunities for green infrastructure and art opportunities along 40th Street, San Pablo Avenue and West Grand Avenue. The project will also include bus stop consolidation, and new loading zones.	$235	X	

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[2]	Near Term (<5 years)	Medium Term (5-10 years)
Multimodal Corridors	Dublin Blvd - North Canyons Parkway Extension	Extend Dublin Boulevard in Dublin from its current terminus at the intersection with Fallon Road to North Canyons Parkway at the intersection with Doolan Road in Livermore. The project is planned to accommodate four to six vehicular travel lanes and will include landscaped medians, Class I multi-use path and Class IV bicycle facilities connecting to bike lanes on Fallon Road and Dublin Boulevard west of Fallon Road, sidewalks, and signalized intersections. Protected intersections will be provided at Fallon Road, Croak Road, and Doolan Canyon Road. Reroute LAVTA's 30R through the Dublin Blvd-North Canyons Pkwy extension and to serve the Vasco Rd ACE station; transit vehicles will run in general-purpose lanes, with access to queue jump lanes at intersections along Dublin Blvd-North Canyons Pkwy.	$160	X	
Multimodal Corridors	East 14th/Mission and Fremont Blvd Corridor	Implement multimodal upgrades along East 14th/Mission and Fremont Blvd. This includes dedicated transit infrastructure, safety improvements for bicycle and pedestrians, and upgrades to park-and-ride infrastructure at BART stations. Project also includes BRT extension to the South Hayward BART station, new rapid bus service between the San Leandro and Warm Springs BART stations, and frequency upgrades (10-minute peak headways on Line 10).	$546*		X
Multimodal Corridors	MacArthur Blvd Multimodal Improvements	Construct an eastbound bus-only lane and protected bike lane on MacArthur Blvd between Grand Ave and Lakeshore Ave, including a protected intersection at Grand Ave.	$4		X

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[2]	Near Term (<5 years)	Medium Term (5-10 years)
New Rail Service	Valley Link Initial Operating Phase	Construct the initial operating phase of Valley Link, a 22-mile passenger rail transit system connecting the northern San Joaquin Valley to the BART system at the Dublin/Pleasanton BART station. The project includes four new stations at Dublin/Pleasanton, Isabel, Southfront Road, and the Mountain House Community. The system would match BART Blue Line frequencies during the peak periods and operate at 45-minute frequencies during off-peak periods	$2,375*		X
Transit Access	Dublin/Pleasanton BART Station Access Enhancements	Improve bicycle and pedestrian access to the Dublin/Pleasanton BART station by closing a gap between two existing segments of the Iron Horse Trail in Dublin and Pleasanton, including a two-way cycle track and a separated paved pedestrian path; improved and pedestrian-scale lighting; additional secure bicycle parking; wayfinding; and landscaping and storm water management. Provide seamless and coordinated transfers between BART, Valley Link, and connecting bus routes into the station.	$20	X	
Transit Access	Rail Station Area Access Enhancements	Improve bicycle and pedestrian access to rail transit stations, including the MacArthur, San Leandro, Bay Fair, Castro Valley, and West Dublin/Pleasanton BART stations and Livermore and Vasco ACE stations. Project cost estimate assumes 10 miles of all-ages and abilities facilities.	$154	X	X
Transit Priority Infrastructure	Corridor Transit Priority Improvements	Implement dedicated transit-only lanes, curb ramp and sidewalk improvements, improved bus stops, and ITS facilities that allow for queue jump lanes, bicycle and vehicle detection, and communications infrastructure along Broadway, Foothill Boulevard, Fruitvale Avenue, MacArthur Boulevard, and Shattuck Ave/Martin Luther King Jr Way Corridor.	$247	X	

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[2]	Near Term (<5 years)	Medium Term (5-10 years)
Transit Priority Infrastructure	San Pablo Avenue Rapid Bus	Implement improvements to existing bus service along San Pablo Avenue between Oakland and Richmond. Improvements include dedicated lanes, improved stop infrastructure, merging of local/rapid stops, and frequency upgrades (5 minute peak headways on route 72)	$396*	X	
Transit Service Improvements	ACE Medium-Term Service Increase	Provide one additional daily roundtrip on ACE between Merced and San Jose.	$346*	X	
Transit Service Improvements	BART Core Capacity	Implement the BART Core Capacity project, which includes train control modernization, rail car procurement, necessary traction power upgrades, and frequency boosts that provide up to 30 ten-car trains per hour in each direction through the Transbay Tube, with 12-minute frequencies during peak period service.	$4,419*	X	
Mainline	I-580/I-680 Interchange Near-Term Safety Improvements	Construct near-term safety improvements approaching and through the I-580/I-680 Interchange to improve safety and provide traffic relief on one of the most significant bottlenecks on the freeway system.	$40	X	
Mainline	Safety Enhancements at Priority Interchanges	Conduct planning studies assessing and defining potential safety improvements focused on vision zero enhancements at ramp terminal intersections for safety priority interchanges along I-580 identified in the safety needs assessment, including at: I-80, Fruitvale Ave, High St, Grand Ave (San Leandro), I-238/Castro Valley Blvd, Redwood Rd, Hopyard Rd/Dougherty Rd, Hacienda Dr, Fallon Rd/El Charro Rd, Livermore Ave, First St/Springtown Blvd, and N Vasco Rd/S Vasco Rd.	$25-40 each		X

Project Type	Project Name	Project Description	Project Cost (YOE$, m)[2]	Near Term (<5 years)	Medium Term (5-10 years)
Technology Program	Technology Enhancements to connect arterials with freeways for connected and autonomous vehicles	Implement technology enhancements to monitor and enhance bus service along the Dublin Boulevard corridor, including enhancing fiber communications, future connected/autonomous shuttle projects, installing on-board and roadside units, and implementing advanced signal systems to tackle corridor wide congestion, travel delays and operational challenges along I-580.	$29	X	
Fares and Tolls	Means-based fares and tolls	Implement a 50% fare discount received by individuals in the two lowest income quartiles, and 50% toll discounts received by individuals in the lowest income quartile.	TBD		X

Note: Listed project costs represent high-level cost estimates subject to change, may not align with cost estimates in technical memo because project-sponsor provided costs are used where available. Asterisks indicate projects costs represent capital costs only for transit projects, consistent Plan Bay Area 2050+ cost estimates.

Table 5-3: Long-Term Corridor Strategy Projects

Project Name	Project Description
I-580 Busway	Further study of a busway along I-580. The busway project evaluated by the Plan consisted of center-running bus lanes between I-980 and 35th Ave in Oakland and four busway stations with transition ramps between the freeway mainline and street level at Grand Avenue, 14th Avenue/Park Avenue, Fruitvale Avenue and 35th Avenue, corresponding to a cost of about $1.4 billion in YOE dollars. Additional study of the busway should include design considerations around station access to the busway stations; microsimulation to assess impacts to freeway operations from removing a general-purpose lane including metrics such as travel time and delay; and thorough engagement with communities of color throughout the design and implementation phases.
AC Transit Transbay Service Improvements	Further study of improvements to AC Transit Transbay service, including frequency boosts and transit signal priority on existing routes serving the I-580 corridor and service expansions utilizing a potential future busway. The Plan evaluated all-day 15-minute frequencies and transit signal priority on existing Lines C, CA, CB, D, E, J, P, and V. The initial service plan for the busway evaluated by the Plan included seven new Transbay routes along 98th Ave, 14th Ave, Seminary Ave, Fruitvale Ave, High Street, Park Blvd/5th Ave, and MacArthur Blvd/35th Ave/Redwood Rd, as well as replacement of the Transbay route NL with a new intra-Oakland route between Foothill Square and the 12th Street Oakland City Center BART station. Additional study of improvements to Transbay service should including consideration of how intra-Oakland express service fits within AC Transit's service plan. Frequency boosts on existing Transbay routes were estimated to cost about $18 million annually in YOE dollars. New Transbay and intra-Oakland routes were assumed to operate at all-day frequencies of 15 minutes, which is estimated to cost about $59 million annually in YOE dollars. Transit signal priority on local streets utilized by existing routes and the new routes evaluated in the Plan was estimated to cost about $519 million in YOE dollars.
Castro Valley-Downtown Oakland Express Bus Service	Further study of new express bus service between Castro Valley BART and 19th Street Oakland BART. The initial service plan evaluated by the Plan assumed all-day 15-minute frequency, which is estimated to cost about $8 million annually in YOE dollars.
General Purpose to Express Lane Conversions	Further study of general-purpose to express lane conversion on I-580. The express lane conversion project evaluated by the Plan converted a general-purpose lane in each direction of travel to an express lane along I-580 between Keller Avenue and I-680 and between Greenville Road and the San Joaquin County line, corresponding to an estimated project cost of $429 million in YOE dollars. Further study of this project is needed to address concerns around freeway operations stemming from removing a general-purpose lane, and equity considerations around access to the express lane from low-income communities, which could be offset with means-based tolling policies.

Project Name	Project Description
Freeway Ramp Removal or Modifications	Further study of modification or removal of ramps with outdated designs with documented safety concerns, including the Broadway and Webster St off-ramps, Grand Ave (Oakland) off-ramp, Dimond Ave on-ramp, and Excelsior Ave on-ramp, corresponding to an estimated project cost of $23 million in YOE dollars. Further study of this project is needed to understand potential impacts to traffic operations on the freeway and local streets.

[1] AlaCC Model, 2024
[2] Caltrans Vehicle Census, Average Annual Daily Truck Traffic, 2021.
[3] Plan Bay Area 2050 Alameda County Factsheet, page 1.
[4] San Joaquin County Demographic and Employment Forecast, prepared by University of the Pacific Center for Business & Policy Research, prepared for the San Joaquin Council of Governments (September 10, 2020).
[5] See CARB's 2018 Progress Report: California's Sustainable Communities and Climate protection Act, and Draft 2022 Progress Report: California's Sustainable Communities and Climate Protection Act. Related data and resources are available at: https://ww2.arb.ca.gov/resources/documents/tracking-progress.
[6] 2020 Countywide Transportation Plan, Alameda CTC, page 35.
[7] 2022 Multimodal Monitoring Report, Alameda CTC, page 5.
[8] The map of CalFIRE designations only shows current conditions in the corridor. In the future, increasing temperatures and decreasing rainfall could exacerbate conditions and elevate or expand the areas subject to greatest fire risk.
[9] AlaCC Model, 2024
[10] Caltrans Vehicle Census, Average Annual Daily Truck Traffic, 2021.
[11] MTC Vital Signs, Traffic Volumes at Regional Gateways, 2017.
[12] Racial and Ethnic Diversity Data Tables, U.S. Census Bureau, published August 12, 2021. Available at: https://www.census.gov/library/visualizations/interactive/racial-and-ethnic-diversity-in-the-united-states-2010-and-2020-census.html (accessed April 3, 2023).
[13] (a) Decennial Census Data for 2020, U.S. Census. See: https://data.census.gov/table?g=050XX00US06001 (accessed April 3, 2023). (b) 2021 ACS 1-Year Estimates Subject Tables, U.S. Census. See: https://data.census.gov/table?g=050XX00US06001&tid=ACSST1Y2021.S0103 (accessed April 3, 2023).
[14] 2019 ACS 1-Year Estimates, Selected Economic Characteristics, U.S. Census. See: https://data.census.gov/table?t=Employment+and+Labor+Force+Status&g=050XX00US06001 (accessed April 3, 2023).
[15] Caltrans Smart Mobility Framework Guide, February 2020. Retrieved from https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/active-transportation-complete-streets/final-smf-guide-110220-not-remediated-11-4.pdf on February 3, 2023.
[16] Plan Bay Area 2050 Alameda County Factsheet, page 1.
[17] Plan Bay Area 2050 Alameda County Factsheet, page 1.
[18] San Joaquin County Demographic and Employment Forecast, prepared by University of the Pacific Center for Business & Policy Research, prepared for the San Joaquin Council of Governments (September 10, 2020).
[19] Plan Bay Area 2050 County Factsheets for Contra Costa County, San Francisco County, and Santa Clara County.
[20] San Joaquin County Demographic and Employment Forecast, prepared by University of the Pacific Center for Business & Policy Research, prepared for the San Joaquin Council of Governments (September 10, 2020). The SJCOG population forecast does not include 2015 data for the number of households, so it is not possible to compute a household growth figure that is directly comparable to the analysis from Plan Bay Area 2050. As noted on page 14 of the SJCOG report, "Overall, households grow at a similar rate as population with slight differences as the demographic composition of the population changes over time."
[21] Plan Bay Area, 20250, page 36, Metropolitan Transportation Commission / Association of Bay Area Governments, October 2021. See: https://mtc.ca.gov/sites/default/files/documents/2021-

11/Plan_Bay_Area_2050_October_2021.pdf (accessed March, 2023).

[22] https://mtc.ca.gov/planning/land-use/priority-production-areas-ppas.

[23] Plan Bay Area 2050, Chapter 1: Introduction, pp 18-19, Metropolitan Transportation Commission / Association of Bay Area Governments, May 2021. Available at: https://www.planbayarea.org/sites/default/files/documents/2021-05/Draft_PBA2050_Introduction_May2021.pdf (accessed April 3, 2023).

[24] See CARB's 2018 Progress Report: California's Sustainable Communities and Climate protection Act, and Draft 2022 Progress Report: California's Sustainable Communities and Climate Protection Act. Related data and resources are available at: https://ww2.arb.ca.gov/resources/documents/tracking-progress.

[25] 2020 Countywide Transportation Plan, Alameda CTC, page 35.

[26] 2022 Multimodal Monitoring Report, Alameda CTC, page 5.

[27] See Caltrans Climate Change Vulnerability Assessment Summary Report for District 4, 2018. Additional materials available here: https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2019-climate-change-vulnerability-assessments

[28] See Caltrans Climate Adaptation Priorities Report for District 4, 2020. Additional materials available here: https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2020-adaptation-priorities-reports

[29] The map of CalFIRE designations only shows current conditions in the corridor. In the future, increasing temperatures and decreasing rainfall could exacerbate conditions and elevate or expand the areas subject to greatest fire risk.

[30] https://mtc.ca.gov/planning/land-use/priority-conservation-areas-pcas Note that MTC and ABAG are currently working to refresh the PCA planning framework to incorporate additional policy concerns such as equity and climate resilience.

[31] See Map 13 in PBA2050_Statutorily_Required_Plan_Maps_Oct2021.pdf

[32] Caltrans District 4, Biological Sciences & Permits, WildCAT Tool, accessed August 2023.

[33] See Item 3-Bay Area in Caltrans FishPAC Other Known Barriers Database, I-580 Postmile 26.33. Available at: https://storymaps.arcgis.com/collections/6a243fa240034ee38044063d813469f0

[34] Alameda County Transportation System Fact Sheet, Alameda CTC, January 2020.

[35] Plan Bay Area 2050, Chapter 1. Bohn, S. and Thorman, T. (2020, January), Income Inequality in California, Public Policy Institute of California.

[36] Income Inequality in California Fact Sheet, Public Policy Institute of California, March ,2023. Available at: https://www.ppic.org/publication/income-inequality-in-california/ (accessed April 3, 2023)

[37] Plan Bay Area 2050, Chapter 2: Housing, MTC/ABAG. October 2021. Available at: https://www.planbayarea.org/sites/default/files/documents/PBA50_Housing_Oct2021.pdf (accessed April 3, 2023).

[38] Dineen, J. K., "Despite climate crisis, California continues to embrace exurban sprawl", San Francisco Chronicle, September 19, 2019. https://www.sfchronicle.com/climate/article/Despite-climate-crisis-California-continues-to-14454013.php (accessed April 3, 2023).

[39] 2021 Priority Development Area Investment & Growth Strategy, Alameda CTC, January 2022. Available at: https://www.alamedactc.org/wp-content/uploads/2022/01/2021_AlamedaCounty_PDA_IGS.pdf (accessed April 3, 2023).

[40] Current Express Lanes policy is that carpools, motorcycles, designated Clean Air Vehicles (CAVs), and transit buses may use the lanes for free while single occupant vehicles pay a fee to access the lanes. The Travel Markets Needs Assessment found that CAV adoption is growing rapidly in the corridor. In 2018, CAVs accounted for 2%-3% of vehicles on I-580 in Oakland, but CAV registrations have doubled in Alameda County since then. At current rate of growth (23%

YoY), CAVs could be 9%-13% of vehicles on I-580 by 2025 and may detrimentally affect managed lane operations if CAV users are allowed unrestricted access.

[42] See https://www.portofoakland.com/port/history/ (accessed March 31, 2023) and Alameda CTC 2020 Countywide Transportation Plan (page 8).
[43] 2020 Countywide Transportation Plan, Alameda CTC, page 25.
[44] Baum, Julia, "LAVTA ridership hits a decade high", Pleasanton Weekly, originally published October 21, 2019, updated January 22, 2024. https://www.pleasantonweekly.com/news/2019/10/21/lavta-ridership-hits-a-decade-high/
[45] Livermore Amador Valley Transit Authority Annual Comprehensive Financial Report for the Year Ended June 30, 2023, published November 7, 2023, page 56.
[46] Wittner, Michael, "Wheels Expands Bus Coverage, Weekend Service", Patch.com, January 17, 2024. https://patch.com/california/livermore/wheels-expands-coverage-weekend-service
[47] Utilization is calculated relative to a seated capacity of 36 passengers per bus.
[48] Based on Fehr & Peers analysis of current traffic levels and prior statistics on casual carpooling activity as documented in Bay Bridge Toll Evaluation: Final Report (Deakin et al, University of California Transportation Center report #UCTC-FR-2012-11, published November 2011) and Casual Carpooling in The San Francisco Bay Area: Understanding User Characteristics, Behaviors, and Motivations (Shaheen et al, published in Transport Policy, October 2016).
[49] Li, Roland, "There Will Be Less Bay Area Commuters Post-Pandemic", Governing Magazine, April 14, 2021. https://www.governing.com/work/there-will-be-less-bay-area-commuters-post-pandemic.html
[50] The Alameda CTC All Ages and Abilities Policy is available at: https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/1667616/7.18_COMM_Countywide_Bike_Network_20221201.pdf#page=9/ and the Design Guide is available at: https://www.alamedactc.org/countywide-bikeways
[51] See Caltrans District 4 Bike Plan, page 21. Related resources are available at: https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-bike-plan.
[52] See Caltrans District 4 Bike Plan, pages 32-34.
[53] See ArcGIS map of Caltrans District 4 Pedestrian Plan.
[54] Per Alameda CTC program webpage: https://www.alamedactc.org/programs-projects/safe-routes-to-schools
[55] The 2019 SR2S Evaluation Report is available at: https://alamedacountysr2s.org/wp-content/uploads/2020/02/2019_AlamedaCounty_SR2S_EvaluationReport_FINAL.pdf
[56] https://broadbandforall.cdt.ca.gov/executive-order/, https://broadbandforall.cdt.ca.gov/middle-mile-broadband-initiative/, and https://middle-mile-broadband-initiative.cdt.ca.gov/, all accessed February 2, 2023.
[57] Map of Proposed Transportation Projects on the State Highway System, accessed February 2, 2023.
[58] Full document available at: https://www.alamedactc.org/planning/countywidetransportationplan
[59] PBA 2050 includes the statutorily required elements to satisfy MTC/ABA's obligation to develop a quadrennial Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). PBA 2050 includes a financially constrained transportation investment plan for the next 25 years as well as policies and programs that align decisions on transportation, housing, and land use in order to meet GHG emissions targets and address broader goals for climate, air quality, and accommodating the needs of future residents.
[60] California State Transportation Plan, Available at: https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/state-planning-equity-and-engagement/california-transportation-plan, accessed February 2, 2023.
[61] CAPTI, page 12. Available at: https://calsta.ca.gov/subject-areas/climate-action-plan.
[62] CAPTI, page 6.

[63] Smart Mobility 2010 – a Call to Action for the New Decade. https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/office-of-smart-mobility-and-climate-change/smf-handbook-062210-a-a11y.pdf, accessed February 2, 2023.
[64] Caltrans, Smart Mobility Framework Guide (2020). Available at: https://www.localassistanceblog.com/2021/11/22/caltrans-smart-mobility-framework-guide/, accessed February 2, 2023.
[65] Program details available at: https://catc.ca.gov/programs/sb1/solutions-for-congested-corridors-program
[66] California Transportation Commission, Solutions for Congested Corridors Program Guidelines, https://catc.ca.gov/-/media/ctc-media/documents/programs/sccp/08-17-22-adopted-2022-sccp-guidelines.pdf, accessed February 2, 2023.
[67] California Transportation Commission, Comprehensive Multimodal Corridor Plan Guidelines, https://catc.ca.gov/-/media/ctc-media/documents/120518-approved-cmcp-guidelines-a11y.pdf, accessed February 2, 2023.
[68] Additional details on the AlaCC Model are included in the Evaluation Technical Memo and in Chapter 3.
[69] The Evaluation and Comparison Scenarios both assess corridor performance in 2035, however the Comparison Scenario excludes key corridor projects shown in Figure 4-3.
[70] Costs are expressed in year of expenditure dollars and represent planning-level estimates.
[71] Please refer to Chapter 3 for a map of subareas.
[72] The BART Core Capacity project and frequency improvements were not included in the Corridor Strategy model run however are expected to further support mode shift and VMT reduction