Appendix H:
Transportation Supporting Information

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H.1 - Transportation Existing Conditions Report

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SOUTH SAN FRANCISCO GENERAL PLAN

Transportation

November 2019 | EXISTING CONDITIONS REPORT

Chapter 4: Transportation

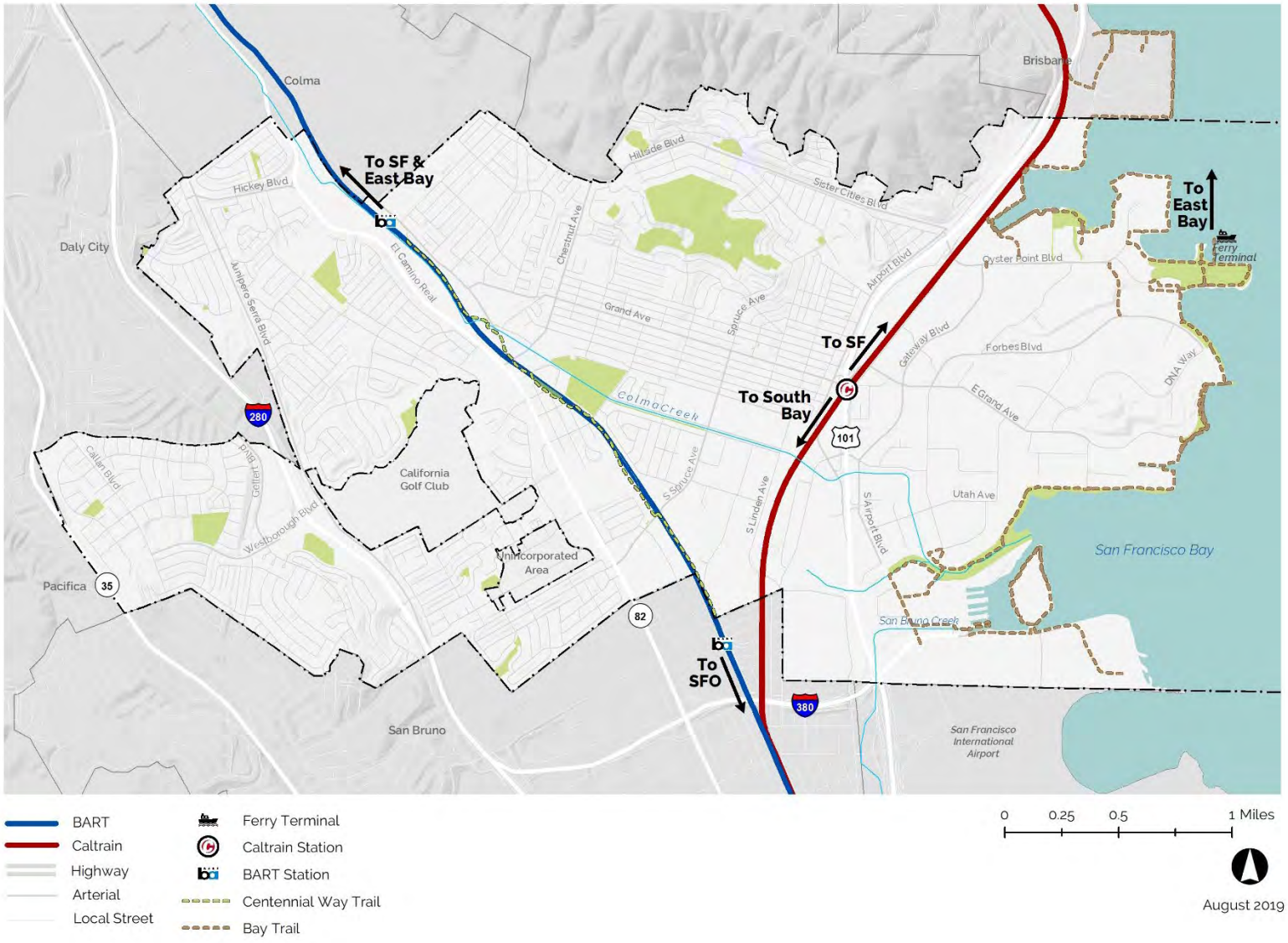
This chapter provides an assessment of existing transportation regulations, infrastructure conditions, services, and system performance in South San Francisco. The information provided in this chapter establishes a consistent baseline that frames the City's transportation conditions in the larger regional context of San Mateo County and the San Francisco Bay Area. Ultimately, the assessment of existing conditions will help the City develop a General Plan update strategy to encourage an integrated, multimodal transportation system that meets the needs of South San Francisco. This chapter reviews several aspects of transportation including: travel characteristics; roadways and functional classifications; pedestrian facilities; bicycle facilities; transit services and facilities; goods movement; Transportation Demand Management (TDM); parking; and the mobility regulatory setting.

South San Francisco's transportation system not only serves the everyday mobility needs of its residents, but also affects regional travel patterns associated with its growing employers and goods movement industry. Consequently, the General Plan Update will evaluate transportation conditions in South San Francisco at both a local and regional scale in this changing context.

Key Findings

- Over the past decade, San Mateo County's jobs-housing imbalance has substantially worsened. Between 2010 and 2015, the County added an estimated 72,000 jobs and 3,800 housing units, a ratio of 19 jobs for every new constructed unit. South San Francisco, has approved approximately 12,000 jobs and 800 homes, which translates to 15 jobs per housing unit. This jobs-housing imbalance not only has socioeconomic effects related to housing affordability and gentrification, but also significant transportation effects associated with longer commutes, increased regional traffic congestion, and growing greenhouse gas emissions.
- As South San Francisco continues to experience growth and change, its transportation needs are increasingly mismatched with its infrastructure and services. This mismatch is especially apparent in the East of 101 Area, where the current transportation paradigm is not able to accommodate expected growth. However, similar questions are facing developing areas around the Lindenville and El Camino/Chestnut areas.
- Caltrain electrification, service, and station improvements, coupled with changes to SamTrans bus service, ferries, and U.S.-101 present an opportunity to reduce driving alone in the city over the next five to ten years.
- The City is uniquely positioned to capitalize on several local and regional transportation improvements that may help reshape travel patterns for residents and employees, including expansions of Caltrain, SamTrans, and ferry service along with the introduction of high occupancy toll lanes on U.S.-101.
- Continued freight rail and truck operations in the East of 101 Area can be at odds with the evolving nature of the area. While current freight operations support continued success of local industry, it can limit the city's ability to improve on-street bicycle and pedestrian facilities and pursue rails to trails projects.
- In order to realize growth expectations and capitalize on these regional improvements, the City has identified a significant backlog of transportation needs that extend beyond its available funding. A combination of regional grants and development fees may help partially offset these costs, but there remain significant unmet needs. Concurrent discussions of a Community Facilities District to fund East of 101 improvements are relevant to informing the financial constraints of the General Plan process.

Figure 1: Existing Transportation Setting



Regulatory Setting

Transportation in South San Francisco is shaped by several agencies as well as key state legislation. A description of these agencies and relevant legislation is provided below.

City of South San Francisco

The City of South San Francisco is responsible for planning, constructing, and maintaining local public transportation facilities, including all city streets, city-operated traffic signals, sidewalks, and bicycle facilities. These local services are funded primarily by gas-tax revenue and developer fees. The City has jurisdiction over all city streets and traffic signals with the exception of those operated by Caltrans (noted below).

San Mateo City/County Association of Governments (C/CAG)

C/CAG is the Congestion Management Agency (CMA) for San Mateo County authorized to set State and federal funding priorities for improvements affecting the San Mateo County Congestion Management Program (CMP) roadway system. C/CAG-designated CMP roadway system components in South San Francisco include SR 82 (El Camino Real), U.S. 101, I-380, and I-280, but do not include any intersections within the City.

C/CAG has adopted guidelines to reduce the number of net new vehicle trips generated by new developments. These guidelines apply to all developments that generate 100 or more net new peak hour vehicular trips on the CMP network and are subject to CEQA review. The goal of the guidelines is that the developer and/or tenants will reduce the demand for all new peak hour trips (including the first 100 trips) projected to be generated by the development.

Metropolitan Transportation Commission (MTC)

The regional transportation planning agency and Metropolitan Planning Organization (MPO) for the nine-county Bay Area is the Metropolitan Transportation Commission (MTC). MTC is the authorized clearinghouse for State and federal transportation improvement funds. Each county's CMA, including C/CAG, forwards a capital improvement project list to MTC. MTC reviews the lists submitted by all nine Bay Area counties and submits a regional priority list to the California Transportation Commission (CTC) and/or the Federal Highway Administration (FHWA) for selection of projects to receive funding. Funded projects are then included in the Regional Transportation Plan (RTP) prepared by MTC.

California Department of Transportation (Caltrans)

Caltrans has authority over the State highway system, including mainline facilities, interchanges, and arterial State routes. Caltrans approves the planning and design of improvements for all State-controlled facilities. Caltrans facilities in South San Francisco include U.S. 101 and its interchanges, I-280 and its interchanges, I-380 and its interchanges, SR 82 (El Camino Real) and SR 35 (Skyline Boulevard).

Transit Operators

SamTrans operates bus service in San Mateo County. SamTrans manages local and regional bus service, paratransit services, and Caltrain commuter rail.

Caltrain operates commuter rail between San Francisco and San Jose, and limited service trains to Morgan Hill and Gilroy during weekday commute periods. Caltrain's South San Francisco Station serves the downtown and East of 101 Areas. Caltrain is funded through the Peninsula Corridor Joint Powers Board and managed by SamTrans.

BART is a rapid transit system serving San Mateo, San Francisco, Alameda, Contra Costa, and soon-to-be Santa Clara counties. Within South San Francisco, BART operates trains underground and stops at the South San Francisco Station in the northern part of the City and San Bruno Station just across the southern City boundary.

WETA operates regional ferry service on the San Francisco Bay and coordinates water transit response to regional emergencies. WETA provides public ferry service to the cities between South San Francisco and the East Bay cities of Alameda and Oakland.

Commute.org provides first/last mile shuttle service between transit stations and employers in San Mateo County. Commute.org is funded by a coalition of private businesses and government agencies, including SamTrans, Caltrain, and the Bay Area Air Quality Management District (BAAQMD).

The South City Shuttle provides free transit service around South San Francisco, connecting local destinations, SamTrans services, and the BART Station. The shuttle is managed by the City of South San Francisco and funded by both the City and the San Mateo County Transportation Authority.

Key State Legislation

Senate Bill 375 provides guidance regarding curbing emissions from cars and light trucks. There are four major components to SB 375. First, SB 375 requires regional GHG emissions targets. These targets must be updated every 8 years in conjunction with the revision schedule of the housing and transportation elements of local general plans. Second, MPOs are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. Third, SB 375 requires regional housing elements and transportation plans to be synchronized on 8-year schedules. Finally, MPOs must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the CTC.

Assembly Bill 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include "complete street" policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and the disabled. These policies can apply to new streets as well as the redesign of corridors. South San Francisco adopted their Complete Streets Policy (Resolution 86-2012) in 2012.

Senate Bill 743 changes the focus of transportation impact analysis in California Environmental Quality Act (CEQA) from measuring impacts *to* drivers, to measuring the impact *of* driving. The change is being made by replacing level of service (LOS) with vehicle miles of travel (VMT) and providing streamlined review of land use and transportation projects that will help reduce future VMT growth. This shift in transportation impact focus is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through more active transportation.

Travel Characteristics

Residents and employees in South San Francisco use many different forms of transportation. The proportion of travelers taking different transportation modes (e.g., driving alone, riding transit, cycling, walking) is referred to as "mode share." The California Household Travel Survey data collected in 2012-2013 provides the most recent comparison data between commute mode share patterns and overall mode share patterns. The commute and overall mode shares for South San Francisco and San Mateo County residents are shown in Table 1.

Table 1: Mode Share for Commute Trips and General Trips

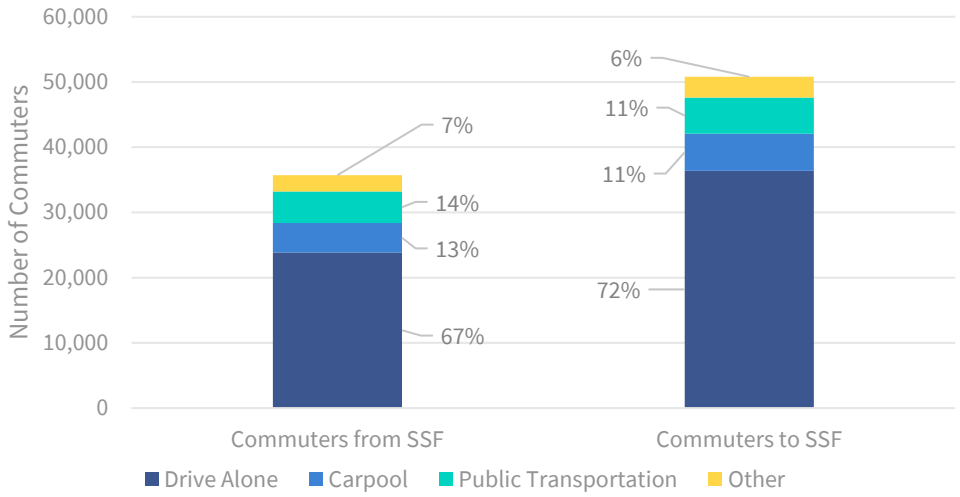
	South San Francisco		San Mateo County	
Population	67,120		763,450	
Mode	All Trips	Commute Trips	All Trips	Commute Trips
Drove alone	43%	67%	43%	69%
Carpooled	47%	13%	38%	11%
Public transit	4%	14%	4%	10%
Walked	6%	3%	12%	3%
Bicycled	<1%	<1%	2%	1%
Other	<1%	4%	1%	6%

Sources: 2013-2017 American Community Survey 5-Year estimates; 2012-2013 California Household Travel Survey. Retrieved by Fehr & Peers, 2019.

Residents of South San Francisco primarily rely on driving both for commuting and other trips. Driving alone or carpooling accounts for 90% of all trips and 80% of commute trips, which is comparable to countywide averages. Transit use is also similar to countywide averages, tending to be higher for commute trips (14%) than all trips (4%). Residents of South San Francisco tend to walk and bike less compared to countywide averages.

South San Francisco experiences a net inflow of commuters on a daily basis. Figure 2 demonstrates that there are ~36,000 commuters that originate in South San Francisco and ~51,000 that commute to South San Francisco. Within each of groups, there are ~12,000 that don't leave the city because they commute from and to the city (according to LEHD 2015 data). When comparing that mode share between these two groups, commuters to South San Francisco are more likely to drive alone and less likely to carpool or use public transportation than those commuters from South San Francisco.

Figure 2: Mode Share of Commuters from and to South San Francisco



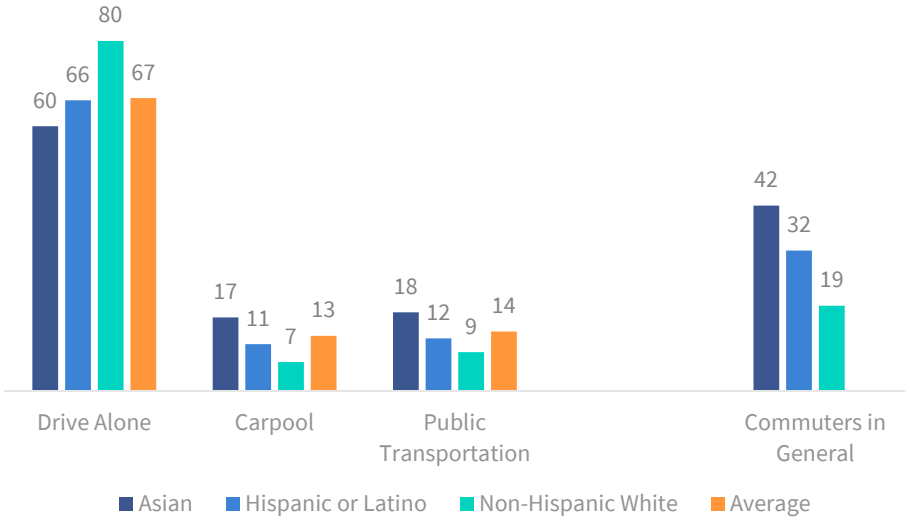
Sources: 2013-2017 American Community Survey 5-Year estimates. Tables S0802 and S0804.

Many factors effect mode choice, including vehicle ownership, availability of each mode at the start and end of a journey, and the length of a journey. These are each explored in more detail in the sections below.

Socioeconomic Factors

Commute patterns tend to vary between white and nonwhite residents of South San Francisco, as shown in Figure 3. White residents tend to drive alone more and carpool or ride transit less, while nonwhite residents still tend to rely on driving alone, but also carpool and ride transit in larger percentages.

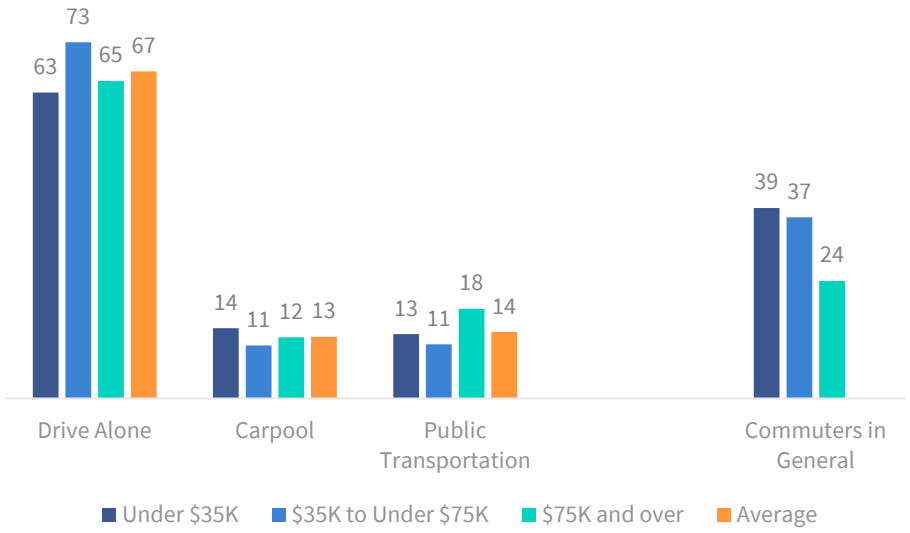
Figure 3: Journey to Work Mode Percent for Different Races/Ethnicities



Sources: 2013-2017 American Community Survey 5-Year estimates. Table B08105. Only Asian, Hispanic, and non-Hispanic White groups are included because of the low margins of error for other groups.

Commuting patterns are relatively comparable across incomes, as shown in Figure 4. Moderate income households tend to drive alone slightly more than lower or higher income households, while higher income households tend to ride transit more frequently than middle or low-income households. One possible explanation for this pattern is that some of the highest paying jobs in downtown San Francisco are more accessible via transit (particularly BART) compared to lower paying jobs, and offer a typical 9-5 workday that aligns with peak transit schedules. Higher-income households also have the financial means to move near transit or pay for all-day parking at a transit station – both extra costs that are not always accessible to lower or middle income households.

Figure 4: Journey to Work Mode Percent by Household Income Levels

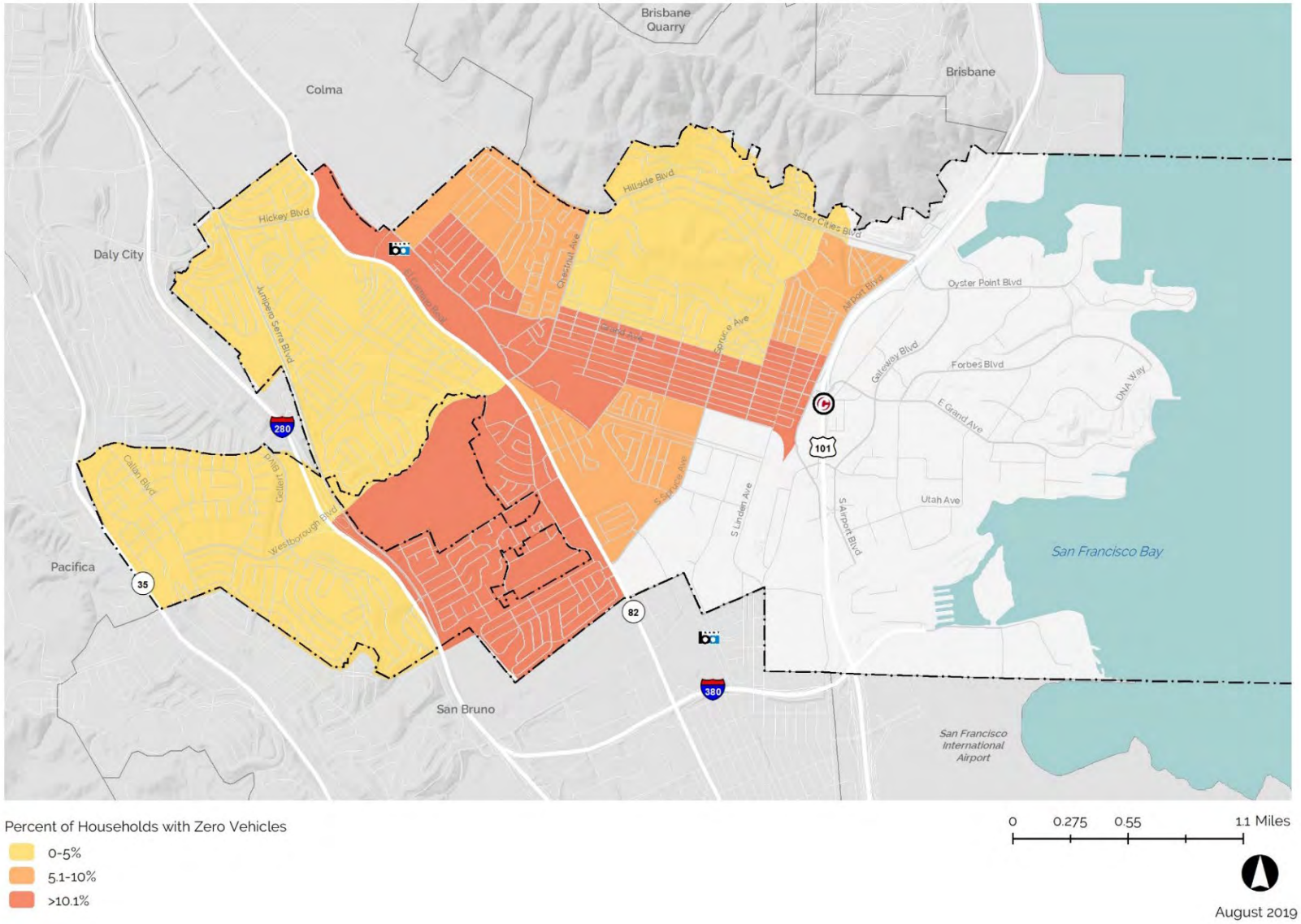


Sources: 2013-2017 American Community Survey 5-Year estimates. Table S0802.

Vehicle Ownership

Seven percent of South San Francisco households are car-free households, compared with five percent in San Mateo County. Although most South San Francisco households own 1 or 2 vehicles, nearly a third of households own three or more vehicles. Downtown, the portion of Sunshine Gardens along El Camino Real and surrounding the BART station, and the Baden/Avalon neighborhoods have the lowest rates of vehicle ownership in the City, as shown in Figure 5.

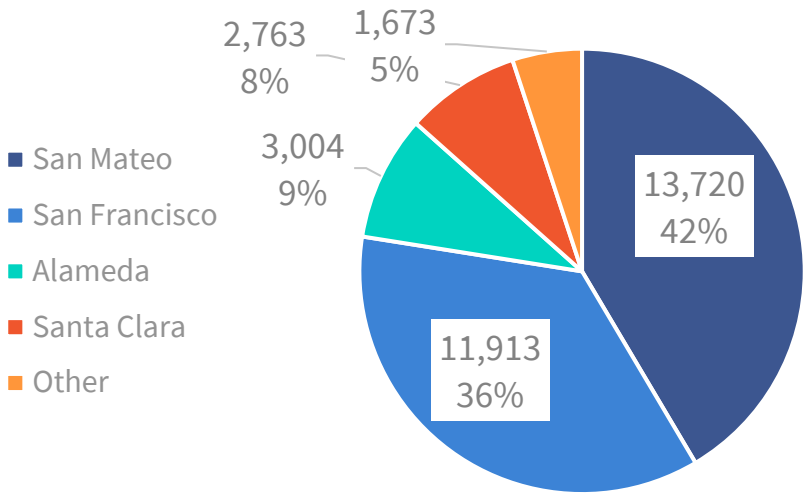
Figure 5: Zero Vehicle Households



In/Out Commute Patterns

Of the approximately 35,000 employed South San Francisco residents, approximately 59% are employed outside of San Mateo County. More than one-third of residents (almost 12,000 people) work in San Francisco, while Alameda and Santa Clara counties employ approximately 3,000 residents each.

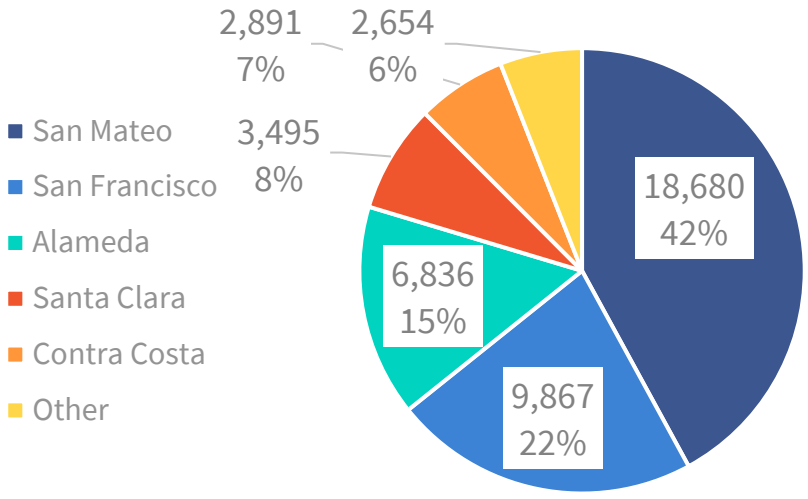
Figure 6: Top Workplace Destinations of South San Francisco Residents



Sources: Longitudinal Employer-Household Dynamics program 2015 data.

South San Francisco has approximately 50,000 employees, but the vast majority of these employees live outside of the city (91%). San Mateo County, San Francisco County, and Alameda County are home to the majority of South San Francisco employees, accounting for 42%, 22%, and 15% of the city's workforce, respectively.

Figure 7: Top Home Locations of South San Francisco Employees

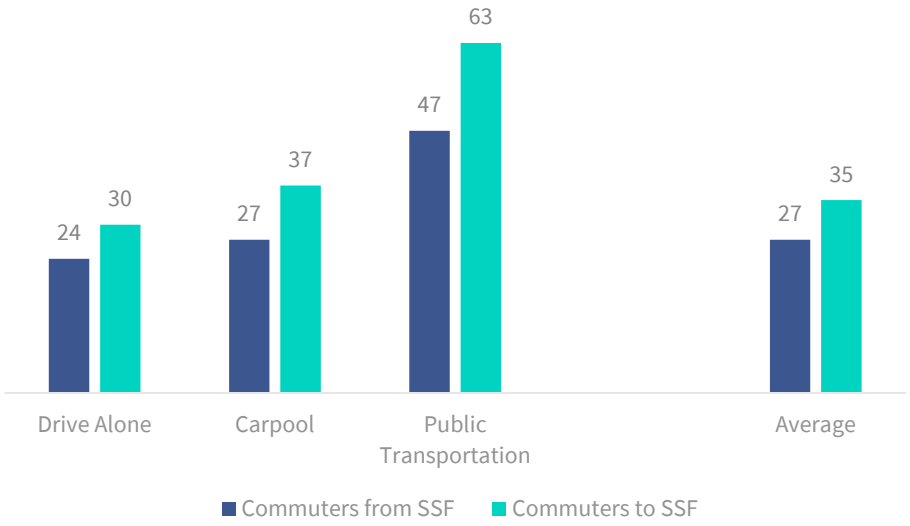


Sources: Longitudinal Employer-Household Dynamics program 2015 data.

Commute Lengths

Commute times into South San Francisco jobs are significantly longer than commute times to jobs outside of South San Francisco. The outbound commute averages 27 minutes per direction as compared to the average inbound commute at 35 minutes per direction. The difference is particularly pronounced for transit trips, which take 47 minutes for outbound commuters, but 63 minutes for inbound commuters each way. This means that the typical inbound transit commuter spends more than two hours of the day traveling to and from work in South San Francisco.

Figure 8: Mean Commute Time to Work (Minutes)



Sources: 2013-2017 American Community Survey 5-Year estimates. Table a S0802, S0804.

Vehicle Miles Traveled (VMT)

VMT measures the total amount of vehicular travel by service population for a specific area. It is a vehicle-focused metric, but ultimately a powerful performance indicator of a City's land use plan and multi-modal transportation network. VMT generation is influenced by several factors that may or may not be affected by city goals, policies, and plans. These factors include, but are not limited to:

- The location of the city within the San Francisco Bay Area region;
- The diversity, density, and location of land uses internal and external to the city;
- Access to destinations (accessibility) and speed of travel/congestion (mobility) along automobile, bicycle, pedestrian, and transit networks;
- Convenience of travel (e.g., parking availability, Wi-Fi availability on transit, lockers/showers at the end of a bicycle trip), and;
- Costs of travel (e.g., gas prices, transit fares, auto/bike maintenance costs).

The VMT per service population data from the MTC travel demand model yields the following conclusions on the existing state of VMT generation in the City as shown in Table 2:

- Residential VMT per capita is approximately 10% less than the regional average and 15% less than the county average.
- Employee VMT per capita is approximately six percent less than the county average but 13% higher than the regional average

Table 2: South San Francisco VMT Per Capita

Amount	City of South San Francisco	San Mateo County	9-County Bay Area Region
Household VMT per Resident			
2015 Baseline VMT per Resident	13.8	16.3	15.3
15% Reduction from 2015 Baseline	11.7	13.9	13.0
Work VMT per Worker			
2015 Baseline VMT per Job	25.6	27.1	22.7
15% Reduction from 2015 Baseline	21.8	23.0	19.3

Source: Fehr & Peers 2019; MTC Travel Model One, 2017.

South San Francisco is already home to and is continuing to expand one of the largest employment centers in the region in the East of 101 area. San Mateo County has a severe housing shortfall compared to the number of jobs in the County.[1] This means that many employees in South San Francisco must travel long distances, sometimes crossing multiple county lines for work. The majority of these trips are completed by driving today and unless regional housing development shifts to a transit-oriented land use pattern, this mode share and VMT pattern will persist in the future.

Transportation Demand Management (TDM)

Transportation Demand Management (TDM) refers to a set of strategies intended to reduce the demand for private automobile travel. The City of South San Francisco requires that all nonresidential development expected to generate an average of 100 or more daily vehicle trips implement TDM measures to reduce vehicle traffic. C/CAG guidelines require developments that generate 100 or more peak hour trips to implement TDM measures that have the capacity to mitigate new peak hour trips. The TDM ordinance requires reductions in a site's drive alone mode share between 28% and 45% depending on floor area ratio (FAR), but does not specify reductions in trip generation. Most new employment projects and some residential projects in the past 15 years have TDM programs, while older land uses tend to not include TDM programs.

[1] Between 2010 and 2016, 80,000 new jobs were created, but permits were only issued for 8,000 new homes. That's one home approved for every 10 jobs created. Source: San Mateo County Economic Forecast. 2017. California Department of Transportation. http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic_files/2017/SanMateo.pdf

Emerging Trends

Transportation patterns are changing with technology, demographics, and behavioral trends. Some of the emerging trends discussed below are still in their nascent stages in South San Francisco while others are familiar sights on the city's streets. These trends will be referenced throughout this document.

Micromobility

Micromobility refers to very light electric vehicles – such as e-bikes and e-scooters – that may be used for personal and shared use. Micromobility devices have increased in popularity over the past few years and represent a relatively affordable alternative to automobiles for short trips. One micromobility company, Lime, operated a small fleet of pedal bikes and e-bikes in South San Francisco between Fall 2017 and Spring 2019. In the Bay Area, Lyft's BayWheels service offers e-bikes in San Francisco, San Jose, and the inner East Bay, while several e-scooter operators are present in San Francisco, Oakland, and San Jose.

Ride-Hailing Services

Less than a decade ago ride-hailing services such as Uber and Lyft did not exist. Today, these services are regularly used to provide on-demand transportation using smartphone applications and electronic payment. The use of ride-hailing apps tends to be most prevalent in the evening hours and for occasional social and errand purposes. Strong associations between ride-hailing use and low vehicle ownership indicate that these services can provide auto-mobility for individuals without access to a personal vehicle[2].

Ride-hailing trips do not generate a parking event but do generate a vehicle trip in either direction and require space for passenger pick-up and drop-off. Increased demand for loading space, both now and in the future, should

[2] Brown, A. E. (2018). Ridehail Revolution: Ridehail Travel and Equity in Los Angeles. UCLA. ProQuest ID: Brown_ucla_0031D_16839. Merritt ID: ark:/13030/m5d847t1. Retrieved from https://escholarship.org/uc/item/4r22m57k

not be underestimated when planning street design changes in South San Francisco, particularly in commercial districts with high levels of visitor turnover. The flipside of this change is that there may be reduced demand for parking in the future—this is particularly true with the prospect of an autonomous vehicle future on the horizon. As part of the General Plan and Zoning Code updates, the City may want to think about designing near-term parking that can be converted into other uses in the future.

Complete Streets

Complete Streets are spaces designed and operated to enable safe use and mobility for all users. This includes people of all ages and abilities, regardless of whether they are traveling as drivers, pedestrians, bicyclists, or public transportation riders. Part of developing complete streets includes rethinking the classification of street types. Roads are often sorted by differences such as width or hourly motor vehicle capacity. Complete streets encourages a multimodal typology that characterizes streets by the modes or activities that are prioritized on each street.

South San Francisco adopted its Complete Streets Policy in 2012 establishing a commitment to serve all street users:

- *Resolution 86-2012: Create and maintain complete streets that provide safe, comfortable, and convenient travel along and across streets including streets, roads, highways, bridges, and other portions of the transportation system through a comprehensive, integrated transportation network that serves all categories of users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, seniors, children, youth, and families.*

Since adopting this policy, several Complete Streets projects have been implemented in South San Francisco. Example improvements currently underway include the Grand Boulevard Project on El Camino and the Linden Avenue Complete Streets project.

Curb Management

The conversation about who controls the curb is shifting in cities as ride-hailing, commercial loading, and micromobility use increases. For several decades, curb space uses and regulations have been assembled piecemeal in response to property and business owners, and overwhelmingly allocated to car parking. However, cities are increasingly turning toward other curb uses that may be particularly well suited to a given location, such as passenger loading zones, commercial loading zones, parklets, rain gardens, or trash collection. The movement for complete streets is another factor making cities rethink their curb space as flexible public space that could be better optimized for enjoyment of a streetscape by all people and modes.

Roadway System and Parking

This section describes the existing regional highway system and the local street circulation system for South San Francisco. The regional highway system and roadway classifications described in this section are illustrated in Figure 9, below.

Regional Highways

Interstates

U.S.-101

U.S.-101 is an eight lane freeway that extends north to south on the eastern side of South San Francisco. U.S.-101 is a heavily traveled freeway connecting San Francisco and the Bay Bridge with San Mateo and Santa Clara Counties. Three U.S.-101 interchanges serve South San Francisco at South Airport Boulevard, Grand Avenue, and Oyster Point Boulevard. The addition of high occupancy toll lanes (HOT Lanes) on U.S.-101 presents an opportunity to increase carpooling and support express bus service to destinations such as San Francisco and the East Bay.

Interstate 280

I-280 is an eight lane freeway that extends north to south on the western side of South San Francisco. The freeway connects San Francisco with San Mateo and Santa Clara Counties. One I-280 interchange serves South San Francisco at Westborough Boulevard/Avalon Drive, while a second interchange at Hickey Boulevard is immediately adjacent to the City. King Drive crosses I-280, but does not have any on-ramps or off-ramps to the freeway.

Interstate 380

I-380 is a short east-west freeway spur that connects U.S.-101 and I-280 via San Bruno and South San Francisco. The freeway has two interchanges that serve local traffic in or adjacent to South San Francisco at El Camino Real and North Access Road.

State Routes

California State Route 82

California State Route 82, otherwise known as El Camino Real, is a street that extends north to south in South San Francisco connecting San Francisco and Daly City to San Jose. SR-82 is generally four to six lanes with a speed limit of 35 mph.

California State Route 35

California State Route 35 is a four lane street that extends north to south along the western border of South San Francisco. It connects South San Francisco and San Bruno with Daly City, Pacifica, and western San Francisco.

Local Circulation

In South San Francisco, the local street system is organized into a hierarchy of four roadway types according to the 1999 South San Francisco General Plan. These four types are major arterial, minor arterial, collector, and "other." The General Plan classifies all streets within the City according to their functional classification.

Functional classifications of roadway networks categorize streets by purpose, location, and typical land uses to which they provide access. The functional classification system is often considered an automobile-centric method of planning and does not typically consider travel characteristics and multimodal priorities; consequently, this classification is becoming less common in California cities. Because streets oftentimes have multiple functions, defining street "typologies" beyond the existing functional roadway classifications could better support a multimodal transportation network.

Arterials

The 1999 General Plan classifies arterial streets as major streets that primarily serve through traffic and provide access to abutting properties as a secondary function. Described in Table 3 below, these streets form the backbone of South San Francisco's circulation system. Minor arterials, such as Orange Avenue and Linden Avenue makeup a second classification group. These serve a similar function as major arterials, but generally have fewer lanes and support lower speed limits.

East Grand Avenue, looking east under Highway 101, is an example of an arterial.

Figure 9: Existing Roadway Network

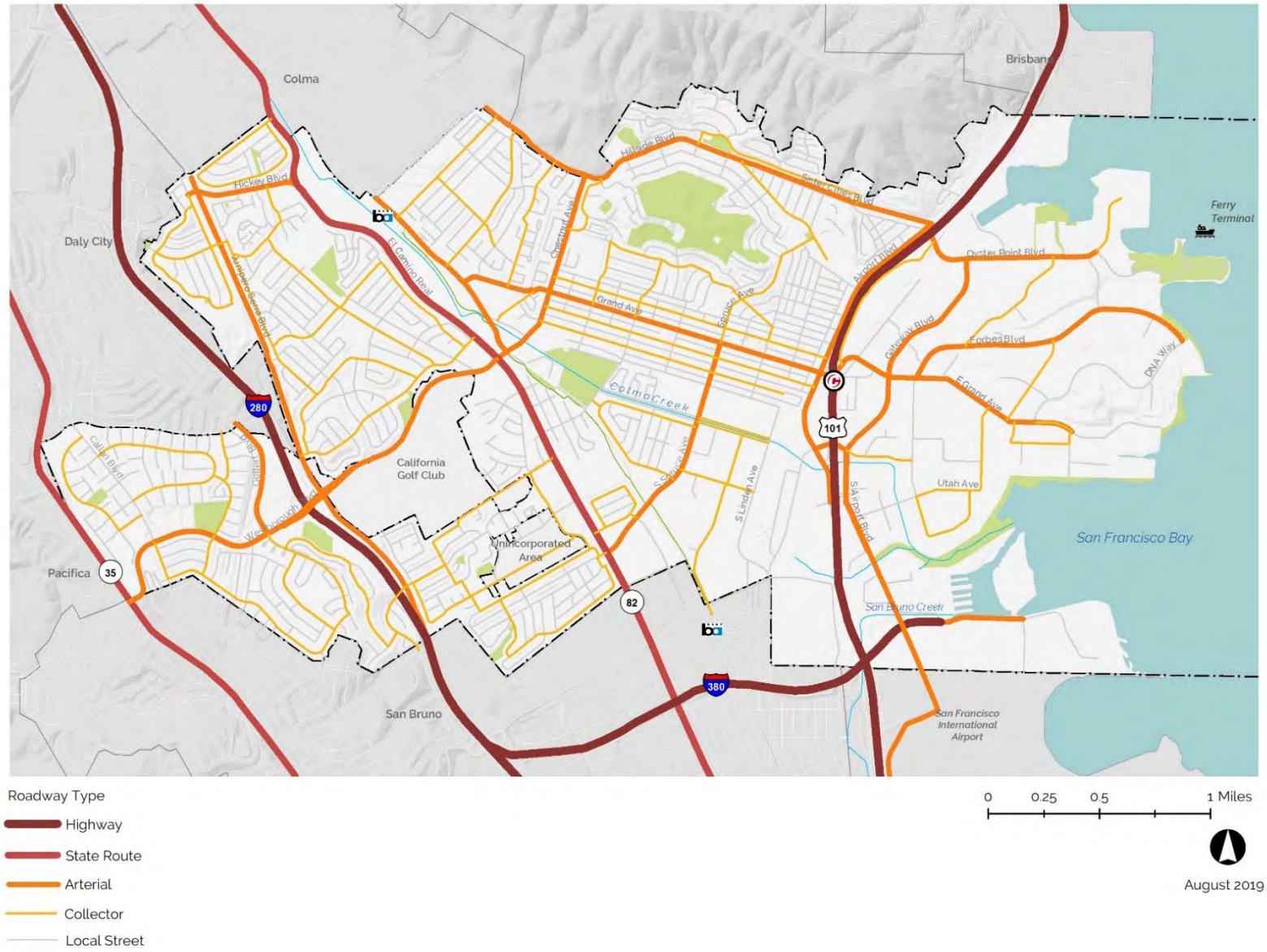


Table 3: Major Arterials

Name	Description	Features[1]	City Owned?
Hillside Boulevard	Connects Linden Avenue to Daly City in the northern part of the City.	Lanes/direction: 2 Speed limit: 40 mph Median: Yes Bike lane: Class II/III	Yes
Sister Cities Boulevard	Runs east-west from Airport Boulevard to Hillside Boulevard	Lanes/direction: 2 Speed limit: 40 mph Median: Yes Bike lane: Class II	Yes
Oyster Point Boulevard	Runs east-west from terminus near Oyster Point Marina to Airport Boulevard	Lanes/direction: 1-5 Speed limit: 30-35 mph Median: Yes Bike lane: Class II	Yes
Grand Avenue/East Grand Avenue	Runs east-west from Mission Road to the Haskins Way	Lanes/direction: 1-3 Speed limit: 35 mph Median: Yes, east of U.S.-101 Bike lane: Class II/III	Yes
Westborough Boulevard	Runs east-west from El Camino Real and Chestnut Ave to Sharp Park Road and Skyline Boulevard	Lanes/direction: 2 Speed limit: 35 mph speed limit (except 25 mph in some areas) Median: Yes Bike lane: Class II/III	Partial; El Camino Real to Junipero Serra Blvd. is owned by County of San Mateo
Forbes Boulevard	Runs a loop from two sections of Grand Avenue in East of 101 area	Lanes/direction: 1-2 Speed limit of 30/35 mph Median: Yes Bike lane: Class II/III	Yes
Hickey Boulevard	Runs from El Camino Real west into Serramonte	Lanes/direction: 2 Speed limit of 40 mph Median: Yes Bike lane: None	Yes
Airport / S. Airport Boulevard	Runs north-south from U.S. 101 425C Exit ramps (Bayshore Boulevard) to San Mateo Avenue / S. Airport Boulevard	Lanes/direction: 2 Speed limit: 35 mph Median: Yes Bike lane: Class II/III for north section of corridor	Yes
Chestnut Avenue	Runs north-south from Hillside Boulevard to El Camino Real	Lanes/direction: 1-2 Speed limit: 30 mph Median: None Bike lane: Class III	Yes
Gateway Boulevard	Runs north-south from Oyster Point Boulevard to South Airport Boulevard	Lanes/direction: 2 Speed limit: 35 mph Median: Yes Bike lane: Class II for south section of corridor	Yes
Junipero Serra Boulevard	Runs north-south from Daly City to Avalon Drive (relatively parallel to I-280)	Lanes/direction: 2 Speed limit: 50 mph Median: Yes Bike lane: Class II	Yes
Gellert Boulevard	Runs north-south from Daly City through Westborough neighborhood	Lanes/direction: 2 Speed limit: 35 mph Median: Yes	Yes

		Bike lane: none	
Spruce Avenue	Runs north-south connecting Hillside Boulevard (via School Street) to El Camino Real	Lanes/direction: 1-2 Speed limit: 30 mph Median: No Bike lane: None	Yes
Mission Road	Runs parallel to El Camino Real north of Chestnut Avenue	Lanes/direction: 2 Speed limit of 30 mph Median: No Bike lane: Class III	Yes

Note:[1] features are defined based on the characteristics of the majority of the route – some sections of each route may diverge from these definitions.

Collectors

The 1999 General Plan classifies Collectors as streets that connect arterials with local streets and provide access and circulation within neighborhoods. Examples of collector streets include Shannon Drive, Del Monte Avenue, and Commercial Avenue. South San Francisco has numerous collector streets, generally with posted speed limits of 25 to 30 mph.

Local Streets

The 1999 General Plan classifies Local Streets as those that provide direct access to abutting properties as their primary function Most local streets are in residential neighborhoods. These streets typically have a speed limit of 25 mph.

Bicycle Network

Bicycle facilities in South San Francisco consist of bike lanes, routes, trails, and paths, as well as bike parking, discussed in the parking section below. The existing bicycle network is shown in Figure 10. On-street bicycle facilities are classified into four categories depending on their design and function as described in Table 4 below. The City's large arterial streets, freeway interchanges, and hilly topography can serve as barriers to bicycling.

Table 4: Bikeway Classifications

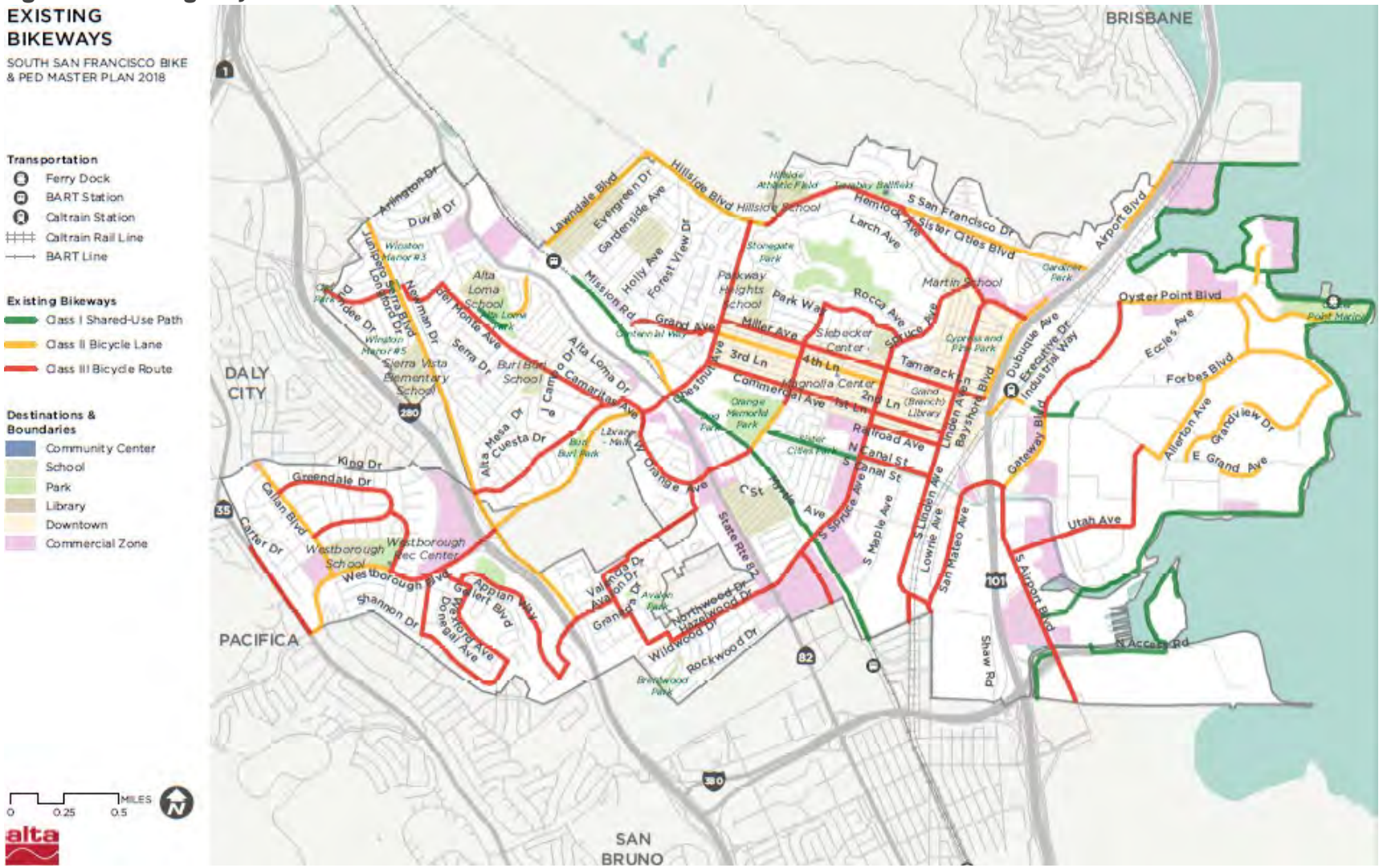
Class I (10 miles): Provides a completely separated right-of-way for the exclusive use of cyclists and pedestrians with cross-flow minimized. Typically, the most desirable for all ages and abilities.
Example: Centennial Trail

Class II (13 miles): Provides a striped lane for one-way travel on a street, which may include a "buffer" zone consisting of a striped portion of roadway between the bicycle lane and the nearest vehicle travel lane. Typically, suitable for some bicyclists comfortable sharing some space with cars.
Example: Grand Avenue

Class III (24 miles): Provides for shared use with motor vehicle traffic to help guide bicyclists between major destinations. Typically, not suitable for most bicyclists except on local residential streets.
Example: Chestnut Avenue

Class IV (0 miles): Provides a right-of-way designated exclusively for bicycle travel, which is protected from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking. Typically, suitable for most bicyclists.
No examples in South San Francisco

Figure 10: Existing Bicycle Network



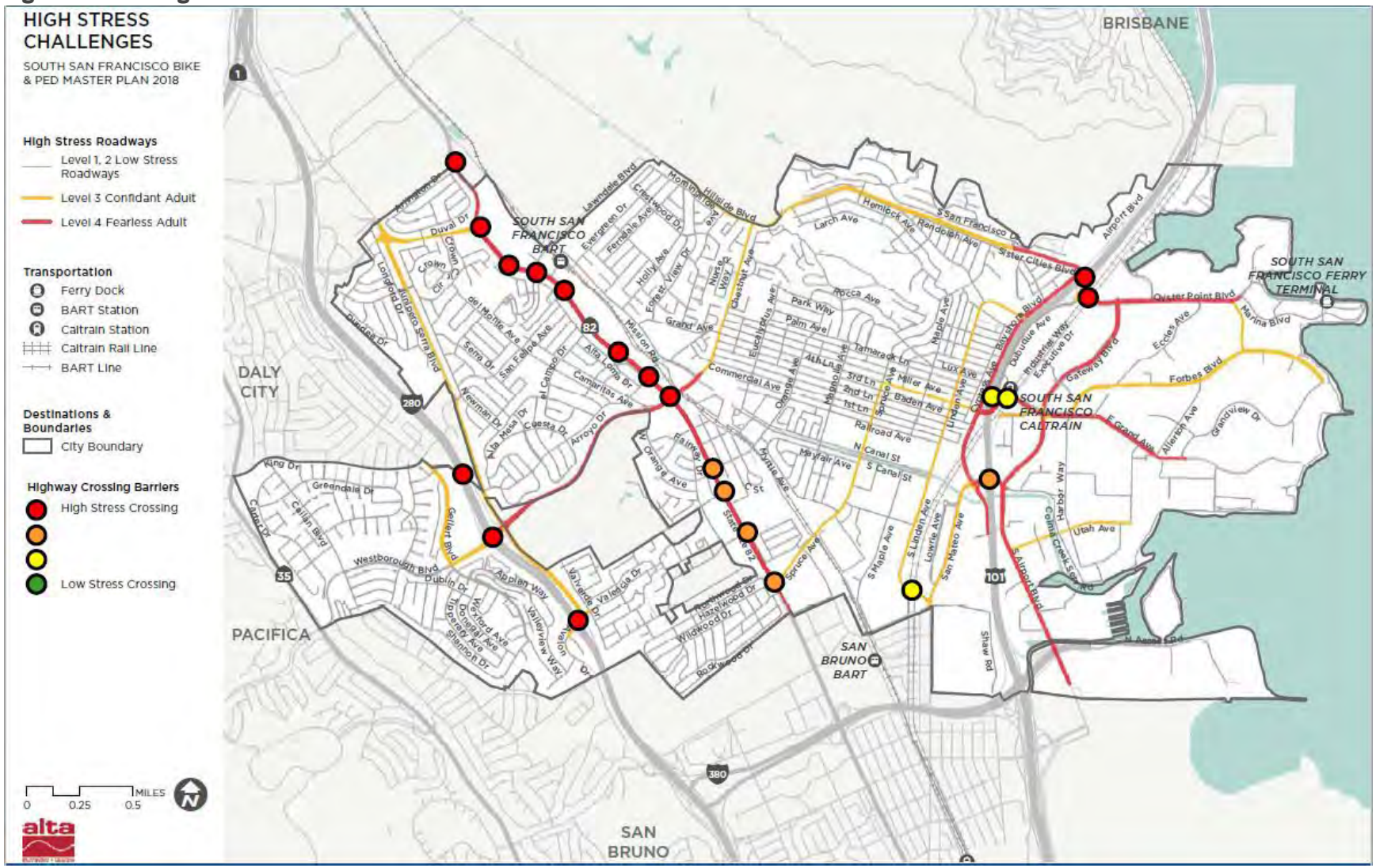
Source: Active South City: Bicycle and Pedestrian Master Plan, 2019.

Pedestrian Network

Pedestrian facilities in South San Francisco consist of sidewalks, trails, staircases, crosswalks, curb ramps, and signals. Pedestrian-oriented land uses, street widths, lighting, and landscaping also contribute to the quality of the pedestrian environment.

Pedestrian activity in South San Francisco tends to be highest around downtown, the South San Francisco BART Station and El Camino High School, South San Francisco High School, retail destinations along El Camino Real, along the Centennial and Bay Trails, and around the Genentech Campus. The city's large arterial streets, freeway interchanges, and hilly topography can serve as barriers to walking. The high stress pedestrian streets and crossings are highlighted in Figure 11. About 15 miles of streets in South San Francisco are missing one or both sidewalks, including along major arterials such as Westborough Boulevard, Junipero Serra Boulevard, and Hillside Boulevard.

Figure 11: Existing Pedestrian Network



Near-Term Roadway Improvements

The City's Capital Improvement Program (CIP) includes both Streets and Traffic projects that include updates to the vehicle, bicycle, and pedestrian networks. The CIP includes funding for pre-construction activities such as feasibility studies and design, as well as construction funding. The proposed network improvements in South San Francisco with construction funding in the 2018-2019 CIP include:

General:

- Underground Utility District on Mission Road
- Underground Utility District on Antoinette Lane
- South Airport Boulevard Bridge Replacement
- El Camino Gateway Sign and Median Improvement (Noor Avenue to Spruce Avenue)
- Ongoing bridge, pavement, and street lighting maintenance program

Vehicle Traffic:

- New signals: Hillside Boulevard at Lincoln Street; Commercial Avenue at Spruce Avenue
- Oyster Point and East Grand Corridor Improvements
- Linden Avenue/Spruce Avenue Traffic Calming Improvements
- Avalon-Brentwood Park Neighborhood Traffic Improvements
- Adaptive Traffic Control System East of 101

Bike and Pedestrian:

- Grand Boulevard Project Phase I – Phase III (El Camino Real from McLellan Drive to Chestnut Avenue)
- Caltrain Station Enhancements and Bike/Pedestrian Tunnel
- North Access Road Bike and Pedestrian Improvements
- Grand Avenue Pedestrian Crossing & Streetscape Improvements
- Linden Avenue Complete Streets Improvements (California Avenue to Aspen Avenue)
- Bicycle Lanes on Hillside Boulevard, Oyster Point, Gull Drive, and East Grand Avenue
- Safety and Connectivity Improvements – Miller Avenue, Evergreen Drive, and Holly Avenue

Balancing Street Performance Goals

Historically, the City of South San Francisco has designed its streets based on automobile LOS standards, which measures vehicle congestion. Consequently, some of the City's streets can be hostile environments for people walking, biking, or accessing transit. The City's Downtown Specific Plan, Active South City Plan, and Mobility 20/20 Plan identify a range of multimodal improvements to address these unmet needs; however, some of these improvements would require compromising the City's LOS standards. Determining how the City continues to use LOS and its priority amongst other topics such as mode shift, complete streets and safety is a key question for the General Plan.

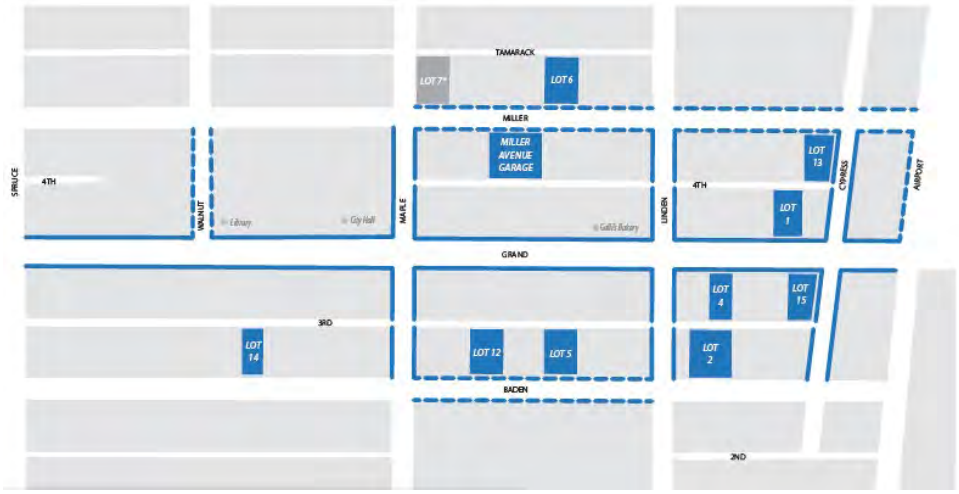
Parking Standards and Management

This section describes the existing public parking supply and regulations in the city. The city has on-street parking options and off-street lots. The City charges for parking in Downtown, and there are parking meters on the 100 block of McLellan Avenue, but public parking in the rest of the city is free. Street parking is time-restricted in some locations near commercial centers and civic uses. There is no residential permit program in place at this time, however, there is a BART preferential parking area with parking permits issued only to residents.

Public Parking

Paid public parking in downtown is managed by the City's Parking Place Commission. After the City Council adopts hourly and permit parking fee ranges in the Master Fee Schedule every year, the commission has the authority to modify the rates for hourly and permit parking within the rate schedule.

Figure 12: Downtown Parking Map



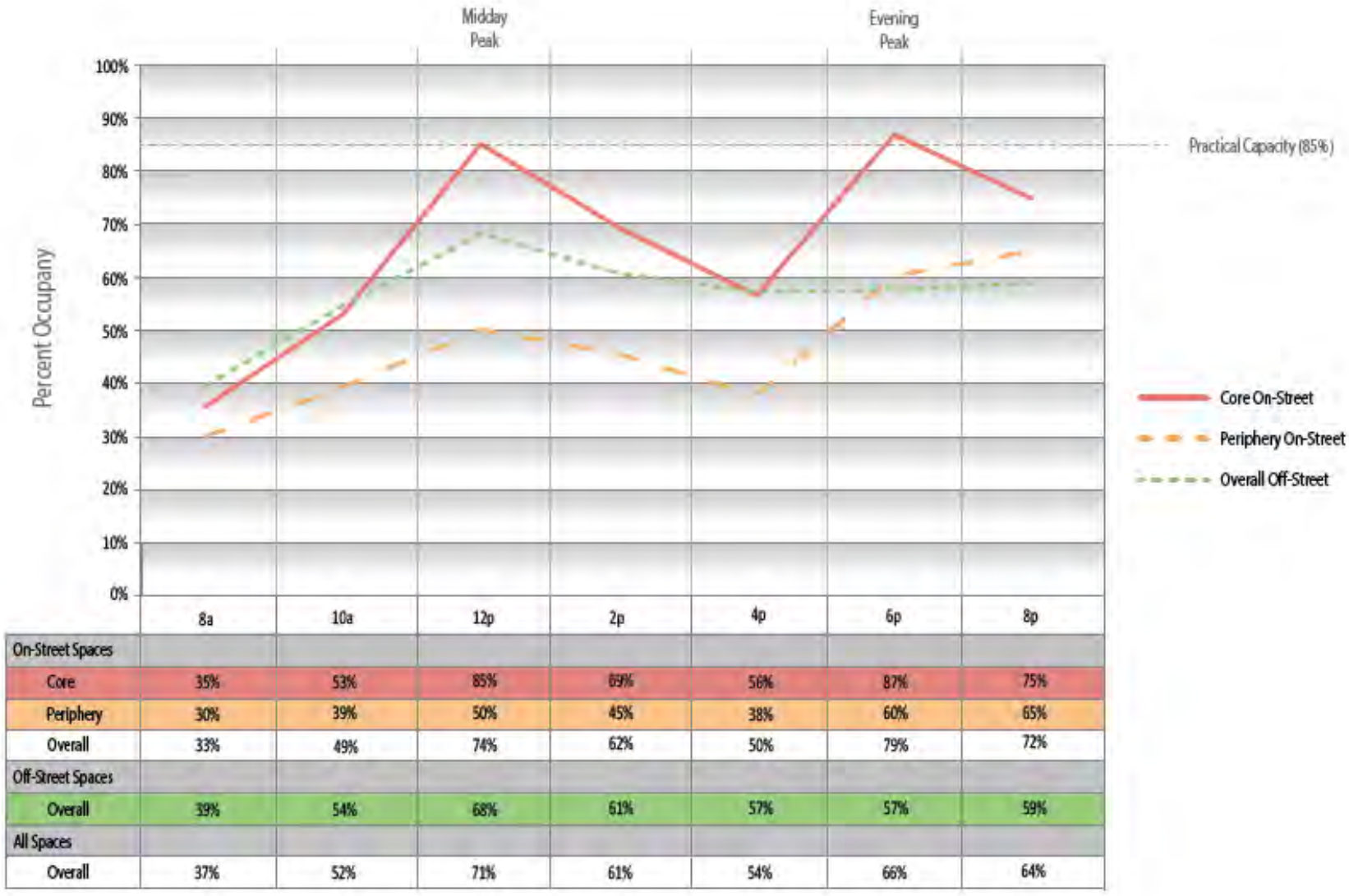
Source: South San Francisco Downtown Parking Study, 2016.

There is a mix of on street meter parking and meter parking lots. Along the downtown core, the rate for on street parking is $1.25 an hour, but decreases to $1.00 an hour just outside the core. Parking is enforced from 9:00 A.M. to 6:00 P.M. for all areas, and then until 8:00 P.M. for the downtown core. The 12 parking lots downtown offer a mixture of hourly, daily, monthly, and quarterly rates. Lots 2, 6, 15 and the lot at 418 Linden Avenue have been lost to redevelopment. Figure 13 illustrates the weekday parking occupancy in Downtown as recorded in spring 2016.

A few other locations around town restrict parking duration to encourage turn-over and improved access to important city facilities and shopping districts. Example parking restrictions include 2-hour and 24-minute parking

spaces, which can be found both in front of the Municipal Services Building on Arroyo Drive and on the Hazelwood Drive commercial corridor.

Figure 13: Downtown Parking Occupancy



	8a	10a	12p	2p	4p	6p	8p
On-Street Spaces							
Core	35%	53%	85%	69%	56%	87%	75%
Periphery	30%	39%	50%	45%	38%	60%	65%
Overall	33%	49%	74%	62%	50%	79%	72%
Off-Street Spaces							
Overall	39%	54%	68%	61%	57%	57%	59%
All Spaces							
Overall	37%	52%	71%	61%	54%	66%	64%

Source: South San Francisco Downtown Parking Study, 2016.

Network Performance and Safety

This section includes key facts related to the performance of the city's roadway system, including existing roadway traffic counts and collision trends broken down by vehicle-vehicle, vehicle-bicycle, and vehicle-pedestrian collisions.

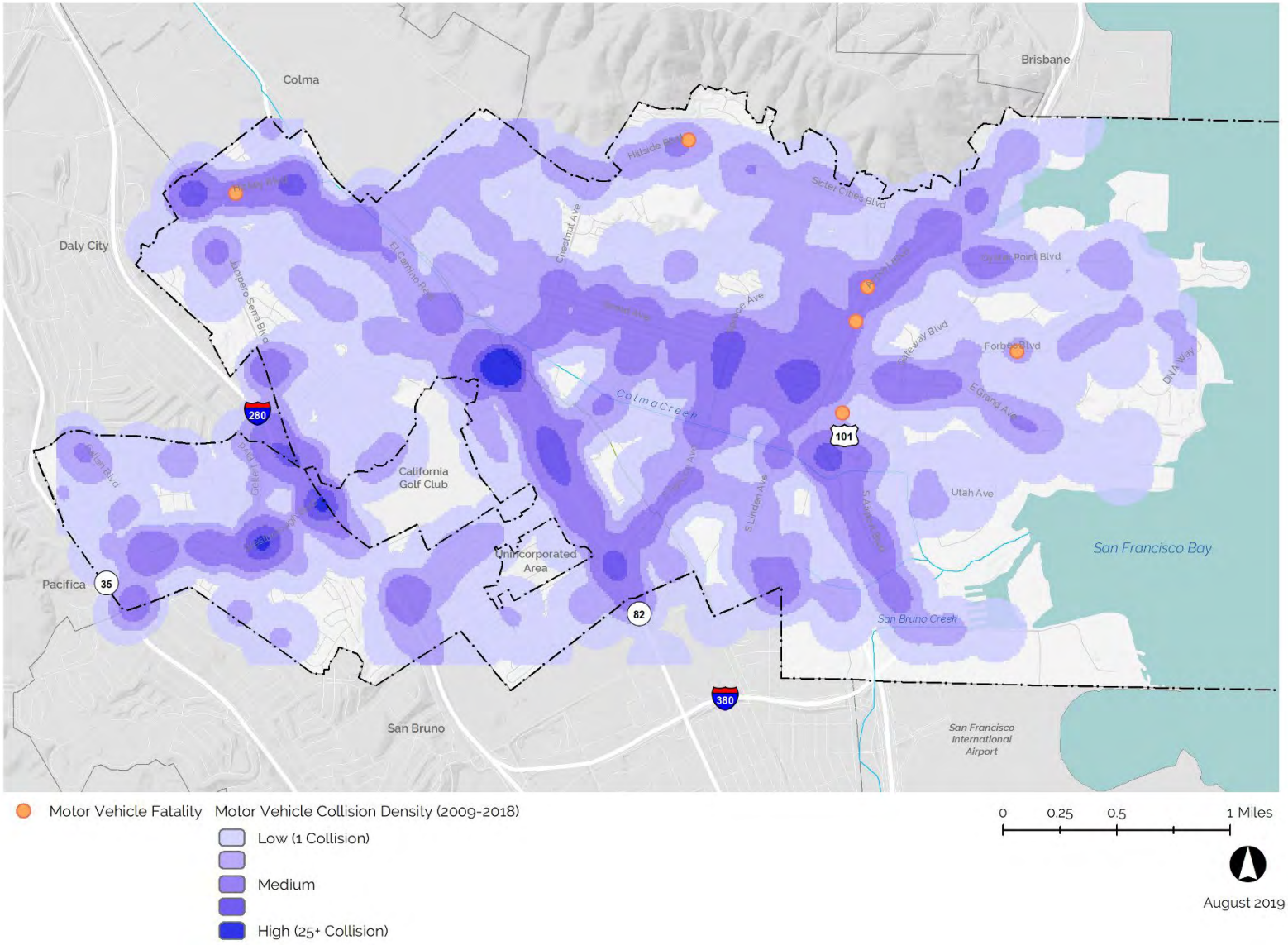
Motor Vehicle Safety

South San Francisco's motor vehicle collision record from 2009-2018, excluding collisions on I-280 and US-101, is mapped in Figure 15. Most collisions take place on the city's arterial network where travel speeds are faster and vehicle volumes are highest. A few locations around the city are hotspots for vehicle collisions, including:

- Westborough Blvd. at Gellert Blvd and at Junipero Serra Blvd
- El Camino Real at Chestnut Ave./Westborough Blvd., at W. Orange Ave., and at Spruce Ave.
- Hickey Blvd. at Junipero Serra Blvd. and at El Camino Real
- Spruce Ave. through downtown, especially at Grand Ave.
- Linden Ave. through downtown, especially at Grand Ave.
- Airport Blvd at San Mateo Ave.

Each of these locations had at least 20 collisions in the last 10 years. Fatal collisions are also concentrated on the arterial network with the exception of two fatal collisions on Poletti Way.

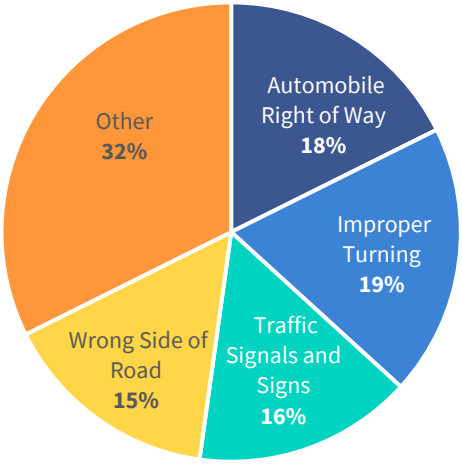
Figure 15: Vehicle Collisions



Bicycle Safety

In the ten years from 2009 through 2018, there were 133 bicyclist injury collisions in the city, none of which were fatal. As shown in Figure 17, most of these collisions were concentrated on a small portion of the city's streets, with 53% occurring on just eight percent of the roadway network. The Primary Collision Factors (PCF) for these collisions are described below:

Figure 16: Bicycle Injury Collisions by Primary Collision Factor (PCF)

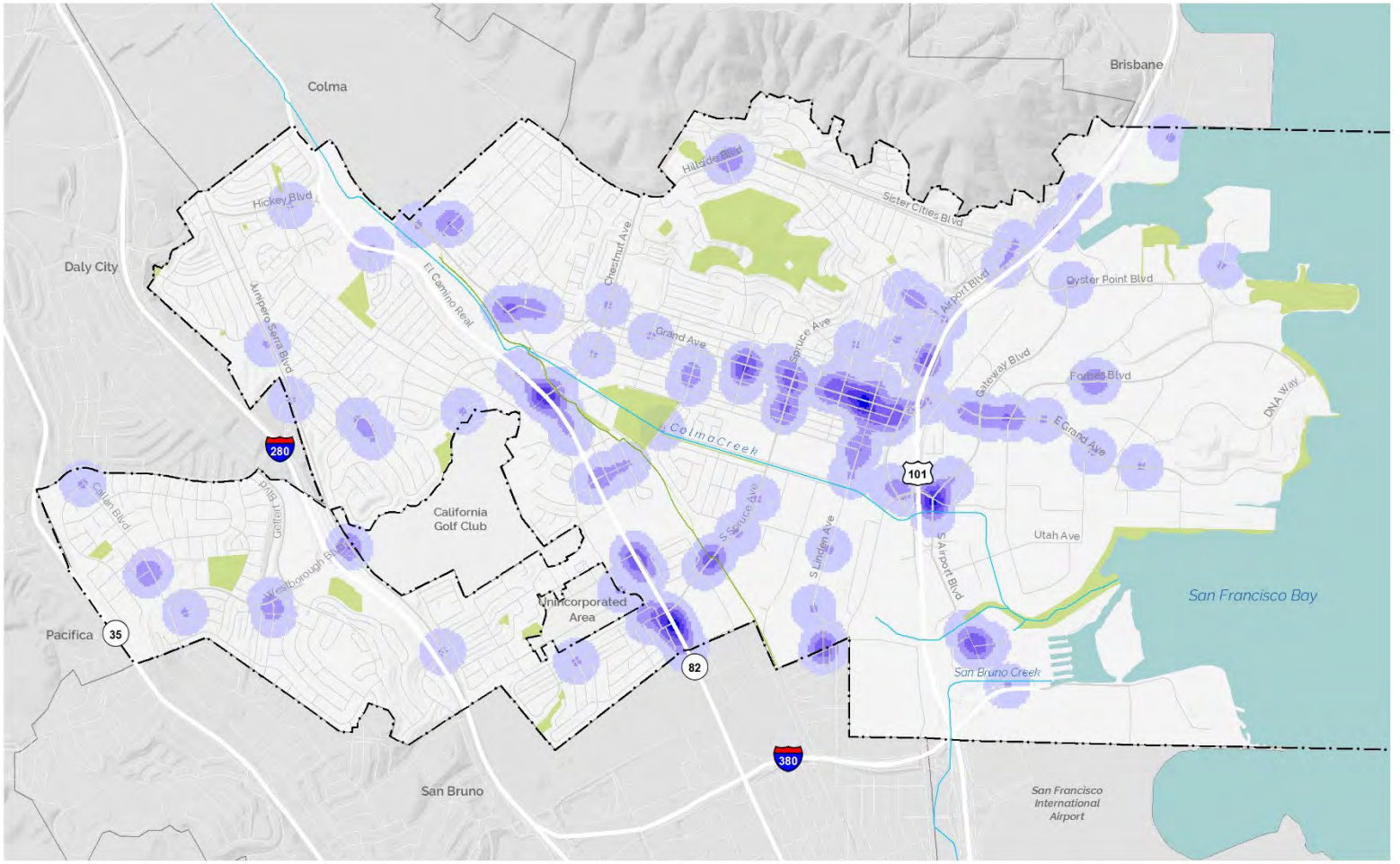


Source: Transportation Injury Mapping System (TIMS), 2009-2018

- Improper Turning: collisions where the party at fault made an unsafe turning movement or failed to signal.
- Automobile Right of Way: collisions where it was determined that the motor vehicle had the right of way and the cyclist did not.
- Traffic Signals and Signs: collisions where the party at fault failed to obey a traffic signal or sign.
- Wrong Side of Road: collisions where the party at fault was driving or biking in the incorrect travel lane.

Grand Avenue and El Camino Real experienced the highest and second-highest number of collisions, respectively. Collisions on Grand Avenue were most heavily concentrated downtown. The leading PCF for collisions on Grand Avenue was improper turning. Crashes on El Camino Real occurred near commercial districts and at major intersections such as South Spruce Avenue, and the leading PCF for these crashes was bicycling on the wrong side of the road.

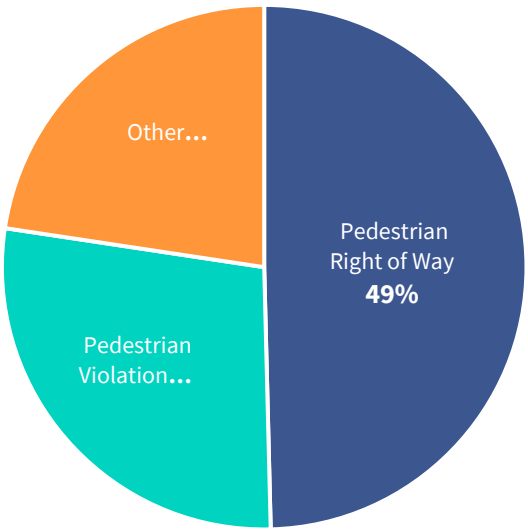
Figure 17: Bicycle Collisions



Pedestrian Safety

Between 2009 and 2018, there were 228 total vehicle collisions in the city that involved a pedestrian fatality or injury. Of these collisions, six led to a pedestrian death. As shown in Figure 19, the pedestrian collisions were concentrated on a small portion of the city's roadway network, similar to the bicyclist injuries. Forty-seven percent of these collisions occurred on eight percent of the city's streets. The Primary Collision Factors (PCF) for these collisions are described below:

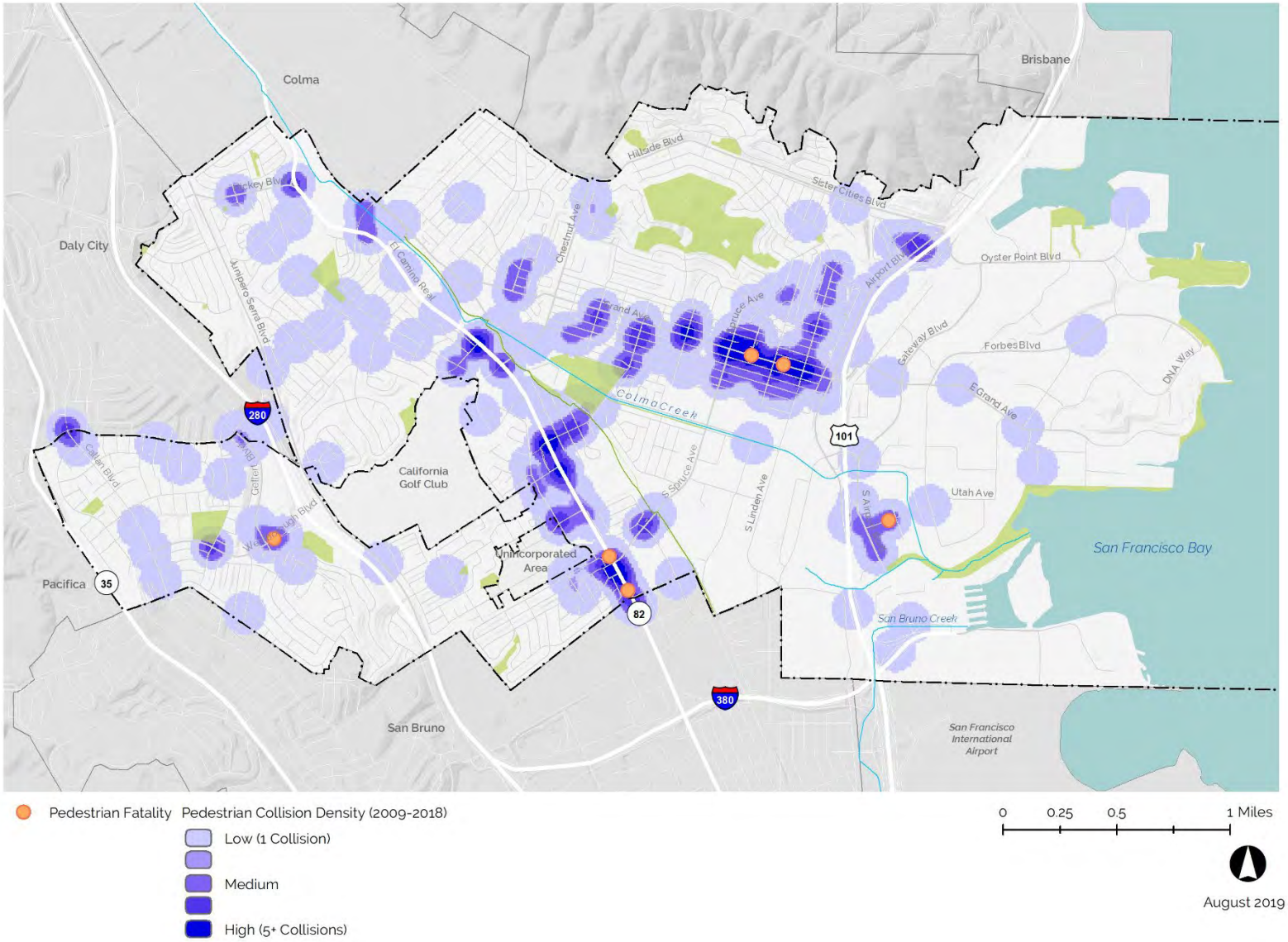
Figure 18: Pedestrian Collisions by Primary Collision Factor (PCF)



- Pedestrian Right of Way: collisions where it was determined that the pedestrian had the right of way and the motorist did not.
- Pedestrian Violation: collisions where it was determined that the pedestrian committed a crossing violation or was otherwise at fault.

As with the bicyclist collisions, Grand Avenue and El Camino Real experienced the highest number of collisions. They also accounted for four of the six fatalities that occurred during the ten-year study period. Collisions on Grand Avenue were concentrated downtown and in residential neighborhoods to the west, and the leading PCF for the roadway was "Pedestrian Right of Way." Crashes on El Camino Real occurred near commercial districts and at major intersections such as South Spruce Avenue. The leading PCF for crashes on El Camino Real was "Pedestrian Violation."

Figure 19: Pedestrian Collisions



Transit

Public Transit Services

The City of South San Francisco has bus, rail, and ferry service provided by six transit providers—BART, Caltrain, WETA, SamTrans, Commute.org, and the City of South San Francisco. Table 6 displays operational information for these services, while Figure 20 illustrates these services.

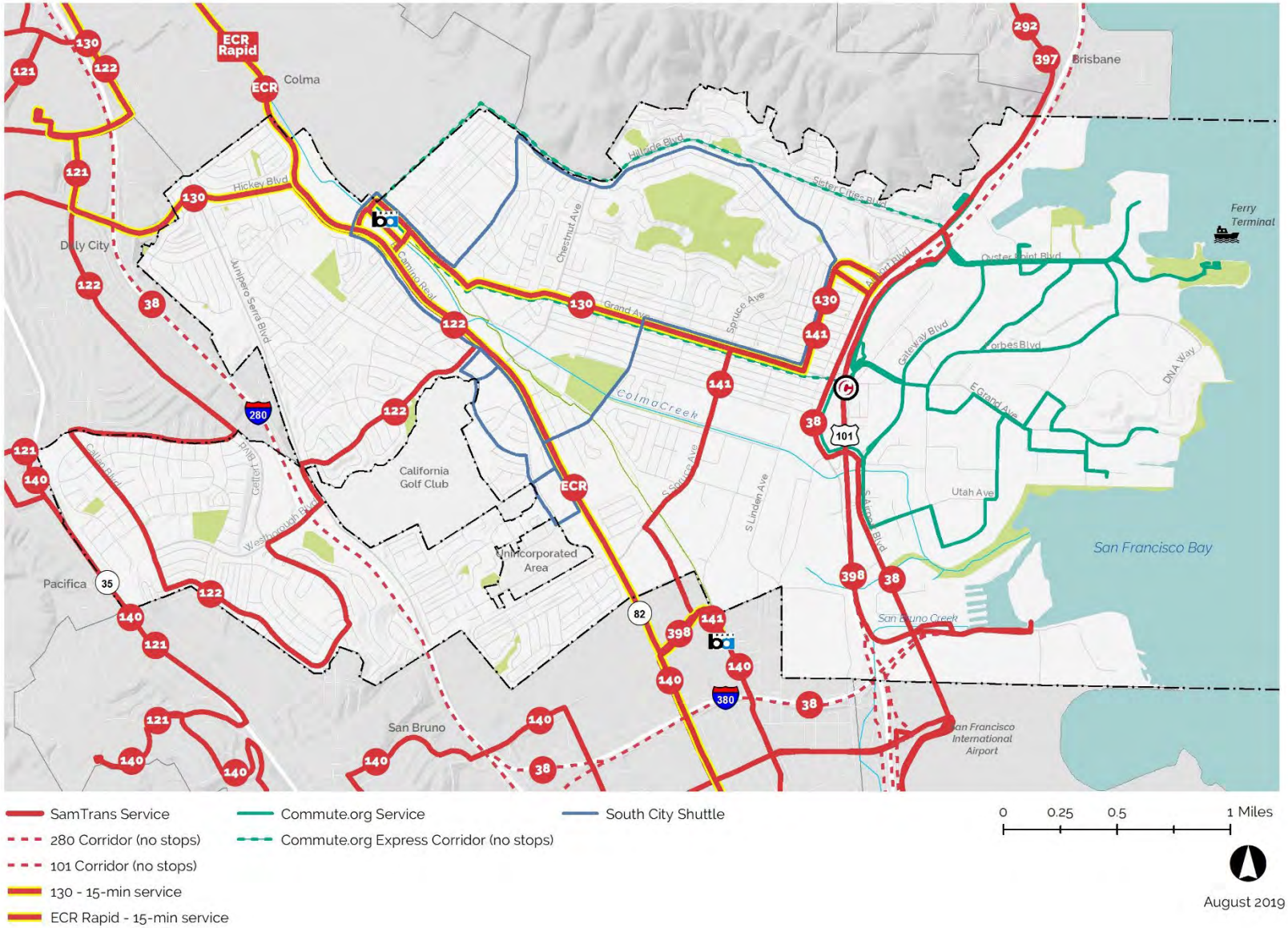
Table 6: Transit Services in South San Francisco

Service	Description	Peak Period Frequency
BART Red Line	Connects Millbrae Station with Richmond Station via downtown San Francisco and downtown Oakland	15 Minutes
BART Yellow Line	Connects SFO Airport with Pittsburg/Bay Point and Antioch Stations via downtown San Francisco and downtown Oakland	15 Minutes
Caltrain	Connects San Francisco's 4th & King Station with San Jose's Diridon Station	25-35 Minutes (Northbound AM/Southbound PM) 60 Minutes (Southbound AM/Northbound PM)
Commute.org Genesis Towers Shuttle	Connects Genesis Towers with BART and Caltrain	45 Minutes
Commute.org Oyster Point Shuttle	Connects northern East of 101 Area employers with BART, Caltrain, and ferry services	25 Minutes (BART) 25-35 Minutes (Caltrain) 3 Daily Round Trips (Ferry)
Commute.org Utah-Grand Shuttle	Connects southern East of 101 Area employers with BART, Caltrain, and ferry services	30 Minutes (BART) 25-35 Minutes (Caltrain) 3 Daily Round Trips (Ferry)
SamTrans 28, 35, 37, and 39	School bus routes serving Alta Loma Middle School, El Camino High School, and South San Francisco High School	2-3 Daily Round Trips
SamTrans 38	Connects Safe Harbor shelter in the East of 101 Area with downtown and BART	6 Daily Round Trips
SamTrans 122	Connects South San Francisco BART Station with San Francisco State University via Daly City	30 Minutes

SamTrans 130	Connects downtown South San Francisco with the Daly City BART Station via the South San Francisco	15 Minutes
SamTrans 141	Connects downtown South San Francisco with San Bruno and the San Bruno BART Station	30 Minutes
SamTrans 292/397	Connects San Francisco and San Mateo via Brisbane, South San Francisco, SFO, and Burlingame (Route 397 extends to Palo Alto for late night service)	15 Minutes
SamTrans ECR/ECR Rapid	Operates along El Camino Real between the Daly City BART Station and the Palo Alto Caltrain Station via Daly City, Colma, South San Francisco, San Bruno Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, Atherton, Menlo Park, and Palo Alto.	12 Minutes (ECR) 20 Minutes (ECR Rapid)
South City Shuttle	Free circulator connecting destinations within South San Francisco	40 Minutes
WETA	Connects South San Francisco Ferry Terminal with Oakland and Alameda (Main Street) Ferry Terminals	3 Daily Round Trips

SamTrans is considering expanding service in the East of 101 Area, focusing on the Oyster Point Boulevard and East Grand Avenue corridors. WETA also expects to add additional service in accordance with its service expansion policy as ridership continues to grow.

Figure 20: Existing Transit Network



Private Transit Services

Genentech and other employers operate their own transit services to supplement public transit services within the city. Genentech operates 23 long-distance express bus routes, three shorter distance connectors to transit stations, six on-campus circulator routes, and two ferry routes. While most of these services are not open to the public, a few (such as shuttles to the Millbrae Caltrain station) are open to all riders.

Bus Ridership Patterns and Gaps

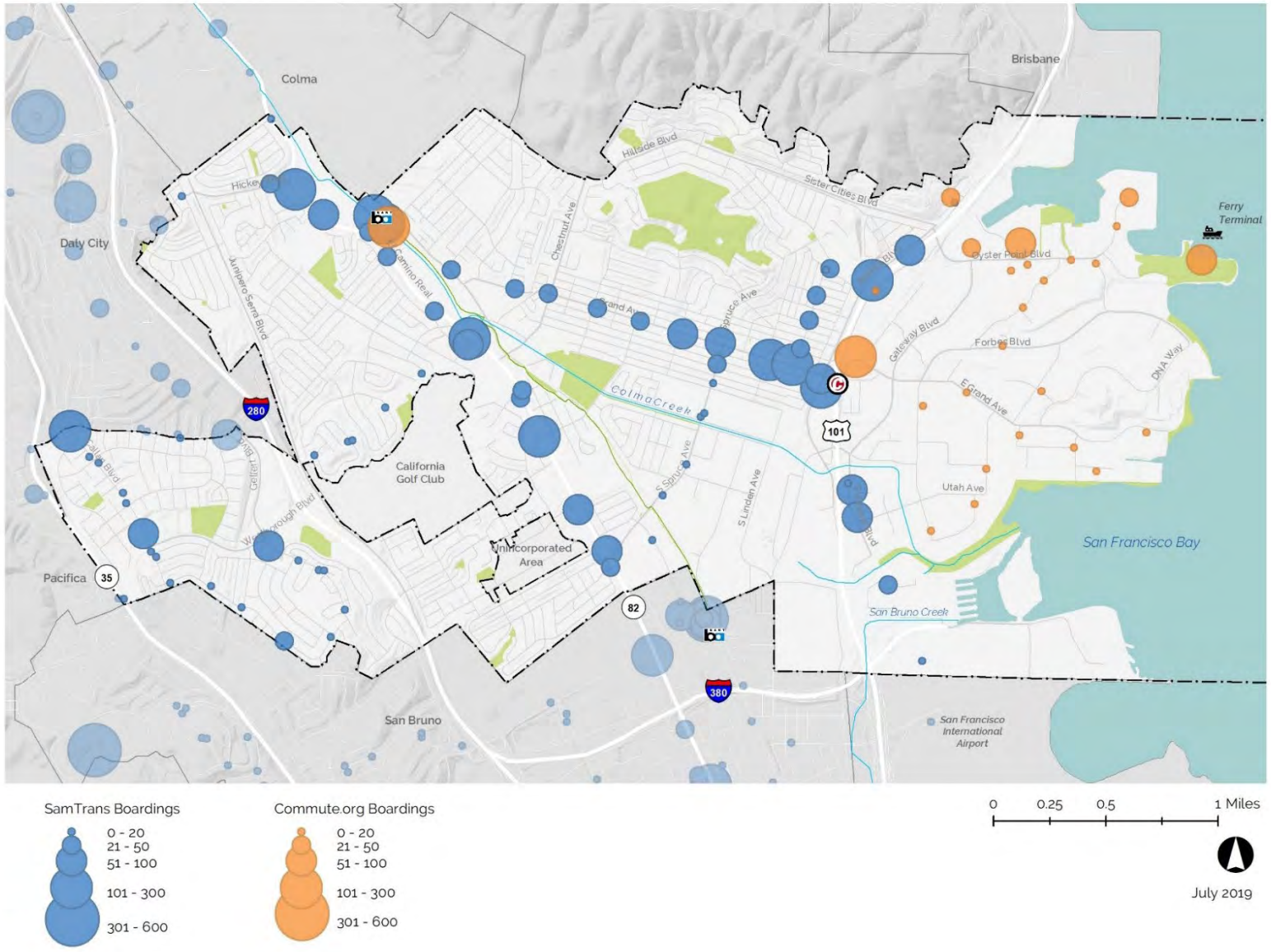
West of U.S.-101, SamTrans ridership is primarily concentrated at the South San Francisco BART Station and along El Camino Real, Grand Avenue, and Airport Boulevard. Smaller concentrations occur near commercial centers along Westborough Boulevard and Callan Boulevard. Ridership is illustrated in Figure 21.

East of U.S.-101, Commute.org ridership is concentrated along Oyster Point Boulevard and East Grand Avenue near major employers (approximately 90% of total ridership) while the remainder occurs along other corridors. Ridership activity is also high on the Genentech campus for Genentech-specific services.

There are several notable gaps in bus service within South San Francisco

- There is no SamTrans service connecting downtown and other neighborhoods west of U.S.-101 with employers in the East of 101 Area.
- There is no SamTrans service in the northern area of the City along Hillside Boulevard.
- There is no direct service connecting South San Francisco and Skyline College. Residents wishing to access the college need to transfer in San Bruno or Daly City.
- Circulating within the city can be challenging if traveling outside the main corridors of El Camino Real, Grand Avenue, and Airport Boulevard. Although the South City Shuttle fills some gaps, driving remains more convenient for many trips.

Figure 21: Transit Ridership

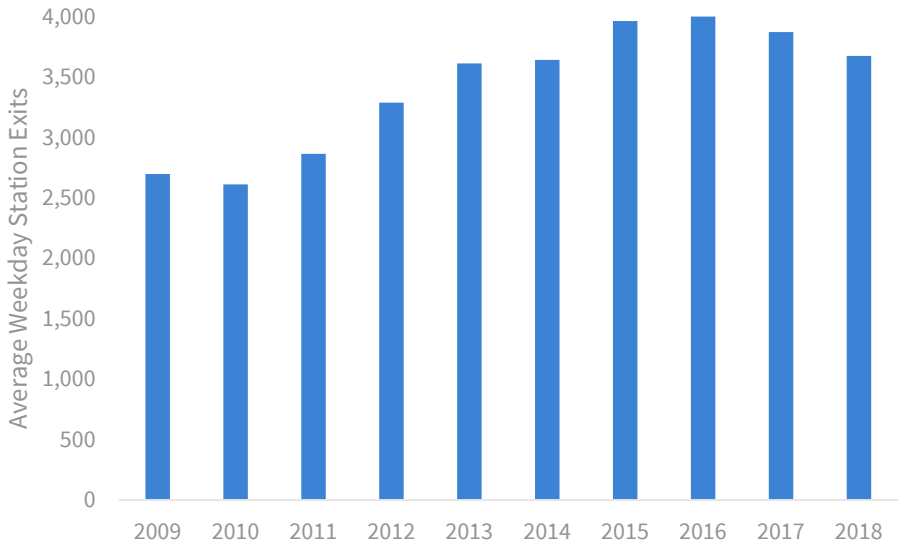


Major Transit Stations

South San Francisco BART Station

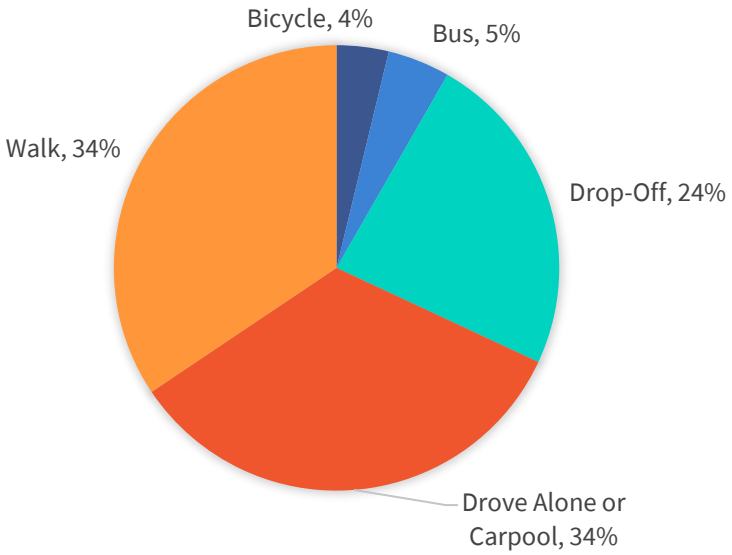
The South San Francisco BART station serves approximately 3,500 passengers on an average weekday. Over the past decade, ridership at the station has increased by approximately 20%, illustrated in Figure 22. The dip in ridership in the last two years can be attributed to a variety of systemwide factors including crowding and lower service quality satisfaction. The station is primarily accessed via car (34% park-and-ride, 24% drop-off/pick-up) or by walking (34%), as shown in Figure 23.

Figure 22: South San Francisco BART Station Ridership over Time



Source: BART, 2018

Figure 23: Mode of Access to South San Francisco BART Station



Source: 2015 BART Station Profile Study.

SSF BART station users walk a median of 0.42 miles to get to the station and drive (carpool or alone) a median of 1.94 miles.

San Bruno BART Station

The San Bruno station is just south of the city. Though the station is very close to South San Francisco, just 14% of riders from San Bruno station live in South San Francisco, while 69% live in San Bruno and the rest live elsewhere.

South San Francisco Caltrain Station

The South San Francisco Caltrain Station is currently located along Dubuque Avenue underneath the East Grand Avenue overpass on the east side of US-101. The station serves approximately 470 passengers per day (Figure 23). It is one of the least utilized in the Caltrain system due to its relatively inaccessible location and low service levels. However, Caltrain is currently constructing a new station several hundred feet to the south near the Grand Avenue/Airport Boulevard intersection (described below) and electrifying its fleet to add more trains systemwide (which will be complete in 2022). The station is primarily accessed via walking (47%) or biking (19%).

Figure 24: South San Francisco Caltrain Station Ridership over Time

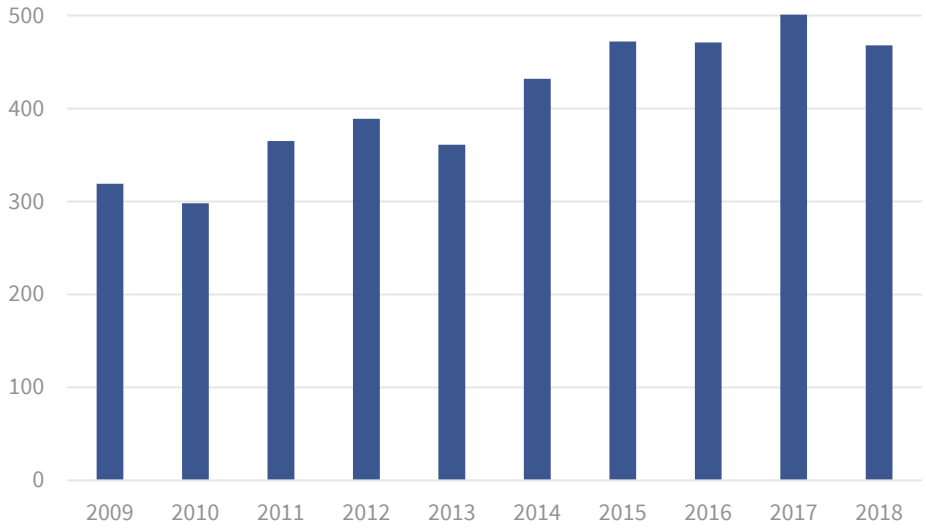
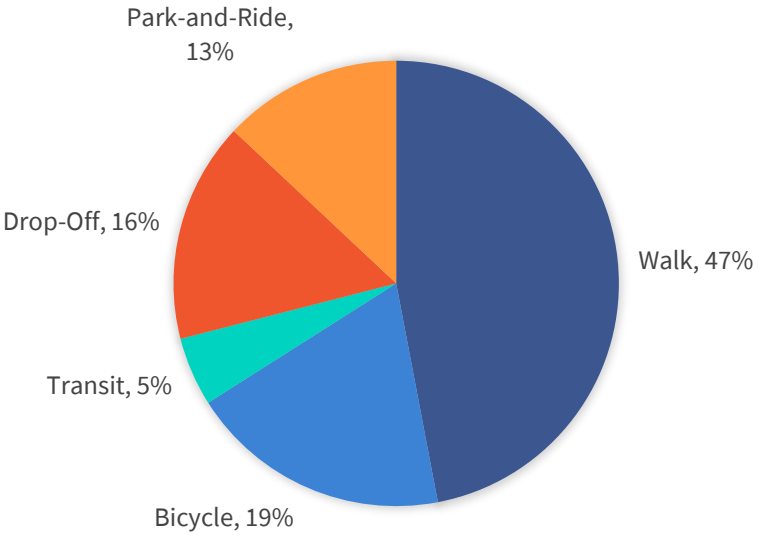


Figure 25: Mode of Access to South San Francisco Caltrain Station



Improvements associated with the Caltrain station and service levels have the potential to reshape South San Francisco's interface with the regional rail system. The Station Improvement Project includes a new median platform, underpass entrances connecting to downtown and East Grand Avenue, and a shuttle loading area along Poletti Way. Combined with the Caltrain Electrification project, the reconstructed station is expected to see as many as four trains per hour, per direction in 2022. Over the long-term, Caltrain has identified South San Francisco as an express station in its Business Plan, which would further increase service levels to eight trains per hour, per direction.

These changes may be transformative. Caltrain expects South San Francisco Station to serve roughly 5,000 to 7,000 passengers by 2040, ten to fourteen times greater than today. In order to capitalize on this opportunity and accommodate expected passenger volumes, the city needs to invest in a range of station access improvements and increase shuttle service levels connecting the station with East of 101 employers.

South San Francisco Ferry Terminal

The South San Francisco Ferry serves approximately 580 daily passengers commuting from the East Bay to South San Francisco in the mornings and back to the East Bay in the evenings. Although ferry ridership has steadily increased by approximately 20% over the past five years, it remains among the least utilized regional ferry services due to its low service levels and limited adjacent land uses.

Rail and Goods Movement

South San Francisco rail infrastructure is mapped in Figure 26.

Rail Movement

Caltrain

Caltrain operates along a mostly separated corridor through South San Francisco, with the exception of the at-grade crossing of South Linden Avenue in the Lindenville area. There are grade separated crossings at Airport Boulevard, U.S. 101, Grand Avenue, U.S. 101 SB off-ramp towards Oyster Point, Oyster Point Boulevard, and U.S. 101 NB off-ramp towards Sierra Point Parkway.

BART

BART travels underground for the duration of its path through South San Francisco.

Freight Rail

Historically, South San Francisco experienced a relatively high volume of freight rail operations on rail spurs serving both in the East of 101 and Lindenville areas. As land uses have changed over time, these operations have decreased.

Freight rail service is provided (as of July 2019) by the Union Pacific Railroad (UPRR) in accordance with the terms of a 1991 Trackage Rights Agreement between UPRR and the Peninsula Corridor Joint Powers Board (PCJPB). The PCJPB owns the Peninsula Main Line right-of-way on which Caltrain operates, but UPRR owns several rail spurs in the East of 101 Area. Freight operation is restricted during the AM and PM peak periods and largely occurs during evening and night hours. UPRR currently operates three freight trains per weekday, all based out of the yard next to the South San Francisco Caltrain Station:

South City Switcher

The South City Switcher operates early in the morning and connects industries within South San Francisco, Brisbane, and San Francisco with port facilities at Pier 96. Shippers in South San Francisco include Granite Rock and Central Concrete in Lindenville and Pacific AgriProducts along Forbes Boulevard in the East of 101 Area. In order to access Pacific AgriProducts, the South City Switcher travels along railroad spurs paralleling East Grand Avenue and Harbor Way/Forbes Boulevard in the East of 101 Area across several uncontrolled rail crossings.

Broadway Local

The Broadway Local starts operating around 5:30 p.m. and serves industries between South San Francisco and San Jose, such as the Port of Redwood City and the Unilever plant in Sunnyvale, after the evening rush hour ends. The Broadway Local does not deviate from the Caltrain corridor in South San Francisco.

Mission Bay Hauler

The Mission Bay Hauler starts operating around 6:30 p.m. and gathers up the outbound cars brought in by the other two local services and hauls them to the Union Pacific yard in Milpitas, then returns with the inbound cars for distribution by local services. The Mission Bay Hauler does not deviate from the Caltrain corridor in South San Francisco.

Ongoing Changes

Freight service varies in response to freight customer needs and activity. The Peninsula Freight Rail User's Group estimates that the number of rail cars between San Jose and San Francisco over the past decade has averaged about 60 to 80 cars per day in each direction (once loaded, once empty). This translates to 20,000 to 30,000 loaded rail cars carrying 2 to 3 million tons of cargo between San Jose and the San Francisco Peninsula each year, the equivalent of at least 100,000 truck trips annually.

In December 2016, UPRR and the PCJPB agreed to a transfer of the freight rights and intercity passenger rights for the portion of the Caltrain corridor north of CP Coast to San Francisco from UPRR to the PCJPB. The agreement established how the PCJPB and UPRR would initiate a selection process to identify a third-party short-line railroad operator, select an operator, and obtain Surface Transportation Board approvals, and then PCJPB would obtain the freight and intercity passenger rights for this portion of the Caltrain corridor, among other requirements. At present (July 2019), the existing trackage rights agreement is still in force for the Caltrain corridor until the transfer is complete and a new trackage rights agreement is established for the area.

Truck Routes

The City of South San Francisco has not designated formal truck routes for goods movement. Most truck activity occurs in the East of 101 and Lindenville areas serving warehouse, manufacturing, and R&D uses. The state requires that general plans identify truck routes.

Freight Issues

Continued freight rail operations in the East of 101 Area provides tradeoffs for the evolving district. Current freight rail operations support continued success of local industry and help reduce overall truck traffic in the city and region. However, while freight operations along the mainline corridor have a relatively minimal effect on the city, continued operations (or the potential for future operations) on active and inactive rail spurs in the East of 101 Area pose challenges for improving connectivity and safety for people walking, biking, and driving in the East of 101 Area.

Similarly, the City's flexibility toward truck operations also provides tradeoffs. While goods movement activities can occur freely on all streets, it can result in overbuilt intersections with very wide lane widths and curb radii, resulting in challenging street designs for pedestrians and bicyclists.

Figure 26: Rail Infrastructure

H.2 - Daily Vehicle Miles Traveled by Speed Bin

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Speed Bin (mph)		All Vehicles (incl. Trucks)			
Start	End	2015 Base - 2019 LU	2040 NP	2040 PP	2040 Pref Alt v2
0	5	1,751	32,159	39,633	70,943
5	10	8,129	18,987	30,685	97,852
10	15	59,213	88,876	86,846	121,482
15	20	291,438	495,647	540,290	603,058
20	25	343,677	443,490	524,106	717,474
25	30	281,061	549,904	615,093	620,764
30	35	396,715	373,351	413,205	466,865
35	40	207,725	392,095	423,604	518,247
40	45	253,079	381,248	464,744	558,003
45	50	214,550	486,885	593,422	614,382
50	55	336,953	463,086	429,736	554,114
55	60	530,947	656,890	780,115	862,687
60	65	404,780	445,167	499,094	632,154
65	9999	7,273	10,531	11,908	14,495
Total		**3,337,291**	**4,838,316**	**5,452,480**	**6,452,522**

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