Healthpeak Vantage

Transportation Impact Analysis

Prepared for:
Healthpeak Properties
City of South San Francisco

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SF21-1159

FEHR PEERS

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1. Project Description

This transportation impact analysis (TIA) evaluates potential transportation impacts associated with the Healthpeak Vantage development located at 420-490 Forbes Boulevard in South San Francisco, California (herein referred to as the "Project"). The proposed life science development will total 1,655,202 square feet of office and R&D building area (including a 40,600 square foot amenity building and fire station) and three parking structures on a 18.99-acre site zoned as Business and Technology Park - High. The Project includes demolishing one warehouse on 440 Forbes Blvd totaling 105,000 gross square feet to be replaced with six new Lab/Office buildings of varying heights between 5-12 stories. Two buildings located at the easternmost parcel of the site at 480 Forbes Boulevard (previously 496 Forbes Boulevard) and 490 Forbes Boulevard (previously 498 Forbes Boulevard) have been issued permits. They are a total of 326,020 square feet of building area. The Project has 47 proposed surface parking stalls and 1,194, 1,324, and 1,136 proposed stalls in the three parking structures, totaling 3,701 parking stalls. The total site parking ratio is 2.24 stalls per 1,000 square feet. At completion, the Project will result in an overall increase from 0.5 FAR to 2.01 FAR compared to the existing land use. 2.0 FAR is proposed for research & development/office use, and .01 FAR is proposed for a potential Fire Station.

The Project site is bound by Forbes Boulevard to the north, Allerton Avenue to the east, and a shared-use "Rails-to-Trails" bicycle and pedestrian pathway to the south. The Project site is located approximately ¾ of a mile from the South San Francisco Caltrain Station to the west. Primary bicycle and pedestrian site access are provided via the planned new sidewalks along the site's Forbes Boulevard frontage or the completed "Rails-To-Trails" Class I pathway between Roebling Road and the Genentech campus. The Project will include a previously planned Class II buffered bicycle lane on Forbes Boulevard to provide primary access from the north site frontage and multiple on-site access pathways to connect to the Rails-to-Trails Class I trail directly. Motor vehicle site access will be provided from Forbes Boulevard and Allerton Avenue via a perimeter roadway that traverses the south and west edges of the project site and connects to the parking garage access points.

The City's Transportation Demand Management (TDM) ordinance applies to the proposed life science/office development and requires the Project to result in no more than 50 percent of employees commuting via drive alone (i.e., achieve a commute mode share of 50 percent or more alternative mode use). The Project developed a preliminary Transportation Demand Management Plan (TDM Plan) in conjunction with the Project team and includes all mandatory trip reduction measures for the Project, as included in Section 20.400.004 of the South San Francisco Municipal Code. The TDM program elements include site enhancement strategies, on-site amenities, and programmatic and service strategies that encourage the use of alternative modes of travel. The measures will be monitored to ensure that they comply with the 50 percent non-drive-alone mode share required by the ordinance; failure to reach this goal would result in the implementation of additional measures. See **Appendix A** for the preliminary TDM Plan, dated November 30, 2022. The Project sponsor will pay transportation impact fees as required by the City.

Figure 1-1 shows the Project location, nearby intersections, and the surrounding roadway system. **Figure 1-2** presents the Project site plan.

Figure 1-1

Project Location

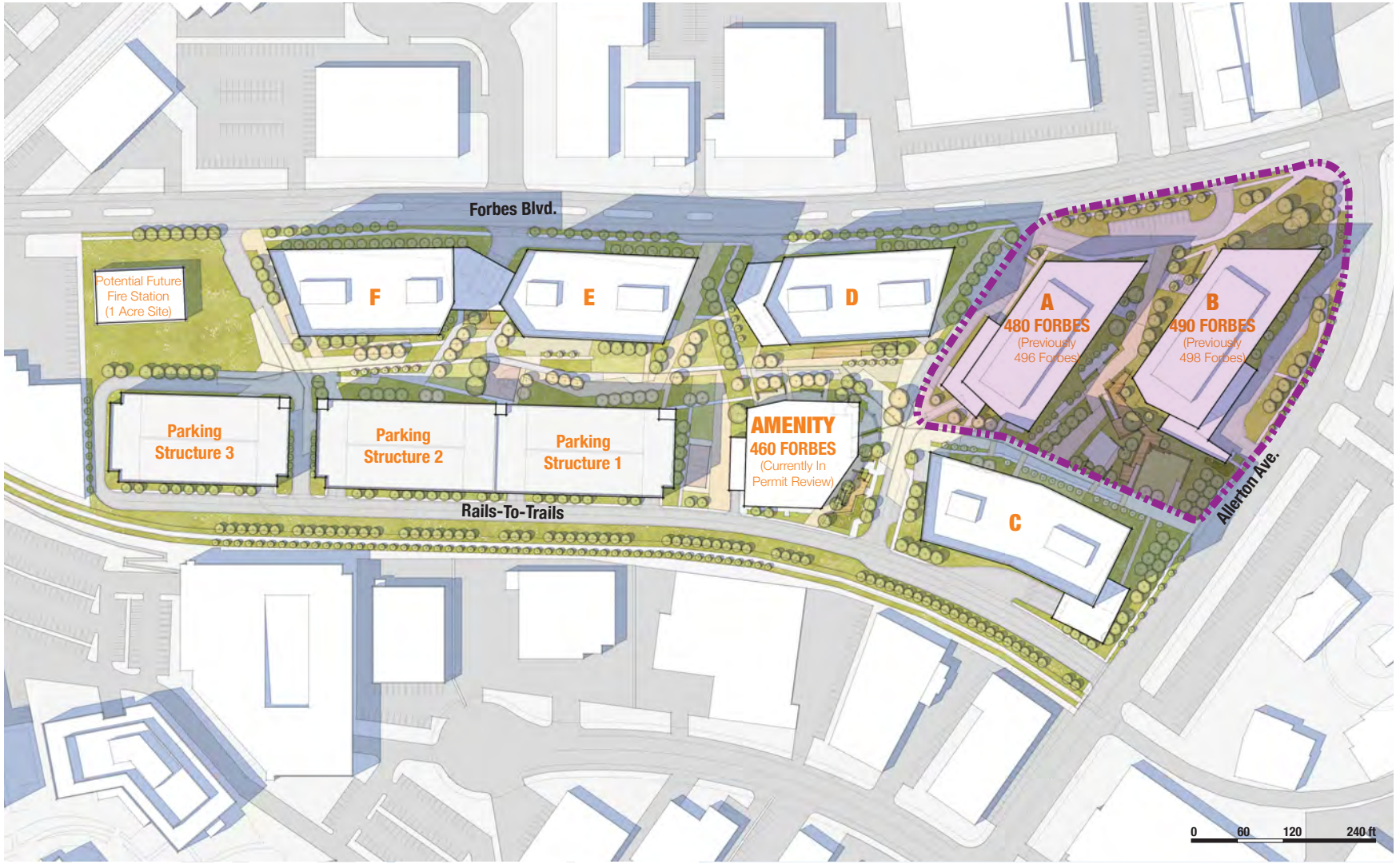

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Figure 1-2

Project Site Plan

2. Environmental Setting

This section describes the existing transportation and circulation setting near the Project site: the existing roadway network, transit network and service, pedestrian conditions, bicycle conditions, and emergency vehicle access.

2.1 Roadway Facilities

The Project site is located on the southwest corner of Forbes Boulevard and Allerton Avenue in the City of South San Francisco's East of 101 employment area. Regional access to the Project site is provided via U.S. Route 101 (US-101), accessed via Oyster Point Boulevard to the north and East Grand Avenue to the south. Project site vehicular access is provided via two main driveways along Forbes Boulevard and a right-in/right-out driveway on Allerton Avenue.

Key local roadways in the vicinity of the Project site are described below:

- *US-101* is an eight-lane freeway and principal north-south roadway connection between San Francisco, San José, and intermediate San Francisco Peninsula cities. In South San Francisco, US-101 is located approximately ¾ of a mile west of the Project site and serves the Project area with three primary access points. Near the Project, US-101 carries about 220,000 vehicles daily and defines the East of 101 area's western edge; it represents a barrier to east-west bicycle and pedestrian connectivity. Access points are listed below:
  - *Southern Access – Gateway Boulevard:* Northbound on- and off-ramps are at South Airport Boulevard/Wondercolor Lane; southbound on- and off-ramps are immediately south of the San Mateo Avenue/Produce Avenue/South Airport Boulevard intersection.
  - *Central Access – East Grand Avenue:* Northbound off-ramps are at East Grand Avenue/Poletti Way, and on-ramps are to the west at Grand Avenue/Airport Boulevard. Southbound off-ramps are at Airport Boulevard/Miller Avenue. There is no southbound freeway access at this location.
  - *Northern Access – Oyster Point Boulevard:* Northbound on- and off-ramps intersect Dubuque Avenue at and immediately south of Oyster Point Boulevard. Southbound on-ramps are at Dubuque Avenue, adjacent to the northbound off-ramp. The southbound off-ramp intersects Gateway Boulevard/Oyster Point Boulevard as the intersection's fifth leg.
- *Oyster Point Boulevard* is an east-west arterial street that connects US-101 with the Oyster Point Marina. Between Gull Drive and US-101, Oyster Point Boulevard has four travel lanes. The Project site can be accessed from Oyster Point Boulevard via Gateway Boulevard, Eccles Avenue, and Gull Drive (connecting to Forbes Boulevard).
- *Forbes Boulevard* is a four-lane street extending north from East Grand Avenue, then running east into the Genentech campus, terminating at DNA Way. East of Allerton Avenue, Forbes Boulevard

has two Class II buffered bicycle lanes. Two direct driveway access points are from the Project site to Forbes Boulevard.

- *East Grand Avenue* is an east-west arterial street. It has six travel lanes west of Gateway Boulevard, four east of Gateway Boulevard, and two east of Haskins Way. US-101 freeway ramps at East Grand Avenue enable Project site access from the west and are expected to represent the primary means of access. East Grand Avenue carries about 17,000 vehicles per day.
- *Gateway Boulevard* is a four-lane north-south arterial connecting East Grand Avenue with South Airport Boulevard and Oyster Point Boulevard. Class II bicycle lanes exist between East Grand Avenue and So. Airport Boulevard. The corridor provides Project access from the north via US-101 ramps at Oyster Point Boulevard. Gateway Boulevard carries approximately 12,000 vehicles per day.
- *Eccles Avenue* is a two-lane local street that connects Forbes Boulevard to Oyster Point Blvd. It enables Project site access from the north via US-101 ramps at Oyster Point Boulevard.
- *Allerton Avenue* is a two-lane north-south arterial containing Class II bicycle lanes connecting Forbes Boulevard to East Grand Avenue. The corridor provides Project access from the north via a planned right-in/right-out driveway into the Project site.

2.2 Transit Facilities and Service

The Project site is not directly served by regional rail, ferry, or bus transit services; however, the Caltrain Station and first/last mile shuttle service are within walking distance. The South San Francisco Caltrain Station is located approximately 0.75 miles (walking distance) from the Project site (a fifteen-minute walk or five-minute bicycle ride). The San Francisco Bay Area Water Emergency Transportation Authority (WETA) Ferry Terminal, San Bruno Bay Area Rapid Transit (BART) Station, and South San Francisco BART Station are farther away (approximately 1.5 miles northeast, 3 miles southwest, and 3.5 miles west, respectively). SamTrans bus service currently serves the East of 101 area in South San Francisco near the Project site via route 130, which travels between Daly City and South San Francisco BART and the Oyster Point Ferry Terminal. In addition to the SamTrans bus service, the Project site also relies on supplementary public shuttle services to connect employees with regional transit. Shuttles to Caltrain, BART, and the Ferry Terminal are operated by the Peninsula Traffic Congestion Relief Alliance (Commute.org) and Genentech (through the Genenbus program). Existing transit facilities are shown in **Figure 2-1**.

2.2.1 Regional Transit Service

The following transit services operate within South San Francisco. They are accessible from the Project site by walking, bicycling, future first- and last-mile shuttle connection provided by Commute.org, or parking at the rail service stations.

Caltrain provides passenger rail service on the Peninsula between San Francisco and San José and limited-service trains to Morgan Hill and Gilroy during weekday commute periods. The South San Francisco Caltrain Station is approximately 0.5 miles west of the Project at 590 Dubuque Avenue, on the east side of US-101, immediately north of East Grand Avenue. People can walk directly between the Project site and the Caltrain Station along East Grand Avenue; via the pedestrian network. The Project is located approximately 0.75 miles from Caltrain. The South San Francisco Caltrain Station serves local and limited trains. The South San

Francisco Caltrain Station currently provides weekday service from 5:00 a.m. to 12:30 a.m., with headways ranging from 15–45 minutes from 5:00 a.m. to 8:00 p.m. and 30-minute headways from 8:00 p.m. to 12:30 a.m. On weekends, Caltrain operates on 1-hour headways from 8:30 a.m. to 12:30 a.m. By 2024, Caltrain plans to complete its electrification project to support faster and more frequent rail service on the Peninsula.

Bay Area Rapid Transit (BART) provides regional rail service between the East Bay, San Francisco, and San Mateo County, connecting between San Francisco International Airport and Millbrae Intermodal Station to the south, San Francisco to the north, and Oakland, Richmond, Antioch, Dublin/Pleasanton, and Fremont in the East Bay. The San Bruno Station is the closest station to the Project site, about two miles southwest at 1151 Huntington Avenue. However, no Commute.org shuttle service to the San Bruno BART Station exists. The South San Francisco BART Station is located approximately three miles to the west at 1333 Mission Road. Both the South San Francisco and San Bruno Stations provide service along the Richmond-Millbrae Line and the Antioch-SFO/Millbrae Line with transfer to other BART lines at Balboa Park. Trains provide service from 5:00 a.m. to 12:00 a.m. on weekdays and 6:00 a.m. to 12:00 a.m. on weekends. Trains operate on 15-minute headways during peak hours and 20-minute headways during off-peak hours.

San Francisco Bay Area Water Emergency Transportation Authority (WETA) provides weekday commuter ferry service between the Oakland/Alameda ferry terminals and the South San Francisco Ferry Terminal at Oyster Point. Pre-pandemic, there were four-morning departures from Oakland/Alameda to South San Francisco and four-evening departures from South San Francisco to Oakland/Alameda[1].

San Mateo County Transit District (SamTrans) provides bus service in San Mateo County and recently began serving the East of 101 employment area as of fall 2022. SamTrans Route 130 runs from South San Francisco Ferry Terminal to Daly City, including a stop at the South San Francisco BART station. Buses provide service from 4:30 a.m. to 9:30 p.m. on weekdays and 6:50 a.m. to 6:50 p.m. on weekends. On weekdays, buses operate on 30-minute headways except for the day's first and last service, which runs on 60-minute headways. On weekends, buses all operate on 30-minute headways.

The *Peninsula Traffic Congestion Relief Alliance (Commute.org)* provides weekday commute period first/last mile shuttles connecting employers with BART, Caltrain, and the WETA Ferry Terminal; shuttles are equipped with bicycle racks. Service is roughly distributed between the East of 101 area's north (Oyster Point area) and south (Utah/Grand area) geographic halves. No shuttle stops are along the Project Street frontage along Forbes Boulevard and Allerton Avenue. The nearest shuttle stop to the Project site is at the intersection of Cabot Road/Allerton Avenue, approximately 0.5 miles southeast (a 10-minute walk), which serves shuttles that connect to both South San Francisco BART, South San Francisco Caltrain and WETA Ferry Terminal. Shuttles have timed connections to Caltrain and ferry service, while BART shuttles meet every other peak period train. Each shuttle operates at 30 to 60-minute headways during commuting a.m. and p.m. peak periods.

[1] San Francisco Bay Ferry. 2023. Available: *https://sanfranciscobayferry.com/south-san-francisco-ferry-route.* Accessed: February 14, 2023.

Commute.org[2] has a rewards program for those who live, work, or attend school in San Mateo County. Rewards include up to $100 for logging carpooling, bicycling, or vanpooling trips. The reward program also makes those eligible for the Guaranteed Ride Home program, in which Commute.org will cover the cost of a ride home in the case of an illness, emergency, or another qualifying event. The reward program has quarterly promotions and a store to redeem points from logging trips for items in the STAR store.

2.3 Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, trails, and pedestrian signals. Pedestrian facilities near the Project site serve walking trips connecting to shuttle stops, the Caltrain Station, multi-use trails, and nearby offices and businesses. In the Project vicinity, sidewalk widths range from 5-7 feet.

The following pedestrian facilities exist near the Project site.

- The *Rails-To-Trails shared-use path* is a fully separated bicycle and pedestrian facility between Roebling Road and Genentech campus. The trail runs along the south frontage of the Project site.
- *Forbes Boulevard* has continuous sidewalks that run on the roadway's north side and serve as a connection from East Grand Avenue to the Project site. There are currently no sidewalks on the south side of Forbes Boulevard between Grand Avenue and Allerton Avenue and no marked pedestrian crossings connecting the north side of Forbes Boulevard to the south side of Forbes Boulevard along the Project frontage.
- *Allerton Avenue* has continuous sidewalks on the roadway's east and west sides and connects to East Grand Avenue and the Pointe Grand site.
- *Roebling Road* has continuous sidewalks on the roadway's east and west sides and connects from the Caltrain Station to the multi-use trail. There is no marked crosswalk at Roebling Road and East Grand Avenue intersection.

Past the East Grand Avenue/Gateway Boulevard intersection towards the Caltrain Station, sidewalks exist on both the north and south sides of East Grand Avenue and continue uninterrupted to the Caltrain Station. The portions of East Grand Avenue and Poletti Way nearest the Caltrain Station include recently implemented enhanced pedestrian safety components, including marked crosswalks, pedestrian signals, and new ADA-compliant curb ramps to access the Caltrain Station entrance.

2.4 Bicycle Facilities

Bicycle facilities consist of separated bikeways, bicycle lanes, routes, trails, and paths, bicycle parking, bicycle lockers, and showers for cyclists. The California Department of Transportation (Caltrans) recognizes four classifications of bicycle facilities, as described below.

[2]Commute.org. 2021. Available: https://commute.org/rewards/. Accessed: February 7, 2023.

- Class I – Shared-Use Pathway: Provides a completely separated right-of-way for the exclusive use of cyclists and pedestrians with cross-flow minimized (e.g., off-street bicycle paths).
- Class II – Bicycle Lanes: Provides a striped lane for one-way travel on a street or highway. It may include a "buffer" zone consisting of a striped roadway between the bicycle lane and the nearest vehicle travel lane.
- Class III – Bicycle Route: Provides for shared use with motor vehicle traffic; however, they are often signed or include a striped bicycle lane.
- Class IV – Separated Bikeway: Provides a right-of-way designated exclusively for bicycle travel adjacent to a roadway protected from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Current bicycle facilities in the Project vicinity, as designated by the City's Bicycle Master Plan and the draft Active South City: Bicycle and Pedestrian Master Plan (ongoing), are shown in **Figure 2-2** and discussed below.

- *Gateway Boulevard* has Class II bicycle lanes between East Grand Avenue and South Airport Boulevard.
- *East Grand Avenue* has Class II bicycle lanes between Gateway Boulevard and where the roadway ends at Point San Bruno Park and provides bicycle connectivity between the Project site and the South San Francisco Caltrain Station. The intersection of Allerton Avenue and East Grand Avenue, and DNA Way and East Grand Avenue will have bicycle detection and signals and increased protection at the intersections by the end of 2021.
- *Allerton Avenue* has Class II buffered bicycle lanes connecting East Grand Avenue bicyclists to Forbes Boulevard.
- *Forbes Boulevard* has Class II bicycle lanes between Allerton Avenue and DNA Way. An extension of bicycle lanes between Eccles Avenue and Allerton Avenue is planned. From Forbes Boulevard, bicyclists can travel along the Class II bicycle lanes on Gull Drive, Oyster Point Boulevard, and Marina Boulevard to reach the South San Francisco Ferry Terminal.
- South of the Project, a *Rails-To-Trails Class I shared-use path* runs between the northern end of Roebling Road to the southwest corner of the Genentech campus near Forbes Boulevard and Gull Drive. An extension from Roebling Road and Forbes Boulevard is being considered per South San Francisco Bicycle Master Plan.
- Various segments of Class I mixed-use trails are present or under construction, including from Roebling Road east to Allerton Avenue paralleling Forbes Boulevard crossing into the Genentech campus (existing), East Grand Avenue between Poletti Way and Grand Avenue (under construction), and from Forbes Boulevard to Oyster Point Boulevard paralleling Gateway Boulevard and Eccles Avenue (under construction).
- *The San Francisco Bay Trail (Bay Trail)* is a Class I mixed-use trail along the Oyster Point shoreline and Point San Bruno, part of a planned 400-mile regional trail system encircling the San Francisco Bay shoreline. The nearest access point from the Project to the San Francisco Bay Trail is

approximately one mile away. It is accessible via bike lanes on Forbes Boulevard and shared-use bicycle routes on nearby roadways.

The following bicycle facilities are provided at transit stations in the Project vicinity:

- The *South San Francisco Ferry Terminal* has bicycle racks to accommodate 12 bicycles and 12 secure on-demand electronic bicycle lockers available to rent using the BikeLink card system. The ferries allow bikes onboard, but space can be limited.
- The *South San Francisco Caltrain Station* has 12 electronic bicycle lockers and 24 bicycle racks. Other Caltrain Stations offer electronic bicycle lockers, Bay Wheels bike share access, bike valet and garages, bicycle repair stations, and bicycle hub rental bikes. Caltrain offers dedicated bicycle cars in which each bicycle car has space for 40 bicycles.
- The *South San Francisco BART Station and San Bruno BART Stations* have 12 secure on-demand electronic bicycle lockers to rent using the BikeLink card system. The Stations also provide single-user keyed lockers for individual use and require a rental agreement. BART does not permit scooters or mopeds on trains; however, bicycles are allowed on most train cars.

The City provides bicycle racks downtown intended for short-term bicycle parking. While the City continues to expand its bicycle network, the East of 101 Area has historically experienced low volumes of bicyclists due to commuting lengths, lack of continuous low-stress bicycle facilities, lack of network connectivity to residences and transit stations, and topography.

The reconstructed South San Francisco Caltrain Station completed in 2022 features a bicycle and pedestrian undercrossing that connects the East of 101 area to residents and transit facilities west of US-101. The undercrossing represents the first non-motorized connection spanning the Caltrain and US-101 corridors, meaning substantial barriers to east-west bicycle and pedestrian travel.

2.5 Emergency Vehicle Access

Emergency vehicles typically use major streets through the study area when heading to and from an emergency and/or emergency facility. Arterial roadways allow emergency vehicles to travel at higher speeds and provide enough clearance space to permit other traffic to maneuver out of the emergency vehicle's path and yield the right-of-way. The nearest existing fire station to the Project is Fire Station 62 at 249 Harbor Way, approximately 0.9 miles south of the Project site, via Harbor Way and Forbes Boulevard, with access to the Project via the driveway on Forbes Boulevard. Alternatively, emergency vehicles can travel along Harbor Way, E Grand Avenue, and Allerton Avenue to access the Project site via the driveway on Allerton Avenue. Harbor Way has one travel lane in each direction and a two-way center left turn lane. Forbes Boulevard and East Grand Avenue have two travel lanes with a center median, and Allerton Avenue has one travel lane in each direction. Travel time is approximately three minutes from Fire Station 62 to the Project site, and the Project site allows for larger vehicle turning movements.

Figure 2-1
Existing Transit Facilities

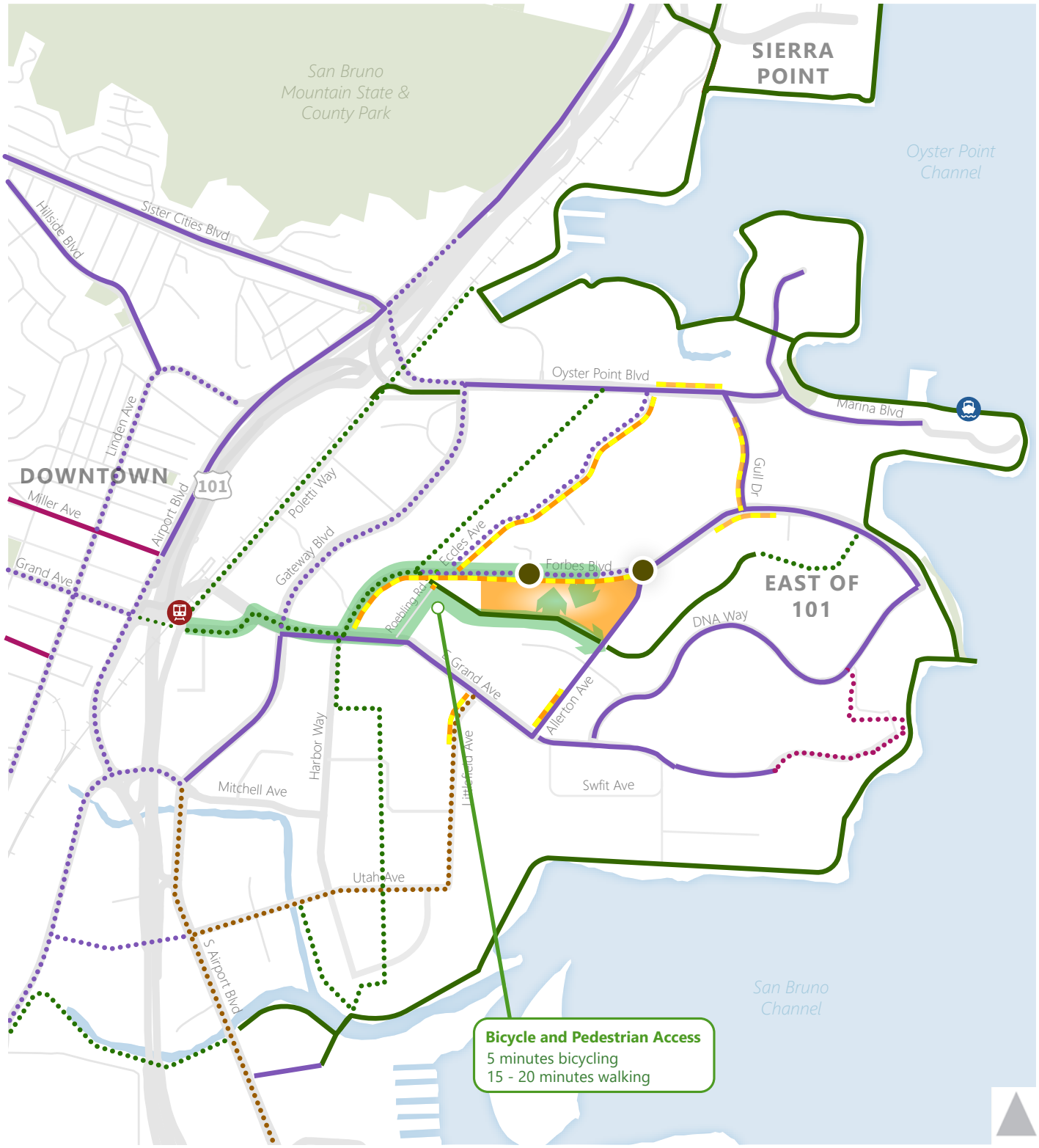

Figure 2-2

Existing and Planned Bicycle and Pedestrian Facilities

2.6 Transportation Plans & Policies

2.6.1 General Plan

The South San Francisco 2040 General Plan establishes a vision for the City's future growth. Its Circulation Element includes goals, policies, and actions covering topics such as complete streets, vehicle miles traveled, connectivity, safety, transit, active transportation, TDM, and parking. Each goal is presented in, accompanied by policies and actions that are particularly relevant the Project:

Table 2.1 South San Francisco General Plan Mobility Goals, Policies, and Actions

#	Goal	Project-Related Policies & Actions
1	South San Francisco prioritizes safety in all aspects of transportation planning and engineering.	**Policy MOB-1.2:** Strive to reduce vehicle speeds throughout the city to reduce the frequency and severity of collisions. **Action MOB-1.2.1.** Incorporate traffic calming treatments into all street projects to support lower design speeds.
2	South San Francisco provides a multimodal network with convenient choices for everyone.	**Policy MOB-2.1**: Incorporate complete streets improvements into all roadway and development projects. **Action MOB-2.1.1:** *Complete multimodal design and impact analysis*. Ensure that roadway and development projects are designed and evaluated to meet the needs of all street users, and that development projects contribute to multimodal improvements in proportion to their potential impacts on vehicle miles traveled. **Action MOB-2.1.3:** *Implement Active South City Pedestrian and Bicycle Plan.* All capital improvements and development projects incorporate bicycle and pedestrian improvements identified in the Active South City Plan, such as trails, bikeways, bicycle detection at traffic signals, high-visibility crosswalks, and pedestrian-oriented site plans. **Action MOB-2.1.4**: Implement transit speed, reliability, and access improvements. All capital improvements and development projects near regional transit stations or bus/shuttle routes incorporate improvements to advance speed, reliability, and access, such as in-lane farside bus stops, bus-only lanes, queue jumps, and pedestrian/bicycle gap closures.

#	Goal	Project-Related Policies & Actions
3	South San Francisco proactively manages traffic and parking demand.	**Policy MOB-3.1:** Promote mode shift among employers. Manage the number of vehicle trips, with a focus on promoting mode shift among employers **Policy MOB-3.2:** Optimize traffic operations on City streets. Optimize traffic operations on City streets while avoiding widening roadways or otherwise pursuing traffic operations changes at expense of multimodal safety, transit reliability, or bicycle and pedestrian comfort. **Policy MOB-3.3:** Right-size parking supply and maximize the efficiency of curb space. **Action MOB-3.3.1:** *Incorporate parking maximums.* Incorporate maximum parking requirements for new residential and office/R&D projects that align with TDM Ordinance trip reduction goals.
4	South San Francisco's land use and transportation actions reduce vehicle miles traveled (VMT) and greenhouse gas emissions	**Policy MOB-4.1:** Increase substantially the proportion of travel using modes other than driving alone. **Action MOB-4.1.1:** *Use site plan review to improve connectivity.* Use the development review process to identify opportunities to enhance bicycle, pedestrian, and transit connectivity.
5	South San Francisco residents have easy access to play, fitness, and active transportation networks.	**Policy MOB-5.1:** Expand the low-stress bike and pedestrian network. Capitalize on opportunities to expand the low-stress bike and pedestrian network throughout the city.

2.6.2 Active South City Plan

The Active South City Plan supplements the General Plan with a more in-depth assessment of bicycle and pedestrian needs and the identification of priority projects and policies to improve bicycle and pedestrian circulation through the city. Near the Project site, the Plan identifies several new bike lanes and multi-use trails, including a Class IV Separated Bikeway on Forbes Boulevard and an extension of the existing Rails to Trails Class I path from its western terminus at Roebling Avenue to the South San Francisco Caltrain Station.

3. Transportation Analysis

This section includes an analysis and findings of Project effects on transportation services and facilities, including motor vehicle travel and operations, transit service, pedestrian facilities, and bicycle facilities. The amount and distance of motor vehicle travel were analyzed using vehicle miles traveled (VMT). Bicycle, pedestrian, and transit impacts were qualitatively assessed.

3.1 Project Travel Demand

Project trip generation was calculated using local trip generation rates from two life science developments in the East of 101 area (499 Forbes Boulevard and 751 Gateway projects). Data were gathered via tube counts in 2019 and reflect pre-pandemic conditions. Trip generation rates were averaged between the two sites; the resulting trip generation is presented in **Table 3.1.** The study sites used to derive the locally-specific trip generation rate are large, life-science developments that reflect the East of 101 contexts and include a blend of traditional office and R&D land use.

Table 3.1 Trip Generation

Site Trips	Size (KSF)	Daily	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total
Trip generation rate from local data and average rate (per KSF)[1]	-	6.82	0.79	0.21	0.78	0.21	0.79	0.66
Proposed Project[2]	1,655	11,280	975	308	1,283	243	849	1,092
Existing Land Use[3]	108	539	40	14	54	20	42	62
Net New Trips		**10,741**	**935**	**294**	**1,229**	**223**	**807**	**1,030**

Notes:
1. Trip generation rates are based on local data collection.
2. Project trips include trips generated from the new buildings proposed with the campus development and do not include trips generated from the existing buildings to remain.
3. Based on ITE 10th Edition (Land Use #150 – Warehousing) for vehicle and truck trips using 180,000 square feet of building area. Truck trips converted to Passenger Car Equivalent (PCE) using 2.0 factor.

Source: Fehr & Peers, 2023

Net new trips were calculated by subtracting the existing trips to be removed from the office trips generated by the Project. According to this trip generation analysis, the Project would generate 10,741 net new weekday daily trips, 1,229 net new a.m. peak hour trips (935 inbound and 294 outbound), and 1,030 net new p.m. peak hour trips (223 inbound and 807 outbound). As noted previously, the Project site currently has one existing office building which will be demolished; therefore, a trip credit was subtracted from the total trip generation estimate to reflect its removal.

3.1.1 Transportation Demand Management

The Project must prepare a Transportation Demand Management (TDM) program consistent with Chapter 20.400 of the City's Municipal Code. Components of the TDM plan include participation in Commute.org programs, designated TDM coordinator, bicycle and pedestrian-oriented site access, encouragement of telecommuting and flexible work schedules, and others, as shown in **Table 3.2** below. Implementing the TDM plan is expected to reduce Project VMT, and total project trips, by 15 to 50 percent. The City's TDM Program operates on a "tier-based" system, where larger projects have more stringent requirements. The Project consists of two phases for purposes of the TDM program: the already entitled R&D / office space, which qualifies as a Tier 3 project, and the Project assessed in this impact analysis, which qualifies as a Tier 4 project. The Project has agreed to implement its TDM program in two parts: the first designed to meet the Tier 3 requirements (40 points, and a 60 percent or less drive-alone mode share), and the second designed to meet the Tier 4 requirements (50 points, and a 50 percent or less drive-alone mode share). The TDM Measures associated with the Tier 4 Project shown in Table 3.2 are representative and will be finalized at a later time, when required. The full TDM program can be found in **Appendix A**.

Table 3.2 Proposed TDM Measures

Type	TDM Measure	Points	VMT Reduction Potential
Tier 3 Required Measures (20 Points)	50% Transit Pass Subsidies and Pre-Tax Transit Benefits	7	0.8% to 2.8%
	Participation in Commute.org Programs	5	4.0%
	Carpool/Vanpool Programs and Parking	3	8.0%
	Bicycle Storage, Showers, and Lockers	2	2.7%
	Designated TDM Coordinator	1	Supportive
	Bicycle and Pedestrian-Oriented Site Access	1	Up to 3.0%
	Encourage Telecommuting & Flexible Work Schedules	1	Up to 5.5%
Tier 3 Optional Measures	Enhanced Shuttle Commitment	10	0.5% to 2.0%
	Active Transportation Gap Closure	Up to 6	Up to 2.0%
	On-Site Pedestrian-Oriented Amenities	3	Up to 5.0%
	On-Site Carshare	2	Up to 0.1%
	Bicycle Repair Station	1	Supportive
Tier 4 Measures – To Be Finalized Later	Offer Parking Cash-Out Incentive	10	Up to 12%
	or		
	Transit Capital Improvements	Up to 6	Up to 0.6%
	Bike Share Program	2	Up to 0.3%
	Cash Incentives	1	Up to 3%
	Additional Bicycle Repair Station	1	Supportive
Totals		**42** (Tier 3) **52** (Tier 4)	**15% to 30%** (Tier 3) **27% to 50%** (Tier 4)

Source: Fehr & Peers, 2023; Healthpeak Vantage TDM Plan, 2022

3.1.2 Project Trip Cap

Tier 4 projects are subject to additional monitoring through a site-specific trip cap. Trip caps reinforce mode share and parking requirements for a Project site while considering fluctuations in employee density and travel patterns.

Based on a mix of laboratory and office land use as described in the Project description, the Project anticipates accommodating 5,975 employees at build-out. This represents employee density assumptions for 50 percent office uses and 50 percent lab uses, as documented at other similar research and development/life science campuses that the Project sponsor manages. The City's TDM Ordinance sets a drive-alone mode share target of 50 percent. Allowing for carpool and vanpool vehicles, visitors, loading activity, and service vehicles, the peak period trip cap would be **3,823 vehicle trips**, as shown in **Table 3.3**. Additional discussion of the Project trip cap is included in its TDM Plan **(Appendix A**)

Table 3.3: Estimated Trip Cap at Build-Out: 5,975 Employees

Trip Type	Rate	Vehicle Trips
Employees Driving Alone	50%	2,987
Employees Carpooling and Vanpooling	12%, at 3.0 persons per vehicle	239
Visitors, Loading, and Service Vehicles	10%	597
Total		**3,823**

Source: Fehr & Peers, 2022

At Project build out, the actual tenant mix may result in a slightly different mix of office/lab uses, which could result in a slightly different employee count, thereby potentially triggering a recalculation of the Project's trip cap. For illustrative purposes only, **Table 3.4** shows various trip caps for different employment calculations based on a range of different land use mixes allowed under the existing zoning.

Table 3.4: Estimated Trip Cap at Build-Out: Various Employment Densities

Office/Lab Mix	100% / 0%	75% / 25%	50% / 50%	25% / 75%	0% / 100%
Total Employees	*8,114*	*7,046*	*5,975*	*4,908*	*3,840*
Employees Driving Alone	4,057	3,523	2,987	2,454	1,920
Employees Carpooling and Vanpooling	325	282	239	196	154
Visitors, Loading, and Service Vehicles	811	705	597	491	384
Total	**5,193**	**4,510**	**3,823**	**3,141**	**2,458**

Source: Fehr & Peers, 2022

While Table 3.3 shows an appropriate trip cap based on the reasonable estimate for total employment based on the developer's leasing data for its other buildings, once the Project buildings reaches 50 percent occupancy, the developer will conduct annual monitoring as part of its TDM plan. The trip cap monitoring will include a trip cap calculation based on actual employment and driveway counts from 6:30 a.m. to 10:30 a.m. and from 3 p.m. to 7 p.m. for one week each year to ensure that the total number of peak period trips does not exceed the trip cap listed above.

3.2 Significance Criteria

The impacts of the Project related to transportation will be considered significant under CEQA if any of the following Standards of Significance are exceeded, per Appendix G of the California Environmental Quality Act (CEQA) Guidelines:

- Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Generate per-employee VMT greater than the City's adopted threshold of 15 percent below the regional average, according to CEQA Guidelines Section 15064.3, subdivision (b) and City of South San Francisco Resolution 77-2020 related to VMT;
- Substantially increased hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access

The thresholds of significance used in this document are based on Appendix G criteria and the City of South San Francisco's adopted local policies. The criteria of significance apply to all Project scenarios as measured against the corresponding No Project scenarios. For non-CEQA topics and standards, the terms *deficiencies* and *improvement measures* are used, rather than "impacts" and "mitigation measures."

3.2.1 Vehicle Miles Traveled (VMT) (CEQA)

Under City of South San Francisco, Resolution 77-2020 and CEQA Guidelines Section 15064.3, subdivision (b)(1), the following screening criteria apply to employment-generating projects:

- A significant impact would occur if the development of the Project would generate per-employee vehicle miles traveled (VMT) greater than the City's adopted threshold of 15 percent below the regional average.

3.2.2 Design Hazards (CEQA)

- A significant impact would occur if the Project substantially increases hazards to street users due to a design feature or land uses incompatible with the surrounding street network.

3.2.3 Emergency Access and Evacuation (CEQA)

- A significant impact would occur if the Project resulted in inadequate emergency access.

3.2.4 Parking and On-Site Circulation

- The Project would result in a deficiency if the Project provides parking at a rate substantially above the demand rate or at a level that would cause substantial overflow parking into a nearby residential neighborhood.
- The Project would result in a deficiency if it fails to provide adequate queuing space at driveways or access for service and delivery trucks on-site.

3.2.5 Bicycle and Pedestrian Access and Safety

- The Project would result in a deficiency if it does not incorporate direct bicycle and pedestrian access to primary entrances or if it results in major barriers at the site entry points.

- The Project would result in a deficiency if it substantially adds trips to an existing facility along the project frontage or en route to transit, that does not meet current pedestrian design standards or lacks adequate capacity to accommodate demand
- The Project would result in a deficiency if project bicycle parking is not located in a convenient area for users.
- The Project would result in a deficiency if it is incompatible with existing or planned bicycle or pedestrian facilities.
- The Project would result in a deficiency if the Project contributes a substantial level of daily vehicular traffic to a facility where bicycle and pedestrian infrastructure does not meet current design standards or to a high-injury facility

3.2.6 Transit

- The Project would result in a deficiency if Project traffic produced a detrimental impact on the performance or safety of local transit or shuttle service or conflict with adopted plans and programs.
- The Project would result in a deficiency if the Project does not provide a clear and direct path to a sidewalk or bicycle route providing access to a transit station or stop.

3.2.7 Passenger Loading

- The Project would result in a deficiency if the Project cannot accommodate anticipated loading activity, such that queuing obstructs public access to the Project, a bicycle lane, or a traffic lane for more than fifteen minutes in the relevant peak hour loading demand.

3.2.8 Off-Site Traffic Operations

- The Project would result in a deficiency if the Project causes a signalized intersection to operate at LOS F overall or adds five seconds of delay to intersections already operating at LOS F under the comparable "no project" scenario.

3.2.9 Intersection Traffic Controls

- The Project would result in a deficiency if the Project causes an all-way stop-controlled or side street stop-controlled intersection to 1) operate at LOS F overall or for the worst-case movement and causes said intersection to meet Caltrans signal warrant criteria.

3.3 Analysis Scenarios

The impacts of the Project on the surrounding transportation system were evaluated for the four scenarios listed below:

- Scenario 1: Existing Conditions
- Scenario 2: Existing Plus Project Conditions
- Scenario 3: Cumulative Conditions

- Scenario 4: Cumulative Plus Project Conditions

A description of the methods used to estimate the amount of traffic and VMT generated by the Project is provided below. Project-specific impacts are described under Section 4.

3.3.1 Existing Conditions

Existing conditions represent the baseline condition upon which Project impacts are measured. The baseline condition represents conditions before the COVID-19 pandemic. Due to the atypical travel patterns and transit service levels during the COVID-19 pandemic, new data was not collected for this analysis.

3.3.2 Existing Plus Project Conditions

Existing Plus Project conditions represent the baseline condition with the addition of the Project. Traffic volumes for Existing Plus Project conditions include existing traffic volumes plus traffic generated by the Project. Existing Plus Project conditions were compared to Existing conditions to determine potential immediate project impacts.

3.3.3 Cumulative Conditions

Cumulative conditions include transportation demand resulting from reasonably foreseeable land use changes and conditions associated with funded transportation projects in the year 2040 based on the Shape SSF General Plan Update. Cumulative conditions are based on land use and transportation conditions included in *Plan Bay Area 2040*, as represented in the C/CAG-VTA Bi-County Transportation Demand Model (C/CAG model). The C/CAG model is a four-step trip-based travel demand model designed to forecast how land uses, and transportation interacts within San Mateo and Santa Clara Counties.

3.3.4 Cumulative Plus Project Conditions

Cumulative Plus Project conditions represent the cumulative condition with the addition of the Project to determine the extent to which the Project would contribute to long-term cumulative transportation impacts.

3.4 Vehicle Miles Traveled

On June 10, 2020, the City of South San Francisco adopted Resolution 77-2020, establishing VMT thresholds and methodology effective July 1, 2020. The adopted VMT threshold for employment-generating land use projects determines that a project would have a significant transportation impact if the VMT for the Project were 15 percent below the applicable baseline VMT.

The Project was analyzed based on home-based work (HBW) VMT per employee. HBW VMT per employee was derived from the C/CAG Travel Demand Model. This metric follows the City and the California Governor's Office of Planning and Research (OPR) guidance for measuring office Project VMT and helps compare the Project's relative transportation efficiency to the regional average baseline.

Based on these factors, a significant impact would occur if existing HBW VMT per employee in the transportation analysis zone (TAZ) is higher than 15 percent below the existing regional average. Based on the City's analysis using the C/CAG Model, this threshold would be set at 13.5 (15 percent below the existing regional average of 15.9) HBW VMT per employee for office and R&D projects as shown in **Table 3.5**. This threshold of 13.5 HBW VMT per employee also applies to cumulative conditions.

Table 3.5 Home-Based Work Vehicle Miles Traveled Per Employee Thresholds

Location	Estimated HBW VMT per Employee
Bay Area Region (Existing)	15.9
VMT Reduction Factor	15%
HBW VMT Per Employee Threshold	13.5
Project	15.7
Project with at least a 15% Reduction in VMT due to TDM Plan	13.3

Notes:
1. HBW= home-based work; VMT = vehicle miles traveled.

Source: Fehr & Peers, 2023; C/CAG-VTA Bi-County Transportation Demand Model, 2022.

As discussed previously, the Project is required to implement a TDM program. The proposed Project would include a TDM plan (Tier 4) to achieve an alternative mode use goal of 50 percent to help minimize commuting via driving alone. The Project's TDM plan is expected to result in a 15 to 50 percent reduction in VMT, as shown in Table 3.2 above.

Based on the at least 15 percent reduction in per capita VMT due to the TDM plan, the Project would be expected to achieve a home-based work VMT per employee of 13.3 or lower. This is below the threshold of significance for a VMT impact (13.5). Further, this reflects the minimum level of reduction anticipated by the TDM plan. Through compliance with the City's TDM Ordinance, the Project will be required to achieve a 50 percent or less drive-alone mode share. Based on a background drive-alone commute rate of 80 percent, this would represent a 37.5 percent reduction in vehicle trips, with a similar reduction in VMT per capita.

3.5 Parking and Site Circulation

Forbes Boulevard bounds the Project site to the north, Allerton Avenue to the east, the Rails-to-Trails pathway to the south, and Eccles Avenue to the west. Both Forbes Boulevard and Allerton Avenue serve as the primary vehicle access via a perimeter roadway that traverses the south and west edges of the Project site and connects to the parking garages (see **Figure 1-2**). The perimeter roadway intersects with Forbes Boulevard at the northwest and northeast portion of the Project site and with Allerton Avenue at the southeast portion of the Project site. The perimeter roadway minimizes the number of vehicles in the campus's central area. It maintains separation between on-site pedestrians and vehicles, except for users accessing the site from the Rails-to-Trails facilities, who must cross the perimeter roadway to access all

project buildings. High-visibility crosswalk markings and speed-control mechanisms should be used to reduce conflicts between pedestrian site access and vehicles accessing the parking facilities; the project has currently proposed one crosswalk located east of the Amenity Building.

Three secondary vehicle access points (two along Forbes Boulevard and one along Allerton Avenue) provide access to convenient drop-off points located at each building entry. They are consolidated when possible to reduce curb cuts. Compared to the primary access points, these secondary driveways primarily serve visitors and commercial vehicles. Several service access points provide direct access to freight loading zones distributed between buildings. These service access points are positioned in areas that minimize Forbes Boulevard or Allerton Avenue traffic disruptions.

All roadways accommodate emergency vehicle access, and emergency vehicles can access the interior of the campus via drivable surfaces within the landscape.

Table 3.6 presents parking demand estimated using an assumption of total employees and the employee drive-alone rate, as discussed in Section 3.1. The Project proposes a total parking supply of 3,701 parking spaces to accommodate 47 surface parking stalls and three garage facilities, each with 11 to 12 floors.

Table 3.6 Estimated Parking Demand

Population	Rate	Parking Demand
Employees (5,975)		
Drive Alone	50%	2,987
Carpool	12% at 3 persons per carpool	239
Visitors	+5%	299
Parking Demand		**3,525**
Circulation Factor	+5%	176
Total Proposed Parking		**3,701**

Notes:
1. Based on *ITE Parking Generation 5th Edition* (Land Use #710 – General Office)
2. Employee density is assumed to be 1 employee per 400 square feet of building area.

Source: Fehr & Peers, 2022

3.6 Bicycle and Pedestrian Facilities

The Project would generate new pedestrian and bicycle trips, particularly employees traveling to and from shuttle stops, Downtown South San Francisco, the South San Francisco Caltrain Station, and the Ferry Terminal. As the primary linkage between the Project, Downtown South San Francisco, shuttle stops, and the Caltrain station, most pedestrian and bicycle trips are expected to occur along Forbes Boulevard. The additional pedestrian and bicycle trips may exacerbate modal conflicts at the East Grand Avenue/Grand

Avenue and East Grand Avenue/Gateway Boulevard intersections due to the slip right-turn lanes that permit high vehicle speeds due to wide corner radii, yield-control, and lack of separation of bicycle movements. Increasing pedestrian and bicycle activity through the slip lanes at these intersections impedes pedestrian connectivity at Grand Avenue intersections. The City is removing the right turn slip lane and enhancing pedestrian safety and convenience at the East Grand Ave/ Grand Ave intersection, which should be complete before Project construction.

3.6.1 Pedestrian Access

Pedestrian facilities connecting the Project to the Caltrain Station include sidewalks along Forbes Boulevard and the Rail-to-Trail facility that borders the south side of the Project site.

Forbes Boulevard lacks sidewalks on its south side, including along the project frontage. The Project has proposed the construction of a new sidewalk along its frontage; however, this facility would not connect directly to Caltrain, as pedestrians would be required to cross to the north side of Forbes due to incomplete sidewalks west of the Project site. Currently, no marked crosswalks exist to connect the north and south side of Forbes Boulevard, which may require pedestrians to detour up to ½ mile to access the Project if they wish to do so at a marked crossing. Currently, crosswalks at Allerton Avenue and Forbes Boulevard are unmarked; there is no marked crossing at Eccles Avenue or Carlton Court. The lack of connection to sidewalks on Forbes Avenue beyond the Project frontage may be partially addressed through wayfinding signage or future contributions to the proposed extension of the Rails to Trails facility.

The Rails-to-Trails shared-use path may serve as a low-stress connection from the Project site to the South San Francisco Caltrain station. With the completion of the Project, additional pedestrian and bicycle activity is expected south of the Project site, along Roebling Road and East Grand Avenue towards the Caltrain Station. East Grand Avenue is the primary connection to the Caltrain Station and downtown South San Francisco. Pedestrians between the Project site and downtown or the Caltrain Station will likely travel along the approximately five-foot-wide sidewalk on the south side of East Grand Avenue. Initially, pedestrians will likely cross the east leg of East Grand Avenue/Harbor Way/Forbes Boulevard, which spans around 90 feet (requiring 30 seconds for a pedestrian to cross at typical speeds). Pedestrians will likely cross the south leg of three intersections: East Grand Avenue/Harbor Way/Forbes Boulevard, East Grand Avenue/Gateway Boulevard, and East Grand Avenue/Grand Avenue. The intersections have crosswalk lengths spanning 100-130 feet, which for a typical person, takes 30-40 seconds to cross. East Grand Avenue/Gateway Boulevard and East Grand Avenue/Grand Avenue has a yield controlled channelized right turn lanes that extend the pedestrian crossing distance, increase vehicle turning speeds and reduce pedestrian visibility compared with a standard right turn lane. East Grand Avenue/Grand Avenue intersection has marked crosswalks on the south and east leg with pedestrian signals; however, the crossings are faded, and the curb ramps are in poor condition.

3.6.2 Bicycle Access

The Project proposes a Class II buffered bikeway along the Forbes Boulevard corridor due to anticipated high vehicle volumes and speeds. The Project will also accommodate the planned Rails-to-Trails pathway

along the south portion of the site through multiple paths connecting the project site to the pathway, as shown in Figure 1-2.

The Project proposes 73 Class I bicycle parking spaces in a dedicated bicycle parking room and in the Project parking garages. They are typically lockers or restricted-access parking rooms and are intended for employees. In addition, the Project will provide 174 Class II bicycle parking spaces intended for visitors.

Per the City's Municipal Code (Section 20.330.008 A.2.a), short-term bicycle parking must be located outside the public right-of-way and pedestrian walkways and not more than 50 feet from a main entrance to the building it serves. Per the City's Municipal Code (Section 20.330.008 B.2.a), long-term bicycle parking must be located on the same lot as the use it serves and near an entrance to the facility in parking garages.

3.7 Transit

The Project will generate new transit trips and vehicle trips that could affect transit operations within the study area.

While the East of 101 employment area is served by the South San Francisco Caltrain station and the Ferry Terminal, most development is outside the typical 0.5-mile walking distance from these stations. As such, the area is primarily connected to the regional transit system via a network of first- and last-mile commuter shuttles operated by Commute.org. The Project is a partial exception to this service pattern; it is located approximately 0.75 miles walking distance from the South Francisco Caltrain station but remains beyond typical walking distance from the Ferry Terminal (1.3 miles) and South San Francisco BART station (3.2 miles). Consequently, it is anticipated that the Project will be served by bicycling and walking trips to the Caltrain station and first/last-mile shuttles.

The Project Sponsor has committed to working with Genentech to participate in their Genenbus program. The Genenbus program provides additional last-mile shuttle service connecting to Glen Park BART Station for Genentech employees; other employers may participate through shared service agreements. A new stop is planned on either Forbes Boulevard or Allerton Avenue for employees to access the Genenbus program; however, a precise location has not been determined. The final shuttle stop location and planning should be coordinated with City and shuttle operator staff.

The Project would generate approximately 1,263 and 1,060 net new vehicle trips during the a.m. and p.m. peak hour, or about 18-21 new vehicles per minute. It is not anticipated that Project traffic volumes would disrupt transit service surrounding the Project site. The Project may add net new transit trips to both Caltrain and Commute.org shuttles and trips on private shuttles. Transit operators are expected to scale their services with the level of demand associated with this Project and other developments in the East of 101 area. The Project would not include features disrupting existing or planned transit routes or facilities as planned. The Project's driveways would not cause disruptions to existing, or planned transit services or transit stops. The Project would not conflict with any adopted transit system plans, guidelines, policies, or standards described in Section 2.6.

The Project's effects on transit access under Cumulative 2040 conditions would be similar to those under Existing conditions; however, employees of the Project may experience changes to SamTrans bus service in future years. *Reimagine SamTrans* is a comprehensive operational analysis to evaluate existing routes and additional routes to improve the experience for existing riders, grow new and more frequent ridership, and improve the efficiency and effectiveness of SamTrans as a mobility provider. In addition, Caltrain is undergoing electrification and will likely provide more frequent service under cumulative conditions, enhancing access to the Project via regional transit.

3.8 Passenger Loading

As mentioned in **Table 3.3**, up to 10% of trips are expected to be made by visitors, service vehicles, or vehicles picking up / dropping off passengers. There are several areas within the Project site for passenger and/or truck loading. AM peak hour equates to up to 125 loading instances (1,254 peak hour trips x 10% loading and visitor rate), or roughly two loading instances each minute. A typical dwell time of one to three minutes indicates that up to six vehicles may be loading or unloading at a given time during the peak period.

For the Project, seven designated drop-off locations are located at each building's entry and consolidated to reduce the impact on both Project frontage streets. There are three drop-off locations along Forbes Boulevard and one drop-off location along Allerton Avenue. Two passenger loading zones along Forbes Boulevard are placed within an internal driveway to serve the two buildings on 480 Forbes Boulevard (Building A) and 490 Forbes Boulevard (Building B). The other passenger loading zone along Forbes Boulevard is a designated curb cut that allows vehicles to pull out of the primary traffic lane on Forbes and load passengers from building D and E. The passenger loading zone along Allerton Avenue is a designated curb cut, serving as the drop-off area for 490 Forbes Boulevard and Building C. The other three designated drop-off locations are within the Project site and can be accessed through the internal driveways.

The Project proposes multiple dedicated service access spots that could serve as truck-loading locations. Each proposed building has a service access spot, excluding the parking garages and fire station. Two service access spots serving buildings D, E, and F can be directly accessed via Forbes Boulevard, while one service access spot serving building B can be directly accessed via Allerton Avenue. Service access spots for buildings A, C, and the Amenity building can be accessed through internal driveways.

Given the number of provided loading zones, along with their location within the Project site and outside of travel lanes on adjacent roadways, the Project is not anticipated to experience queuing from loading zones that would impede pedestrians, vehicular traffic, or bicycles.

3.9 Traffic Circulation

As the East of 101 Area develops and Caltrain expands service at the new South San Francisco station, East Grand Avenue will experience increased travel demand for all modes. The existing street network was not configured to accommodate these volumes and remains oriented around the truck and industrial traffic,

with relatively wide lanes and wide-radius turn. These conditions are incompatible with growing pedestrian and bicycle demand and the need for East Grand Avenue to maximize person throughput as a complete street.

The Project's effects on off-site traffic circulation were assessed using the VISSIM traffic analysis software, which uses a microsimulation model, providing a precise method for testing the traffic operations of multiple intersections in a corridor. Compared with traditional analysis methods that evaluate each intersection's level of service (LOS)[3] in isolation, microsimulation shows the effects one intersection can have on another. This method is best for analyzing congested conditions where intersections are closely spaced and where there is substantial non-automotive travel demand.

3.9.1 Assumptions and Methodology

This analysis tests how geometric and operational changes at five intersections can reasonably facilitate the future (2025) traffic and pedestrian demand. The Vissim microsimulation model for this study includes the following intersections in the City of South San Francisco:

1. East Grand Ave & US-101 NB Off-Ramp/Poletti Way
2. East Grand Ave & Sylvester Rd
3. East Grand Ave & Grand Ave
4. East Grand Ave & Gateway Blvd
5. East Grand Ave & Harbor Way/Forbes Blvd
6. Forbes Blvd & Eccles Ave
7. Forbes Blvd & Allerton Ave

This analysis builds upon recent efforts associated with the South San Francisco General Plan, South San Francisco Caltrain Access Study, and the 230-250 East Grand development. It incorporates a 2025 Project forecast inclusive of traffic, transit, pedestrian, and bicycle demand associated with the City's near-term development pipeline (such as 121 East Grand, 100 East Grand, Gateway of the Pacific, and Oyster Point) as well as roadway changes around the Caltrain station. The analysis uses AM peak hour forecasts as the peak demand for the northbound off-ramp where future traffic volume and Caltrain-related pedestrian and bicycle demand converge at a constrained location.

The Vissim model focuses on the US-101 NB off-ramp to East Grand Ave, the Grand Ave overpass crossing US-101 and the railroad, and the approaches in each direction to the Gateway and Harbor Way/Forbes Boulevard intersections. The baseline model was vetted against conditions presently under construction and is not calibrated to existing conditions. The future baseline conditions include the following changes envisioned in the Caltrain Access Study compared to existing conditions:

1. Reconfiguration of the NB offoff-Ramp at Poletti Way to include one through-lane continuing to Poletti, and two right-turn lanes carrying off-ramp traffic onto East Grand Ave.

[3] Level of Service is a concept used to represent the typical amount of delay at an intersection. It is presented as a letter grade from A (least amount of delay) to F (highest amount of delay).

2. At Poletti, reconfiguration to include a signalized crosswalk from the new Caltrain station and a southbound bus lane (turnout) for shuttles serving the station. The signalized crossing operates as a typical traffic intersection on a 60-second cycle with a pedestrian-only phase on recall mode.
3. On East Grand between Poletti and Grand, three eastbound-through lanes.
4. At Sylvester, reconfiguration to a signalized intersection with protected left turns in the east and west directions and crosswalks on all four legs.
5. At Grand/East Grand, reconfiguration of the north/eastbound channelized right from East Grand, continuing east to a two-lane right turn with a tighter radius; also, relocation of the north/south crosswalk towards the Grand overpass (west leg of the intersection).

The simulation was run iteratively to adjust the signal timing parameters to fit the traffic demand and minimize or balance the queues on the Grand and the E Grand off-ramp. After identifying a reasonable timing program, a series of simulation runs were conducted, and the intersection delay and queueing results were processed. The selected runs represent a wide array of the variability of when vehicles, pedestrians, and bicyclists enter the network and how they behave to simulate ten typical days, which are then averaged to produce the LOS results.

3.9.2 Analysis Results

Table 3.7 and **Table 3.8** presents the AM peak hour and PM peak hour intersection vehicle delay and LOS results for intersections 1-5 based on the Future (2025) Project results.

Table 3.7: Intersection Level of Service – AM Peak Hour

Intersection		Control	Future No Project		Future Plus Project	
			Delay (s)	LOS	Delay (s)	LOS
1	E Grand Ave/Poletti Way	Signal	>180	F	>180	F
2	E Grand Ave/Sylvester Rd	Signal	115	F	109	F
3	E Grand Ave/Grand Ave	Signal	130	F	>180	F
4	E Grand Ave/Gateway Blvd	Signal	125	F	120	F
5	E Grand Ave/Harbor Way/Forbes Blvd	Signal	118	F	123	F
6	Forbes Blvd / Eccles Blvd	Signal	7	A	19	B
7	Forbes Blvd / Allerton Ave	AWSC	22	C	134	F

In the AM peak hour, the LOS results show that intersections 1 and 3 are the most congested points in the network. Traffic is coming east on Grand Ave over US-101, and the railroad is heavy, as is traffic exiting US-101 northbound onto East Grand. These two movements must funnel together in a very short segment between intersections 3 and 4 before the eastbound demand begins to disperse to Gateway, Harbor, and Forbes. A similar trend is present in the PM peak hour, though greater levels of delay are seen along Forbes Boulevard compared to the AM peak hour.

Table 3.8: Intersection Level of Service – PM Peak Hour

Intersection		Control	Future No Project		Future Plus Project	
			Delay (s)	LOS	Delay (s)	LOS
1	E Grand Ave/Poletti Way	Signal	17	B	36	D
2	E Grand Ave/Sylvester Rd	Signal	143	F	>180	F
3	E Grand Ave/Grand Ave	Signal	69	E	111	F
4	E Grand Ave/Gateway Blvd	Signal	93	F	106	F
5	E Grand Ave/Harbor Way/Forbes Blvd	Signal	118	F	166	F
6	Forbes Blvd / Eccles Blvd	Signal	10	B	136	F
7	Forbes Blvd / Allerton Ave	AWSC	67	F	67	F

Reviewing the simulation runs, each intersection showed that the pedestrian crossing time assumptions are sufficient to handle both the higher demand (and clusters of people coming from trains) and a wide array of walking speeds. With crosswalks shortened, channelized rights removed, and left turns operating with protected phasing, there are fewer instances in which vehicles attempt to cross the crosswalk.

3.10 Signal Warrant Analysis

Three stop-controlled intersections were studied to determine whether adding Project trips warranted signals to improve traffic operations. A combination of 2018 and 2019 intersection counts was used as the baseline intersection volumes to analyze the Project driveway onto Forbes on the west end of the site and for the intersection of Forbes Boulevard and Allerton Avenue. Conservative assumptions were made to determine the percent of total peak hour Project trips that would occur at the signal warrant locations. The Peak Hour Signal Warrant[4] was conducted for the AM and PM peak hours and with the addition of Project trips. Based on peak hour signal warrants under Existing Plus Project conditions, signals are warranted at both the western driveway accessing the site and Forbes Boulevard and Allerton Avenue.

Table 3.9 Signal Warrant Analysis

Location	Signal Warrant Met[1]	Status
Forbes Boulevard/Allerton Avenue	Yes	Could be signalized with the Project; Meets Warrant 3 based on AM Peak
Forbes Boulevard/Project Driveway (West)	Yes	Could be signalized with the Project; Meets Warrant 3 based on AM Peak and PM Peak
Forbes Boulevard/Project Driveway (East)	No	

[4] Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) Section 4C.04 Warrant 3, Peak Hour, 2009. Accessible: https://mutcd.fhwa.dot.gov/htm/2009/part4/part4c.htm

4. CEQA Impacts and Mitigations

This section includes the evaluation of the Project's potential impacts under Existing Plus Project and Cumulative Plus Project conditions. This section also describes the required associated mitigation measures that would reduce impacts of the Project.

4.1 Vehicle Miles Traveled

Impact TRANS-1: HBW VMT per employee does not exceed the City's adopted threshold of 15 percent below the regional average under Existing Plus Project and Cumulative Plus Project conditions. (Less-than-Significant)

As shown in Table 3.1, the Project is expected to generate 13.3 HBW VMT per employee under existing conditions (including a 15 percent reduction due to the Project TDM plan), which is below the per-employee significance threshold of 13.5 HBW VMT (based on a VMT of 15 percent below the regional average). The Project has agreed to annual monitoring and a trip cap to ensure that the TDM Plan is effective, and results in a substantial decrease in Project-generated VMT. Therefore, the Project would have a less-than-significant impact on VMT under Existing Plus Project conditions, provided it is consistent with the requirements of the City's TDM Ordinance. Provided this regulatory requirement is met, no mitigation is required. Notwithstanding the Project's less than significant impact on VMT, cumulative traffic impacts would remain significant and unavoidable as described in the SSF 2040 General Plan EIR.

REGULATORY REQUIREMENT TRANS-1:

The SSF 2040 General Plan EIR relies on compliance with the TDM Ordinance of the South San Francisco Municipal Code Chapter 20.400 (Transportation Demand Management) to ensure that the Project implements the necessary measures to reduce its transportation impacts. Pursuant to this regulatory requirement, the Project would implement the following TDM measures:

Regulatory Requirement Transportation-1, Implementation of a TDM Plan: Consistent with South San Francisco Municipal Code, chapter 20.400, new development including the Project will be required to implement a TDM Plan at a tier-level consistent with the size of the development.

1. Phase 1 of the Project is already approved and under construction. Based the square footage of Phase 1 development, Phase 1 qualifies for a Tier 3 TDM Plan, is required to achieve 40 points and must achieve a 40 percent reduction to home-to-work single-occupant vehicle trips. TDM measures included as part of the Tier 3 Plan include (as further described in Appendix A):
    - 50% transit pass subsidies
    - Participation in Commute.org
    - Carpool/Vanpool Programs and Parking
    - Bicycle Storage, Showers, Lockers
    - Designated TDM Coordinator

- Bicycle and Pedestrian-Oriented Site Access
- Telecommuting & Flexible Work Schedules
- Enhanced Shuttle Commitment
- Active Transportation Gap Closure[5]
- On-Site Pedestrian-Oriented Amenities
- On-Site Carshare
- Bicycle Repair Station

2. At the initiation of Phase 2, additional measures will need to be incorporated into a Tier 4 TDM Plan to achieve the 50-point criteria and achieve a 50 percent reduction to home-to-work single-occupant vehicle trips. As described in Appendix A, the Project will leverage information concerning the most successful elements of the Phase 1 TDM Plan in order to determine which additional measures are most appropriate and effective for Phase 2 and 3. TDM measures to be considered for the Tier 4 Plan include (as further described in Appendix A):
    - Parking Cash-out incentive
    - Transit Capital Improvements
    - Bikeshare Program
    - Cash Incentives
3. Annual monitoring must demonstrate that the Project achieves 50 percent of employees traveling by single occupancy vehicles and that the Project does not exceed its Project-specific Trip Cap.

Consistent with the SSF 2040 General Plan EIR and the TDM Ordinance, the Project is required to include measures to reduce the number of drive alone vehicle commute (home-to-work) trips to 50 percent or less. This reduction in permitted vehicle trips will be established as a Trip Cap for the Project. The resulting Trip Cap is demonstrated as capable of reducing per-employee VMT to below threshold levels.

4.2 Design Hazards

Impact TRANS-2: **Development of the Project would not exacerbate the previously identified impacts based on design hazards and queuing identified in the South San Francisco General Plan EIR. (*Less than Significant / Does Not Exacerbate a Previously Identified Impact*)**

The SSF General Plan EIR (Impact TRANS-4) determined that implementation of the General Plan would modify the existing transportation network to accommodate existing and future users, which could change travel patterns or traveler expectations. For example, the General Plan EIR explains that General Plan implementation would increase vehicle trips on City freeway ramps, which could exacerbate vehicle

[5] The Project contributed toward the completion of the Rail to Trails Class I pathway between Roebling Road and Allerton Avenue as part of Phase 1. The Project would contribute toward an extension of the Rails to Trails from its western terminus at Roebling Avenue to the South San Francisco Caltrain Station consistent with the Active South City Plan. This trail extension is also discussed under Improvement Measure Trans-3.

queues on ramps already in excess of their storage capacity. [6] The Project, being consistent with the General Plan, may contribute to these significant and unavoidable impacts.

Fees paid by the Project will be used by the City to develop roadway infrastructure improvement that directly address traffic impacts, including exacerbating vehicle queues on freeway ramps that are already in excess of their storage capacity, that may be caused by the Project. Further, the Project will conform to several of the General Plan's transportation policies, including Policies MOB 2-1 and 5-1, which require the development of complete streets and expanding the City's bike and pedestrian network, respectively. The Project's internal circulation network will be designed to provide complete streets that accommodate both pedestrians and bicyclists, as well as vehicle traffic. Finally, the Project applicant has already completed improvements to the portion of the Rails-to-Trails network on the southern portion of the Project site and would contribute toward an extension of the Rails to Trails from its western terminus at Roebling Avenue to the South San Francisco Caltrain Station consistent with the Active South City Plan. Thus, the Project will not exacerbate the previously identified transportation hazard impacts that were identified in the General Plan EIR.

The new driveways along both Forbes boulevard and Allerton Avenue would not change the geometry of the adjacent roadways. As the Project is expected to increase pedestrian and bicycle trips at the driveways along Forbes Boulevard and Allerton Avenue, it may increase risk to pedestrians and bicyclists. Any future vegetation located within the sight triangles at the driveways should be maintained so as not to restrict drivers' sight distance when exiting the driveway. Sight distance at the proposed driveway locations is expected to be adequate for drivers exiting the Project site and for pedestrians crossing the driveways.

The Project would not include any uses that are incompatible with the surrounding land use or the existing roadway system. Therefore, the Project is not expected to result in a substantial increase to hazards, and the Project's impacts to hazards would be less than significant under Existing Plus Project conditions and less than cumulatively considerable under Cumulative Plus Project conditions. No mitigation is required.

MITIGATION MEASURE TRANS-1:

The Project will provide a fair-share contribution to the Overpass Contribution Fee and Transportation Impact Fee. These contributions will be used to fund infrastructure promoting walking, bicycling, and transit; and promoting the City's General Plan policies.

MITIGATION MEASURE TRANS-2:

The Project shall maintain appropriate sight triangles at all project driveways.

Significance after Mitigation: With the implementation of Mitigation Measures TRANS-2 and TRANS-3, the Project's impacts due to design hazards are expected to be less-than-significant.

[6] City of SSF, *SSF 2040 General Plan Draft EIR*, 2022, Impact TRANS-4, page 3.14-48

4.3 Emergency Access

Impact TRANS-6: Development of the Project would not result in inadequate emergency access under Existing Plus Project and Cumulative Plus Project conditions. (*Less than Significant*)

Vehicle trips generated by the Project would represent a small percentage of overall daily and peak hour traffic on roadways and freeways in the study area. The Project would generate about 20 to 22 vehicle trips per minute on average during peak hours, which is not expected to introduce or exacerbate conflicts for emergency vehicles traveling near the Project. The Project would not include features that would alter emergency vehicle access routes or roadway facilities; fire and police vehicles would continue to have access to all facilities around the entire City. Emergency vehicles would have full access to the Project site from all driveways connecting to adjacent streets; each driveway would be equipped to handle all types of emergency vehicles. Therefore, the Project would result in adequate emergency access, and the Project's impacts to emergency access would be less than significant under Existing Plus Project conditions and less than significant under Cumulative Plus Project conditions.

Mitigation Measures: None required

5. Local Transportation Deficiencies and Improvements

5.1 Parking and Site Circulation

The Project does not result in a deficiency in parking or site circulation.

The Project's proposed parking supply exceeds the required parking ratio set forth in Table 20.330.004 of the SSFMC; the governing rate set forth in the City code is 1.5 parking spaces per 1,000 square feet for R&D. The Project proposes a parking supply of 2.24 parking spaces per 1,000 square feet.

However, Section 3.5 illustrates that the Project's proposed parking supply is aligned with the mode share requirements set by the City's transportation demand management policies, and is compatible with a drive-alone mode share of 50 percent or less (combined with a carpool mode share of at least 12 percent).

In addition, on-street parking is prohibited in the Project's vicinity, and it is unlikely that individuals seeking to park at the site would park elsewhere or create a nuisance by parking on other properties. As such, the Project would not result in any deficiencies due to its parking supply.

The Project includes seven designated passenger loading zones, along with multiple service access locations that do not utilize the Project's primary driveways. Each of these facilities is fully accommodated on-site for the Project. By dispersing loading activity across the site, the Project is unlikely to experience queuing that would infringe on roadways or bicycle or pedestrian facilities.

5.2 Bicycle and Pedestrian Access

Development of the Project could potentially result in barriers to pedestrian and bicyclist access to the site.

The Project would not produce or contribute to deficiencies in existing bicycle or pedestrian facilities or conflict with adopted policies in adopted City plans summarized in Section 2.6. The Project would generate additional vehicle trips along existing sidewalks, bikeways, and shuttle routes along streets such as Forbes Boulevard and Allerton Avenue and would also generate new walking and bicycling trips on such streets. However, by adding approximately 18-21 vehicles per minute to the surrounding street network, the Project would not adversely affect existing or planned bicycle or pedestrian facilities or substantially lengthen travel times by existing shuttle services. By implementing Mitigation Measure TRANS-2 the Project would contribute toward advancing the City's bicycle, pedestrian, and transit goals as identified in plans summarized in Section 2.6. The Project's effects under cumulative 2040 conditions would be similar to that of existing conditions.

The Project may also contribute to an existing hazard by generating new person trips that use the existing slip lanes at the East Grand Avenue/Gateway Boulevard and the East Grand Avenue/Grand Avenue intersections, which may exacerbate conflicts between vehicles, pedestrians, and bicyclists given the wide turning radii, relatively high speeds, yield-control, and lack of separation of bicycle movements. The mitigation measure listed under Impact TRANS-2 is anticipated to improve bicycle and pedestrian safety and connectivity. Therefore, the Project would not contribute to a transportation deficiency regarding bicycle and pedestrian safety under Existing Plus Project conditions and Cumulative Plus Project conditions.

As discussed in Section 3.5 and Section 3.6, the Project includes one crosswalk located east of the Amenity Building to connect the site to the Rails-to-Trails pathway immediately south of the site. As the Rails-to-Trails facility provides the most direct route for pedestrians to the South San Francisco Caltrain Station, providing a high quality point of access from the trail to the site is needed to encourage walking and bicycling behavior. Pedestrian access to the Rails-to-Trails facility shall be designed to minimize walking distance, maximize visibility, and promote pedestrian comfort.

The Project proposes to install new sidewalks on the north side of the site; however, west of the Project, there are no sidewalks continuing along Forbes Boulevard. In addition, there is no marked crosswalk; pedestrians approaching the site along Forbes Boulevard may have to detour in order to cross and maintain sidewalk continuity. This represents a deficiency in pedestrian access to the site.

Improvement Measure TRANS-1: The Project shall design and fund installation of one marked crosswalk at Allerton Avenue and Forbes Boulevard, as well as one at Eccles Boulevard and Forbes Boulevard.

5.3 Transit

The Project does not result in a deficiency in transit service, transit access, or transit operations.

The Project would not produce a detrimental impact to existing transit facilities or conflict with adopted policies in adopted City plans summarized in Section 2.6. Therefore, the Project's impact to transit is less-than-significant under Existing Plus Project conditions and the Project would not be a cumulatively considerable contributor to significant cumulative impacts under Cumulative Plus Project conditions. The Project also provides direct access to sidewalks and bicycle facilities connecting to local shuttle stops as well as the South San Francisco Caltrain station.

Implementation of Mitigation Measure TRANS-2 would improve access between the Project site and existing/future transit stops and would be consistent with relevant City plans and policies.

5.4 Passenger Loading

The Project does not result in a deficiency in passenger loading operations.

The Project provides passenger loading space on-site in seven separate locations. As discussed in section 3.8, the maximum number of simultaneous loading instances at the site is expected to be between two

and six; this is easily accommodated across the Project's designated loading areas. As such, the Project would not result in queuing from passenger loading that infringes on other facilities.

5.5 Off-Site Traffic Operations

The Project would result in substantial increases in vehicular delay at intersections near the Project, and contribute to ongoing congestion in the East of 101 area.

The Project would result in vehicle LOS either a) deteriorating to LOS F or b) increasing by at least five seconds at an intersection currently operating at LOS F at the following intersections connecting the Project site to US-101:

- E. Grand Ave / Sylvester Blvd (PM Only)
- E Grand Ave / Grand Ave (AM and PM)
- E Grand Ave / Gateway Blvd (PM Only)
- E Grand Ave / Harbor Way / Forbes Blvd (PM Only)
- Forbes Blvd / Eccles Blvd (PM Only)
- Forbes Blvd / Allerton Ave (AM Only)

Generally, the Project would contribute to the already substantial vehicular congestion in the peak hours in the East of 101 area. Even under future no project conditions, most intersections in the study area are expected to operate with extreme levels of delay, often averaging more than two minutes. Generally, this pattern is attributable to the close spacing of intersections, the heavy volumes making left turn movements at Gateway and Forbes Boulevards, and queuing that spills back beyond multiple intersections.

Limited options remain for capacity improvements or widening within the East of 101 area, and such improvements would conflict with General Plan policies calling for a focus on safety, multimodal design, implementation of the City's Pedestrian and Bicycle Plan, and implementation of transit improvements. General Plan Policy MOB-3.2 calls for optimizing operations while "avoiding widening roadways, or otherwise pursuing traffic operations changes at expense of multimodal safety, transit reliability, or bicycle and pedestrian comfort."

However, the General Plan *does* support creating new connections to help manage vehicular operations (Action MOB-3.2.2) and expanding the low-stress bicycle and pedestrian network (Action MOB-5.1). This deficiency is partially improved through Mitigation Measure TRANS-2, which will provide partial funding to connections within the East of 101 area. However, additional improvement measures could further address the identified deficiency.

Improvement Measure TRANS-2: Provide contribution to signalization of Corporate Drive and Forbes Boulevard. By providing access from Poletti Way directly to Forbes Boulevard in the direction of the project site, the Project can provide access to a new route from the 101-NB off-ramps to the Project site. Vehicles can remain on Poletti Way, rather than traveling through the extremely congested

intersections along E. Grand Avenue. They can then travel east on Corporate Drive, and take a left onto Forbes Boulevard.

Improvement Measure TRANS-3: Provide contribution to Complete Rails-to-Trails Facility to Provide Seamless Connection to Caltrain. The existing Rails to Trails facility terminates at Roebling Road before it reaches Forbes Boulevard. As a result, users of the facility must travel on Roebling Road and cross Grand Avenue at either Forbes Boulevard or Gateway Boulevard. These crossings cover long distances, and signal cycle times are long, resulting in long waits for pedestrians and bicyclists. The City's proposed Rails-to-Trails pathway, however, would connect across Forbes Boulevard and follow the north side of Grand Avenue, before connecting to the Caltrain Station via a connection from the north side of Grand Avenue to Poletti Way.

5.6 Intersection Traffic Controls

The Project would cause two intersections to meet signal warrants, creating a deficiency in intersection controls.

Addition of Project-related traffic would result in peak hour signal warrants being met at Allerton Avenue and Forbes Boulevard, as well as at the Project's western driveway and Forbes Boulevard. Given the proximity of the Project's driveway to the signalized intersection at Eccles Boulevard, signalization is not yet recommended. However, under future conditions, Forbes Boulevard and Allerton Avenue is expected to see substantial increases in vehicular delay, and it is located sufficiently far from other signalized intersections. In addition, signalizing Forbes Boulevard and Allerton Avenue provides a protected pedestrian crossing, which will be needed should a shuttle stop be installed on the north side of Forbes Boulevard.

Improvement Measure Trans-4: Provide contribution to signalize Allerton Avenue at Forbes Boulevard. The Project shall work with the City to determine an appropriate contribution in addition to transportation impact fees.