TABLES

FIGURES

SECTION 4.11

Traffic, Circulation, and Parking

This section presents the existing transportation systems that serve the San Francisco State University (SF State) campus and evaluates the impacts associated with the implementation of the proposed Campus Master Plan on the transportation systems, including local streets, arterials, transit (shuttle, bus, local and regional buses, and light rail), pedestrian and bicycle facilities, and parking.

Public comments related to traffic, circulation and parking received in response to the Notice of Preparation are summarized below.

- Commenters expressed concern about traffic and congestion on area roadways from the growth in student population, including 19th Avenue, Interstate 280, Lake Merced Boulevard, Brotherhood Way, Junipero Serra, Holloway Avenue, and all surface streets in and around Villas Parkmerced, Stonestown, and the campus.
- Commenters expressed concern regarding increased traffic from the commercial development along Holloway Avenue and Buckingham Way envisioned under the proposed Campus Master Plan.
- Commenters expressed concern that the increase in campus population will strain the parking around the campus and that more students will park on the streets surrounding SF State.
- Commenters requested that the EIR address impacts of construction traffic on area roadways.
- Commenters requested that the EIR include an analysis of the effect of the proposed Campus Master Plan on transit service, including Bay Area Rapid Transit (BART), Muni, and SamTrans systems.
- Commenters requested that the EIR include an evaluation of the effect of the proposed Campus Master Plan on pedestrians, including crowding at crosswalks and bus stops as well as pedestrian safety, especially of children and the elderly.
- Commenters expressed support of the proposed measures in the Campus Master Plan to improve bicycle facilities and connectivity on the campus; commenters asked that the EIR include an evaluation of the effect of excluding bicycles from the campus core on bicycle ridership; and also requested that the EIR examine bicycle parking in depth.
- One commenter asked that the EIR examine the effect of increased traffic on road maintenance.

To the extent that these issues involve a significant effect on the environment based on CEQA standards of significance, these issues are addressed in this section. The effect of increased traffic on road maintenance is not an environmental impact and is not discussed further in this EIR. Commercial development along Holloway and Buckingham as proposed in the Campus Master Plan would be local-serving and not of the type or scale of development that would generate vehicle trips. Because there would not be increased traffic due to this type of land use, the traffic analysis below does not include trips associated with this retail space. The traffic analysis does include trips associated with the proposed Hotel and Conference Center on Buckingham Way.

4.11.1 Environmental Setting

This section provides a description of the existing transportation conditions in the vicinity of the project area, including the existing roadway network, intersection operating conditions, transit network, parking supply and occupancy, pedestrian conditions, and bicycle conditions.

4.11.1.1 Study Area

The study area for the evaluation of vehicular traffic impacts includes the southwestern portion of the City of San Francisco bounded by Sloat Boulevard to the north, Junipero Serra to the east, John Daly Boulevard to the south, and Lake Merced Boulevard to the west. Impacts on pedestrian and bicycle facilities are evaluated for a smaller area around the campus that includes only those facilities that experience high use by campus affiliates.

4.11.1.2 Baseline Surveys

In conjunction with the preparation of the Campus Master Plan, the Master Plan team undertook a number of data collection efforts in order to understand the current travel behavior of the SF State affiliates and existing parking, pedestrian and bicycle conditions on and in the vicinity of the campus. These surveys included the following:

- A cordon count was conducted, which involved observers positioned at five key entry locations on the campus recording the manner in which SF State affiliates arrived at the campus. The arrival behavior of 36,000 persons was observed over the course of two days in November and December 2005.
- An intercept survey was completed where people entering the campus were handed a form they could complete immediately or mail in later. In total, 728 students, faculty and staff completed the form providing information regarding their journey to campus.
- A parking survey was conducted where data collectors counted and recorded the number of available and occupied parking spaces at all campus parking facilities on two days in November and December, 2005.
- A two-day survey was conducted in November 2005 of all persons boarding and alighting the Campus Shuttle and entering/exiting the Bike Barn.

The existing conditions are described below based in part on information gathered through these surveys. Data from these surveys are reported as appropriate. For further details about these surveys, please see Existing Conditions Analysis prepared in conjunction with the Campus Master Plan (WRT, 2006).

4.11.1.3 Roadway Network

The roadway system in the vicinity of the campus is composed of arterial highways and streets, collector streets and local streets. The functional roadway classifications described below are based on access, mobility, and design.

- **Major Arterials** – Cross-town thoroughfares whose primary function is to link districts within the city and to distribute traffic from and to the freeways; these are routes generally of citywide significance; of varying capacity depending on the travel demand for the specific direction and adjacent land uses.
- **Secondary Arterials** – Intra-district routes of varying capacity serving as collectors for the major thoroughfares; in some cases supplemental to the major arterial system.
- **Collector Streets** – Relatively low-capacity streets serving local distribution functions primarily in large, low-density areas, connecting to major and secondary arterials.
- **Local Streets** – All other streets intended for access to abutting residential and other land uses, rather than for through traffic, generally of lowest capacity.

The SF State campus is served by two primary roadways: 19th Street and Lake Merced Boulevard. Key off-campus streets that are used by traffic associated with the campus are shown on Figure 4.11-1 and are briefly described below:

19th Avenue is a six-lane major arterial street extending north-south from Junipero Serra Boulevard to Lincoln Way. 19th Avenue is major commuter and visitor route providing regional access between Interstate 280 and 101 in the City and County of San Francisco.

Junipero Serra Boulevard is a six-lane arterial street extending north-south from Interstate 280 and Highway 1 to Sloat Boulevard.

Sloat Boulevard is a six-lane arterial street extending east-west from Junipero Serra Boulevard to Great Highway.

Lake Merced Boulevard is a four-lane secondary arterial extending north-south from Skyline Boulevard to John Daly Boulevard.

Holloway Avenue is a two-lane collector street extending east-west from Font Boulevard to Harold Avenue in the vicinity of the campus. Holloway Avenue provides primary access to the campus from 19th Avenue.

Font Boulevard is a two-lane collector street extending east-west from Lake Merced Boulevard to Junipero Serra Boulevard. Font Boulevard provides primary access into the campus from Lake Merced Boulevard.

4.11.1.4 Existing Intersection Operating Conditions

Existing traffic conditions in the study area were characterized by evaluating traffic operations at 17 intersections. These study intersections were selected based on either: (1) their location in key corridors that provide access to the campus; or (2) their location in key corridors serving a citywide function. The study intersections are illustrated in Figure 4.11-1. The seventeen study intersections are:

1. Junipero Serra Boulevard/19th Avenue
2. Junipero Serra Boulevard/Holloway Avenue

3. Junipero Serra Boulevard/Winston Drive
4. Junipero Serra Boulevard/Ocean Avenue
5. Junipero Serra Boulevard/Sloat Boulevard/Portola Drive
6. 19th Avenue/Sloat Boulevard
7. 19th Avenue/Ocean Avenue
8. 19th Avenue/Eucalyptus Drive
9. 19th Avenue/Winston Drive
10. 19th Avenue/Holloway Avenue
11. Lake Merced Boulevard/John Daly Boulevard
12. Lake Merced Boulevard/Brotherhood Way
13. Lake Merced Boulevard/Font Boulevard
14. Lake Merced Boulevard/South State Drive
15. Lake Merced Boulevard/North State Drive
16. Lake Merced Boulevard/Winston Drive
17. Lake Merced Boulevard/Middlefield Drive

Existing Traffic Volumes

Peak hour turning movement volume counts for the AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak hours were conducted between November 28th and December 6th, 2005 at the study intersections. 24-hour bi-directional volumes along 19th Avenue and existing lane geometries at all study intersections were collected during the same time the peak hour turning movement volumes were collected. Figure 4.11-2 illustrates existing lane geometries at the study intersections. Figure 4.11-3 presents existing peak hour turning movements.

Level of Service Methodology

Level of service (LOS) is a measure of the quality of the overall operating characteristics of a street or highway. It is defined in terms of control delay, which considers vehicle waiting time at the intersections and travel delays along streets as a gauge of travel time, traffic conflicts and interruptions, freedom to maneuver, and driving convenience and comfort. Level of service is dependent upon traffic volumes, composition of traffic, and roadway characteristics.

LOS is a qualitative measurement of traffic operations using an A through F rating system to describe delay and congestion. LOS A indicates free-flow conditions with little or no delay and LOS F indicates jammed conditions with excessive delays and long backups. Table 4.11-1 presents level of service descriptions.

Table 4.11-1
Level of Service Description

Level of Service	Type of Flow	Delay
A	Stable Flow	Very slight or no delay. If signalized, conditions are such that no approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.
B	Stable Flow	Slight delay. If signalized, an occasional approach phase is fully utilized.
C	Stable Flow	Acceptable delay. If signalized, a few drivers arriving at the end of a queue may occasionally have to wait through one signal cycle.
D	Approaching Unstable Flow	Tolerable delay. Delays may be substantial during short periods, but excessive back ups do not occur.
E	Unstable Flow	Intolerable delay. Delay may be great—up to several signal cycles.
F	Forced Flow	Excessive delay

Source: HCM 2000

The study intersections were evaluated under existing conditions based on the methodology outlined in the Highway Capacity Manual 2000 (HCM). For signalized intersections, LOS is evaluated on the basis of delay per vehicle (in seconds). Table 4.11-2 summarizes the LOS thresholds for signalized intersections.

Table 4.11-2
LOS Criteria for Signalized Intersection

LOS	Control Delay per Vehicle (seconds/vehicle)
A	Less than or equal to 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80

Source: HCM 2000, Chapter 16

This analysis applies LOS D as an acceptable standard for the study intersections.

Intersection Levels of Service under Existing Conditions

Table 4.11-3 summarizes the results of the level of service analysis conducted at the study intersections based on existing peak hour traffic volumes, signal timings and lane geometries. As illustrated in the table, seven of the seventeen study intersections operate at unacceptable levels of service under existing conditions. These seven study intersections are:

- Junipero Serra Bouelvard/19th Avenue

- Junipero Serra Boulevard/Winston Drive
- Junipero Serra Boulevard/Sloat Boulevard/Portola Drive
- 19th Avenue/Sloat Boulevard
- 19th Avenue/Winston Drive
- 19th Avenue/Holloway Avenue
- Lake Merced Boulevard/Font Boulevard

Table 4.11-3
Summary of Level of Service Analysis for Existing Conditions

Intersection		PM Peak Hour		
		Delay	V/C	LOS
1.	Junipero Serra Boulevard/19th Avenue	92.3	1.05	**F**
2.	Junipero Serra Boulevard/Holloway Avenue	25.5	0.78	C
3.	Junipero Serra Boulevard/Winston Drive	56.9	1.07	**E**
4.	Junipero Serra Boulevard/Ocean Avenue	47.9	1.04	D
5.	Junipero Serra Boulevard/Sloat Boulevard/Portola Drive	75.4	1.08	**E**
6.	19th Avenue/Sloat Boulevard	84.1	1.35	**F**
7.	19th Avenue/Ocean Avenue	18.6	0.92	B
8.	19th Avenue/Eucalyptus Drive	15.9	0.80	B
9.	19th Avenue/Winston Drive	63.1	1.14	**E**
10.	19th Avenue/Holloway Avenue	69.6	1.41	**E**
11.	Lake Merced Boulevard/John Daly Boulevard	30.3	0.67	C
12.	Lake Merced Boulevard/Brotherhood Way	15.3	0.82	B
13.	Lake Merced Boulevard/Font Boulevard	64.0	1.13	**E**
14.	Lake Merced Boulevard/South State Drive	12.2	0.90	B
15.	Lake Merced Boulevard/North State Drive	12.6	-	B
16.	Lake Merced Boulevard/Winston Drive	15.6	0.75	B
17.	Lake Merced Boulevard/Middlefield Drive	10.7	0.75	B

Notes: Delay is reported in seconds per vehicle and LOS is based on the delay. Bold font indicates unacceptable LOS.

4.11.1.5 Transit Network

The SF State campus is well served by public transit, with easy access to both local and regional transit services. The San Francisco Municipal Railway (Muni) provides local bus and rail service within the City and County of San Francisco, and BART provides regional rail service to other parts of the Bay Area. In addition, SF State provides a free shuttle bus service between the campus and the nearest BART station. A small percentage of campus affiliates also use SamTrans, AC transit, Golden Gate Transit, and Caltrain

for some portion of their trip to and from the campus. Each of these transit services is described in further detail below.

Muni

Muni is the highest used transit provider for SF State affiliates with 21 percent of transit riders using Muni M-line or bus services. Of the Muni bus routes, Route 28 is the most heavily used route by SF State Muni riders, with 49 percent of SF State Muni riders using it to travel to and from the campus. This is followed by the M-Line with 39 percent of the SF State Muni riders using this line. The other two bus routes that serve the campus area, Routes 29 and 18, are not as highly used and currently carry about 8 and 3 percent of the SF State Muni riders respectively (WRT, 2006).

M-Line. Muni M-Line is part of Muni's Metro light rail system. This line begins at the Embarcadero, travels underground through the Financial District and Mission, and then aboveground in the median of 19th Avenue to the campus and Balboa Park to the south. The M-Line station is near the campus's main entrance at Holloway. The station has a raised platform in the 19th Avenue median.

Muni Route 17. This bus line runs from West Portal at Ulloa Street southwest to 19th Avenue and the campus and terminates at Chumasero Circle. The route is highly circuitous with two loops serving housing and commercial areas along Winston Dive and Buckingham Way and Font Boulevard/Garces Drive (WRT, 2006).

Muni Route 18. This bus line originates at Lincoln Park in the north, then travels along the Great Highway and 46th Avenue to Sloat Boulevard. After circumnavigating Lake Merced, the line travels north along the western edge of the campus and south on 19th Avenue to terminate at Stonestown Mall (WRT, 2006).

Muni Route 28. This bus line runs the length of 19th Avenue. It originates at Fort Mason, travels west along the northern edge of the Marina to connect to Golden Gate Transit buses at the Golden Gate Bridge. From there, it heads south along 19th Avenue, with stops at Stonestown Mall and the campus, and terminates at the Daly City BART station (WRT, 2006).

Muni Route 28 Limited. This bus line follows the same route as Route 28 above, starting at California Street and 19th Avenue to the north and making fewer stops along the way south to Daly City BART station (WRT, 2006).

Muni Route 29. This bus line has a long and circuitous route. Starting at the Presidio in the north, it travels across the northern edge of the City through the Marina to the Golden Gate Bridge. Then it heads south through the Sunset District and east on Lake Merced Boulevard to Stonestown Mall and the campus. From here it travels east into Merced Heights, to City College and the Balboa BART Station. Then it heads north on Mission and east on Persia, passes through the Excelsior District and terminates at Monster Park (WRT, 2006).

Campus Shuttle

The SF State Department of Parking and Transportation provides two free shuttle routes to and from the Daly City BART station. One route is an express service that travels between the Library shuttle stop on the campus and the BART station, while the other travels around the perimeter of the campus, stopping at

Lot 25 and the UPN apartments on its way to the BART station. The Library/BART Express Shuttle runs from 7:00 AM to 6:30 PM on weekdays on a continuous loop every 15 to 20 minutes. The Lot 25/BART Shuttle runs from 7:00 AM to 10:30 PM Monday through Thursday and 7:00 AM to 7:00 PM on Fridays on 15 to 20 minute headways. The buses carry a maximum of 38 passengers and are equipped with bicycle racks, destination signs and decals denoting SF State service. The shuttles are well utilized and 17 percent of SF State affiliates that responded to the travel mode survey stated that they used the shuttle for the last leg of their commute to the campus (WRT, 2006).

BART

BART operates a regional rail transit service between the East Bay and San Francisco, and also between San Francisco and San Mateo County. BART service hours are from 4:00 AM to midnight on weekdays, and from 6:00 AM to midnight on Saturdays, and from 8:00 AM to midnight on Sundays. The BART station nearest the campus is the Daly City station, located approximately 1 mile to the south (WRT, 2006).

BART is utilized by about 20 percent of the campus affiliates to travel to and from the campus. This is due to the fact that a sizable proportion of these affiliates live in the East Bay, and also because of the convenience of the free shuttle service provided by SF State between the campus and Daly City BART station (WRT, 2006).

Other Regional Transit

Based on the intercept survey conducted at the campus, a very small number of respondents (about 3 percent) indicated that they used other regional transit services for at least some part of their commute to the campus. These other regional transit services are described below.

SamTrans. The San Mateo County Transit District (SamTrans) provides bus service between San Mateo County and San Francisco. SamTrans operates 10 bus lines serving San Francisco.

SamTrans Route 122 provides service to the campus. This line connects the campus to Daly City and Colma. It originates at South San Francisco BART station and travels north via Serramonte Shopping Center and Seton Medical Center to the Colma BART Station. From there it travels north to Westlake Shopping Center and north on Lake Merced Boulevard past the western edge of the campus to terminate at the Stonestown Mall. About 2 percent of campus affiliates surveyed stated that they used SamTrans Route 122 for part of their commute to the campus (WRT, 2006).

Golden Gate Transit. Golden Gate Transit provides bus service between the North Bay (Marin and Sonoma Counties) and San Francisco. Golden Gate Transit operates 15 bus lines in the city. Most of the routes serve the Financial District or Civic Center.

Caltrain. The California Peninsula Commute Service (Caltrain) provides rail service on the peninsula between Gilroy and San Francisco. The San Francisco terminal is at Fourth and Townsend Streets. Transfers to Muni rail or bus lines are available at the Caltrain terminal. A very small percentage of SF State affiliates use this service (WRT, 2006).

AC Transit. The Alameda-Contra Costa Transit District (AC Transit) provides bus service from the East Bay to the Transbay terminal in downtown San Francisco. About 25 bus routes serve the terminal.

Transfer to Muni Metro or bus lines is necessary to travel from the Transbay terminal to the campus. A very small percentage of SF State affiliates use AC Transit service (WRT, 2006).

4.11.1.6 Transit Service Issues

A study of the quality of transit services that serve the campus was conducted by the Master Plan team to characterize the transit experience of the SF State affiliates. This study showed that while the quality of transit service provided by Muni and Samtrans is relatively good with respect to frequency and span of service, it is poor relative to speed, loading or capacity, and reliability. Muni Route 28 and M-Line appear to not have sufficient capacity to adequately and comfortably meet the demand, especially during the morning and afternoon peak commute periods. These capacity and overcrowding issues along 19th Avenue and Park Presidio are also highlighted in the Muni's Vision Plan and the 2004 San Francisco Countywide Transportation Plan (WRT, 2006).

The main area of concern regarding campus shuttles is that of capacity which affects frequency when full buses pass up passengers. Queues at bus stops and overcrowding are a daily occurrence. In addition, shuttle service amenities such as bus shelters are also old and undersized for the demand (WRT, 2006).

4.11.1.7 Parking

Parking Supply

Currently there are a total of 3,172 parking spaces on the campus, including 91 parking spaces designated for the disabled. On-campus parking supply is divided among a number of parking facilities, which include one parking garage and six surface lots. The existing parking supply is presented in Table 4.11-4.

Table 4.11-4
Existing On-Campus Parking

Parking Facility	Regular Spaces	Spaces for Disabled	Total
Faculty and Staff			
Lot 1	51	3	54
Lot 2	8	9	17
Lot 6	65	46	111
Lot 19 (North State Drive)	415	5	420
Lot 19 (South State Drive	154	9	163
Lot 19 (Garage Levels 4L - 4N)	88	0	88
Lot 19 (Lower Roof)	220	0	220
Lot 19 (Upper Roof)	206	10	216
Subtotal	**1,207**	**82**	**1,289**
Students and Visitors			
Lot 20 (Garage Levels 1A – 4K)	1,572	0	1,572
Lot 25	302	9	311
Subtotal	**1,874**	**9**	**1,883**
Total	**3,081**	**91**	**3,172**

Source: WRT, 2006.

Lots 1, 2, 6, and 19 are restricted to use by faculty and staff only with a valid permit. Students and visitors can park only in Lots 20 and 25.

Designated parking above and beyond that listed in Table 4.11-4 is provided to students who live on campus. In University Park North (UPN), parking is provided either in carports or on the street. There are a total of 737 parking spaces in UPN. Similarly in University Park South (UPS), there are a total of 231 carport spaces. There are 80 spaces in the Village parking lot for residents. Residential students may also purchase permits to park at Lot 25 (WRT, 2006).

Parking is also available on city streets near the campus. Free, unrestricted parking exists along both sides of 19th Avenue to the east of the campus, and there is metered parking on Tapia and Holloway Avenue along the south side of the campus. However, much of the parking to the east and south of the campus is subject to two-hour parking restrictions imposed by the City and County of San Francisco's residential permit parking program. The City of San Francisco issues Parking Permit E to those living in Villas Parkmerced to park on the street without time restriction (WRT, 2006).

Parking Demand and Utilization

Demand for parking on the campus varies with the time of day and affiliate type and therefore parking lots that are designated for faculty and staff exhibit different patterns of utilization than those that serve students and visitors. The parking survey conducted for the development of the Campus Master Plan showed that faculty and staff parking lots are about 60 percent occupied by 10 AM and the occupancy increases to about 70 percent by noon, and stays at 70 percent for the remainder of the day. Parking lots designated for students on the other hand are at 85 percent occupancy by 10 AM and the utilization increases to about 90 percent by 1 PM. Overall, the peak utilization of all on-campus parking is about 80 percent. In general, campuses target a 90 percent utilization level for parking before adding new spaces. Based on peak parking utilization levels of 90 percent for students and 70 percent for faculty and staff, the campus currently has adequate supply compared to the demand (WRT, 2006).

Demand for parking is affected by a number of factors, which include the cost of parking and convenience of parking locations. During the intercept surveys, respondents were asked questions regarding the location and cost of parking. Of the 276 respondents who answered the questions about parking location and cost, 26 percent parked on the campus and 67 percent parked on city streets near the campus, and the remainder at other locations such as the BART stations. Even though there is a 2-hour limit on some parking to the east and south of the campus imposed by the residential permit program, a high proportion of SF State affiliates park on nearby city streets because on-street parking is free (WRT, 2006).

4.11.1.8 Pedestrians

Pedestrian traffic is high on and in the vicinity of the campus. Approximately 27 percent of SF State affiliates commute to the campus by walking and almost all movements within the campus are undertaken by foot. A number of pedestrian facilities exist on and around the campus. On the core campus, the University has established a vehicle-free zone for pedestrians by placing barriers on existing streets within the campus. However, the northern portion of the campus and the Stonestown Mall area are not well

connected to the campus core and access to the north is available only via 19th Avenue, or by walking past the main garage in the valley, or by walking along Lake Merced Boulevard (WRT, 2006).

Although sidewalks are present along Holloway Avenue, pedestrian connectivity and amenity to the south of the campus core is reduced by the moderately long block sizes along Holloway Avenue and the high volume of traffic along this roadway (WRT, 2006).

The most difficult pedestrian access route is that to the east of the campus across 19th Avenue. This roadway is a heavily traveled truck route with six lanes of traffic, 2 lanes of parallel parking, and 2 Muni M-line tracks down the center of the roadway. At the intersection of 19th and Holloway, a large number of pedestrian movements occur between the entrance to the campus and the M-line platform island in the center median. In addition to high volumes of east-west movements, a substantial number of pedestrians make dangerous north-south movements to and from the Muni platform by walking between the rail tracks across the middle of the intersection. Safety concerns and multimodal conflicts for pedestrian movements in this high-speed traffic area are exacerbated by the large volume of pedestrians who arrive at the station during peak campus hours. Well over 100 persons collectively alight when two trains in each direction arrive at the same time resulting in overcrowding on the platform. Also during peak periods, the number of persons trying to cross 19th Avenue from the platform to the campus is too high for the short signal time. Furthermore, there is no barrier between the tracks in front of the campus to restrict pedestrians or autos from crossing over the rail tracks. As a result, pedestrians jaywalk mid block on 19th Avenue to the tracks and walk across the tracks to jump onto the platform (WRT, 2006).

To the west of the campus, pedestrian access is provided along a wide, dedicated off-street path along the perimeter of Lake Merced. This path is connected to Font Boulevard and State Drive. However, at the intersections of both these streets with Lake Merced Boulevard, pedestrian crossing is poor because pedestrian signals are either missing or in disrepair (WRT, 2006).

4.11.1.9 Bicycles

According to a survey conducted in conjunction with the preparation of the Campus Master Plan, only 3 percent of campus affiliates currently commute to the campus by bicycle. This low percentage reflects the deficiencies in bicycle facilities in and around the campus. The main bicycle corridor to the north is along 20th Avenue where due to low vehicular traffic volumes and high street connectivity, conditions for bicycle access are very favorable. The one exception is the area of Stonestown Mall as there are no bicycles lanes along 20th Avenue near the mall. To the south of the campus, a dedicated on-street bike lane is available along Holloway between Font Boulevard and 19th Avenue but is absent between 19th Avenue and Junipero Serra. To the east, the main bicycle route is along Holloway east of Junipero Serra and along portions of Ocean Avenue. To the west of the campus, bike access is provided along a dedicated off-street route along Lake Merced (WRT, 2006).

The main on-campus bike facility is the Bike Barn located underneath the gym. The barn has the capacity to store 400 bikes and is operated by an attendant on weekdays. Bicycle commuters indicated that the limited hours of operations and inconvenient location of the bike barn were a hindrance to bike commuting at the campus. There is no other secured bicycle parking on the campus and there are only a few bicycle racks near the Fine Arts building. The lack of bike parking near classrooms was also cited as

a factor that hinders commuting to the campus by bicycle. Bike riding is not currently permitted in the campus core (WRT, 2006).

4.11.1.10 Bicycle and Pedestrian Safety

According to data collected over the last 18 months, a number of conflicts involving pedestrians, bicycles and automobiles have occurred in the vicinity of the campus. Some of these spots are 19th Avenue near the campus and Stonestown Mall, Lake Merced Boulevard at crossing points such as Winston Drive, Junipero Serra Boulevard, and Winston Drive near Stonestown Mall. At each of these locations, high speed traffic, inadequate pedestrian and bicycle facilities or both create safety hazards that affect SF State commuters as well as the general public (WRT, 2006).

4.11.1.11 Transportation Demand Management at SF State

The campus Department of Parking and Transportation (DPT) offers faculty, staff and students several TDM options to commute to the campus using alternate modes of transportation. According to cordon counts and intercept surveys conducted during the preparation of the Campus Master Plan, approximately 61 percent of students commute to the campus using shuttles, transit or bicycles. This high percentage is due to the campus's excellent location relative to transit facilities and the TDM programs provided by the campus, especially the shuttle service to BART. These TDM programs are described below.

- **Campus Shuttle Buses.** The campus provides two free shuttle routes to and from the Daly City BART station.
- **Campus Shuttle Information and Marketing.** Information on the shuttle service is provided on the SF State Parking and Transportation website, including stop locations and hours of operation.
- **SF State Ride Match Program.** This program matches faculty, staff and students with others in their area to carpool to campus. If the DPT is unable to create a match, it works with other Bay Area agencies to find one.
- **Bike Barn.** DPT operates the Bike Barn, which provides secure parking for bicycles at no cost to the riders.
- **Transit Information.** The Parking and Transportation website also provides information on how to get to the campus by bus and shuttle

4.11.2 Impacts and Mitigation Measures

Recognizing that the primary impact of campus growth relates to traffic and circulation, the proposed Campus Master Plan includes a number of improvements and programs related to transportation management, pedestrian and bicycle circulation, transit, and parking all of which are designed to minimize the project's impact on traffic and circulation. The plan includes improvements to encourage the use of bicycles and walking as means of traveling to and from the campus, as well as a parking strategy that is designed to avoid generation of new auto trips and to encourage commuting students and employees to use transit and other alternative modes of travel. In addition, SF State plans to consolidate,

enhance, and expand existing transportation programs operated by the campus and ensure University representation on transportation matters in local planning processes. This coordinated transportation management program will seek to maximize the efficiency of on-campus parking, while minimizing negative impacts of automobile trips to and from campus. It will also seek to ensure that SF State's interests are expressed and achieved in local planning processes and negotiations. Specific activities that the University will maintain, enhance or undertake include:

- Parking management and pricing;
- Management of the campus Bike Station or Bike Barn;
- Enhancement of the campus shuttle;
- Participation in planning and enforcement of on-campus bicycle and pedestrian facilities;
- Negotiation for a universal transit pass program with Muni and other transit providers;
- Advocacy and negotiation for SF State interests in local planning processes affecting bicycle transportation;
- Advocacy and negotiation for campus interests in local planning processes affecting transit service and capacity;
- Management of a guaranteed ride home program for employees who choose to use transit, bike or walk but face an emergency situation during the day;
- Management of the campus carshare program; and
- Expansion of on-campus housing.

All of these transportation related improvements and programs are described in more detail in Chapter 3, *Project Description*, and the impacts of the proposed project are evaluated below.

4.11.2.1 Standards of Significance

The following standards of significance are based on Appendix G of the CEQA Guidelines and standards of significance used by the City and County of San Francisco to evaluate traffic impacts. For the purposes of this EIR, an impact related to transportation/traffic would be considered significant if the proposed project would:

- Cause an increase in the traffic that is substantial in relation to the existing traffic load and capacity of the street system (as indicated by LOS standards for congestion at intersections), or exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.
- For purposes of this EIR, the following specific thresholds have been used to evaluate project impacts on the street system.

Signalized Intersections. The project's traffic impact at a signalized intersection would be considered significant if:

- Project-related traffic causes the level of service to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F, or
- If a signalized intersection operates at LOS E or F under without project conditions, (1) project-related traffic contributes 5 percent or more of the total traffic at the intersection, and (2) the project-related traffic contributes 5 percent or more of the cumulative growth in traffic volumes at the affected intersection.

Unsignalized Intersections. The project's traffic impact at an unsignalized intersection would be considered significant if:

- Project-related traffic causes the level of service at the worst approach of an unsignalized intersection to deteriorate from LOS D or better to LOS E or LOS F and Caltrans signal warrants are met,
- Where the worst approach at the unsignalized intersection without the addition of project traffic is already at LOS E or F, project traffic causes Caltrans signal warrants to be met.
- Cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in operating delay or costs such that significant adverse impacts in transit service levels could result.
- For purposes of this EIR, the proposed project would have a significant effect on the transit provider if project-related transit trips would cause the capacity utilization standards to be exceeded during the weekday PM peak hour.
- Result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas.
- Substantially increase hazards due to a design feature or incompatible uses or create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.
- Result in inadequate parking capacity.
- Conflict with applicable adopted policies, plans, or programs supporting alternative transportation.

4.11.2.2 CEQA Checklist Items Not Applicable to the Project

- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Result in inadequate emergency access.

The proposed Campus Master Plan has no potential to affect air traffic patterns, and the main campus is not within an air safety zone that would require restrictions on development. Potential impacts with respect to emergency access are addressed in Section 4.6, *Hazards and Hazardous Materials*.

4.11.2.3 Analytical Method

Roadway Operations Impact Analysis

Project Trip Generation. Project trip generation consists of the growth in traffic to and from the campus between 2006 and 2020 that would result with the implementation of the Campus Master Plan. The additional daily and PM peak hour trips were estimated using the data described below in Table 4.11-5.

Table 4.11-5
Trip Generation

Use	Size	Units	Daily Trips		PM Peak Hour				
			Rate	Total	Rate	In:Out	In	Out	Total
Students, faculty and staff [a]	4,983	Persons	2.38	11,860	0.21	30:70	314	733	1,046
Hotel[b]	250	Rooms	7.00	1,575	0.7	49:51	77	80	158
Non-Campus population[c]	50	Persons	4.64	232	0.46	50:50	12	12	23
Sub-Total				***13,667***			***403***	***824***	***1,227***
62 percent reduction based on Mode Split Survey at the campus[d]				8,473			250	511	761
Net New Trips				**5,193**			**153**	**313**	**466**

Source: ITE Trip Generation Manual, 7th Edition, unless otherwise noted.

a. The additional students, faculty and staff reported in this table represent 80 percent of the projected increase in SF State affiliate population. A conservative reduction (20 percent only) was applied to the projected increase because based on a survey conducted by the campus, the total campus (headcount) population is never present on the campus on a given day. Typically, only 60 percent of the total headcount population is on the campus on any mid-week day.

b. Trip Generation Rate from Transportation Impact Analysis Guidelines for City and County of San Francisco, dated October 2002. Trip Generation is based on 90 percent occupancy for 250 rooms.

c. For non-campus population, it is assumed that 70 percent will arrive during peak hour. It is also assumed that they will be carpooling at the rate of 1.5 persons per vehicle.

d. 62 percent trip reduction to the projected additional traffic was applied based on survey conducted at the campus by Nelson Nygaard (WRT, 2006).

Project Trip Distribution. Directional trip distribution and assignment of additional traffic to be generated at the campus by Year 2020 was developed using existing traffic counts, assessment of existing and projected traffic flows and travel patterns, and the location of the campus. The proposed trip distribution is illustrated in Figure 4.11-4. The projected traffic was assigned to the study intersections based on the directional trip distribution. Figure 4.11-5 illustrates the net additional trips projected to be generated by the campus during the PM peak hour at the study intersections.

Existing Plus Project Intersection Operational Analysis. The estimated net new vehicle trips generated by campus growth were added to the existing peak hour turning movement volumes at the study intersections and the levels of service were estimated. Figure 4.11-6 illustrates Existing plus Project peak hour turning movements at the study intersections. Table 4.11-6 summarizes the results of the level of service analysis. The seven study intersections operating at unacceptable levels of service under Existing Conditions, are projected to continue to operate at unacceptable levels of service under Existing plus Project Conditions.

Year 2020 without Project Conditions. Level of service analysis for the study intersections was conducted for Year 2020 without Project Conditions. Peak hour turning movement volumes at the study

intersections were projected by applying a growth factor of 1 percent per year to the existing peak hour turning movement volumes at the study intersections per "Transportation Impact Analysis Guidelines," published by City and County of San Francisco. In addition to the growth in general traffic, peak hour trips from approved and pending projects were estimated and added to the projected Year 2020 peak hour turning movement volumes. The list of approved and pending projects in the vicinity of the project was provided by the City and County of San Francisco. The approved and pending projects included in the Year 2020 proposed trip generation are summarized in Table 4.11-7. It is estimated that the approved and pending projects will generate approximately 15,241 daily trips with 1,626 occurring during the PM peak hour. The projected 2020 without Project peak hour turning movement volumes at the study intersections are illustrated in Figure 4.11-7. Lastly, peak hour traffic volumes associated with the pending Balboa Park Station Area Plan project were added to one of the study intersections that is common to the study areas of both that project and the Campus Master Plan.

Table 4.11-6
Summary of Level of Service Analysis for Existing plus Project Conditions

Intersection		PM Peak Hour					
		Existing Conditions			Existing plus Project Conditions		
		Delay	V/C	LOS	Delay	V/C	LOS
1.	Junipero Serra Boulevard/19th Avenue	92.3	1.05	**F**	90.5	1.05	**F**
2.	Junipero Serra Boulevard/Holloway Avenue	25.5	0.78	C	26.9	0.79	C
3.	Junipero Serra Boulevard/Winston Drive	56.9	1.07	**E**	57.6	1.07	**E**
4.	Junipero Serra Boulevard/Ocean Avenue	47.9	1.04	D	40.5	0.96	D
5.	Junipero Serra Boulevard/Sloat Boulevard/Portola Drive	75.4	1.08	**E**	300.2	1.19	**F**
6.	19th Avenue/Sloat Boulevard	84.1	1.35	**F**	87.4	1.35	**F**
7.	19th Avenue/Ocean Avenue	18.6	0.92	B	25.4	0.93	C
8.	19th Avenue/Eucalyptus Drive	15.9	0.80	B	13.8	0.81	B
9.	19th Avenue/Winston Drive	63.1	1.14	**E**	63.8	1.14	**E**
10.	19th Avenue/Holloway Avenue	69.6	1.41	**E**	85.1	1.48	**F**
11.	Lake Merced Boulevard/John Daly Boulevard	30.3	0.67	C	31.0	0.65	C
12.	Lake Merced Boulevard/Brotherhood Way	15.3	0.82	B	16.4	0.84	B
13.	Lake Merced Boulevard/Font Boulevard	64.0	1.13	**E**	90.6	1.24	**F**
14.	Lake Merced Boulevard/South State Drive	12.2	0.90	B	30.8	1.04	C
15.	Lake Merced Boulevard/North State Drive	12.6	-	B	14.7	-	B
16.	Lake Merced Boulevard/Winston Drive	15.6	0.75	B	22.0	0.79	C
17.	Lake Merced Boulevard/Middlefield Drive	10.7	0.75	B	11.6	0.78	B

Note: Delay is reported in seconds per vehicle and LOS is based on the delay. Bold font indicates unacceptable LOS.

Table 4.11-7
Proposed Trip Generation for Approved and Pending Projects

Use	Size	Units	Daily Trips		PM Peak Hour				
			Rate	Total	Rate	In:Out	In	Out	Total
800 Brotherhood Way Residential Project[a]	127	Units	10	1,270	1.73	50:50	110	110	220
77 Cambon Drive – Residential*	195	Units	10	1,950	1.73	50:50	169	169	337
77 Cambon Drive – Commercial	241.2	ksf	42.94	10,357	3.75	48:52	434	470	905
77 Cambon Drive – Retail*	7.9	ksf	150	1,185	13.5	4:96	4	102	107
77 Cambon Drive – Childcare	3.15	ksf	79.26	250	13.18	47:53	20	22	42
473 Eucalyptus – YMCA	10	ksf	22.88	229	1.64	29:71	5	12	16
Total New Trips				**15,241**			**741**	**885**	**1,626**

Source: ITE Trip Generation Manual, 7th Edition, unless otherwise noted.

a. = Trip Generation Rate from Transportation Impact Analysis Guidelines for City and County of San Francisco, dated October 2002.

Table 4.11-8 summarizes the results of level of service analysis for Year 2020 without Project Conditions. Under Year 2020 without Project Conditions, the seven study intersections projected to operate at unacceptable levels of service under Existing and Existing plus Project Conditions are projected to continue to operate at unacceptable levels of service. Two additional intersections: (1) Junipero Serra Boulevard/Ocean Avenue and (2) 19th Avenue/Ocean Avenue are projected to operate at an unacceptable level of service with the addition of traffic generated by regional growth, and approved and pending projects.

Table 4.11-8
Summary of Level of Service Analysis for Year 2020 without Project Conditions

Intersection		PM Peak Hour		
		Delay	V/C	LOS
1.	Junipero Serra Boulevard/19th Avenue	212.1	1.33	**F**
2.	Junipero Serra Boulevard/Holloway Avenue	44.8	0.92	D
3.	Junipero Serra Boulevard/Winston Drive	106.1	1.28	**F**
4.	Junipero Serra Boulevard/Ocean Avenue	78.0	1.23	**E**
5.	Junipero Serra Boulevard/Sloat Boulevard/Portola Drive	479.3	1.38	**F**
6.	19th Avenue/Sloat Boulevard	166.1	1.65	**F**
7.	19th Avenue/Ocean Avenue	60.3	1.21	**E**
8.	19th Avenue/Eucalyptus Drive	28.6	1.05	C
9.	19th Avenue/Winston Drive	135.1	1.45	**F**
10.	19th Avenue/Holloway Avenue	173.6	2.15	**F**
11.	Lake Merced Boulevard/John Daly Boulevard	37.8	0.73	D
12.	Lake Merced Boulevard/Brotherhood Way	21.9	0.94	C
13.	Lake Merced Boulevard/Font Boulevard	110.2	1.32	**F**

Table 4.11-8
Summary of Level of Service Analysis for Year 2020 without Project Conditions

Intersection		PM Peak Hour		
		Delay	V/C	LOS
14.	Lake Merced Boulevard/South State Drive	33.1	1.04	C
15.	Lake Merced Boulevard/North State Drive	16.5	-	C
16.	Lake Merced Boulevard/Winston Drive	22.7	0.87	C
17.	Lake Merced Boulevard/Middlefield Drive	16.4	0.86	B

Note: Delay is reported in seconds per vehicle and LOS is based on the delay. Bold font indicates unacceptable LOS.

Year 2020 with Project Conditions. Level of service analysis for the study intersections was conducted for Year 2020 with Project Conditions. Peak hour turning movement volumes from the proposed project were added to the peak hour turning movement volumes at the study intersections under Year 2020 without Project Conditions. The projected peak hour turning movements at the study intersections are illustrated in Figure 4.11-8. Table 4.11-9 summarizes the results of level of service analysis for Year 2020 with Project Conditions. Similar to Year 2020 without Project Conditions, under Year 2020 with Project Conditions the nine study intersections projected to operate at unacceptable levels of service under Year 2020 without Project Conditions are projected to continue to operate at unacceptable levels of service. In addition, the intersection of Lake Merced Boulevard/South State Drive is projected to operate at unacceptable levels of service under Year 2020 with Project Conditions. Table 4.11.10 summarizes the project related traffic contribution at the study intersections.

Table 4.11-9
Summary of Level of Service Analysis for Year 2020 with Project Conditions

Intersection	PM Peak Hour					
	Year 2020 without Project Conditions			Year 2020 with Project Conditions		
	Delay	V/C	LOS	Delay	V/C	LOS
1. Junipero Serra Boulevard/19th Avenue	212.1	1.33	**F**	213.7	1.34	**F**
2. Junipero Serra Boulevard/Holloway Avenue	44.8	0.92	D	45.8	0.95	D
3. Junipero Serra Boulevard/Winston Drive	106.1	1.28	**F**	107.1	1.28	**F**
4. Junipero Serra Boulevard/Ocean Avenue	78.0	1.23	**E**	78.4	1.23	**E**
5. Junipero Serra Boulevard/Sloat Boulevard/Portola Drive	479.3	1.38	**F**	487.3	1.38	**F**
6. 19th Avenue/Sloat Boulevard	166.1	1.65	**F**	167.7	1.65	**F**
7. 19th Avenue/Ocean Avenue	60.3	1.21	**E**	61.3	1.22	**E**
8. 19th Avenue/Eucalyptus Drive	28.6	1.05	C	29.1	1.05	C
9. 19th Avenue/Winston Drive	135.1	1.45	**F**	135.5	1.45	**F**
10. 19th Avenue/Holloway Avenue	173.6	2.15	**F**	219.2	2.52	**F**
11. Lake Merced Boulevard/John Daly Boulevard	37.8	0.73	D	41.2	0.75	D
12. Lake Merced Boulevard/Brotherhood Way	21.9	0.94	C	24.3	0.96	C
13. Lake Merced Boulevard/Font Boulevard	110.2	1.32	**F**	139.0 (38.8)	1.43 (0.95)	**F** (D)
14. Lake Merced Boulevard/South State Drive	33.1	1.04	C	59.0 (42.8)	1.17 (1.01)	**E** (D)
15. Lake Merced Boulevard/North State Drive	16.5	-	C	17.5	-	C
16. Lake Merced Boulevard/Winston Drive	22.7	0.87	C	34.4	0.92	C
17. Lake Merced Boulevard/Middlefield Drive	16.4	0.86	B	19.4	0.89	B

Note: Delay is reported in seconds per vehicle and LOS is based on the delay. Bold font indicates unacceptable LOS. Data in parentheses show delay, V/C ratio, and LOS after mitigation.

Table 4.11-10
Project Traffic Contributions at Intersections Operating at LOS E or F in 2020

Intersection		Intersection Volumes			Contribution to Total	Contribution to Growth
		Existing Conditions	Project Only	Year 2020 with Project Conditions		
1.	Junipero Serra Boulevard/19th Avenue	7,865	20	9,822	0%	1%
3.	Junipero Serra Boulevard/Winston Drive	3,744	27	4,331	1%	5%*
4.	Junipero Serra Boulevard/Ocean Avenue	4,722	27	5,458	0%	4%
5.	Junipero Serra Boulevard/Sloat Boulevard/Portola Drive	4,989	27	5,762	0%	3%
6.	19th Avenue/Sloat Boulevard	7,902	27	9,879	0%	1%
7.	19th Avenue/Ocean Avenue	5,536	27	7,159	0%	2%
9.	19th Avenue/Winston Drive	6,019	27	7,707	0%	2%
10.	19th Avenue/Holloway Avenue	5,759	73	7,454	1%	4%
13.	Lake Merced Boulevard/Font Boulevard	3,800	239	4,607	**5%**	**30%**
14.	Lake Merced Boulevard/South State Drive	3,882	328	4,790	**7%**	**36%**

Note: Delay is reported in seconds per vehicle and LOS is based on the delay. Bold font indicates significant impact.

* Rounded numbers are reported in this table. The actual project contribution to growth at this intersection is 4.6 percent and therefore the impact at this intersection is less than significant per the significance criteria identified in Section 4.11.2.1.

Transit Service Impact Analysis

A detailed transit analysis was conducted for this EIR (URS, 2006). A summary of the methodology is presented below.

Based on existing travel patterns of campus affiliates and class schedules at campus, it was determined that the highest transit use by campus affiliates occurs in the PM peak hour when campus employees are leaving and the students for evening classes are arriving at the campus. Therefore, the transit impact analysis was conducted for the weekday PM peak hour, defined as the time period from 5:00-5:59 PM.

Estimation of Project-Related New Transit/ Shuttle Riders. The campus anticipates that compared to existing conditions, by 2020 there would be approximately 6,490 new persons on campus. To determine the number of new persons traveling during the peak hour, the new persons were grouped by campus affiliation (students, faculty/staff, hotel employees and visitors) and further sub-divided into new on-campus ("non-commuters") and new off-campus ("commuters") populations. Assumptions on the percentage of commuters traveling during the peak hour for each campus group were directly applied to each of the new SF State off-campus commuter groups traveling during the peak hour. This yielded a total of 1,362 new peak hour commuters1 using transit or other forms of travel (1,030 new student commuters, 276 new faculty/staff commuters, 50 new hotel employee commuters, and 6 new visitor commuters).

Under existing conditions, approximately 42 percent of commuter trips are made by transit or campus shuttle. For purposes of providing a conservative analysis of the impact on transit, the analysis assumed that there would be no increase in automobile trips so that by 2020 transit trips would increase to be 45 percent of all campus-related commute trips. Therefore, the total number of new transit/shuttle trips was calculated by applying a 45 percent transit/shuttle mode split to the new peak hour commuters. New visitors were not factored into the transit/shuttle mode split calculation since only three new visitors are projected to take transit or the shuttle during the peak hour. Therefore, it is estimated that 610 new peak hour commuters will use some form of transit or take the Campus Shuttle. This consists of 463 new student commuters, 124 new faculty/staff commuters, and 23 new hotel employee commuters traveling during the peak hour.

These new transit/shuttle riders were then distributed by transit operator; assuming that the new ridership distribution would be the same as the transit/shuttle ridership distribution under existing conditions. Also, given that the nearest BART station is located approximately 1 mile from the campus, it was assumed that the 209 new BART riders would either transfer to/from Muni or to/from the free Campus Shuttle for their last leg of travel, and they were redistributed 25 percent and 75 percent respectively. Therefore, the 610 new campus peak hour commuters were redistributed among transit operators as follows for purposes of the screenline analysis: 272 Muni riders, 303 Campus Shuttle riders, 20 SamTrans riders, and 16 AC Transit, Golden Gate Transit and Caltrain riders.

Impact Evaluation Methodology – Muni. A screenline analysis was performed to determine Muni service capacity during the PM peak hour under 2020 conditions. Four screenlines were defined around the campus (north, northeast, east, and south) and the following six Muni lines crossed at least one of the

[1] The number of peak hour commuters is slightly higher than the number used in the analysis of vehicle traffic impacts because this is not discounted for the fact that only 80 percent of the students, faculty and staff are on the campus on a given day, and also because a different methodology was used to estimate peak hour vehicle trips.

established screenlines: Route 17 - Park Merced, Route 18 - 46th Avenue, Route 28 - 19th Avenue, Route 28L - 19th Avenue Limited, Route 29 - Sunset and M-Line - Ocean View. The lines in each screenline were further subdivided by travel direction, based on Muni-established inbound and outbound directions.

Muni transit service capacity utilization for 2020 was based on the sum of peak hour ridership demand under existing conditions and new passengers added by the proposed project. According to Muni projections, bus ridership demand system-wide is expected to decrease in the future. Therefore, conservatively existing ridership demand was used to represent background (non-campus) peak hour demand in 2020.

In order to establish existing year peak hour ridership demand numbers, ridecheck data for each line was obtained from Muni (average loads, daily actual trips and number of Muni boardings by route ridership at campus ridecheck points based on Muni-established inbound and outbound directions). Since Muni ridecheck data was collected during time periods that spanned several hours, ridecheck data was converted to peak hour values.

Ridecheck data was available for all lines except for the M-line; therefore, existing year hourly ridership for the M-line could not be established. Furthermore, because no data are available for loads and boarding on the M-line, no capacity analysis is possible. As a result, only new riders added by the proposed project for the M-line were analyzed relative to existing capacity.

New passengers added by the proposed project were calculated by distributing the 272 new Muni riders among the screenlines based on the directional travel patterns of each campus group.

It was assumed that no new peak hour capacity will be added to the Muni lines under 2020 cumulative conditions (that is, capacity per vehicle and the number of vehicles was held constant from existing conditions). The capacity per vehicle for each line was based on Muni's 85 percent Load Standard outlined in the 2006 Muni Short Range Transit Plan. Once the existing plus project hourly ridership and hourly capacity data was established, Muni Capacity Utilization Rates for existing plus project conditions for the lines in each screenline were calculated by dividing hourly ridership by hourly capacity.

Impact Evaluation Methodology – BART. A separate analysis was performed to assess potential impacts of the project on BART capacity, by specifically analyzing the number of new campus-related BART commuters that would travel through the Transbay Tube. Transbay Tube is the main BART segment with capacity problems. Using zipcode data from the intercept survey conducted for the Campus Master Plan, it was established that 80 percent of respondents using BART for part of their trip had origins or destinations in the East Bay. Therefore, out of the 209 new campus-related BART peak hour riders, it was assumed that 80 percent would be East Bay residents. This translates to 167 new East Bay BART riders. It was also assumed that 20 10-car BART trains travel from the campus vicinity through the Transbay Tube during the peak hour (based on the current BART timetable). Therefore, the proposed project would generate approximately eight new BART passengers per train in the peak hour (167 new BART passengers / 20 BART trains = 8 new BART passengers/train). It was also determined that new campus-related BART riders would represent approximately 0.6 percent of the total passenger capacity per BART train in the PM peak hour. This was based on the assumption that the total capacity for a 10-car BART train is 1,275 passengers.

Impact Evaluation Methodology – Other Transit Services. Based on the methodology presented above, it was estimated that the proposed project would generate approximately 20 new SamTrans transit users, and a combined 16 transit users for AC Transit, Golden Gate Transit and Caltrain.

4.11.2.4 Campus Master Plan Impacts and Mitigation Measures

Impact TRA-1: Implementation of the Campus Master Plan could potentially contribute substantial traffic at two intersections in southwest San Francisco.

Significance: Potentially significant

Mitigation TRA-1: The campus shall implement the following monitoring and mitigation program:

- As a first step, the campus shall conduct a new baseline cordon survey no less than 18 months following the certification of this EIR. Alternately, the campus may use the 2006 cordon survey as a baseline.
- Next, at intervals of no more than every three years, and no later than the addition of each 1,000 students in enrollment, the campus will hire an outside transportation planning or data analysis firm to conduct a statistically significant cordon survey of campus commuters during the PM peak hours. The cordon survey will cover all major entrances to the campus and will examine the travel behavior of SF State affiliates. The survey will be conducted during typical days while classes are in session, excluding final examination, national holiday or orientation weeks.
- If cordon surveys show that the PM peak period auto trips to and from campus are greater than 5 percent above the baseline, the campus shall conduct the cordon surveys annually.
- If the cordon surveys show an increase in PM peak period auto trips sufficient to result in impacts at the two affected intersections, the campus will increase the level of TDM programs until the impacts associated with traffic increases are mitigated to a less-than-significant level.
- If the campus fails to reduce its traffic impacts to a less-than-significant level for more than two years in a row, it will contribute its “fair share” (as defined in this EIR) of the cost of identified intersection improvements to the City and County of San Francisco, as appropriate.

Residual Significance: Significant and unavoidable

As a result of campus growth under the Campus Master Plan, new trips to the campus each day would be made by the additional students, faculty and staff using a variety of modes of transportation. To avoid increasing the number of daily and peak hour vehicle trips to the campus, the Campus Master Plan includes an expanded and enhanced Transportation Management program that emphasizes alternate travel modes and a housing program that is designed to house more of the SF State affiliates on the campus. The timely and successful implementation of these programs included in the Campus Master Plan would help avoid a substantial increase in vehicle trips. This EIR presents potential traffic impacts under two scenarios: (1) an analysis of likely traffic impacts assuming that the Campus Master Plan Transportation Management and housing programs are successfully implemented, and (2) a conservative worse-case analysis that assumes that the proposed Transportation Management and housing programs are not implemented successfully or in a timely manner, and therefore new vehicle trips would be added to study area roadways and intersections.

Scenario 1

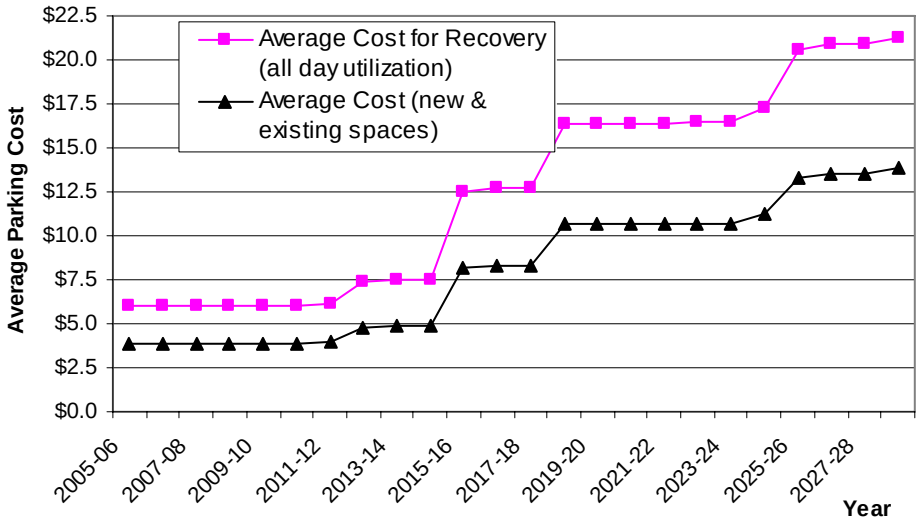
As mentioned above, the campus proposes a significant expansion of campus Transportation Demand Management and housing programs. These projects and programs are described in detail in Chapter 3 and again in Section 4.11.2 above. Among these measures, three stand out as having the greatest potential to reduce the number of new automobile trips made to the campus and are analyzed here in detail:

- Parking management and pricing
- Transit improvements
- New campus housing

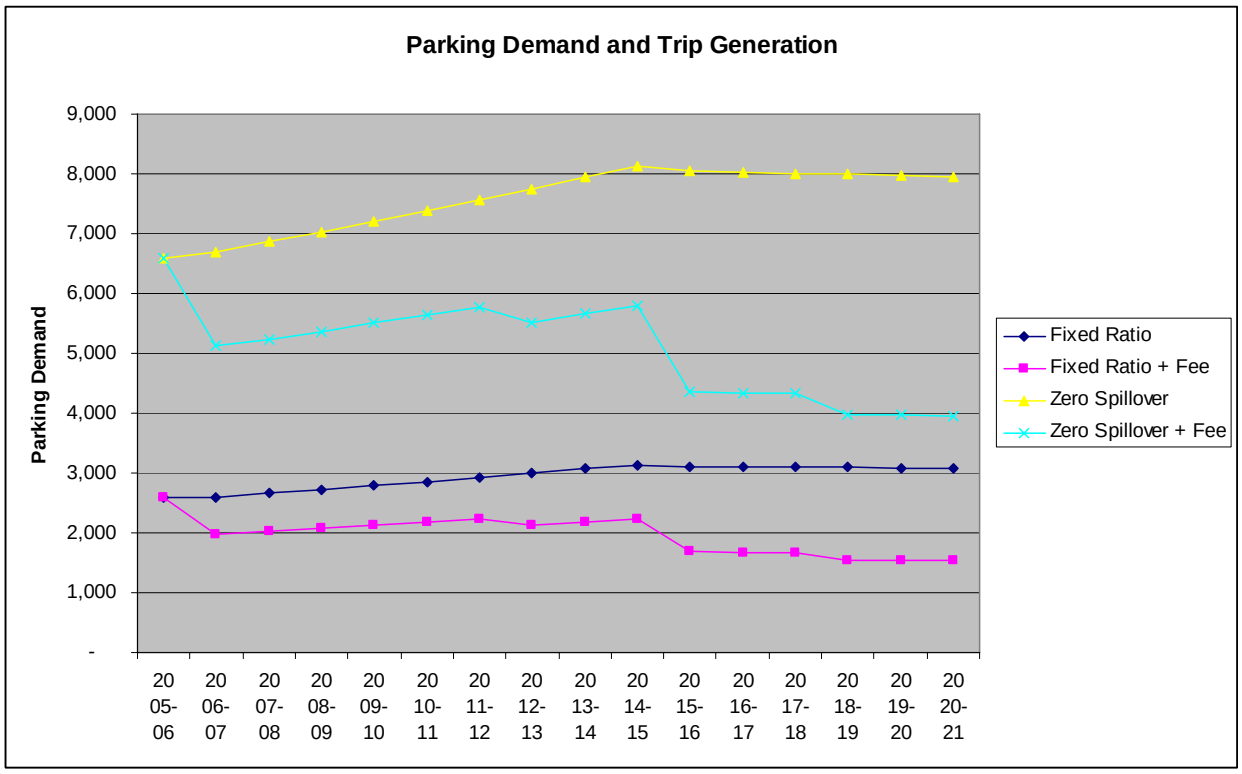
Parking Management and Pricing

The Campus Master Plan proposes the gradual replacement of various existing parking facilities on campus with new parking lots and structures around the campus periphery. State law restricts the use of academic funds for construction of new parking facilities—all parking must be financed through user fees. Each new space in a parking structure costs upward of $20,000, not including the cost of land. Underground parking can cost 50 percent to 100 percent more. Annualizing the capital costs and factoring in maintenance costs means that the campus would need to charge nearly $20 a day to cover the cost of a new structured or underground parking space. However when a new parking structure is built, the cost of that facility gets averaged into the price of all parking permit fees, so the parking fee impact of building a small new parking structure may, in reality, be modest. Currently, students pay $5 a day for parking and most faculty and staff pay less than $1 a day.

The chart below estimates how the price of parking must rise to accommodate the parking construction program included in the Campus Master Plan. Prices are in $2006.



The chart below analyzes campus parking demand between 2006 and 2020, looking at both on-campus and total parking demand, as the campus population increases. It then applies a conservative price elasticity of parking demand factor of -0.3 (for every 1 percent increase in price, there is a 0.3 percent decrease in demand) to examine the impact price has on parking demand. Automobile trip generation rates will be affected by parking price elasticity at the same rate as parking demand.



Transit Improvements

In order to accommodate the price elasticity of parking demand described above, it will be necessary to expand transit capacity. As parking fees increase and demand for parking decreases, the demand for

transit services will increase. The Campus Master Plan therefore proposes working with Muni and BART to improve transit opportunities for SF State commuters, as well as increase frequency and connections on the Campus Shuttle. These programs are described in more detail under Impact TRA-2, and mitigations are included under Impact TRA-2 to ensure that additional transit capacity is provided as the demand for transit increases under the Campus Master Plan.

Campus Housing

Currently, there are 2,252 student beds and about 290 apartments on the campus that are occupied by SF State affiliates. Under the proposed Campus Master Plan, the total housing stock on campus would increase by about 846 units. As a result, approximately 1,693 new SF State affiliates would live on campus (for more information regarding on-campus residential population, see Section 4.10, *Population and Housing*). Based on the current mode split (38 percent of campus commuters currently arrive at the campus in an automobile) and assuming 10 percent of these 1,693 persons would travel to the campus during the peak hour, approximately 64 peak hour vehicle trips are eliminated by the provision of additional housing on the campus. This represents approximately 5 percent of the total estimated peak hour vehicle trips (see Table 4.11-5).

Implementation

The combined effect of the baseline TDM, parking, transit, and housing programs will likely be to maintain campus-related auto traffic levels at their current rates through 2020, and the impact at the study area intersections would be less than significant. To ensure that this is the case, the campus will implement Mitigation TRA-1which is described in detail at the end of the impact analysis.

Scenario 2

Under the second analysis scenario, it was assumed that the proposed TDM, housing, and transit programs are not successfully implemented and/or that despite these efforts, the new vehicle trips to the campus increase compared to baseline conditions. Traffic impacts under this second scenario were evaluated by adding the estimated new vehicle trips from campus growth under the Campus Master Plan to background trips that would exist under 2020 without Project Conditions. The methodology used to estimate 2020 without Project Conditions is described in Section 4.11.2.3 above along with the methodology used to estimate the number of new vehicle trips and to distribute those trips on the road network serving the campus. Table 4.11-9 presents the levels of service at the study intersections under 2020 with Project Conditions and Table 4.11-10 identifies the study intersections that would operate at LOS E or F in 2020 and those intersections where the project would cause a significant impact based on current campus mode splits and the standards of significance discussed earlier in this section. As this table shows, two study intersections (1) Lake Merced Boulevard/South State Drive and (2) Lake Merced Boulevard/Font Boulevard are projected to significantly affected with the addition of the project traffic under Year 2020 Conditions.

With the addition of project traffic, the level of service at the intersection of Lake Merced Boulevard and South State Drive would decline from LOS C to LOS E. The level of service at Lake Merced Boulevard/Font Boulevard intersection would be LOS F with and without the addition of project traffic. However, the new vehicle trips added by the project at the intersection of Lake Merced Boulevard/Font Boulevard would make up more than 5 percent of the total volume of traffic in 2020 and more than 5

percent of the growth in traffic between 2006 and 2020. Therefore, the project would result in significant impacts at these two intersections.

Intersection capacity improvements that can be implemented to improve intersection operations are described below.

Lake Merced Boulevard/South State Drive – The intersection can be restored to operate at an acceptable level of service by widening the westbound approach to provide an additional shared left-right-turn lane (currently, one exclusive left-turn lane and one right-turn lane exists). Implementation of this improvement would require removal of parking at a minimum within 500 feet from the intersection on the west leg.

Lake Merced Boulevard/Font Boulevard – The intersection can be restored to operate at an acceptable level of service by widening the southbound approach to provide an additional exclusive left-turn lane (currently, one exclusive left-turn lane exists). Implementation of this mitigation measure would require elimination of on-street parking between South State Drive and at a minimum 600 feet south of the intersection. The westbound approach will also need to be widened to provide an additional exclusive left-turn lane and an additional exclusive right-turn lane (currently, shared left-right-turn lane exists). Implementation of this improvement would require removal of parking on the west leg of the intersection.

Mitigation

As noted above under Scenario 1, to ensure that the automobile traffic levels remain at their current rates through 2020, the campus will implement Mitigation TRA-1 which includes the following monitoring and mitigation program:

- As a first step, the campus shall conduct a new baseline cordon survey no less than 18 months following the certification of this EIR. Alternately, the campus may use the 2006 cordon survey as a baseline.
- Next, at intervals of no more than every three years, and no later than the addition of each 1,000 students in enrollment, SF State will hire an outside transportation planning or data analysis firm to conduct a statistically significant cordon survey of campus commuters during the PM peak hours. The cordon survey will cover all major entrances to the campus and will examine the travel behavior of SF State affiliates. The survey will be conducted during typical days while classes are in session, excluding final examination, national holiday or orientation weeks.
- If cordon surveys show that the PM peak period auto trips to and from campus are greater than 5 percent above the baseline, the campus shall conduct the cordon surveys annually.
- If the cordon surveys show an increase in PM peak period auto trips sufficient to result in impacts described under Scenario 2, the campus will increase the level of TDM programs until the impacts of traffic increases are mitigated to a less-than-significant level.
- If the campus fails to reduce its traffic impacts to a less-than-significant level for more than two years in a row, it will contribute its “fair share” of cost of intersection improvements to the City and County of San Francisco as appropriate.

The affected intersections are within the jurisdiction of the City and County of San Francisco. Therefore, in order to implement the intersection improvements, the campus would be required to work with the City

and County of San Francisco. To the extent that the City and County agree to implement these improvements at the two affected intersections, pursuant to Mitigation TRA-1, the campus will pay its fair share of the cost of making these improvements. In this EIR, "fair share" is defined to mean that the University has agreed to negotiate for a contribution to the identified improvements. In each case a fair-share payment is agreed upon, the University will pay its fair share only if the applicable jurisdiction has established and implemented a mechanism for collecting funds from any other developers and entities contributing to the identified impacts, and providing that the jurisdiction builds the identified improvements. If these improvements are constructed, the project's impact would be reduced to a less-than-significant level.

The feasibility of these improvements has not been evaluated and detailed planning, environmental review and engineering has not been completed. Furthermore, all of these improvements are outside the jurisdiction of the University and implementation of these improvements cannot be guaranteed by the campus. Therefore conservatively, the University must consider this impact significant and unavoidable.

Impact TRA-2: Implementation of the Campus Master Plan would result in a substantial increase in transit demand that could not be accommodated by adjacent transit capacity.

Significance: Potentially significant

Mitigation TRA-2A: In the event that transit capacity enhancements listed in the Campus Master Plan are not implemented in a timely manner by Muni and/or SFCTA and if Muni reports that M line average pm peak period, peak direction passenger loading between the campus and West Portal Station exceeds 85 percent of combined seating and standing load capacity for two or more years in a row, the campus will extend the Campus Shuttle service to West Portal Station, and this service will achieve the 85 percent combined seated/standing passenger capacity target.

Mitigation TRA-2B: The campus shall monitor peak hour utilization of Campus Shuttle buses on an annual basis and if average PM peak period, peak direction passenger loading exceeds 85 percent of combined seated and standing load capacity for service between the campus and the Daly City BART station, the campus shall increase shuttle frequency or add higher capacity vehicles until this standard is met.

Residual Significance: Less than significant

As discussed under Impact TRA-1, the Campus Master Plan includes a parking strategy that would keep the supply of parking at the current level and also minimize any major increases in parking fees so that the demand would remain steady and not decrease or increase relative to current demand. In the event that this strategy is successful, the proportion of campus-related persons using transit or bicycles to commute to the campus would increase compared to existing conditions, and it is estimated that instead of the current mode split of 42 percent of campus affiliates using transit/shuttle, the transit/shuttle mode split would increase to 45 percent. Based on this assumption and methodology presented above in Section

4.11.2.3, it is estimated that with the growth in campus population under the Campus Master Plan, by 2020 there would be approximately 610 new SF State peak hour transit commuters, consisting of approximately 272 Muni riders, 303 Campus Shuttle riders, 20 SamTrans riders, and 16 AC Transit, Golden Gate Transit, and Caltrain riders. An estimated 209 of these 610 transit riders would also use BART for some part of their commute to the campus. The impact of these additional transit riders on the various transit systems is described below.

Impact on Muni Services

Table 4.11-11 presents Existing Conditions related to Muni lines that serve the campus area, and Table 4.11-12 presents 2020 Background plus Project Conditions relative to ridership and capacity of Muni lines that serve the campus area. The 2020 Background plus Project Conditions show that the capacity utilization rate for each of the screenlines defined by inbound and outbound subtotals would range from 3 percent to 61 percent. Overall, the four Muni screenlines would operate at about 22 percent capacity under 2020 Background plus Project Conditions. Therefore, all four screenlines are far from approaching the Muni capacities (based on Muni's passenger load standard).

Looking at individual lines, the 28-line and 29-line are closer to approaching capacity than the other lines. For instance, the capacity utilization rates for the 28-line range from 38 percent (south screenline, inbound direction) to 75 percent (south screenline, outbound direction) while the 29-line capacity utilization rates range from 32 percent (north screenline, inbound direction) to 82 percent (east screenline, outbound direction). Therefore, the addition of approximately 272 new Muni riders generated by the Campus Master Plan would not substantially impact the peak hour capacity utilization at the screenlines.

Table 4.11-11
Existing Year Muni Conditions: Weekday PM Peak Hours (5-6 PM)

			Existing Year Conditions					
			Hourly Ridership Demand			Hourly Capacity		Capacity Utilization (%)
Screenline	**Transit Corridor**	**Transit Lines**	**# of vehicle trips**	**Ave. Load**	**Passangers**	**Per Vehicle**	**Passengers**	
North	19th Ave.-Sunset	Inbound						
		18-46th Ave.	3.8	15.0	56	54	201	28%
		28-19th Ave	7.1	25.1	178	54	380	47%
		28L-19th Ave Limited	4.6	8.4	38	54	245	16%
		29-Sunset	2.0	16.1	32	54	107	30%
		Subtotal			**305**		**933**	**33%**
		Outbound						
		18-46th Ave	3.5	7.4	26	54	187	14%
		28-19th Ave	8.3	33.6	277	54	442	63%
		28L-19th Ave Limited	2.9	12.7	36	54	154	24%
		29-Sunset	3.3	40.9	135	54	177	76%
		Subtotal			**474**		**959**	**49%**
		Screenline Total			**779**		**1,892**	**41%**
Northeast	Downtown	Inbound						
		17-Park Merced [a]	3.0	5.6	17	38	115	15%
		M-Ocean View [b]	6.0	n/a	n/a	202	1,214	n/a
		Subtotal			**17**		**1,329**	**1%**
		Outbound						
		17-Park Merced [a]	3.0	14.9	45	38	115	39%
		M-Ocean View [b]	6.0	n/a	n/a	202	1,214	n/a
		Subtotal			**45**		**1,329**	**3%**
		Screenline Total			**62**		**2,657**	**2%**
South	19th Ave.-Serra	Inbound						
		28-19th Ave	7.1	14.5	103	54	380	27%
		28L-19th Ave Limited	4.6	6.1	28	54	245	11%
		Subtotal			**131**		**625**	**21%**
		Outbound						
		28-19th Ave	8.3	35.5	293	54	442	66%
		28L-19th Ave Limited	2.9	10.8	31	54	154	20%
		Subtotal			**324**		**595**	**54%**
		Screenline Total			**455**		**1,220**	**37%**
East	Balboa Park	Inbound						
		29-Sunset	2.0	16.7	33	54	107	31%
		M-Ocean View [b]	3.3	n/a	n/a	202	1,214	n/a
		Subtotal			**33**		**1,321**	**3%**
		Outbound						
		29-Sunset	3.3	41.2	136	54	177	77%
		M-Ocean View [b]	6.0	n/a	n/a	202	1,214	n/a
		Subtotal			**136**		**1,391**	**10%**
		Screenline Total			**169**		**2,711**	**6%**
		Total for All Screenlines			**1,770**		**9,413**	**19%**

[a] Assumes no change 17-line ridership in 2020 Cumulative Conditions. No information available on the distribution of Muni Riders to SFSU using the 17-line
[b] Existing Conditions ridecheck data for M Line was not available. Only new M Line ridership is reflected in 2020 Cumulative Conditions
* Bart ridership from Existing Conditions Report has been assigned to Muni Screenlines (25%) and SFSU shuttle (75%) between SFSU and Daly City BART.

Table 4.11-12
2020 Cumulative Year Muni Conditions: Weekday PM Peak Hours (5-6 PM)

			2020 Cumulative Year Conditions						
			2020 Total Passenger Calculations			Hourly Ridership Demand			Hourly
Screenline	**Transit Corridor**	**Transit Lines**	**Additional New Passengers**	**Existing Year Passengers**	**2020 Total New Passengers**	**# of Vehicle Trips**	**Ave. Load**	**Passengers**	**Per Vehicle**
North	19th Ave.-Sunset	Inbound							
		18-46th Ave.	4	56	60	3.8	16.0	60	54
		28-19th Ave	18	178	197	7.1	27.7	197	54
		28L-19th Ave Limited	3	38	41	4.6	9.1	41	54
		29-Sunset	2	32	34	2.0	17.2	34	54
		Subtotal						**332**	
		Outbound							
		18-46th Ave	4	26	30	3.5	8.5	30	54
		28-19th Ave	21	277	298	8.3	36.2	298	54
		28L-19th Ave Limited	4	36	40	2.9	13.9	40	54
		29-Sunset	2	135	137	3.3	41.6	137	54
		Subtotal						**506**	
		Screenline Total						**383**	
Northeast	Downtown	Inbound							
		17-Park Merced [a]	0	17	17	3.0	5.6	17	38
		M-Ocean View [b]	25	n/a	25	6.0	4.1	25	202
		Subtotal						**42**	
		Outbound							
		17-Park Merced [a]	0	45	45	3.0	14.9	45	38
		M-Ocean View [b]	29	n/a	29	6.0	4.8	29	202
		Subtotal						**73**	
		Screenline Total						**115**	
South	19th Ave.-Serra	Inbound							
		28-19th Ave	43	103	146	7.1	20.6	146	54
		28L-19th Ave Limited	4	28	31	4.6	6.9	31	54
		Subtotal						**178**	
		Outbound							
		28-19th Ave	37	293	330	8.3	40.0	330	54
		28L-19th Ave Limited	3	31	34	2.9	11.9	34	54
		Subtotal						**364**	
		Screenline Total						**542**	
East	Balboa Park	Inbound							
		29-Sunset	10	33	43	2.0	21.7	43	54
		M-Ocean View [b]	29	n/a	29	6.0	4.8	29	202
		Subtotal						**72**	
		Outbound							
		29-Sunset	9	136	145	3.3	43.8	145	54
		M-Ocean View [b]	25	n/a	25	6.0	4.1	25	202
		Subtotal						**169**	
		Screenline Total						**241**	
		Total for All Screenlines						**2,069**	

[a] Assumes no change 17-line ridership in 2020 Cumulative Conditions. No information available on the distribution of Muni Riders to SFSU using the 17-line
[b] Existing Conditions ridecheck data for M Line was not available. Only new M Line ridership is reflected in 2020 Cumulative Conditions
* Bart ridership from Existing Conditions Report has been assigned to Muni Screenlines (25%) and SFSU shuttle (75%) between SFSU and Daly City BART.

Based on Muni route distribution data from the intercept survey, there should be 107 new M-line riders during the peak hour by 2020. However, given the unavailability of M-line ridecheck data, it was not possible to calculate current or projected ridership for the M-line. As a result, the 107 peak hour trips could not be added to existing or projected trips to determine if the M-line would be over capacity. Under existing conditions, M-line total capacity at the campus in the peak hour is approximately 2,424 trips; therefore, assuming no changes in M-line capacity, the new 107 passengers will represent approximately 4 percent of M-line total capacity at the campus in the peak hour. Observations of passenger loads on the M-line platform at SF State, as well as standing loads on the M-line vehicles suggest that the addition of 107 peak hour riders to M-line would exacerbate the crowding and worsen the capacity problems on this line.

The City and County of San Francisco has already identified this problem, and is suggesting remedies as part of two ongoing projects: (1) The San Francisco County Transportation Authority's 19th Avenue Project, and (2) The San Francisco Municipal Transportation Agency's Transit Effectiveness Project (TEP). The 19th Avenue Project is considering multimodal solutions for 19th Avenue, including Bus Rapid Transit service. The TEP is looking at a variety of planning, operations and capital solutions to enhance Muni performance systemwide, but is not yet to the point of making specific recommendations at the route level.

Several ideas have been suggested to address future capacity and performance issues for the M-line. These ideas may be considered as part of the TEP or other future studies.

Short-term measures that can be implemented with minor capital expenditures

- Travel time improvements along the M-line, allowing for increased headways. This could entail installation of signal priority, exclusive transit lanes or other transit priority measures.

Medium-term measures that would require major capital expenditures

- Re-establishing a "short run" of the M-line between the Embarcadero and the SF State stations and increasing frequency of the M-line by converting slots in the subway from Castro shuttle trains to M-line short-run trains.
- Terminating the M-line at the campus and extending the J to Stonestown via the Ocean View neighborhood, allowing for better system connectivity to the campus and better car utilization for Muni. Could also result in higher frequencies on the M-line if implemented in coordination with a re-sequencing of trains in the subway.

Longer-term measures that would require major capital expenditures and coordination between numerous agencies

- Moving the M guideway to the west edge of the roadway and extending it to the Daly City BART station.

The short-term improvements could address current capacity problems experienced on the M-line and accommodate some ridership growth. The medium and long-term improvements could meet or exceed the campus's additional transit travel demands. However, each will require extensive community work to gain public and political acceptance and significant capital funding to implement, and would be a major

undertaking for MTA/Muni that would entail extensive planning, engineering and construction to accomplish.

As noted in the Campus Master Plan, campus representatives will participate in local planning efforts to advocate for prioritization and funding of improvements to transit services that serve the campus area, including the TEP and the 19th Avenue study. Specific improvements that would be sought by SF State are listed in the proposed Campus Master Plan. If the improvements listed above or in the Campus Master Plan were implemented, they would be more than sufficient to meet the campus's additional transit travel demands and the impact on the M-line would be less than significant. However, these improvements are in the early planning stages. Furthermore, they are under the jurisdiction of Muni or SFCTA to implement and the University cannot guarantee their implementation. Therefore, the impact on the M-line is considered significant. To address this impact, in the event that none of the improvements to enhance the M-line capacity were implemented and the capacity of the M-line is exceeded, the campus will implement Mitigation TRA-2A. Pursuant to this mitigation measure, if Muni reports that M line average pm peak period, peak direction passenger loading between the campus and West Portal Station exceeds 85 percent of combined seating and standing load capacity for two or more years in a row, the campus will extend the Campus Shuttle service to West Portal Station, and this service will achieve the 85 percent combined seated/standing passenger capacity target. Implementation of Mitigation TRA-2A would reduce the impact on M-line to a less-than-significant level.

Impact on Campus Shuttle

As noted above, it is assumed that 75 percent of the 209 new BART riders or 157 new BART riders would transfer to the free Campus Shuttle. Therefore, the Campus Master Plan would generate approximately 157 additional new shuttle riders in addition to the 146 new shuttle riders calculated before the redistribution of BART riders, for a total of 303 new peak hour shuttle riders by 2020.

Ridership data show the Campus Shuttle buses currently operate overcapacity, with a peak hour capacity utilization rate of 131 percent of seated capacity (approximately 798 shuttle riders travel during the peak hour while the total shuttle system hourly capacity only accommodates a maximum of 608 seated riders). The addition of 303 new peak hour shuttle riders by 2020 would increase the total number to 1,101 riders, translating to a peak hour capacity utilization rate of 181 percent, assuming the total shuttle system hourly capacity is unchanged from existing conditions.

As noted in the Campus Master Plan, the campus will undertake a number of strategies to improve the capacity of shuttle services between the campus and Daly City BART station. In order to increase the capacity and efficiency of shuttle services, the campus will replace the current shuttle services with more frequent, higher-capacity buses. In particular, the campus will evaluate the relative merits of doing away with its existing fleet and contracting out shuttle service to a third party provider who can provide more frequent services using larger, 40-foot, low-floor vehicles. The campus will also continue to work with Muni to improve boarding arrangements at the Daly City BART station, including co-location of the 28-Local, 28-Limited, and Campus Shuttle stops. With the implementation of the shuttle-related strategies included in the Campus Master Plan, the impact on the Campus Shuttle service would be less than significant. To ensure that additional peak hour shuttle bus capacity is added in a timely manner and that this impact remains less than significant, the campus shall implement Mitigation TRA-2B, pursuant to which the campus will monitor shuttle bus peak hour capacity utilization on an annual basis and increase

shuttle frequency or add higher-capacity vehicles until 85 percent of combined seated/standing passenger capacity target is met.

Impact on BART

As discussed in Section 4.11.2.3 above, the main concern with BART service is limited capacity in the Transbay Tube segment during peak hours. Out of the 209 new campus-related BART peak hour riders, 80 percent or 167 are projected to be new East Bay BART riders. This would translate into about eight new BART passengers per train in the peak hour. Furthermore, these new campus-related BART riders would represent approximately 0.6 percent of the total passenger capacity per BART train in the PM peak hour. These numbers are low and indicate that campus growth under the Campus Master Plan will not substantially impact BART ridership during the peak hour.

Impact on Other Local Transit Services

An estimated 20 new transit riders would be added to the peak hour service provided by SamTrans and 16 new transit riders would be added to the peak hour service provided by AC Transit, Golden Gate Transit and Caltrain. These numbers are too small to significantly affect the capacity of any of these transit systems. The impact would be less than significant.

In summary, the proposed Campus Master Plan would not result in a significant impact on transit services that serve the campus, except the M-line and Campus Shuttle where the new riders added due to the project would result in overcrowding and capacity problems. With the implementation of transportation strategies included in the Campus Master Plan and mitigation measures identified above, the significant impacts on transit would be reduced to a less-than-significant level.

Impact TRA-3:	Implementation of the Campus Master Plan would not adversely affect conditions for pedestrians or otherwise interfere with pedestrian accessibility.
Significance:	Less than significant
Mitigation TRA-3:	Mitigation not required
Residual Significance:	Less than significant

The proposed Campus Master Plan includes extensive modifications to the campus's pathway system to provide improved access throughout the campus for all pedestrians including the disabled, as illustrated in Figure 3-10, *Pedestrian Path Network*. Notable improvements are the new footbridge crossing the valley connecting the academic core to UPN; a gently sloping landscaped entry at 19th and Holloway Avenues; modified ramped paths from the northern end of Centennial Walk down into and across the valley to the new Gym/Recreation-Wellness Center; a new pedestrian spine (the Arts Allée) from the Quad to the new Creative Arts complex; and a new north-south cross-campus axis aligning with the new bridge and bordering the east edge of the Quad. By connecting across the valley between UPN and the main campus, this development will improve pedestrian amenity, connectivity, and permeability for those who access campus from neighborhoods to the north. The proposed Campus Master Plan also corrects a number of existing discontinuities in disabled access around campus, and overall pedestrian accessibility should improve with the project.

As a result of both improved pedestrian facilities and an increase in campus population, the level of pedestrian activity in and around the campus is expected to increase. Based on the Highway Capacity Manual, 3 to 6 square feet per pedestrian queuing space is required for all pedestrian facilities at LOS D, which is the acceptable level of service for pedestrian facilities in most jurisdictions. Furthermore, based on Highway Capacity Manual, at a pedestrian facility that is at LOS D, the maximum 15-minute service volume for pedestrians is 1,125. Under the Campus Master Plan, by 2020, the total campus population will be 36,273 persons (head count). Based on a survey conducted by the campus, only 80 percent of the campus headcount population (29,018 persons) is on the campus on a given day. Based on the intercept survey conducted to establish baseline conditions at the campus, approximately 13 percent of the campus affiliates arrive at the campus by walking in the last leg of their journey to the campus and another 43 percent arrive by transit (and therefore use pedestrian facilities along Holloway and 19th Avenue). Assuming 10 percent of the 29,018 campus affiliates in 2020 arrive at the campus during the peak hour, and 56 percent arrive by walking/transit, it is estimated that approximately 1,625 campus affiliates will use the pedestrian facilities along Holloway and 19th Avenue during the peak hour, or about 406 persons would be using the pedestrian facilities in a 15-minute period within the peak hour. The projected pedestrian volume of 406 affiliates is much less than the maximum pedestrian volume (1,125 pedestrians in a 15-minute interval) that a pedestrian facility can accommodate at LOS D. Therefore, the increase in enrollment at the campus will not cause substantial overcrowding on public sidewalks, especially the sidewalks and crosswalks near the Holloway and 19th Avenue intersection.

The proposed project would not create potentially hazardous conditions for pedestrians. The existing pedestrian safety concerns on 19th Avenue are being addressed by a number of projects under the 19th Avenue/Park Presidio Boulevard Transportation Plan. Caltrans Phase I Signal Upgrade Project is currently underway, pursuant to which new signals that will be more visible to motorists will be installed, pedestrian signals with countdown timers will be installed, and new curb ramps directing pedestrians to the crosswalks will be constructed. The intersection of 19th Avenue and Holloway Avenue is included in this Phase I Signal Upgrade project. In addition, the San Francisco Municipal Transportation Agency (MTA) plans to implement the MTA Pedestrian Safety Project along 19th Avenue. The objective of this project is to focus on specific physical improvements to address pedestrian safety. The criteria for the location of pedestrian safety improvements include location of pedestrian collisions, large number of bus boardings, need for traffic calming identified by neighborhood residents, and other conflicts between vehicles and pedestrians. Some of the improvements that are being planned at this time include corner bulbouts at bus stop locations so as to reduce the distance that pedestrians have to walk to cross the street and increase the pedestrian's ability to see automobiles.

With respect to the concern regarding pedestrian safety from increased campus-related traffic along Holloway Avenue, as noted earlier, the Campus Master Plan has been designed to avoid the increase in vehicle trips to the campus. Furthermore, the Campus Master Plan envisions Holloway Avenue as a pedestrian-friendly street that would have two narrow travel lanes, bicycle lanes, street trees, and ground-floor activity and entrances facing the street. This would be effective in reducing automobile travel speeds and improving conditions for pedestrians along this street.

In summary, the Campus Master Plan would have a beneficial effect on pedestrians. No mitigation is required.

Impact TRA-4:	Implementation of the Campus Master Plan would not adversely affect conditions for bicyclists.
Significance:	Less than significant
Mitigation TRA-4:	Mitigation not required
Residual Significance:	Less than significant

Currently, only a small percentage of campus affiliates use bicycles to commute to the campus. In order to facilitate safe and convenient bicycle access across campus and to increase the mode split of bicycles among the campus commuters, the Campus Master Plan includes an on-campus bicycle network along shared bicycle-pedestrian routes. These routes include: (1) the existing east-west route from Lake Merced Boulevard to 19th Avenue via South State Drive and the south side of Cox Stadium; (2) the existing east-west route from Lake Merced Boulevard via Winston Drive, through the newly configured North State Drive to the north side of Cox Stadium; (3) the north-south axis from Stonestown to Cardenas Avenue via the new pedestrian bridge and east edge of the Quad; and (4) the relatively flat east-west axis from the second roundabout on Font Boulevard via the west side of the HSS buildings to the south side of Cox Stadium. These facilities would be marked with pavement marking and 8 mph bicycle speed signs at the entrance to the campus. In addition, the campus will work with the City and Caltrans to explore a bike path along 19th Avenue.

In addition, as described in Chapter 3, *Project Description*, bicycle racks will be provided in visible locations near buildings. Secure bicycle lockers will be provided at multiple locations on campus, including in conjunction with all new parking structures on campus. As the campus is developed, the Bike Barn will be replaced with a Bike Station to be located in a prominent position at the future retail node on Holloway Avenue near Cardenas Avenue. The Bike Station will extend services to SF State students, faculty, and staff, as well as potentially providing retail and rental services for the wider community.

Campus representatives will advocate for improved bicycle access facilities between the campus and surrounding neighborhoods. However, these improvements are beyond the scope of the Campus Master Plan and fall within the jurisdiction of other agencies such as the City and County of San Francisco, Caltrans, and the private owner of Stonestown Mall to implement.

In summary, the proposed Campus Master Plan includes numerous improvements to enhance bicycle use on the campus and the plan therefore would not adversely affect conditions for bicyclists.

Impact TRA-5:	Implementation of the Campus Master Plan would not result in a parking demand that exceeds the projected supply.
Significance:	Less than significant
Mitigation TRA-5:	Mitigation not required
Residual Significance:	Less than significant

As discussed in Section 4.11.1.7, there are currently about 3,172 parking spaces on the campus, with 1,289 spaces designated for faculty and staff and 1,883 spaces designated for students and visitors. This does not include spaces designated for the student population that resides on the campus. The parking

utilization rate for faculty and staff lots is around 70 percent whereas student parking facilities are about 90 percent occupied at peak. Because much of the on-street parking surrounding campus is free, campus affiliates also park on streets surrounding the campus.

As part of a long term vision, it is contemplated that the parking garage in the valley would ultimately be removed so as to remove vehicle trips from the central parts of the campus. Towards this end, the Campus Master Plan identifies the locations of new parking structures along the outer edges of the campus. As a state institution, the University is not permitted to use state funds, such as those associated with construction of new academic buildings, to help finance the capital cost of parking facilities. This means that new or replacement parking supply would be funded by increased parking fees. If too much parking is added too quickly, it will increase the price of parking sharply, and cause campus affiliates to seek other parking locations off campus. Therefore, the campus is proposing a parking strategy under which the campus would add new parking in small increments and remove an equivalent number of spaces to the number of new spaces that are built. This would keep the cost of parking from increasing rapidly and would also serve to discourage campus affiliates from driving to the campus because the supply of parking would not increase. Essentially parking losses and additions would be balanced with one another in such a way that resulting price increases keep demand steady. Note that adding parking spaces too slowly could create access and parking spillover problems for the campus.

The Campus Master Plan therefore proposes a phased replacement of the existing central garage with a combination of surface parking facilities and smaller perimeter parking structures in order to disperse traffic, serve hubs of activity throughout campus, and free the campus core for pedestrians. Building these new facilities will result in a steady increase in parking fees as the campus population grows, making it all the more important for these increases to be carefully and strategically managed to maintain the proper level of demand. Table 4.11-13 below presents the parking phasing program included in the Campus Master Plan. As this table shows, parking on the campus would not increase from the 3,172 spaces that exist at the present time.

Table 4.11-13
Parking Phasing Summary

Calendar Year	Project	Parking Spaces Added	Project	Parking Spaces Removed	Total	Cumulative Change
2006 through 2010-11	None	0	None	0	3,172	0
2011-12	Clinical Sciences	121	None	0	3,293	121
2012-13	Creative Arts II	178	Lot 25 (leave 155)	156	3,315	143
2013-14	None	0	North State Drive	109	3,206	34
2014-15	None	0		0	3,206	34
2015-16	Gym and Surface Parking	378	Garage Roof	440	3,144	-28
2016-17	State Drive	176	State Drive (street + lot outside garage)	86	3,234	62
2017-18	Science	10	Lot 6 (gym)	76	3,168	-4
2018-19	Conference/Hotel	440	Garage Basement	436	3,172	0
2019-20	None	0	None	0	3,172	0

Source: WRT, 2006

The parking strategy included in the Campus Master Plan is consistent with the City's "Transit First" policy, and the planned supply of parking is designed to ensure that single-occupant vehicle mode split does not increase in the future and that new single-occupant vehicle trips are not generated. As discussed above under Impacts TRA-1 and TRA-2, if the campus's strategy to change the mode split for transit/shuttle from a current split of 42 percent to a future split of 45 percent is successful, approximately 45 percent of the campus commuters would use transit in 2020 and new vehicle trips would not be generated. A shift in trips to transit services in particular would be in keeping with the City's "Transit-First" policy. The City's Transit-First Policy established in San Francisco's Charter Section 16.102 provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation." Therefore, the proposed project would not have a significant impact related to parking. Furthermore, pursuant to Mitigation TRA-1, the campus will conduct cordon counts every three years or if necessary every year, and make additional improvements to its TDM program to ensure that new trips are not generated. Therefore, the demand for parking will not exceed the projected supply.

With respect to parking in the residential neighborhoods near the campus, the Campus Master Plan acknowledges that a large number of campus affiliates currently park in residential areas, and that if the price of on-campus parking is not managed carefully, additional campus affiliates could potentially choose to park off-campus in residential areas. To address this, the parking strategy in the Campus Master Plan has been designed to avoid sharp increases in the cost of parking on campus that could occur if too much parking is provided on the campus. However, the campus cannot control commuter parking behavior, and it is expected that some proportion of campus affiliates will continue to park off campus. Recognizing this possibility, the proposed Campus Master Plan states that campus representatives will participate in local planning efforts relating to on-street parking programs in the vicinity of the campus. This involvement will aim to ease local neighbors' concerns and ensure that changes in local parking permit programs are implemented in an appropriate manner to accommodate campus needs. For example, SF State students living in UPS might be restricted from participating in the Parkmerced Residential Parking Permit program, in order to reduce student "spillover" parking into the surrounding neighborhood. The City may consider other adjustments to surrounding Residential Parking Permit policies, such as reducing the two hours of free parking currently provided to one hour or less. A "Parking Benefit District," currently being studied for other San Francisco neighborhoods, could also be considered by the City; in such programs, a limited number of neighborhood permits are sold to commuters, with the net revenue being dedicated to local neighborhood improvements.

In summary, the proposed project would not have a significant impact related to parking because the parking strategy included in the Campus Master Plan is consistent with the City's Transit First policy, and the planned supply of parking is designed to ensure that single-occupant vehicle mode split does not increase in the future and that new single-occupant vehicle trips are not generated. Pursuant to Mitigation TRA-1, the campus will conduct cordon counts every three years or if necessary every year, and make additional improvements to its TDM program to ensure that new trips are not generated. Therefore, the demand for parking will not exceed the projected supply. Furthermore, pursuant to the Campus Master Plan, the campus will work with the MTA to minimize the social impact of campus affiliates parking in surrounding neighborhoods.

Impact TRA-6:	Implementation of the Campus Master Plan would not conflict with any adopted plans, policies or programs supporting alternative transportation.
Significance:	Less than significant
Mitigation TRA-6:	Mitigation not required
Residual Significance:	Less than significant

As discussed above under Impacts TRA-1 through TRA-5, the Campus Master Plan includes a parking strategy, bicycle and pedestrian improvements, and a program for shuttle service improvements. All of these elements of the Campus Master Plan are designed to discourage automobile use and encourage the use of alternate means of transportation. In addition, campus representatives will participate in local planning efforts to advocate for prioritization and funding of improvements to transit services that serve the campus area, including the TEP and the 19th Avenue study. Therefore, implementation of the Campus Master Plan would not conflict with any adopted plans, policies or programs that support alternative transportation.

4.11.2.5 Cumulative Impacts and Mitigation Measures

Because the proposed project is a Master Plan that would be implemented over a period of 13 years and not a specific development project, the analysis of impacts presented in Section 4.11.2.4 above is a cumulative impact assessment that evaluates traffic impacts from campus growth under 2020 conditions. As discussed in Section 4.11.2.3, in order to develop 2020 without Project Conditions, the peak hour turning movement volumes at the study intersections were projected by applying a growth factor of 1 percent per year to the existing peak hour turning movement volumes at the study intersections per "Transportation Impact Analysis Guidelines," published by City and County of San Francisco. In addition to the growth in general traffic, peak hour trips from approved and pending projects were estimated and added to the projected Year 2020 peak hour turning movement volumes. Impacts from campus-related traffic were evaluated by adding trips from campus growth under the Campus Master Plan to background trips that would exist under 2020 without Project Conditions. The analysis of project impacts presented in Section 4.11.2.4 above therefore fully accounts for all cumulative impacts of the proposed project.

4.11.3 References

City and County of San Francisco. 2002. Transportation Impact Analysis Guidelines for Environmental Review. Prepared by the Planning Department. October.

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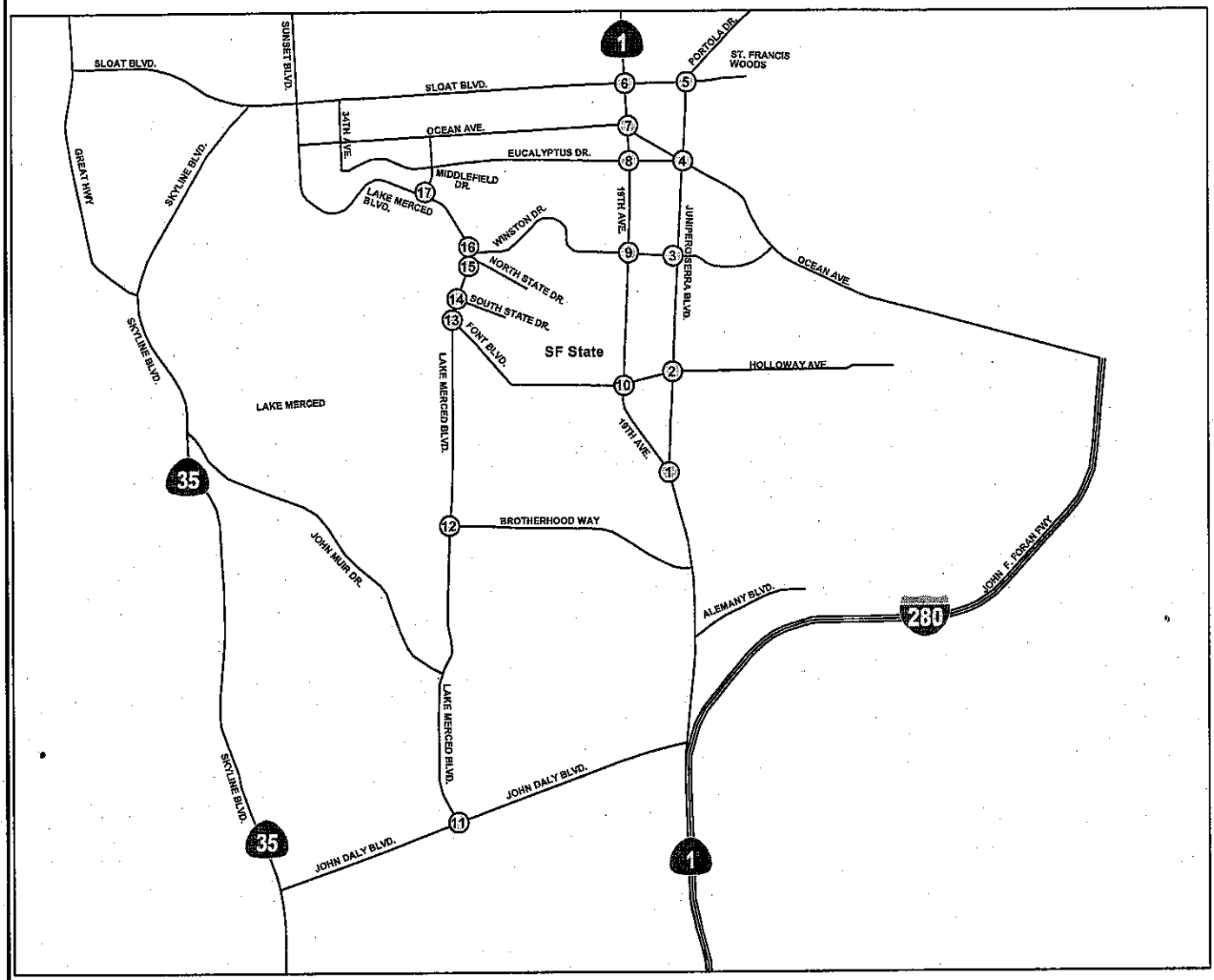

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(X) Study Intersection

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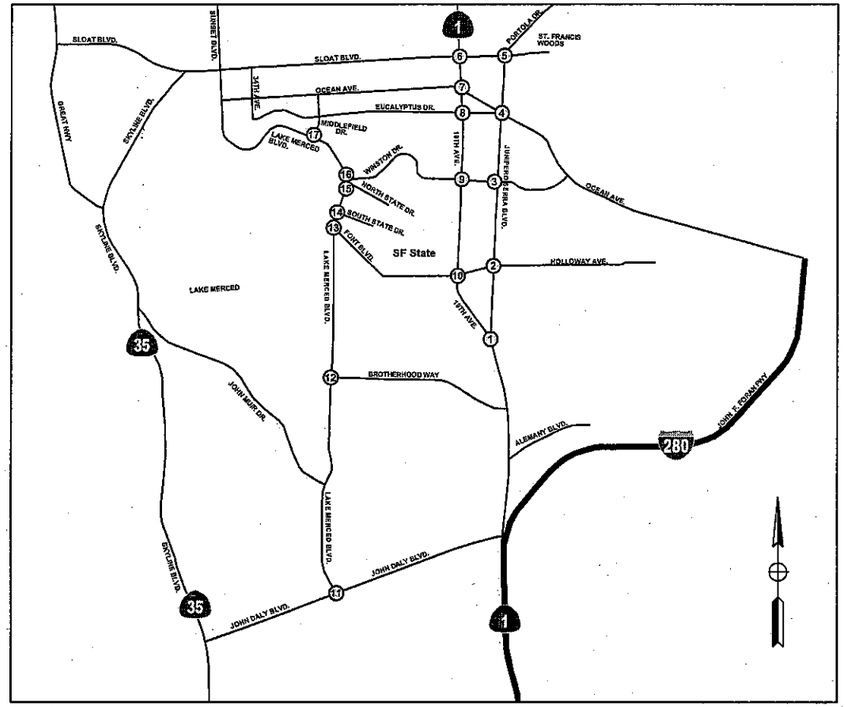

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Ⓧ Study Intersection

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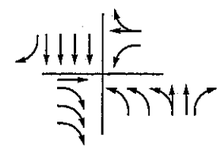		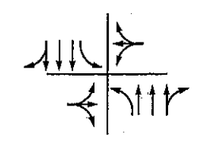	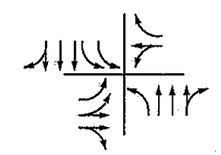	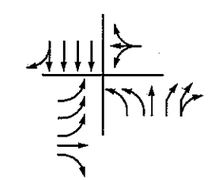
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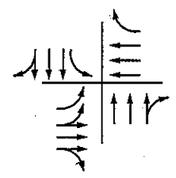	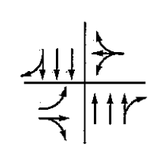	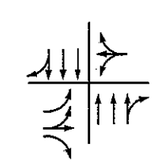	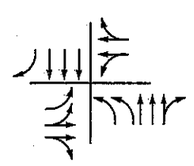	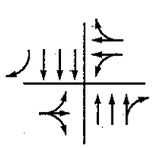
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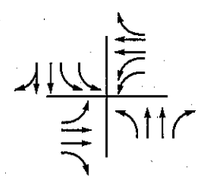	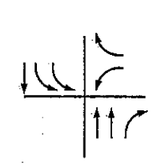	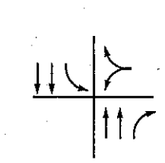	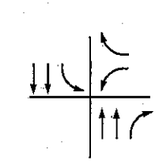	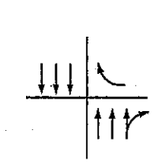
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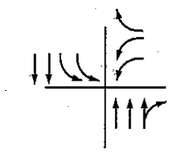	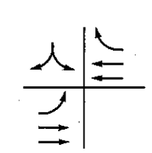			

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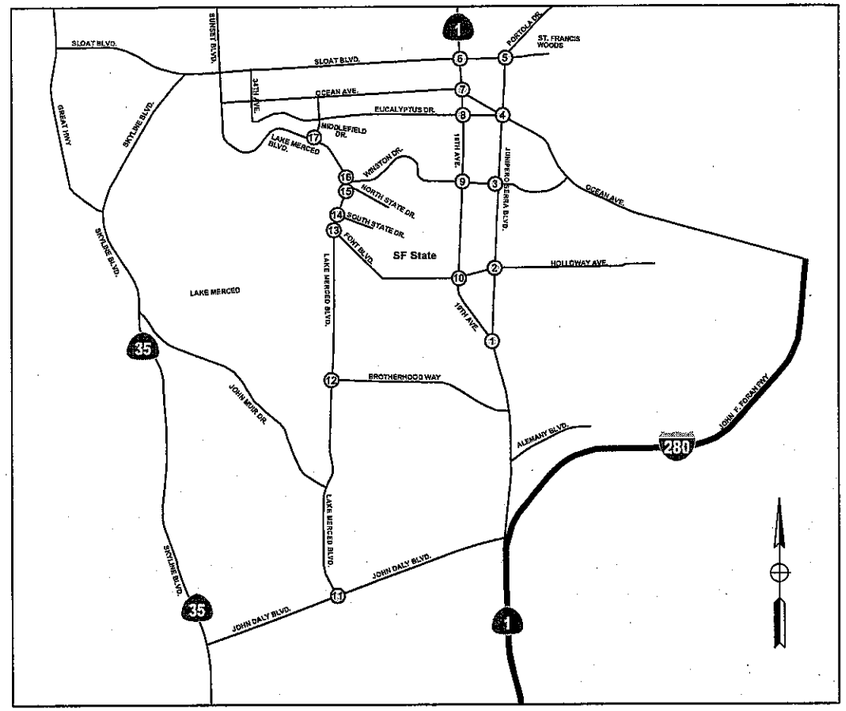
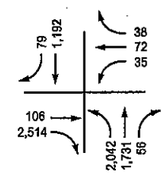
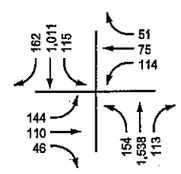
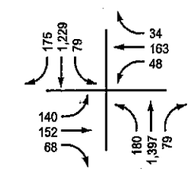
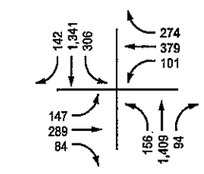
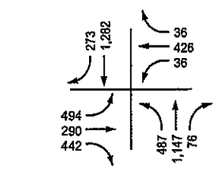


LEGEND:

① Study Intersection

XX PM Peak

INTERSECTION 1 JUNIPERO SERRA BLVD./19TH AVE.	INTERSECTION 2 JUNIPERO SERRA BLVD./HOLLOWAY AVE.	INTERSECTION 3 JUNIPERO SERRA BLVD./WINSTON DR.	INTERSECTION 4 JUNIPERO SERRA BLVD./OCEAN AVE.	INTERSECTION 5 JUNIPERO SERRA BLVD./SLOAT BLVD./ PORTOLA DR.
				
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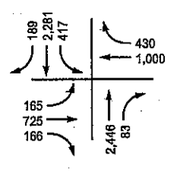	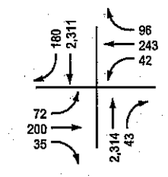	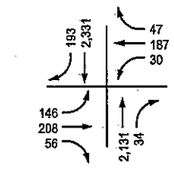	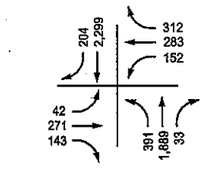	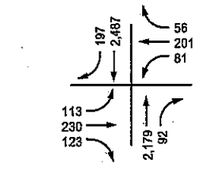
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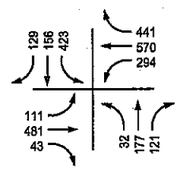	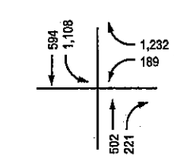	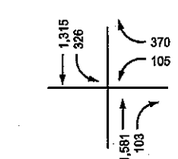	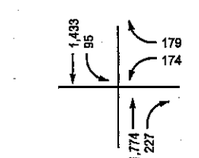	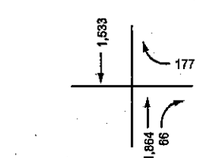
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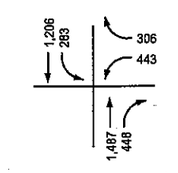	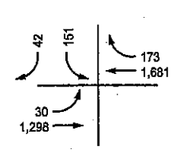			

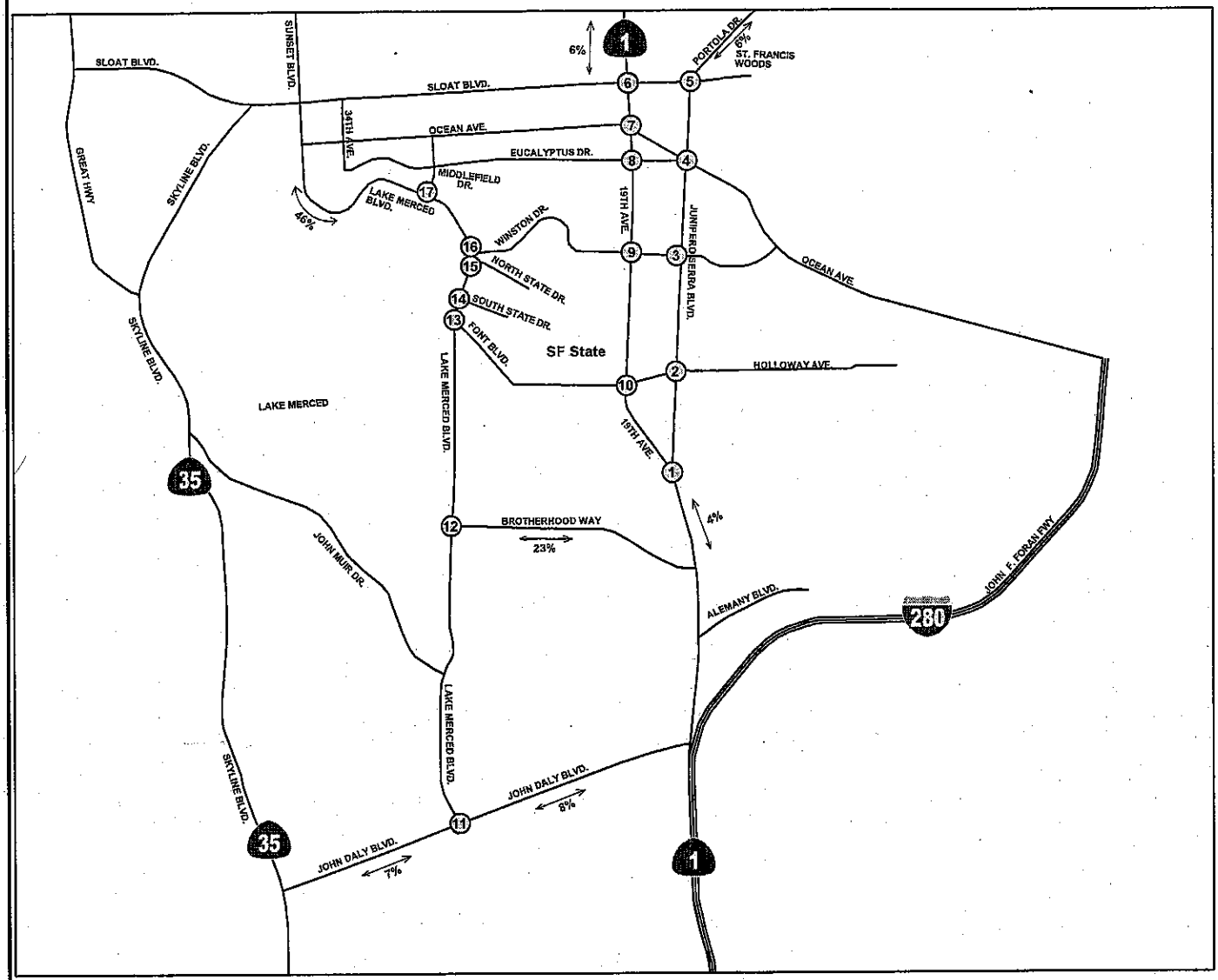

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(X) Study Intersection

X% Trip Distribution Percent

URS	SAN FRANCISCO STATE UNIVERSITY CAMPUS MASTER PLAN	TRIP DISTRIBUTION	NOT TO SCALE Figure 4.11-4 January 2007

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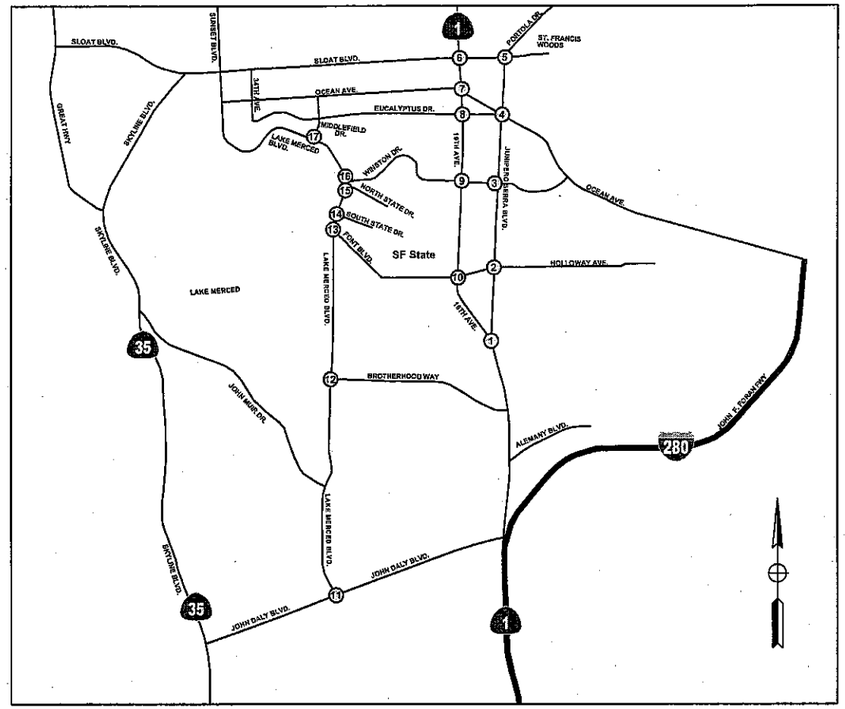

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(1) Study Intersection

XX PM Peak

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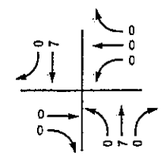
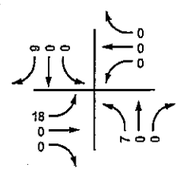
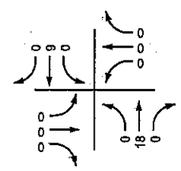
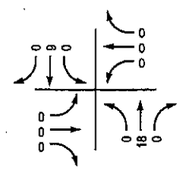
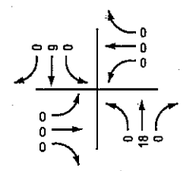
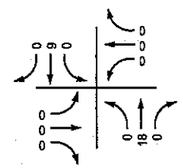
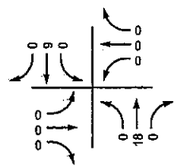
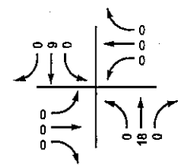
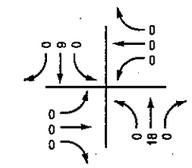
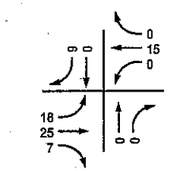
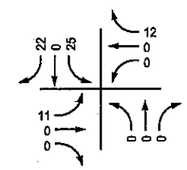
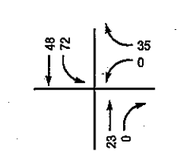
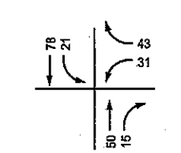
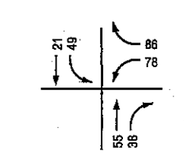
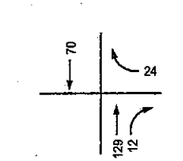
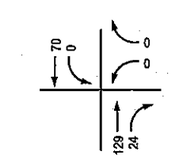
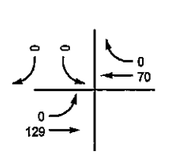
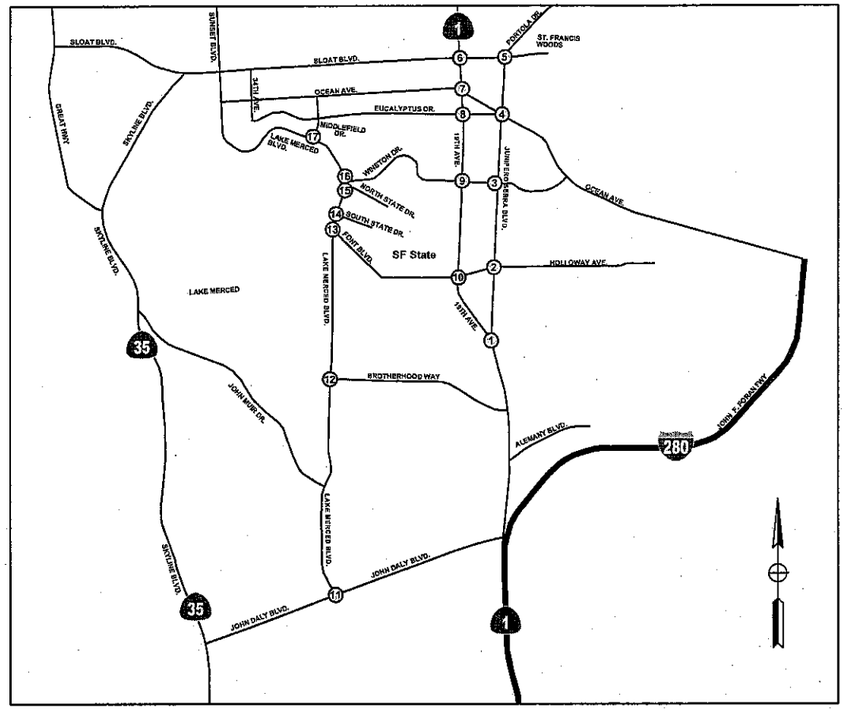
				
INTERSECTION 6 19TH AVE./SLOAT BLVD.	INTERSECTION 7 19TH AVE./OCEAN AVE.	INTERSECTION 8 19TH AVE./EUCALYPTUS DR.	INTERSECTION 9 19TH AVE./WINSTON DR.	INTERSECTION 10 19TH AVE./HOLLOWAY AVE.
				
INTERSECTION 11 LAKE MERCED BLVD./JOHN DALY BLVD.	INTERSECTION 12 LAKE MERCED BLVD./BROTHERHOOD WAY	INTERSECTION 13 LAKE MERCED BLVD./FONT BLVD.	INTERSECTION 14 LAKE MERCED BLVD./SOUTH STATE DR.	INTERSECTION 15 LAKE MERCED BLVD./NORTH STATE DR.
				
INTERSECTION 16 LAKE MERCED BLVD./WINSTON DR.	INTERSECTION 17 MIDDLEFIELD DR./LAKE MERCED BLVD.			
				

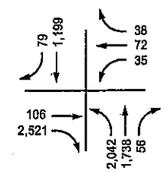
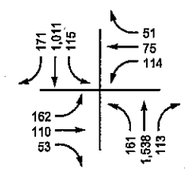
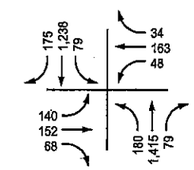
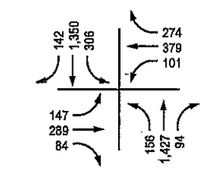
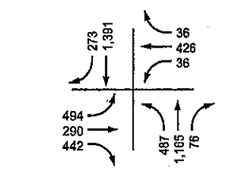
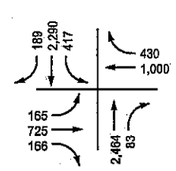
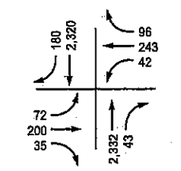
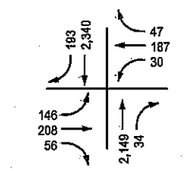
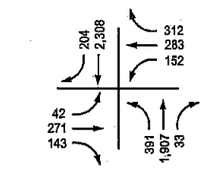
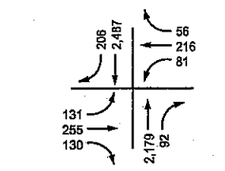
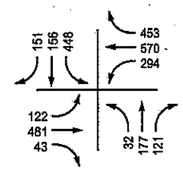
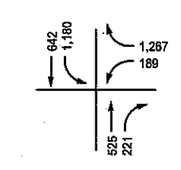
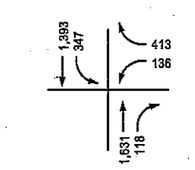
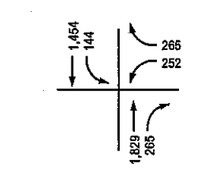
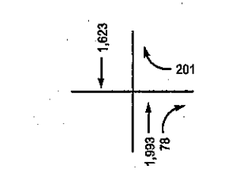
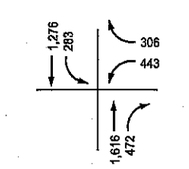
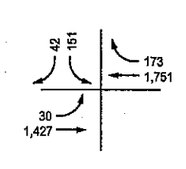
URS	SAN FRANCISCO STATE UNIVERSITY CAMPUS MASTER PLAN	PROJECT ONLY TRIPS	NOT TO SCALE Figure 4.11-5 January 2007

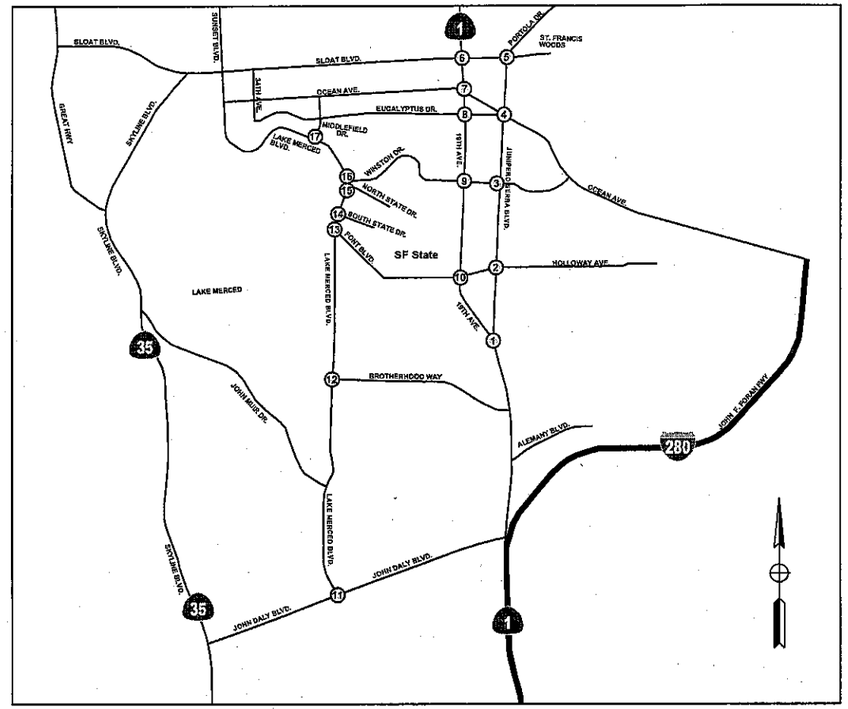


LEGEND:

(1) Study Intersection

XX PM Peak

INTERSECTION 1 JUNIPERO SERRA BLVD./19TH AVE.	INTERSECTION 2 JUNIPERO SERRA BLVD./HOLLOWAY AVE.	INTERSECTION 3 JUNIPERO SERRA BLVD./WINSTON DR.	INTERSECTION 4 JUNIPERO SERRA BLVD./OCEAN AVE.	INTERSECTION 5 JUNIPERO SERRA BLVD./SLOAT BLVD./ PORTOLA DR.
				
INTERSECTION 6 19TH AVE./SLOAT BLVD.	INTERSECTION 7 19TH AVE./OCEAN AVE.	INTERSECTION 8 19TH AVE./EUCALYPTUS DR.	INTERSECTION 9 19TH AVE./WINSTON DR.	INTERSECTION 10 19TH AVE./HOLLOWAY AVE.
				
INTERSECTION 11 LAKE MERCED BLVD./JOHN DALY BLVD.	INTERSECTION 12 LAKE MERCED BLVD./BROTHERHOOD WAY	INTERSECTION 13 LAKE MERCED BLVD./FONT BLVD.	INTERSECTION 14 LAKE MERCED BLVD./SOUTH STATE DR.	INTERSECTION 15 LAKE MERCED BLVD./NORTH STATE DR.
				
INTERSECTION 16 LAKE MERCED BLVD./WINSTON DR.	INTERSECTION 17 MIDDLEFIELD DR./LAKE MERCED BLVD.			
				



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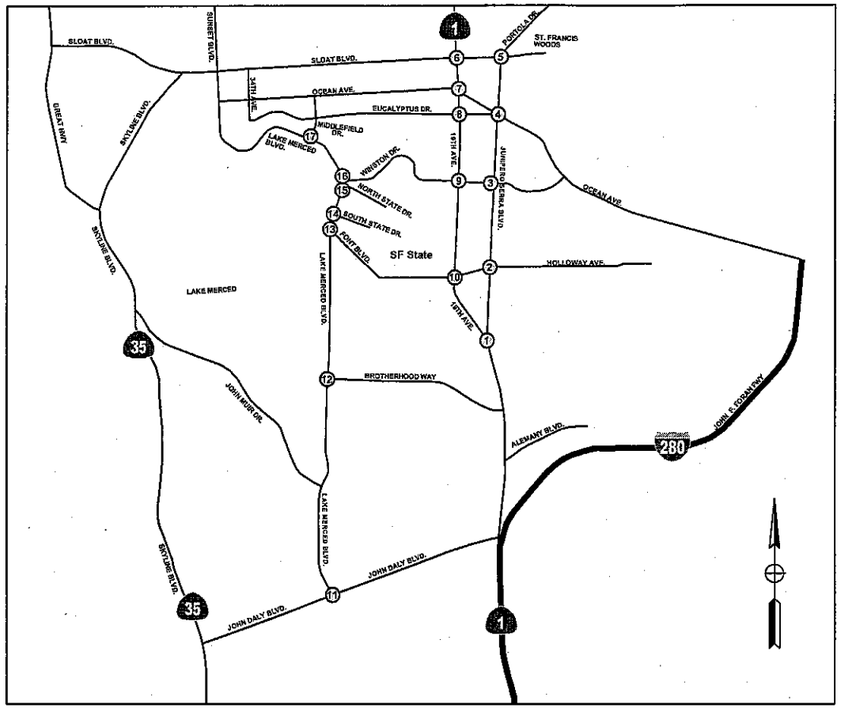
(1) Study Intersection

XX PM Peak

INTERSECTION 1 JUNIPERO SERRA BLVD./19TH AVE.	INTERSECTION 2 JUNIPERO SERRA BLVD./HOLLOWAY AVE.	INTERSECTION 3 JUNIPERO SERRA BLVD./WINSTON DR.	INTERSECTION 4 JUNIPERO SERRA BLVD./OCEAN AVE.	INTERSECTION 5 JUNIPERO SERRA BLVD./SLOAT BLVD./ PORTOLA DR.
91 1,370 → 44 83 40 122 3,305 → 2,693 1,990 64	166 1,162 132 → 59 86 131 166 126 53 → 177 1,768 130	201 1,413 91 → 39 187 55 181 175 78 → 207 1,606 91	163 1,541 352 → 315 436 116 169 332 97 → 182 1,620 108	314 1,474 → 41 490 41 568 333 508 → 560 1,318 87
INTERSECTION 6 **19TH AVE./SLOAT BLVD.**	**INTERSECTION 7** **19TH AVE./OCEAN AVE.**	**INTERSECTION 8** **19TH AVE./EUCALYPTUS DR.**	**INTERSECTION 9** **19TH AVE./WINSTON DR.**	**INTERSECTION 10** **19TH AVE./HOLLOWAY AVE.**
217 2,970 479 → 494 1,149 190 833 191 → 3,233 95	207 3,004 → 110 279 48 83 230 40 → 3,081 49	224 3,025 → 54 215 34 174 239 70 → 2,865 39	234 2,989 → 359 325 175 46 312 164 → 449 2,586 38	228 3,205 → 64 231 93 130 264 141 → 2,920 106
INTERSECTION 11 **LAKE MERCED BLVD./JOHN DALY BLVD.**	**INTERSECTION 12** **LAKE MERCED BLVD./BROTHERHOOD WAY**	**INTERSECTION 13** **LAKE MERCED BLVD./FONT BLVD.**	**INTERSECTION 14** **LAKE MERCED BLVD./SOUTH STATE DR.**	**INTERSECTION 15** **LAKE MERCED BLVD./NORTH STATE DR.**
148 179 486 → 507 655 338 128 553 49 → 37 203 139	683 1,274 → 1,416 217 577 254	1,512 375 → 425 121 1,817 118	1,647 109 → 206 200 2,039 261	1,785 → 203 2,143 76
INTERSECTION 16 **LAKE MERCED BLVD./WINSTON DR.**	**INTERSECTION 17** **MIDDLEFIELD DR./LAKE MERCED BLVD.**			
1,386 325 → 352 509 1,709 515	48 174 → 199 1,932 34 1,492			



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(1) Study Intersection

XX PM Peak

INTERSECTION 1 JUNIPERO SERRA BLVD./19TH AVE.	INTERSECTION 2 JUNIPERO SERRA BLVD./HOLLOWAY AVE.	INTERSECTION 3 JUNIPERO SERRA BLVD./WINSTON DR.	INTERSECTION 4 JUNIPERO SERRA BLVD./OCEAN AVE.	INTERSECTION 5 JUNIPERO SERRA BLVD./SLOAT BLVD./ PORTOLA DR.
91 1,377 — 44 83 40 122 3,312 — 2,693 1,996 64	195 1,162 132 — 59 86 131 183 126 60 — 184 1,769 130	201 1,421 91 — 39 187 55 161 175 78 — 207 1,624 91	163 1,550 362 — 315 436 116 169 332 97 — 182 1,637 108	314 1,482 — 41 490 41 568 333 508 — 560 1,336 87
INTERSECTION 6 19TH AVE./SLOAT BLVD.	**INTERSECTION 7 19TH AVE./OCEAN AVE.**	**INTERSECTION 8 19TH AVE./EUCALYPTUS DR.**	**INTERSECTION 9 19TH AVE./WINSTON DR.**	**INTERSECTION 10 19TH AVE./HOLLOWAY AVE.**
217 2,979 479 — 494 1,149 190 833 191 — 3,251 95	207 3,013 — 110 279 48 83 230 40 — 3,099 49	224 3,034 — 54 215 34 174 239 70 — 2,883 39	234 2,997 — 359 325 175 48 312 164 — 449 2,604 38	235 3,205 — 64 246 93 148 289 148 — 2,920 108
INTERSECTION 11 LAKE MERCED BLVD./JOHN DALY BLVD.	**INTERSECTION 12 LAKE MERCED BLVD./BROTHERHOOD WAY**	**INTERSECTION 13 LAKE MERCED BLVD./FONT BLVD.**	**INTERSECTION 14 LAKE MERCED BLVD./SOUTH STATE DR.**	**INTERSECTION 15 LAKE MERCED BLVD./NORTH STATE DR.**
170 179 511 — 519 655 338 138 553 49 — 37 203 139	731 1,346 — 1,451 217 600 254	1,590 386 — 488 152 1,867 134	1,668 158 — 292 278 2,094 286	1,855 — 227 2,272 87
INTERSECTION 16 LAKE MERCED BLVD./WINSTON DR.	**INTERSECTION 17 MIDDLEFIELD DR./LAKE MERCED BLVD.**			
1,457 325 — 352 509 1,839 539	48 174 — 199 2,003 34 1,621			