Appendix E

Transportation Impact Study

- Transportation Impact Study
- Transportation Impact Study Technical Appendices

AECOM

December 19, 2014

San Francisco VA Medical Center Long Range Development Plan

Transportation Impact Study (TIS)

Prepared for the Department of Veterans Affairs

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Long Range Development Plan
Transportation Impact Study (TIS)

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1.0 Introduction

This chapter provides an overview of the study and describes the existing transportation conditions in the vicinity of the Project site.

1.1 Study Context

This analysis has been conducted to assess the potential transportation impacts associated with the implementation of the Long Range Development Plan (LRDP)[1] for the San Francisco Veterans Affairs Medical Center (SFVAMC) Fort Miley Campus, herein referred to as the "Project." This Transportation Impact Study (TIS) has been prepared to support the LRDP's Supplemental Draft Environmental Impact Statement (EIS), the environmental review document currently being prepared for the Project in accordance with the National Environmental Policy Act (NEPA).

This TIS addresses the following transportation topics in relation to the Project:

- Traffic conditions
- Transit conditions
- Pedestrian conditions
- Bicycle conditions
- Parking conditions
- Freight loading conditions
- Emergency vehicle access conditions
- Construction conditions

1.2 Project Location

SFVAMC facilities are currently located at a single campus at 4150 Clement Street in the Outer Richmond District in northwestern San Francisco, California, a location known as the "Fort Miley Campus" (herein referred to as the "Campus"), because of its location within the original Fort Miley Military Reservation. The Campus is a 29-acre site bounded on the north, east, and west sides by National Park Service lands (part of the Golden Gate National Recreation Area [GGNRA] and known colloquially as "Lands End") and on the south by Clement Street, with access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. Lincoln Park, operated by the San Francisco Recreation and Parks Department, is also located to the north and east of the Campus adjacent to the GGNRA lands. The location of the Campus is illustrated in Figure 1.

The EIS considers development scenarios at both the existing SFVAMC Campus at Fort Miley and an undetermined site within the Mission Bay area of San Francisco (the "Mission Bay Campus"). Potential sites for the Mission Bay Campus would likely include unoccupied buildings or undeveloped blocks within the Mission Bay South redevelopment area or in the surrounding area just west along 16th Street or Seventh Street, although the exact location has yet to be determined.[2] For the purposes of this study, it is assumed that a potential new Mission Bay Campus could be located within the area bounded by Interstate 80 (I-80), Seventh Street, and Brannan Street on the north; Second Street and San Francisco Bay on the east; Cesar Chavez Street on the south; and Potrero Avenue on the west.

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(1) San Francisco Veterans Affairs Medical Center Fort Miley Campus Long Range Development Plan (January 31, 2014).

(2) The U.S. Department of Veterans Affairs (VA) signed a 10-year lease for 42,000 square feet of research space at 1700 Owens Street in the Mission Bay South redevelopment area in 2012, adjacent to the J. David Gladstone Institutes and close to the growing University of California, San Francisco (UCSF) Mission Bay Campus. The space is intended for use by the Northern California Institute for Research and Education (NCIRE)—The Veterans Health Research Institute, but the details of any further expansion of SFVAMC operations into the Mission Bay area in the future are uncertain at this time.

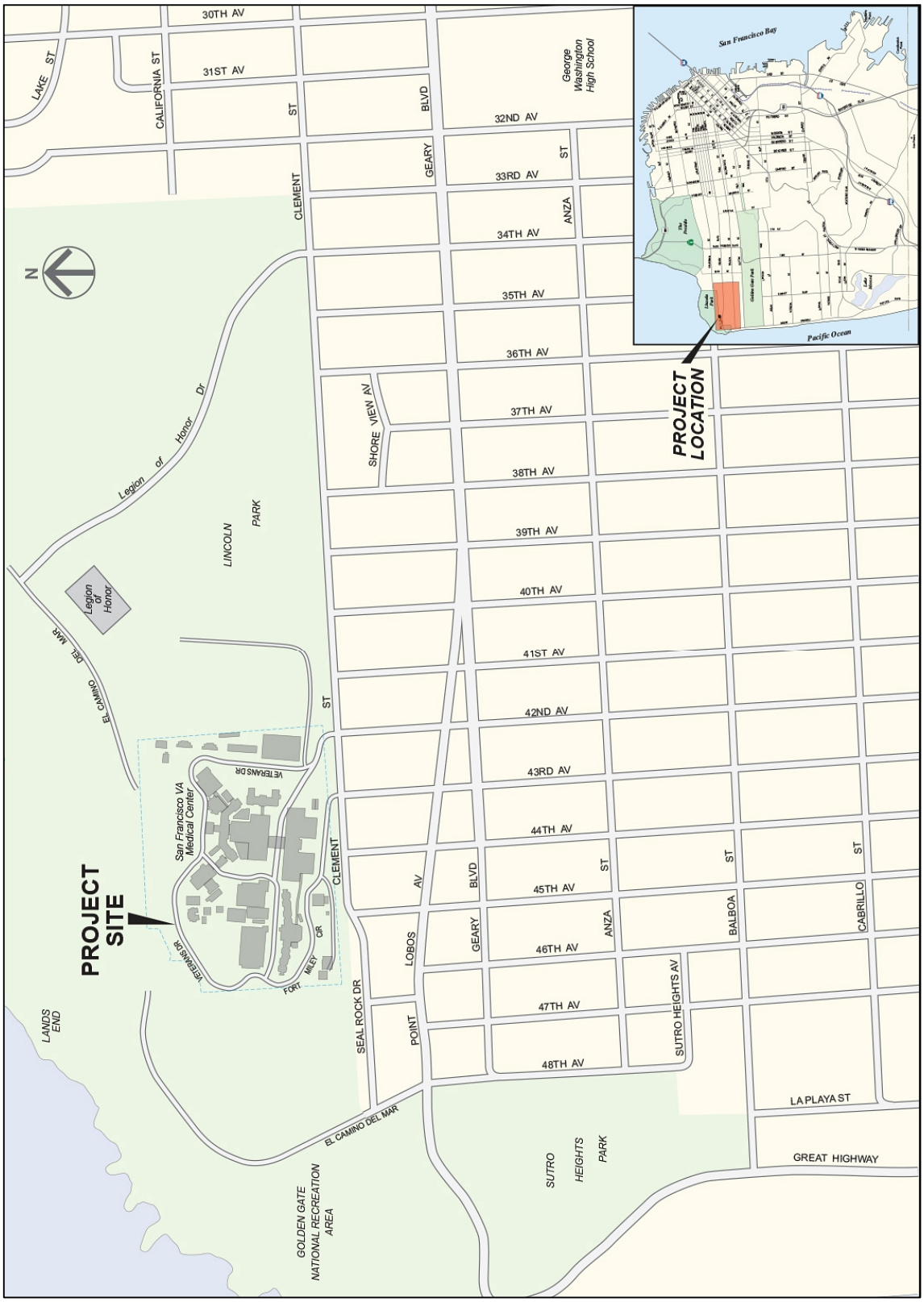

Figure 1: Project Location

1.3 Project Description

The LRDP describes a series of Campus improvements to be undertaken by SFVAMC to accommodate the growing medical needs of Veterans in the Bay Area and Northern California through to a horizon year of 2030, and includes development of new facilities, enhancement of existing facilities, and seismic retrofitting of existing buildings and structures. The development program encompasses a wide variety of medical-related uses including patient care, research, education, administration/office, and hoptel[3] uses, as well as ancillary needs such as parking facilities.

1.3.1 Description of Alternatives

As described in Section 2.3 of the San Francisco Veterans Affairs Medical Center Long Range Development Plan Supplemental Draft Environmental Impact Statement (December 19, 2014), three development alternatives and a fourth, "no action" alternative have been analyzed in the environmental review of the LRDP, defined as follows:

- Alternative 1: SFVAMC Fort Miley Campus Buildout Alternative 1 (Preferred Alternative)
  Alternative 1 proposes 554,452 gross square feet of net new development at the Campus, along with seismic upgrades to various existing structures on the Campus in one short-term phase (Phase 1) and one long-term phase (Phase 2). In terms of habitable building inventory, Alternative 1 proposes 386,300 square feet of new construction and demolition of 64,100 square feet in existing facilities, resulting in 322,200 gross square feet of net new development.

- Alternative 2: SFVAMC Fort Miley Campus Buildout Alternative 2
  Alternative 2 is identical to Alternative 1 in terms of the total amount and type of operational space proposed, but would involve different phasing and implementation schedules for some components of the LRDP, resulting in a different, longer construction schedule.

- Alternative 3: SFVAMC Fort Miley Campus Plus Mission Bay Campus Alternative
  Alternative 3 retains all of the short-term (Phase 1) components of Alternative 1 at the Fort Miley Campus, but would locate all of the long-term (Phase 2) components off Campus at an unknown site, to be determined and purchased later by VA, within the Mission Bay area of San Francisco (the "potential Mission Bay Campus").

- Alternative 4: No Action Alternative
  Alternative 4 assumes that the LRDP would not be implemented, and is analyzed here to allow decision makers to compare the impacts of the action alternatives (Alternative 1, Alternative 2, and Alternative 3) against the impacts of no action in the future.

As a supporting document to the EIS, this study also assesses these four alternatives in the evaluation of the Project and its potential transportation impacts.

1.3.2 Development Program and Phasing

As described in the LRDP, SFVAMC has developed two options, Alternative 1 and Alternative 2, for meeting forecasted space needs (589,000 gross square feet) at the Fort Miley Campus alone. These two alternatives would be equivalent in terms of gross square footage, building locations, and planned building function in the LRDP horizon year (2030); however, they would have different construction phasing plans, schedules, and temporary modular swing-space programs.

Table 1 summarizes the LRDP development program for Alternative 1 and Alternative 2, presenting details on the proposed action, square footage, phasing, construction schedule, and changes to on-site parking supply at the Campus for each LRDP subphase. Table 2 summarizes the same data for Phase 2 of Alternative 3. Phase 1 under Alternative 3 would be identical to Phase 1 under Alternative 1 and has, therefore, been omitted.

[3] A hoptel is an overnight, shared lodging facility for eligible Veterans receiving healthcare services. This temporary lodging is available to Veterans who need to travel 50 or more miles from their homes to the Campus.

Table 1: LRDP Development Program (Alternative 1 and Alternative 2)

Building	Action[1]	Gross Area[2] (square feet)		Alternative 1						Alternative 2					
				Subphase	Parking Change[3] (spaces)			Construction Schedule		Subphase	Parking Change[3] (spaces)			Construction Schedule	
					Temporary		Permanent				Temporary		Permanent		
		New	Demolition		Loss	Gain	Gain	Start	End		Loss	Gain	Gain	Start	End
Building 211: Emergency Operations Center/Parking Garage	C	5,000		1.1	(277)	180[4]	200	07/2013	07/2014	1.1	(277)	180[4]	200	07/2013	07/2014
Trailer 17	R		(1,700)	1.2				12/2013	01/2014	1.2				12/2013	01/2014
Building 41: Research	C	14,200						01/2014	03/2015					01/2014	03/2015
Buildings 5 and 7	S			1.3				03/2014	05/2015	1.3				03/2014	05/2015
Buildings 9 and 10	S			1.4				03/2014	05/2015	1.4				03/2014	05/2015
Building 22: Hoptel	C	8,700						03/2014	05/2015					03/2014	05/2015
Buildings 209 and 211: Parking Garage Extensions	C			1.5	(29)	--	250	03/2015	03/2016	1.5	(29)	--	250	03/2015	03/2016
Building 203: C-Wing Extension (Ground-Floor Patient Welcome Center)/Drop-Off Area with Canopy Structure	C	7,100		1.6				06/2015	08/2016	1.6				06/2015	08/2016
Building 200: Expansion (Operating Room D-Wing)	C	5,300		1.7				06/2015	06/2016	1.7				06/2015	06/2016
Building 20	D		(2,300)	1.8				08/2015	09/2015	1.8				08/2015	09/2015
Building 24: Mental Health Clinical Expansion	C	15,600						09/2015	10/2016					09/2015	10/2016
Building 18	D		(9,700)	1.9				09/2015	12/2015	1.9				09/2015	12/2015
Building 14	D		(6,400)					09/2015	12/2015					09/2015	12/2015
Building 21	D		(1,700)					09/2015	12/2015					09/2015	12/2015
Trailer 23	R		(900)					09/2015	12/2015					09/2015	12/2015
Structure 206: Water Tower	I							09/2015	12/2015					09/2015	12/2015
Structure 206: Water Tower	R							09/2015	12/2015					09/2015	12/2015
Building 40: Research	C	110,000						12/2015	12/2018					12/2015	09/2018
Building 207: Expansion (IT Support Space)	C	7,000		1.10				11/2015	01/2017	1.10				11/2015	01/2017
Trailer 31	R		(1,500)	1.11				11/2015	12/2015	1.11				11/2015	12/2015
Building 43:Research and Admin.	C	15,000						12/2015	02/2017					12/2015	02/ 2017
Trailer 36: New Modular	I	2,200		1.12				06/2016	09/2016	1.12				06/2016	09/ 2016
Building 23: Mental Health Research Expansion	C	15,000		1.13				10/2016	12/2017	1.13				10/2016	12/2017
Building 203: Extension (Psychiatric Intensive Care Unit C-Wing)	C	1,200		1.14				12/2016	06/2018	1.14				12/2016	06/2018
Trailer 24	R		(1,000)	1.15				12/2016	02/2017	1.15				12/2016	02/ 2017
Building 208: Extension (Community Living Center/National Cardiac Device Surveillance Center)	C	10,000						02/2017	08/2018					02/2017	08/2018
Building 8	S			1.16				07/2017	03/2019	2.1				10/2020	12/2021
Building 1	S									2.2				10/2020	06/2022
Building 6	S									2.3				06/2022	02/2024
Building 12	D		(38,900)	1.17	(23)	--	--	09/2019	08/2020	1.16	(23)	--	--	11/2018	10/2019
Building 213: Clinical Addition Building	C	170,000		2.1				03/2024	03/2026	2.4				03/2024	03/2026
Total		386,300	(64,100)					07/2013	03/2026					07/2013	03/2026
Temporary Modular Swing Space[5]		60,000			(102)	--	--	04/2016	03/2019					09/2020	02/2024

Source: VA, 2014b; Data compiled by AECOM in 2014

Notes:
IT = information technology
(1) Actions: D = Demolition; S = Seismic Retrofit; C = Construction; R = Removal; I = Installation
(2) Gross area shown only for habitable spaces; gross area of parking facilities and other nonhabitable buildings and structures is not shown.
(3) Changes to on-site parking capacity shown only for the associated subphase in which the change first occurs.
(4) Temporary valet parking to be in effect until the end of Subphase 1.9.
(5) The construction schedule cited for swing space represents the full period of time that the parking loss would be in effect, and accounts for installation, (temporary) operation, and removal of the modular structures. Swing space for Alternative 1 would be situated in four different locations as indicated in Figure 3-2 of the Long Range Development Plan (LRDP):

- Parking Lot B
- Near Parking Lot K
- At Temporary Structure T-31 (Home-Based Primary Care), near Building 4 (Research/Administration)
- West of the Patient Welcome Center, between Building 200 and Building 203

Swing space for Alternative 2 would be situated at the location of the current Building 12 and future Building 213, as indicated in Figure 3-6 of the LRDP.

Table 2: LRDP Development Program (Alternative 3, Phase 2)

Building	Action	Gross Area(1) (square feet)		Construction Schedule	
		New	Net New	Start	End
Ambulatory Care Center	Construction	140,000	140,000	01/2024	12/2025
Clinical Parking Garage (100 spaces)	Construction			01/2026	12/2027
Total		140,000	140,000	01/2024	12/2027

Source: Data compiled by AECOM in2014

Notes:
(1) Gross area shown only for habitable spaces; gross area of parking facilities and other nonhabitable buildings and structures is not shown.

As shown in Table 1, short-term (Phase 1) components under each of the action alternatives are expected to be completed by 2019 or 2020, and long-term (Phase 2) components are expected to be completed by 2026 (Alternative 1 and Alternative 2) or 2027 (Alternative 3). Differences between Alternative 1 and Alternative 2 are related to the following:

- Expected finish date of Building 40 (Research): December 2018 under Alternative 1, but September 2018 under Alternative 2;
- Phasing of the seismic retrofits of Building 1, Building 6, and Building 8: Short-term (Phase 1) projects under Alternative 1, but long-term (Phase 2) projects under Alternative 2;
- Expected start and finish dates of the demolition of Building 12: September 2019 to August 2020 under Alternative 1, but November 2018 to October 2019 under Alternative 2; and
- Phasing and siting of temporary modular swing space: April 2016 to March 2019 at four locations under Alternative 1, but September 2020 to February 2024 at a single location under Alternative 2.

Specifically, under Alternative 1, there would be a 3- to 4-year hiatus in construction activities between completion of Phase 1 projects and implementation of Phase 2 projects. Under Alternative 2, however, the seismic retrofits of Building 1, Building 6, and Building 8 would be defined as long-term projects, reducing the hiatus in construction activities to approximately 1 year. As stated previously, however, Alternative 1 and Alternative 2 are identical in almost all aspects relevant to their analysis in this transportation study, and distinctions hereafter are made only when discussing construction impacts.

1.3.3 Site Access and Circulation

Because the LRDP EIS is intended only as a programmatic environmental review of the LRDP, the specific design details of each LRDP component have yet to be fully defined. As specific LRDP components (such as new buildings and structures) move forward into the design and implementation phase, they will undergo subsequent project-level environmental review, as needed. These supplemental environmental documents may be in the form of a project-level EIS, Environmental

Assessment (EA), or Categorical Exclusion (CE), during which site-specific issues such as access and circulation for the various transportation modes would be evaluated in detail. As such, evaluation of access and circulation issues for the LRDP was conducted at the area wide level, and it is assumed that site-specific evaluations for each LRDP component would be conducted, if determined necessary, during project-level environmental reviews.

In addition, because a specific location has yet to be identified for the potential extension campus at Mission Bay under Alternative 3, this study evaluates access and circulation issues as they relate to the LRDP for the Fort Miley Campus only. It is assumed that access and circulation issues for the Mission Bay Campus would be evaluated as part of subsequent environmental review to be conducted if and when a specific site in Mission Bay is identified.

The existing Campus circulation system and the proposed Campus circulation under the LRDP are illustrated in Figure 2 and Figure 3, respectively. Access and circulation for each of the various transportation modes at the Fort Miley Campus under the LRDP is described in detail in the following subsections.

Roadway Access

The existing access points to and from the Campus at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street would remain unchanged with implementation of the LRDP, and Veterans Drive and Fort Miley Circle would continue to serve as the primary circulation and collector roads within the Campus. The LRDP would, however, propose several changes to the function of these access points, as well as to internal circulation within the Campus, as illustrated in Figure 3.

In particular, the LRDP proposes to create a new Patient Welcome Center and healing garden between Building 200 (Ambulatory Care/Clinical Support) and Building 203 (Inpatient Hospital/Diagnostics/Specialty Care). As part of this change, the eastern segment of Fort Miley Circle would terminate at its western end at the Patient Welcome Center, with a new traffic circle designed to enhance the efficiency of patient and visitor pick-up and drop-off activities. This change is also part of a reorganization of the Campus into two distinct “zones,” an effort to rationalize circulation through the site and enhance the user experience:

- An “employee zone” would cover the northern and northwestern portions of the Campus, including the main parking structures (Building 209 and Building 211). Primary external access would be provided via the Campus’s 43rd Avenue entrance, serving both employees and service/delivery vehicles.

- A “Veteran/visitor zone” would cover the central, southern, eastern, and northeastern portions of the Campus, including the new Patient Welcome Center, Building 200, Building 203, the hoptel, and Veteran/visitor parking facilities (Lot B and Building 212). Primary external access would be provided via the Campus’s 42nd Avenue entrance.

Gates would be installed along Veterans Drive to restrict access to (and within the vicinity of) the proposed new Building 40, effectively closing off the northwestern segment of Veterans Drive and other areas within the “employee zone” to nonemployee vehicles.

The LRDP also proposes to narrow the north–south roadway between Building 200 and the future Building 213 (Clinical Addition Building)—currently, Building 12 (Medical Research)—as part of a traffic calming measure and to secure adequate pedestrian access to the healing garden from the west. The LRDP would also convert Fort Miley Circle west of Building 203, currently one-way westbound, to two-way traffic.

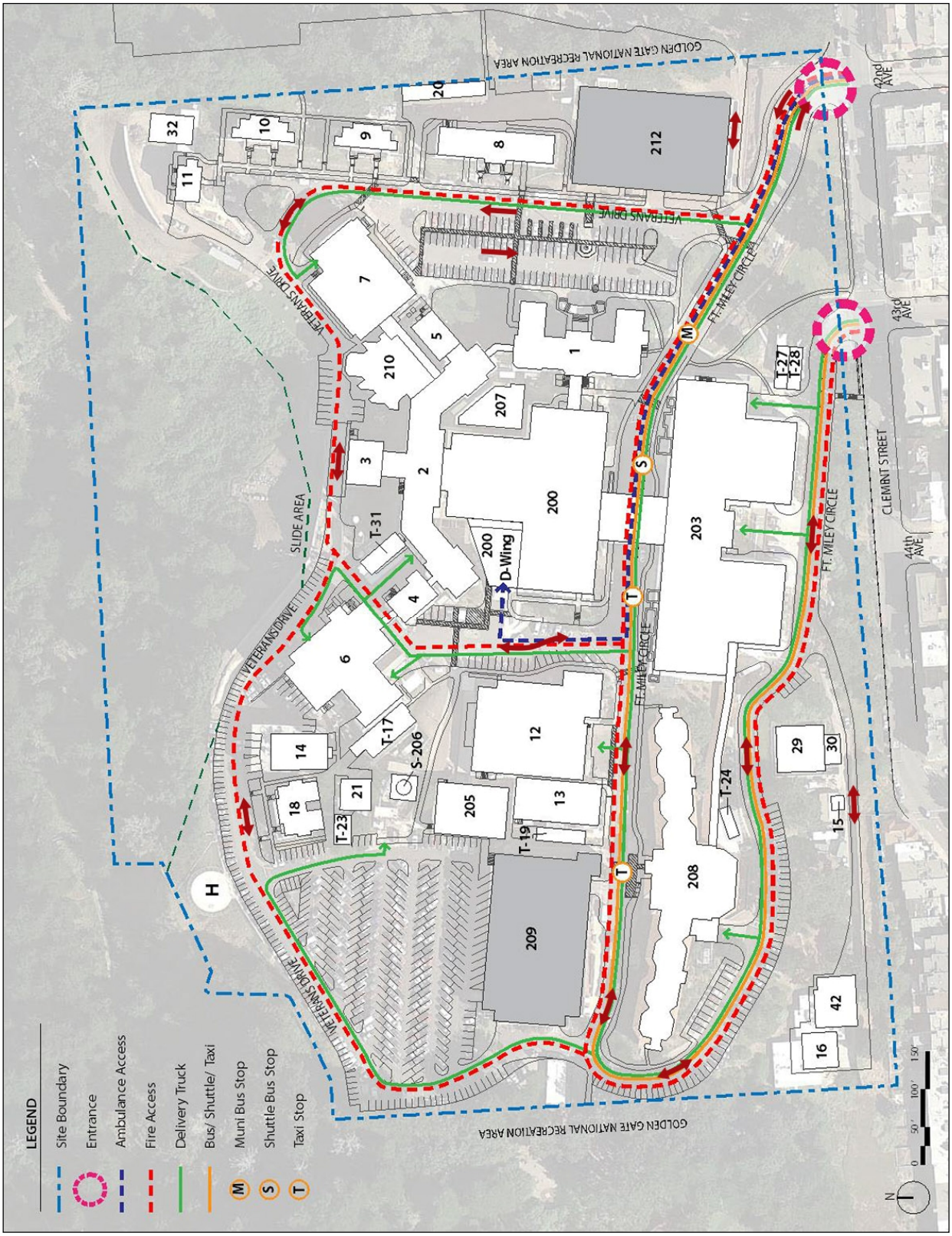

Figure 2: Existing Circulation System

Figure 3: Proposed Circulation System

Transit Access

Public Transit Access

The changes to the internal roadway network within the Campus described in the preceding subsection would also result in changes to transit access on the Campus. In particular, San Francisco Municipal Railway (Muni) buses traveling to the site on the 38 Geary's Fort Miley service currently enter via 42nd Avenue, terminating at a stop to the south of Building 1 (ORTC Clinic) before looping through the site via Fort Miley Circle to 43rd Avenue and continuing back inbound to Downtown San Francisco. Under the LRDP, the eastern segment of Fort Miley Circle would terminate at the new Patient Welcome Center, where a traffic circle would be constructed with a new terminus for Muni buses, which would now both enter and exit via 42nd Avenue, as shown in Figure 3.

Shuttle Access

In addition to Muni service, the Campus is currently served by several shuttle services to various local and regional destinations, with curb stops designated along Fort Miley Circle between Building 200 and Building 203. Under the LRDP, these stops would be relocated at two separate locations, as shown in Figure 3: one at the new traffic circle to the east of the Patient Welcome Center and one between Building 208 (Community Living Center/National Cardiac Device Surveillance Center) and Building 209. Shuttles currently access the Campus primarily via 42nd Avenue, but the changes proposed under the LRDP would provide shuttle services with the additional option of entering the Campus via 43rd Avenue, serving the designated stop between Building 208 and Building 209, and continuing north along Veterans Drive to loop through the site to reach 43rd Avenue. Shuttles entering from 42nd Avenue would stop at the new Patient Welcome Center traffic circle and have the option of returning to 42nd Avenue or looping north via Veterans Drive to reach 43rd Avenue.

Taxi Access

Taxi access under the LRDP would be similar to shuttle services, with stops provided both at the new traffic circle serving the Patient Welcome Center and at a separate location between Building 208 and Building 209, as shown in Figure 3.

Bicycle Access and Parking

The LRDP does not propose specific changes with regard to bicycle access on the Campus, and bicyclists would continue to be able to access the Campus as they currently do via the main access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. The LRDP does not provide specific details regarding future provision of bicycle parking or showers and lockers for bicycle users on the Campus, although SFVAMC currently provides bicycle lockers to Campus staff to encourage bicycle use. It is expected that specific details regarding the future provision of bicycle parking and other bicycle-related amenities will be determined as each specific LRDP component enters the design and implementation phase, and as such, would be analyzed in more detail in subsequent project-level environmental review.

Pedestrian Access

External access to and from the Campus for pedestrians would remain unchanged with implementation of the LRDP, with primary access routes via the existing Campus access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. Supplementary access to and from the Campus would continue to be provided along the northern segment of Veterans Drive via pedestrian trails connecting with Lands End. The LRDP proposes several general changes that would enhance pedestrian connectivity and the pedestrian realm within the Campus, such as narrowing the north–south roadway between Building 200 and the future Building 213 as part of a traffic calming measure. However, specific details regarding pedestrian access would be determined as each specific LRDP component moves forward to the design and implementation phase, and as such, would be analyzed in more detail in subsequent project-level environmental review.

Vehicle Parking

In terms of parking, the LRDP includes two construction projects related to on-site parking at the Campus, as indicated in Table 1:

- Building 211 (Emergency Operations Center/Parking Garage): As described in the LRDP, this project would involve construction of a new parking structure north of the existing Building 209 structure, increasing the net supply of parking on the Campus by approximately 200 spaces and serving additional duties as an emergency operations

center for SFVAMC. Although included in the LRDP, this project was already approved in 2011 and construction is already under way.[4]

- Buildings 209 and 211 (Parking Garage Extensions): As described in the LRDP, this project would increase the net supply of parking on the Campus by approximately 250 spaces by expanding the existing Building 209 structure and under-construction Building 211 structure to the west over Veterans Drive.

Existing and future parking inventory on the Campus, as referenced from the LRDP, are summarized in Table 3.

Table 3: Existing and Future Campus Parking Inventory

Facility	Configuration	Existing[1]		Future[2]	
		Function/User	Capacity (spaces)	Function/User	Capacity (spaces)
Building 209	Structure	Employee/Visitor	422	Employee	588
Building 211	Structure	Under construction		Employee	461
Building 212	Structure	Patient	160	Patient/Visitor	160
Lot B	Surface lot	Patient/Visitor	102	Patient/Visitor	102
Lot C	Surface lot	Employee	13	Employee	13
Lot D	Surface lot	GSA/Employee	142	Employee	122
Lot E	Surface lot	Patient	23	Eliminated	
Lot F	Surface lot	Employee	2	Employee	2
Lot G	Surface lot	Employee	87	Employee	87
Lot H	Surface lot	Patient/Visitor	17	Eliminated	
Lot J	Surface lot	Employee	270	Employee	24
Lot K	Surface lot	Employee	7	Eliminated	
Lot L	Surface lot	Employee	8	Eliminated	
Total			1,253		1,559

Sources: VA, 2014b; Data compiled by AECOM in 2014

Notes:
GSA = General Services Administration.
[1] "Existing" reflects status as of 2012.
[2] Future parking inventory reflects approximate numbers.

As indicated in Table 3, the LRDP would concentrate patient parking in Lot B and Building 212 on the east side of the Campus, providing approximately 262 total spaces. Other facilities currently providing parking for patients and visitors (either exclusively or shared with employees) would generally be eliminated, such as Lot E and Lot H. Building 209 would be converted exclusively to employee use, although it already serves primarily employees, providing only a limited number of spaces for visitors. The LRDP would increase overall on-site parking capacity at the Campus by 306 spaces (from approximately 1,253 spaces to 1,559 spaces), with the two primary parking facilities on the Campus (Building 209 and Building 211) providing approximately 1,049 spaces exclusively for employee use.

Currently, SFVAMC is providing valet parking in Building 209 and Building 212 to alleviate the loss in on-site parking capacity as a result of current on-Campus construction activities. SFVAMC proposes to continue providing valet parking

[4] A Final EA (San Francisco Veterans Affairs Medical Center Parking and Emergency Response Structure, Project No. 662-611 Final Environmental Assessment and Response to Comments) was published on May 20, 2011, followed by a Finding of No Significant Impact (FONSI) (San Francisco Veterans Affairs Medical Center Parking and Emergency Response Structure, Project No. 662-611 Finding of No Significant Impact) on May 24, 2011.

through the end of construction of Subphase 1.9 to partially offset the temporary loss in parking capacity as specific subphases of the LRDP enter the implementation phase, and to reduce spillover effects into the surrounding neighborhood.

Freight Loading Access

The LRDP does not propose specific changes with regard to Campus access for freight loading and service/delivery vehicles. The LRDP would implement minor changes to site circulation as a result of the roadway changes proposed by the LRDP, which may affect how trucks and other service/delivery vehicles access specific facilities on the site. However, these vehicles would still be able to enter and exit the Campus via the existing access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street, as illustrated in Figure 3. It is expected that specific details regarding the future provision of freight loading spaces, either curbside or in building docks, will be determined as each specific LRDP component enters the design and implementation phase, and as such, would be analyzed in more detail in subsequent project-level environmental reviews.

Emergency Vehicle Access

Fire Access
Campus access for San Francisco Fire Department (SFFD) vehicles would remain unchanged under the LRDP. Although the LRDP proposes minor changes to site circulation within the Campus, which may affect how fire engines and trucks access specific facilities on the site, fire engines and trucks would continue to be able to enter and exit the Campus via either 42nd Avenue or 43rd Avenue, as illustrated in Figure 3.

Emergency Medical Access
SFVAMC provides only limited emergency medical services. Ambulances currently access the Campus via 42nd Avenue and travel along Fort Miley Circle to reach their primary destination, Building 200, stopping along the west side of the building ("D" Wing). As shown in Figure 3, the LRDP proposes to redirect ambulances to the 43rd Avenue entrance but would not propose any other specific changes to ambulance access on the Campus.

1.4 Study Scope and Approach

1.4.1 Analysis Scenarios

The following analysis scenarios were evaluated to identify the potential transportation impacts of the Project:

- Existing Conditions
  Existing conditions, generally representing conditions in 2011.[5]

- 2020 Short-term Conditions

  - 2020 Near-term Alternative 1 Conditions
    Conditions in Year 2020 assuming implementation of the short-term actions for Alternative 1 of the Project.

  - 2020 Short-term Alternative 3 Conditions
    Conditions in Year 2020 assuming implementation of the short-term actions for Alternative 3 of the Project. As stated in Section 1.3.1, both Alternative 1 and Alternative 3 propose the same series of improvements in the short-term time frame; as a result, this scenario is identical to 2020 Short-term Alternative 3 Conditions.

  - 2020 Short-term Alternative 4 Conditions
    Conditions in Year 2020 without the Project.

[5] A Notice of Intent (NOI) to prepare an EIS for the San Francisco Veterans Affairs Medical Center Institutional Master Plan was issued on October 12, 2010 and published in the Federal Register on March 30, 2011 (Vol. 76, No. 61), marking the commencement of the transportation analysis described in this study.

- 2027 Long-term Conditions

    - 2027 Long-term Alternative 1 Conditions
      Conditions in Year 2027 assuming implementation of the short-term and long-term actions for Alternative 1 of the Project.

    - 2027 Long-term Alternative 3 Conditions
      Conditions in Year 2027 assuming implementation of the short-term and long-term actions for Alternative 3 of the Project.

    - 2027 Long-term Alternative 4 Conditions
      Conditions in Year 2030 without the Project.

- 2040 Cumulative Conditions

    - 2040 Cumulative Alternative 1 Conditions
      Conditions in Year 2040 assuming implementation of the short-term and long-term actions for Alternative 1 of the Project.

    - 2040 Cumulative Alternative 3 Conditions
      Conditions in Year 2040 assuming implementation of the short-term and long-term actions for Alternative 3 of the Project.

    - 2040 Cumulative Alternative 4 Conditions
      Conditions in Year 2040 without the Project.

As described in Section 1.3.1, Alternative 4 represents the "no action" alternative, and is analyzed in this study and the EIS to facilitate the determination of Project impacts in the short-term, long-term, and cumulative time frames.

As described in Section 1.3.2, Alternative 1 and Alternative 2 are identical in operational buildout aspects relevant to their analysis in this transportation study; as a result, Alternative 2 has primarily been analyzed with respect to differences in construction impacts compared to Alternative 1. These impacts are discussed alongside the construction impacts of Alternative 1 in Section 3.3.8 (short-term impacts), Section 4.3.8 (long-term impacts), and Section 5.3.8 (cumulative impacts).

1.4.2 Analysis Topics

The following subsections describe the general analysis scope for each of the transportation topics. As discussed previously, evaluation of these topics in relation to the Project focuses primarily on the Fort Miley Campus, as a specific location and detailed facilities plan for the potential new Mission Bay Campus have yet to be determined. It is assumed that these topics will be analyzed in further detail in a subsequent environmental review once more details regarding the Mission Bay Campus have been determined.

Given the context of the Project site within the City and County of San Francisco, applicable local and regional standards and methodologies have been applied where feasible in the analysis of the Project, such as use of the San Francisco Planning Department's Transportation Impact Analysis Guidelines for Environmental Review (October 2002) (SF Guidelines). It should be noted, however, that the Project is a federal action and not generally subject to policies or guidelines established at the local, regional, and State levels.

Traffic Conditions

The scope of the analysis of traffic conditions considers intersections, roadway segments, and passenger vehicle access.

Intersections

Traffic operations were analyzed at the following five study intersections in the vicinity of the Campus where the Project could potentially affect operations:

1. 34th Avenue/Clement Street
2. 42nd Avenue/Clement Street
3. 43rd Avenue/Clement Street
4. 42nd Avenue/Point Lobos Avenue
5. 43rd Avenue/Point Lobos Avenue

Consistent with the standard methodology for intersection analysis as recommended in the SF Guidelines, the study intersections were analyzed for the weekday p.m. peak hour, defined as the peak one hour (four consecutive 15-minute intervals) of the weekday p.m. peak period (4:00 p.m. to 6:00 p.m.). The weekday p.m. peak hour is the recommended analysis period for intersection analysis according to the SF Guidelines.

Intersections were analyzed according to the 2000 Highway Capacity Manual (HCM) methodology, which is based on the Level of Service (LOS) concept, a qualitative description of the performance of an intersection based on average delay per vehicle.[6] For intersections with signal control, intersection LOS and delay are reported as an average across all movements and approaches. For intersections with one-way or two-way stop control, intersection LOS and delay are typically reported for the worst stop-controlled approach (or yield movement), and for intersections with all-way stop control, intersection LOS and delay are typically reported as an intersection average (all movements and approaches), similar to intersections with signal control.

Intersection LOS ranges from LOS A, which indicates free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. In San Francisco, LOS A through LOS D are considered excellent to satisfactory levels of service, and LOS E and LOS F represent unacceptable levels of service. The LOS criteria for intersections are summarized in Table 4.

Table 4: Level of Service Criteria for Intersections

LOS	Description	Average Delay (seconds/vehicle)	
		Signalized Intersections	Unsignalized Intersections
A	Little or no delay	$\leq$ 10.0	$\leq$ 10.0
B	Short traffic delay	> 10.0 and $\leq$ 20.0	> 10.0 and $\leq$ 15.0
C	Average traffic delay	> 20.0 and $\leq$ 35.0	> 15.0 and $\leq$ 25.0
D	Long traffic delay	> 35.0 and $\leq$ 55.0	> 25.0 and $\leq$ 35.0
E	Very long traffic delay	> 55.0 and $\leq$ 80.0	> 35.0 and $\leq$ 50.0
F	Extreme traffic delay	> 80.0	> 50.0

Note: LOS = level of service
Source: TRB, 2000.

It should be noted that delay for intersections operating at LOS F is typically reported as “greater than 80.0 seconds” for signalized intersections and “greater than 50.0 seconds” for unsignalized intersections, as 80.0 seconds and 50.0 seconds are generally considered the limits of the meaningful range for the analysis methodology for signalized and unsignalized intersections.

[6] As part of the HCM methodology, adjustments are typically made to the capacity of each intersection to account for various factors that reduce the ability of the streets to accommodate vehicles (such as the downtown nature of the area, number of pedestrians, vehicle types, lane widths, grades, on-street parking, and queues). These adjustments are made to ensure that the LOS analysis results reflect the actual operating conditions observed in the field.

Roadway Segments

In addition to intersections, traffic operations were also analyzed at the following two mid-block roadway segments in the vicinity of the Campus where the Project could potentially affect operations:

1. 42nd Avenue between Clement Street and Point Lobos Avenue
2. 43rd Avenue between Clement Street and Point Lobos Avenue

The roadway segment analysis is based on the calculation of volume-to-capacity (v/c) ratios for each of the study roadway segments. Although the ultimate lane capacity depends on any number of factors such as signal timing and phasing, traffic volumes on conflicting movements, and pedestrian activity, a capacity of about 600 vehicles per hour (vph) per lane is typically assumed for closely spaced, signalized intersections in a dense, developed urban setting, based on guidance from the Highway Capacity Manual for highways.[7] In keeping with their function as two-lane residential collector streets with low free-flow speeds (25 miles per hour) and primarily featuring stop control, however, 42nd Avenue and 43rd Avenue could be expected to have a slightly lower capacity compared to a signalized intersection on an arterial roadway in a more congested setting. As a result, a capacity of 450 vph has been assumed for the purposes of this roadway segment analysis.[8]

The calculated v/c ratios were then compared against the criteria summarized in Table 5 to determine the reported LOS.

Table 5: LOS Criteria for Roadway Segments

LOS	Description	v/c Ratio
A	Vehicles travel at free-flow speeds and can maneuver almost freely within the traffic stream.	$\leq$ 0.30
B	Vehicles travel at free-flow speeds and movement within the traffic stream is only slightly restricted.	> 0.30 and $\leq$ 0.50
C	Vehicles travel at or near free-flow speed and movement is somewhat restricted. Incidents can cause local queuing.	> 0.50 and $\leq$ 0.70
D	Vehicle speed declines as density increases, and maneuverability within the traffic stream is noticeably limited.	> 0.70 and $\leq$ 0.84
E	Roadway is operating at or near capacity, with vehicles closely spaced. Any incident can cause backups that propagate upstream.	> 0.84 and $\leq$ 1.00
F	Roadway is operating beyond capacity, with significant queuing at bottlenecks such as key intersections or lane drops. Vehicles are closely spaced and maneuverability is extremely restricted.	> 1.00

Note: LOS = level of service; v/c = volume-to-capacity
Source: Transportation Research Board, 2000.

The locations of the five study intersections and two study roadway segments are illustrated in Figure 4.

[7] The Highway Capacity Manual does not provide specific guidance regarding the lane capacity of local streets, so reductions are typically taken on the recommended capacities for highways to better reflect traffic conditions on these roadway facilities.

[8] The capacity of urban streets and other roadway facilities with minimal access control is generally determined by the operations of intersections along the segment in question, as traffic signals and stop signs will ultimately control vehicle flow and travel speed. As such, roadway capacity analysis is generally only conducted for facilities with high access control (e.g., freeways and highways), and the analysis of traffic operations for facilities with low access control generally focuses on intersections in lieu of mid-block segments. Due to intersection density and the presence of traffic control devices, urban arterials with signal control are typically assumed to accommodate up to 900 vphpl, dropping to 600 vphpl for minor collector roads. Given the local context of the selected study roadway segments as neighborhood streets, a conservative capacity of 450 vphpl was assumed for this analysis.

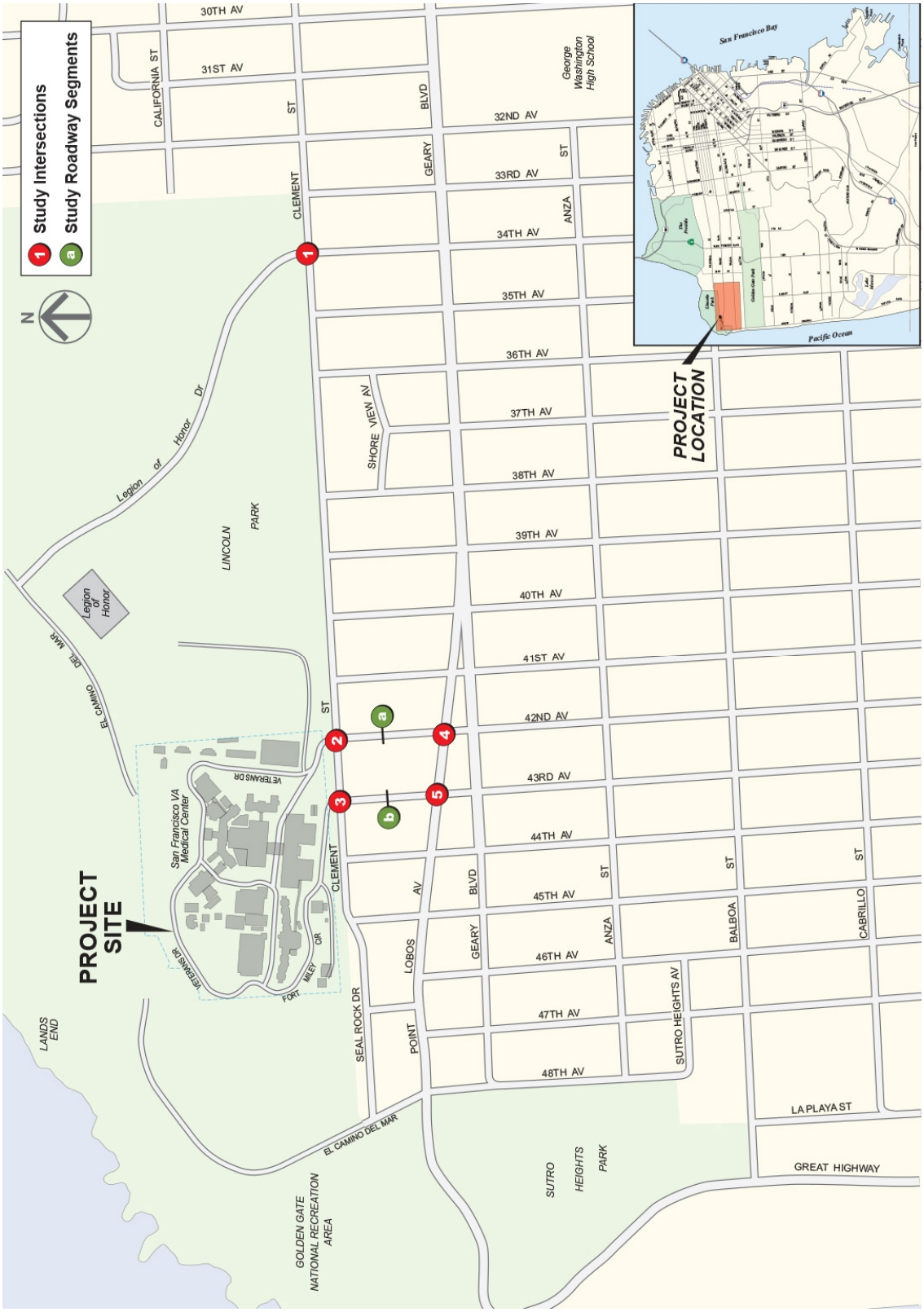

Figure 4: Intersection and Roadway Segment Analysis Locations

Passenger Vehicle Access
Impacts on passenger vehicle access and related activities such as passenger loading were qualitatively assessed.

East Fort Miley Access
Impacts on vehicle access for GGNRA traffic at East Fort Miley were qualitatively assessed.

Transit Conditions

Public Transit
The analysis of impacts on transit operations and facilities focuses primarily on Project-generated increases in ridership during the weekday p.m. peak hour on Muni lines serving the Campus—namely, services in the Geary Boulevard corridor (38 Geary, 38L Geary Limited, and 38AX Geary "A" Express). Consistent with standard methodologies for the analysis of transit impacts as described in the SF Guidelines, the expected increase in transit riders was estimated based on empirical data regarding mode share and other travel behavior characteristics. The estimated ridership was then compared against existing (i.e., without the Project) ridership and capacity utilization[9] on Muni vehicles during the weekday p.m. peak hour as they pass through their maximum load point (MLP), defined as the stop along a given line where average passenger loads reach their peak.

A capacity utilization greater than 85 percent is considered unacceptable, consistent with the San Francisco Municipal Transportation Agency (SFMTA) Board's adoption of an "85 percent" standard for transit vehicle loads in accordance with Proposition E. The SFMTA Board has determined that this threshold most accurately reflects actual operations and the likelihood of "pass-ups" (i.e., vehicles not stopping to pick up more passengers).

Other impacts on public transit conditions resulting from Project-generated activities (such as increased vehicular traffic) and changes in the Campus circulation system were qualitatively assessed.

SFVAMC Shuttle Services
Existing shuttle services at the Campus were documented, including destinations served, schedules, operators, and access routes and stop locations on Campus. Impacts on shuttle access resulting from changes in the Campus circulation system were qualitatively assessed.

Taxi Services
Existing taxi access at the Campus was documented, including access routes and stop locations on Campus. Impacts on taxi access resulting from changes in the Campus circulation system were qualitatively assessed.

Pedestrian Conditions

Pedestrian conditions were qualitatively assessed within the Campus and in the surrounding neighborhoods. The quality of existing pedestrian facilities, including sidewalks, crosswalks, and curb ramps, was evaluated, and existing pedestrian access routes and activity to and from the Campus was documented. Potential safety issues and points of conflict with vehicular traffic were also identified. The expected increase in pedestrian traffic resulting from the Project was estimated, and potential impacts on pedestrian conditions from Project-generated activities (such as increased vehicular traffic) and changes in the Campus circulation system were qualitatively assessed.

Bicycle Conditions

Existing bikeways in the vicinity of the Project site were identified and classified by facility type:

- Class 1
  Dedicated off-street paths or trails. These facilities are usually, but not always, paved and may be either designated for the exclusive use of bicyclists or shared with other users such as hikers and horseback riders.

[9] Capacity utilization is a calculation of actual ridership on a given transit service as a percentage of the total capacity of the service. The design capacity of transit vehicles can vary, but in the case of Muni is assumed to include both seated and standing capacity, where standing capacity is between 30 and 80 percent of the seated capacity depending on the vehicle design.

- Class 2
  Dedicated road space in the paved right-of-way. These facilities are most frequently associated with marked bicycle lanes, but also include cycle tracks or other facilities that may feature a variety of treatments such as raised pavement or curbs, high-visibility paint, or protective barriers.

- Class 3
  Shared road space in the paved right-of-way, operating in mixed flow with other vehicles such as cars, buses, and trucks. Typically known as bicycle routes, these facilities usually offer little physical protection for bicyclists, but will usually be accompanied by signage and pavement markings such as sharrows.

Bicycle conditions throughout the study area were qualitatively assessed as they relate to the Project study area—including safety and right-of-way issues—and existing and potential new bicycle facilities were identified. Impacts on bicycle conditions resulting from Project-generated activities (such as increased vehicular traffic) and changes in the Campus circulation system were also qualitatively assessed.

Vehicle Parking Conditions

Parking supply and occupancy for on- and off-street public parking facilities in the study area were documented, as obtained through field surveys in September 2013. Off-campus (i.e., on-street, along City streets) parking conditions were evaluated in the neighborhood surrounding Fort Miley, consistent with the standard methodology described in the SF Guidelines, which requires that any parking analysis consider a parking area within a two-block radius of a project site. Specifically, on-street parking conditions were evaluated for a six-block area bounded by Clement Street to the north, Geary Boulevard to the south, 39th Avenue to the east, and 45th Avenue to the west. The on-street parking study area is illustrated in Figure 5.

Parking occupancy surveys were conducted during the weekday morning (9:00 a.m. to 11:00 a.m.), midday (1:00 p.m. to 3:00 p.m.), and evening (7:00 p.m. to 9:00 p.m.) peak periods to obtain sufficient data to characterize parking demand over the course of the day.

New parking demand generated by the Project was estimated using demand rates published by the Institute of Transportation Engineers in Parking Generation (4th ed., 2010) and compared against the proposed supply of new parking at the site. The Project's proposed supply of parking was also evaluated against guidance in the Planning Code regarding off-street parking requirements.

Freight Loading Conditions

Existing freight loading conditions within the site, including access to and from the Campus and frequency of truck traffic, were documented. Impacts on freight loading access resulting from changes in the circulation system were qualitatively assessed.

Emergency Vehicle Access Conditions

Existing conditions for emergency vehicle access were examined, including both fire access and emergency medical (ambulance) access. Impacts on emergency vehicle access resulting from changes in the circulation system were qualitatively assessed.

Construction Conditions

The effect of construction-related activities at the Project site on traffic and transportation was evaluated, including the loss in on-site parking capacity and the temporary increase in traffic and parking demand at the Project site resulting from the presence of vendor/haul trucks and construction worker vehicles. Construction-related traffic was quantitatively estimated and compared against available on-site parking to determine potential impacts during construction. Other potential impacts related to haul truck access to the Project site and disruption of general circulation at the Project site were qualitatively assessed.

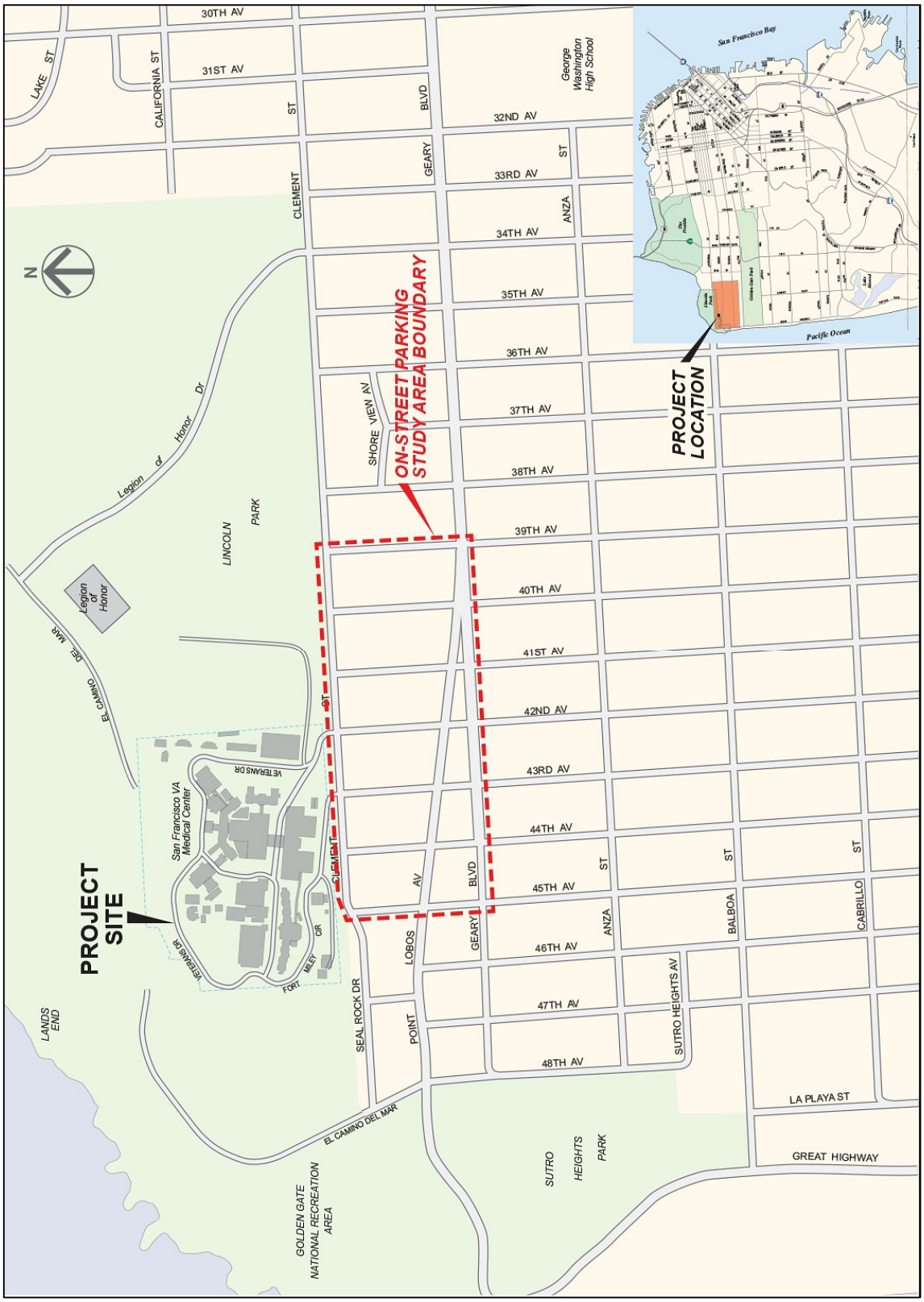

Figure 5: On-Street Parking Study Area

1.5 Existing Conditions

This section provides a description of the existing transportation conditions in the vicinity of the Project site. Included in this section are descriptions of the existing roadway, transit, bikeway, and pedestrian networks, and documentation of the existing traffic, transit, bicycle, pedestrian, vehicle parking, freight loading, and emergency vehicle access conditions.

1.5.1 Roadway Network

Regional and local roadway access serving the Project site is described in the following subsections.

Regional Access

Regional vehicular access to and from the Project site is provided by State Route 1 (SR 1), United States Highway 101 (U.S. 101), I-80, and Interstate 280 (I-280).

East Bay

Regional vehicular access to and from the East Bay is provided primarily by I-80 and the Bay Bridge, with on- and off-ramps at First Street/Fremont Street/Essex Street/Bryant Street in Rincon Hill, Fourth Street/Fifth Street in Central South of Market (SoMa), and Seventh Street/Eighth Street in Western SoMa. Alternative access to I-80 is provided via U.S. 101 and the U.S. 101/I-80 interchange, which can be accessed via the Central Freeway ramps at Mission Street/South Van Ness Avenue or the U.S. 101 terminus at Market Street/Octavia Boulevard. Vehicles would be expected to use major local arterials such as Geary Boulevard/O'Farrell Street, Turk Boulevard/Golden Gate Avenue, or Fell Street/Oak Street to travel between the Project site and these ramps.

South Bay

Regional vehicular access to and from the South Bay is provided primarily by SR 1—operating through most of the San Francisco city limits as a surface arterial (19th Avenue/Park Presidio Boulevard)—and I-280. Access to SR 1 is provided via the Park Presidio Boulevard/Geary Boulevard intersection, and access to I-280 is provided via its interchange with SR 1 (Junipero Serra Boulevard) near John Daly Boulevard in Daly City. Vehicles would be expected to use Geary Boulevard to travel between the Project site and SR 1.

North Bay

Regional vehicular access to and from the North Bay is provided by SR 1 (Park Presidio Boulevard in the vicinity of the Project site) and the Golden Gate Bridge. Access to SR 1 is provided via the Park Presidio Boulevard/Geary Boulevard intersection, and vehicles would be expected to use Geary Boulevard to travel between the Project site and SR 1.

Local Access

As part of its General Plan, the City and County of San Francisco identifies several types of roadway networks, including the Congestion Management Program (CMP) network, the Metropolitan Transportation System (MTS) network, Transit Preferential Streets, and the Citywide Pedestrian Network. Local roadways serving the Project site and their functional designations in the General Plan are described in more detail below.

Clement Street

Clement Street is an east–west collector road running from 45th Avenue in the west (where it continues as Seal Rock Drive to El Camino del Mar and Lands End) to Arguello Boulevard in the east. In the vicinity of the Project site, Clement Street is two-way with one travel lane in each direction. On-street parking is provided on both sides of the street, with restrictions during street cleaning periods.

Geary Boulevard

Geary Boulevard is a major east–west street that runs from 48th Avenue and Sutro Heights Park in the west (with a branch connecting to Point Lobos Avenue at 39th Avenue/40th Avenue) to Gough Street in the east, where it continues as the one-way couplet of O'Farrell Street (eastbound) and Geary Street (westbound) to Market Street in Downtown San Francisco. In the vicinity of the Project site, Geary Boulevard is two-way with two to three travel lanes in each direction. On-street parking is provided on both sides of the street, with restrictions during street cleaning periods. The San Francisco General

Plan identifies Geary Boulevard as a Major Arterial in the Congestion Management Plan (CMP) network through the study area. Geary Boulevard is also classified as a Metropolitan Transportation System (MTS) roadway, a Neighborhood Commercial Street, and a Transit Preferential (Transit-Important) Street.

Point Lobos Avenue
Point Lobos Avenue is a major east–west street running from the Cliff House and Ocean Beach in the west (where it continues as the Great Highway south to Daly City) to 39th Avenue and 40th Avenue, where it merges with Geary Boulevard. On-street parking is provided on both sides of Point Lobos Avenue. The San Francisco General Plan identifies Point Lobos Avenue as a Transit Conflict Street in the CMP network through the study area. Point Lobos Avenue is also classified as an MTS recreational street.

34th Avenue
34th Avenue is a north–south collector road running from El Camino Del Mar (near Lincoln Park and the Legion of Honor) in the north to Fulton Street and Golden Gate Park in the south. A separate section of 34th Avenue, functioning primarily as a local road, runs from Lincoln Way on the south side of Golden Gate Park to Sloat Boulevard. In the vicinity of the Project site, 34th Avenue is two-way, with one travel lane in each direction. On-street parking is provided on both sides of the street, with restrictions during street cleaning periods.

42nd Avenue and 43rd Avenue
42nd Avenue and 43rd Avenue are north–south collector roads running from Clement Street in the north to Fulton Street and Golden Gate Park in the south. 42nd Avenue continues through Golden Gate Park as Chain of Lakes Drive, connecting with 41st Avenue at Lincoln Way and continuing south to Sloat Boulevard. A separate section of 41st Avenue also runs south of Golden Gate Park, but there is no direct connection through Golden Gate Park. In the immediate vicinity of the Project site, 42nd Avenue and 43rd Avenue are both two-way streets, with one travel lane in each direction, and serve as the two main access points to the Campus. On-street parking is provided on both sides of 42nd Avenue and 43rd Avenue, with restrictions during street cleaning periods.

Fort Miley Circle and Veterans Drive
Fort Miley Circle and Veterans Drive are the two primary roadways within the Campus, providing access to buildings and other facilities on the Project site. Both are generally two-way roadways with one travel lane in each direction, with the exception of the section of Fort Miley Circle from Building 203 in the east to Veterans Drive in the west, which is one-way westbound. Veterans Drive connects into the Campus's two main access points at the 43rd Avenue/Clement Street and 42nd Avenue/Clement Street intersections.

1.5.2 Traffic Conditions

Intersections

Traffic counts for each study intersection were collected during the weekday p.m. peak period (4:00 p.m. to 6:00 p.m.) on a nonholiday, fair-weather weekday while school was in session (Tuesday, February 15, 2011), and are included in Appendix A. Lane geometry for each intersection is presented in Figure 6 and the Existing Conditions traffic volumes are presented in Figure 7. The Existing Conditions intersection LOS is summarized in Table 6 and the detailed LOS calculations are provided in Appendix B.

As shown in Table 6, all five study intersections currently operate at an acceptable LOS B during the weekday p.m. peak hour.

Roadway Segments

Volumes for the selected study roadway segments were derived from the turning movement counts collected as part of the intersection analysis, and were calculated as the maximum of the departure volumes from the upstream intersection and the arrival volumes at the downstream intersection. The Existing Conditions roadway segment Levels of Service are summarized in Table 7 and the detailed LOS calculations are provided in Appendix C.

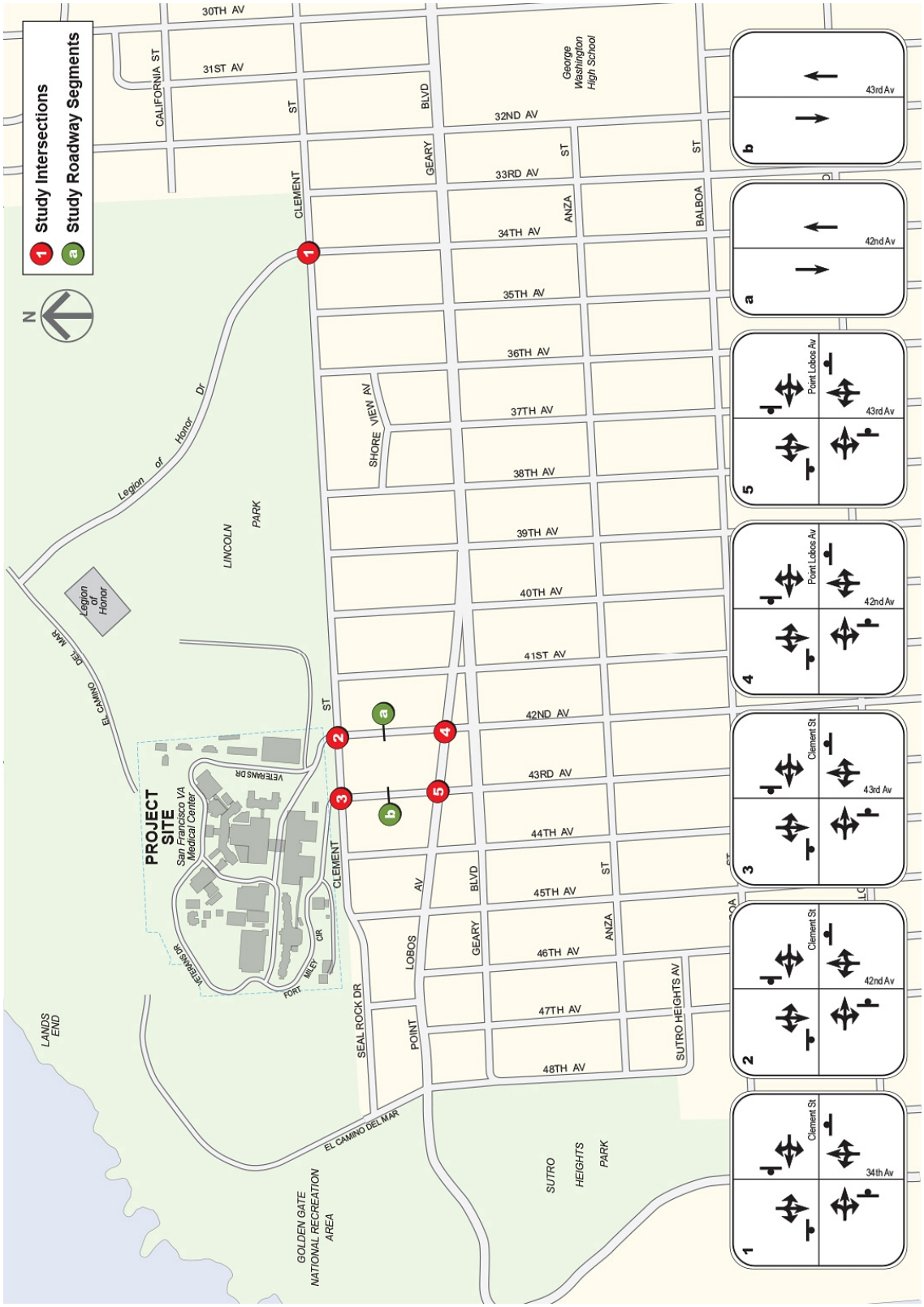

Figure 6: Intersection and Roadway Segment Lane Geometry—Existing Conditions

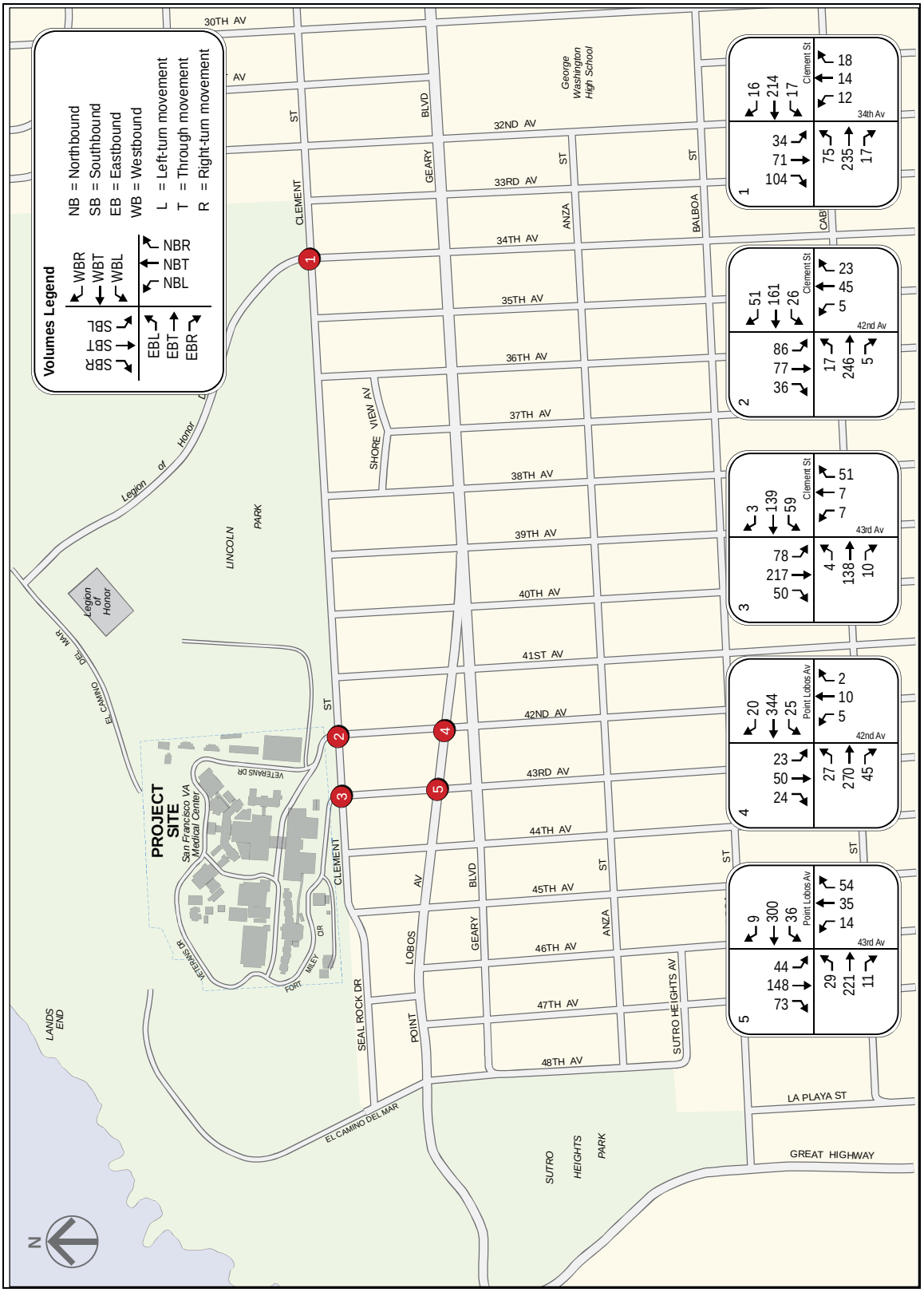

Figure 7: Intersection Traffic Volumes—Existing Conditions

Table 6: Intersection Levels of Service— Existing Conditions (Weekday P.M. Peak Hour)

Intersection	Control Type	Existing Conditions	
		LOS	Delay (seconds/vehicle)
1 34th Avenue/Clement Street	All-Way Stop	B	11.8
2 42nd Avenue/Clement Street	All-Way Stop	B	11.0
3 43rd Avenue/Clement Street	All-Way Stop	B	11.7
4 42nd Avenue/Point Lobos Avenue	All-Way Stop	B	12.4
5 43rd Avenue/Point Lobos Avenue	All-Way Stop	B	14.2

Note: LOS = level of service
Source: Data compiled by AECOM in 2014

Table 7: Roadway Segment Levels of Service— Existing Conditions (Weekday P.M. Peak Hour)

Roadway Segment	Direction	Existing Conditions	
		LOS	v/c Ratio
1 42nd Avenue	Northbound	A	0.16
Between Clement Street and Point Lobos Avenue	Southbound	A	0.24
2 43rd Avenue	Northbound	A	0.16
Between Clement Street and Point Lobos Avenue	Southbound	C	0.64

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

As shown in Table 7, all roadway segments currently operate at acceptable conditions (LOS C or better).

Passenger Vehicle Access

Passenger vehicles are currently the primary mode of transportation to and from the Campus. Access into and out of the Campus for passenger vehicles is provided by the Campus's main roadway access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street; circulation within the Campus is provided by Veterans Drive and Fort Miley Circle. Most passenger vehicles carrying Veterans and visitors are destined for parking areas on the east side of the Campus—namely, Building 212 and Lot B—or Lot E in the center of the Campus. Pick-up and drop-off zones are provided along Fort Miley Circle between Building 200 and Building 203. Passenger vehicles carrying Campus employees are typically destined for areas on the west and north side of the Campus, including Building 209, Lot D, and Lot G.

Existing traffic patterns indicate that 42nd Avenue/Clement Street is the preferred entrance for vehicles entering the Campus, although 43rd Avenue/Clement Street is the preferred exit. Traffic volumes at these two intersections are generally higher than at other intersections in the immediate vicinity because of their function as the main access points into and out of the Campus. Observations indicated that although queues occasionally develop on some approaches at these intersections, they dissipate quickly and do not result in any spillover effects to other intersections. As indicated in Table 6, both access points into the Campus currently operate at LOS B with minimal delays.

East Fort Miley Access

The Campus also provides the sole roadway access for GGNRA operational facilities at East Fort Miley, located along the Campus's eastern edge. As part of the construction of Building 212 at the Campus, a one-lane access road approximately 12 feet wide was constructed to serve this GGNRA facility, including traffic generated by GGNRA employees, interns, and volunteers, as well as earth-moving activities and materials deliveries. The access road to East Fort Miley connects into the Campus roadway network at Veterans Drive/Fort Miley Circle, at the southwest corner of Building 212 and just north of the 42nd Avenue entrance into the Campus.

1.5.3 Transit Conditions

Existing transit service to and from the Campus consists of public transit services operated by SFMTA/Muni and special SFVAMC shuttle services serving patients, staff, and other Campus users, as discussed below. Because accommodations for taxis and shuttles on the Campus are similar, this subsection also discusses taxi service, although taxis are not generally considered "transit."

Public Transit

Local Transit

Local transit service to the Campus is provided primarily by Muni bus services in the Geary Boulevard corridor—one of Muni's busiest corridors, connecting the Inner and Outer Richmond, Laurel Heights, and Fillmore/Japantown/Western Addition with Downtown San Francisco. The 38 Geary and 38L Geary Limited are the closest major routes serving the Campus, providing frequent service with articulated coaches capable of carrying 94 passengers each. The 38 Geary provides local service in the corridor and operates 24 hours a day, 7 days a week, and the 38L Geary Limited provides faster, limited-stop service during daytime hours (morning to early evening) on weekdays and Saturdays. Supplementary weekday peak-period service in the vicinity of the Campus is provided by the 38AX Geary "A" Express, but only in the general commute direction (inbound from the Outer Richmond to Downtown in the mornings and outbound from Downtown to the Outer Richmond in the evenings).

Muni service in the vicinity of the Campus is summarized in Table 8 and illustrated in Figure 8.

As shown in Table 8, the nearest major Muni stops to the Campus are at 42nd Avenue/Geary Boulevard in the inbound (eastbound) direction and at 42nd Avenue/Point Lobos Avenue in the outbound (westbound) direction, which are located approximately 500 feet from the southern edge of the Campus along Clement Street. These stops are served by all three lines, although the actual service varies by day and time of day.

Table 8: Muni Service in the Project Vicinity

Line		Vehicle Capacity (passengers)	Approximate Headway[1][2] (minutes)				Nearest Stop to the Project Site	
			Weekday A.M. Peak Hour		Weekday P.M. Peak Hour			
			Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
38	Geary	94	12.0	12.0	7.5	8.0	Fort Miley Circle/Veterans Drive[3] or 42nd Avenue/Geary Boulevard	42nd Avenue/Point Lobos Avenue
38L	Geary Limited	94	5.5	5.5	5.5	5.5	42nd Avenue/Geary Boulevard	42nd Avenue/Point Lobos Avenue
38AX	Geary "A" Express	63	11	No service	No service	9.0	42nd Avenue/Geary Boulevard	42nd Avenue/Point Lobos Avenue

Source: SFMTA, 2011.

Notes:

(1) "Headway" is defined as the time interval between transit vehicles.

(2) To stay consistent with the most recent peak-hour ridership data published by the San Francisco Municipal Transit Agency, headways are presented as they were in 2011. Muni vehicles are typically defined as either traveling "inbound" (i.e., toward Downtown) or "outbound" (i.e., leaving Downtown).

(3) Direct service to and from Fort Miley varies by time of day. Not all buses serve Fort Miley.

Figure 8: Transit Network—Existing Conditions

In addition to these stops along Geary Boulevard and Point Lobos Avenue, a branch of the 38 Geary also directly serves Fort Miley and the Campus. Under current schedules (as of May 2014), weekday service on the Fort Miley branch of the 38 Geary is as follows:

- In the inbound direction, every other bus between approximately 6:00 a.m. and 7:30 p.m. departs from Fort Miley, with other buses departing from a separate terminal farther east of the Campus at 32nd Avenue/Balboa Street near Washington High School.

- In the outbound direction, all buses between approximately 5:30 a.m. and 8:00 a.m. and every other bus between 8:00 a.m. and 8:00 p.m. serves Fort Miley. Between 5:30 a.m. and 7:15 a.m., all outbound buses serving Fort Miley continue to 48th Avenue/Point Lobos Avenue (Lands End/Sutro Heights Park/Cliff House).

The Fort Miley service does not operate at other times of the day on weekdays. Service on Saturdays and Sundays is similar, although the start and end of service varies slightly from the weekday schedule. Buses operating on the Fort Miley service currently enter the Campus via 42nd Avenue, terminating at a stop to the south of Building 1 (ORTC Clinic) before looping through the site via Fort Miley Circle to 43rd Avenue and continuing back inbound to Downtown San Francisco.

Table 9 presents the weekday p.m. peak hour ridership, capacity, and capacity utilization for each of the Muni bus routes that directly serve the Project site. The ridership data presented is for the maximum load point (MLP) for each respective direction of each line, and represents the most recent automatic passenger count (APC) data published by SFMTA. The capacity data presented reflects the schedule at the time the ridership data was collected in fall 2011 (summarized in Table 8), and does not consider changes to Muni service since that time. For reference, the data for the 38BX Geary "B" Express are also included to present a more complete picture of conditions within the Geary Corridor, although this particular route does not directly serve the Campus (the outer terminus is at Geary Boulevard/25th Avenue, east of the Campus). The ridership and capacity calculations are included in Appendix D.

Table 9: Muni Ridership and Capacity— Existing Conditions (Weekday P.M. Peak Hour)

Line		Direction[1]	Existing Conditions (Weekday P.M. Peak Hour)			
			Ridership	Capacity	Utilization	Maximum Load Point
38	Geary	Inbound	352	752	47%	Geary Boulevard/Laguna Street
		Outbound	450	705	64%	Geary Boulevard/Franklin Street
38L	Geary Limited	Inbound	556	1,025	54%	Geary Boulevard/Divisadero Street
		Outbound	862	1,025	84%	Geary Boulevard/Van Ness Avenue
38AX	Geary "A" Express	Inbound	No service in inbound direction during weekday p.m. peak period			
		Outbound	280	420	67%	Pine Street/Montgomery Street
38BX	Geary "B" Express[2]	Inbound	No service in inbound direction during weekday p.m. peak period			
		Outbound	222	378	59%	Pine Street/Montgomery Street
Total		Inbound	908	1,777	51%	
		Outbound	1,814	2,528	72%	

Source: SFMTA, 2011.

Notes:
(1) Muni vehicles are typically defined as either traveling "inbound" (i.e., toward Downtown) or "outbound" (i.e., leaving Downtown).
(2) This line does not directly serve the Campus, but is included here for consistency and to present a more complete picture of transit conditions in the Geary Corridor.

As shown in Table 9, all three lines operate below 85 percent of capacity during the weekday p.m. peak hour in both the commute (outbound) and reverse-commute (inbound) directions. However, outbound services on the 38L Geary Limited are currently approaching the 85 percent policy standard as they depart the stop at Geary Boulevard/Van Ness Avenue.

Regional Transit

There is no regional public transit service in the immediate vicinity of the Campus. Transit passengers with origins or destinations outside of San Francisco typically need to transfer to or from Muni to complete their transit trip, or take advantage of the commuter shuttles serving the Campus (currently operated by Bauer's Transportation under contract with SFVAMC), as described in the following "SFVAMC Shuttle Services" subsection. Regional public transit services in San Francisco are described in more detail below.

- East Bay

  Regional public transit service connecting the East Bay (Alameda and Contra Costa Counties) with San Francisco is primarily provided by the San Francisco Bay Area Rapid Transit District (BART) and the Alameda–Contra Costa Transit District (AC Transit). BART provides regional rail service between San Francisco and the East Bay, with outer terminals at Pittsburg/Bay Point, Richmond, (East) Dublin/Pleasanton, and Fremont. Passengers traveling via BART would be able to transfer to Muni's 38 Geary and 38L Geary Limited at Montgomery Station or SFVAMC's commuter shuttles at Embarcadero Station (Ferry Building).

  AC Transit is the primary bus operator for Alameda and Contra Costa Counties, and operates an extensive network of commuter routes (some also operating all day and on weekends, although most only operate on weekdays during the commute period and in the general commute direction). Almost all of these routes terminate at the (Temporary) Transbay Terminal, where passengers can connect with Muni's 38 Geary and 38L Geary Limited or SFVAMC's commuter shuttles.

  Supplementary transit service to and from the East Bay is provided by ferry (terminals in Vallejo, at Oakland's Jack London Square, and in Alameda at Main Street and in Harbor Bay), as well as by commuter bus service operated by SolTrans (service to/from Vallejo via Route 200) and the Western Contra Costa Transit Authority (WestCAT) (service to/from Hercules via the Lynx Commuter Express).

- South Bay/Peninsula

  Regional public transit service connecting the South Bay and Peninsula (San Mateo and Santa Clara Counties) with San Francisco is provided primarily by BART, Caltrain, and SamTrans. BART provides service in northern San Mateo County, with outer terminals at San Francisco International Airport and Millbrae; passengers traveling on BART can transfer to Muni's 38 Geary and 38L Geary Limited at Montgomery Station or to SFVAMC's commuter shuttles at Civic Center Station.

  Caltrain provides commuter rail service along the full length of the Peninsula to San Jose, with some services extending farther south to Gilroy. Passengers traveling on Caltrain can transfer to SFVAMC's commuter shuttles at Caltrain's San Francisco terminal at Fourth Street/King Street, or can transfer to BART at Millbrae Station, transferring to the commuter shuttle at Civic Center Station.

  SamTrans is the primary bus operator in San Mateo County, and operates regular service to and from San Francisco on Routes KX and 292. Passengers on these services can transfer to Muni's 38 Geary and 38L Geary Limited or SFVAMC's commuter shuttles at Civic Center Station or the (Temporary) Transbay Terminal.

- North Bay

  Regional public transit service connecting the North Bay (Marin and Sonoma Counties) with San Francisco is provided primarily by the Golden Gate Bridge, Highway & Transportation District (GGBHTD). GGBTHD operates an extensive network of bus service to San Francisco through Golden Gate Transit, as well as ferry services departing from Larkspur and Sausalito. Passengers traveling on Golden Gate Transit can transfer to SFVAMC's commuter shuttles at the Golden Gate Bridge Toll Plaza, and passengers traveling via ferry can transfer at the Ferry Building. Supplementary transit service to/from the North Bay is provided by the Blue & Gold Fleet, which operates ferry services from Tiburon and Sausalito (terminating at Pier 41 in San Francisco's Fisherman's Wharf area).

SFVAMC Shuttle Services

SFVAMC provides a variety of local, regional, and intercity shuttle services through several different operating schemes, including services operated directly by SFVAMC staff, services operated jointly with the University of California San Francisco (UCSF), services contracted out to third-party for-profit companies (currently Bauer's Transportation), and services provided by the Disabled American Veterans (DAV) Volunteer Transportation Network (VTN). These services operate weekdays only (Mondays through Fridays) but serve a wide variety of Campus users, including patients, employees/staff, and visitors, as well as affiliated faculty, students, and guests of UCSF.

Specifically, SFVAMC currently contracts with Bauer's Transportation to provide free bus and shuttle service to SFVAMC staff members and patients daily. The service operates between the Campus and major transportation hubs in San Francisco (Ferry Building, Transbay Terminal, Caltrain's Fourth & King Station, and the Civic Center Station) from 5:00 a.m. to 9:00 a.m. and again from 2:30 p.m. to 6:30 p.m. More than 1,285 staff members and patients use this commuter service provided by the Veterans Administration (VA) every day. The DAV VTN also operates one roundtrip daily on shuttle services connecting patients in the North Bay and areas north (including Marin, Sonoma, Napa, Lake, and Mendocino Counties) with the Campus. SFVAMC also directly operates regular shuttle services for patients in Sonoma, Mendocino, and Humboldt Counties, as well as services connecting to other VA outpatient clinics in Downtown San Francisco and San Bruno. SFVAMC and UCSF also jointly operate frequent shuttle service between the SFVAMC Fort Miley Campus and the UCSF Parnassus Heights Campus.

Shuttle services at the Campus are summarized in Table 10.

Taxi Services

Currently, designated taxi stops are provided in two different locations on the Campus, between Building 200 and Building 203 and between Building 208 and Building 209. Taxis are permitted to enter and exit the Campus through either 42nd Avenue or 43rd Avenue.

1.5.4 Bicycle Conditions

During field observations, bicyclists were observed riding along the established bicycle routes near the SFVAMC Fort Miley Campus. Bicycle activity is generally low because of the hilly terrain and steep grades, as well as the location of the site well outside of Downtown San Francisco and major regional transportation hubs. However, SFMTA provides bicycle racks on the front of all Muni buses, and major regional public transit services such as BART and ferries allow passengers to bring bicycles on board. In addition, some of the shuttle services bringing patients, staff, and visitors to and from the Campus also feature bicycle racks. Overall, bicycle conditions were observed to be acceptable, with only minor conflicts observed between right-turning vehicles and bicyclists.

On-Campus

There are no designated bikeway facilities on the Campus and bicyclists must share Campus roads with other users, although the restricted speed limit (10 miles per hour) on the Campus helps to provide a safe riding environment for bicyclists. SFVAMC currently provides bicycle lockers and hitching posts for use by staff commuting to and from the Campus by bike.

Off-Campus

Four major citywide bicycle routes are provided in the vicinity of the Campus, supplemented by Class 1 trails through Lands End and Lincoln Park. These facilities are illustrated in Figure 9 and described in further detail below.

Table 10: SFVAMC Shuttle Services

Route	Operator	Daily Round Trips (Weekday)	Ridership Served
Intercity			
Mendocino/Humboldt Counties: Santa Rosa (VA Outpatient Clinic), Ukiah (VA Outpatient Clinic), Willits, Laytonville, Garberville, Rio Dell/Scotia, Fortuna, Eureka (VA Outpatient Clinic)	SFVAMC	1–2[1]	Patients
Sonoma/Mendocino Counties: Santa Rosa (VA Outpatient Clinic), Cloverdale, Hopland, Ukiah (VA Clinic)	SFVAMC	3.5[2]	Patients
Mendocino County (Inland): Cloverdale, Hopland, Ukiah	DAV VTN	1	Patients
Mendocino County (Coast): Boonville, Fort Bragg	DAV VTN	1	Patients
Napa/Lake Counties: Napa, Middletown, Lower Lake, Clearlake	DAV VTN	1	Patients
Regional/Commuter			
South Bay/East Bay Commuter: Ferry Building, Transbay Terminal, Caltrain (Fourth & King), Civic Center	Bauer's	10.5[3]	Patients, employees, volunteers
North Bay Commuter: Golden Gate Bridge Toll Plaza	Bauer's	6[4]	Patients, employees, volunteers
Marin/Sonoma Counties: Novato, Petaluma, Cotati, Santa Rosa	DAV VTN	1	Patients
San Bruno VA Outpatient Clinic	SFVAMC	4	Patients, employees, visitors
Local			
Downtown San Francisco VA Outpatient Clinic: Third Street/Harrison Street	SFVAMC	3	Patients, employees, visitors
UCSF Parnassus Campus: 401 Parnassus Avenue	SFVAMC/ UCSF	17[5]	Patients, faculty, employees, students, visitors

Source: VA, 2014a; Data compiled by AECOM in 2014

Notes:
DAV = Disabled American Veterans; SFVAMC = San Francisco Veterans Affairs Medical Center; UCSF = University of California, San Francisco; VA = U.S. Department of Veterans Affairs; VTN = Volunteer Transportation Network

(1) One round trip daily Mondays and Fridays, two round trips daily Tuesdays, Wednesdays, and Thursdays.
(2) Three southbound trips and four northbound trips daily.
(3) Commute period, commute direction only (inbound to SFVAMC in the mornings and outbound from SFVAMC in the afternoons/evenings). Operates on variable headways (10–30 minutes), with 11 inbound trips and 10 outbound trips.
(4) Commute period, commute direction only (inbound to SFVAMC in the mornings and outbound from SFVAMC in the afternoons/evenings). Operates on fixed headways (30 minutes), with six inbound trips and six outbound trips.
(5) Operates on variable headways (approximately 30 minutes peak, 60 minutes off-peak).

Route 10
Route 10 is a major east–west bikeway stretching from Lands End in the west to The Embarcadero in the east via Clement Street, Lake Street, Clay Street, and Pacific Street. In the immediate vicinity of the SFVAMC Fort Miley Campus along Clement Street, Route 10 comprises Class 3 facilities with painted sharrows and signage, but Class 2 facilities are provided farther east along Lake Street between 28th Avenue and Arguello Boulevard. At its western end, Route 10 connects to the Lands End trail network and Route 95. Due to the relatively flat terrain, low traffic volumes, and the presence of Class 2 facilities along Lake Street, Route 10 is one of the preferred east–west routes for reaching the Campus.

Route 85
Route 85 is a major north–south bikeway stretching from Lincoln Park and the Legion of Honor in the north to Lake Merced and the border with Daly City in the south via 34th Avenue and Lake Merced Boulevard. In the immediate vicinity of the Campus, Route 85 runs along Legion of Honor Drive and 34th Avenue and comprises Class 3 facilities with painted sharrows and signage, connecting with east–west facilities such as Route 10 and Route 395.

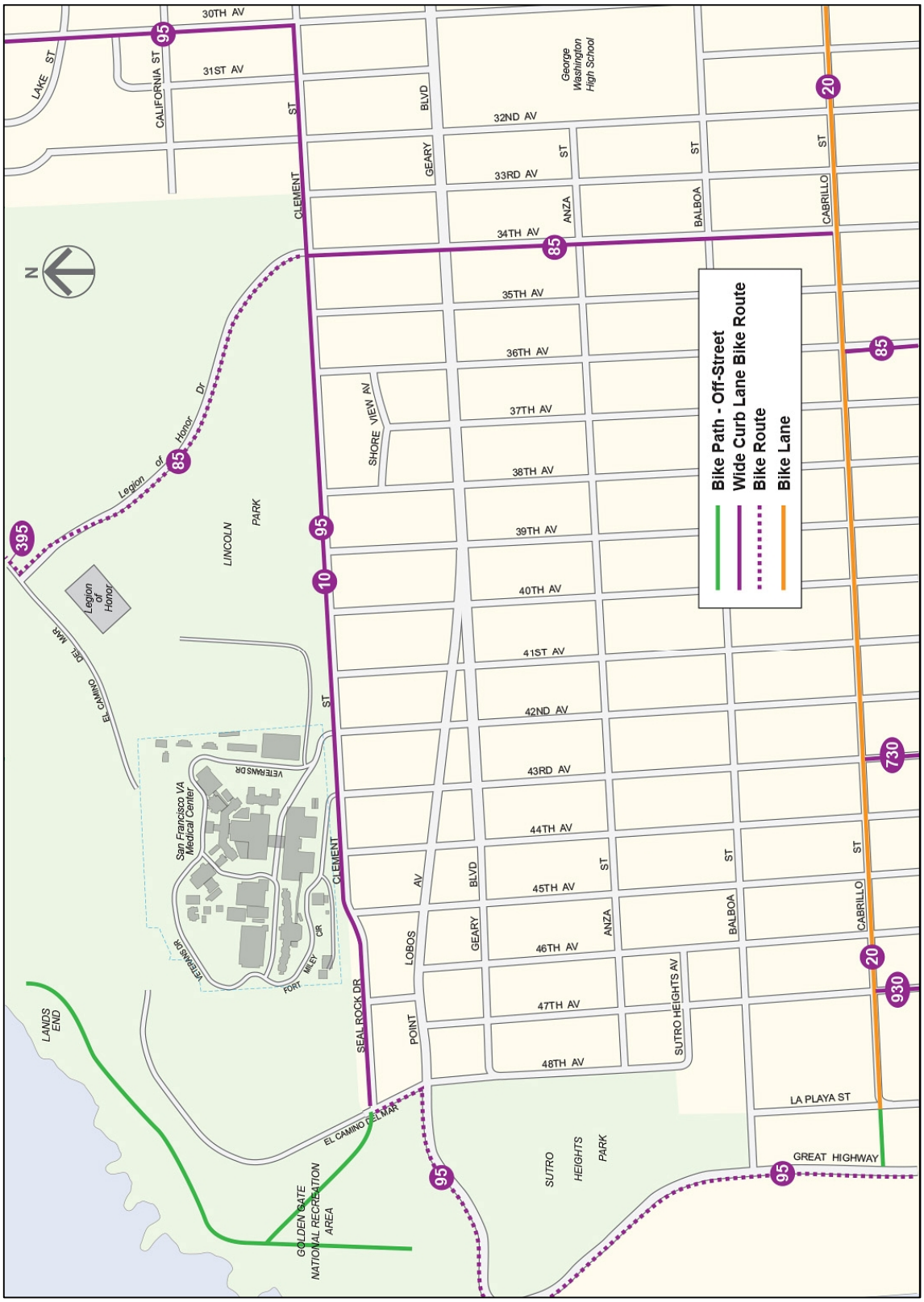

Figure 9: Bicycle Network—Existing Conditions

Route 95
Route 95 is a major north–south bikeway stretching from the Golden Gate Bridge in the north to Fort Funston and the border with Daly City in the south via Lincoln Boulevard, El Camino del Mar, Clement Street, Point Lobos Avenue/Great Highway, and Skyline Boulevard. In the immediate vicinity of the Campus, Route 95 is a Class 3 facility along Clement Street with painted sharrows and signage, overlapping with Route 10. Farther away, Route 95 includes sections of Class 1 and Class 2 facilities, such as through the Presidio and along the Great Highway.

Route 395
Route 395 is a minor east–west bikeway that serves as a branch of Route 95, connecting Route 85 and the shared-use trails in Lands End/Lincoln Park with Route 95 at 30th Avenue/El Camino del Mar. Route 395 is a Class 3 bikeway with painted sharrows and signage.

Lands End Trail Network
A network of recreational trails serves the Lands End/Lincoln Park area of the Golden Gate National Recreation Area, to the immediate north of the Campus. The unpaved trails are used primarily for hiking, walking, and running because of steep grades and frequent elevation changes, dense vegetation, narrow width, and high levels of foot traffic, but are open on some sections to recreational (mountain) bicyclists as Class 1 facilities.

1.5.5 Pedestrian Conditions

Generally, a low level of pedestrian activity was observed throughout the day in the vicinity of the Project site, although activity at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street is slightly higher than at other minor intersections farther away as a result of foot traffic heading to and from the Campus, particularly during the weekday a.m. and p.m. peak periods. During the weekday p.m. peak period, sidewalks and crosswalks were observed to be operating at free-flow conditions with pedestrians moving at normal speeds and with freedom to bypass other pedestrians. The majority of Campus-related pedestrian traffic in the surrounding neighborhoods consist of staff and patients heading to and from transit stops or parked vehicles.

On-Campus

Sidewalks and walkways are generally provided throughout the Campus, and connect with off-Campus sidewalks along Clement Street. In particular, sidewalks are provided along Fort Miley Circle and most sections of Veterans Drive, and between the various buildings on the Campus. However, some segments of Veterans Drive, such as segments adjacent to Lot G and Lot J, currently lack sidewalks or designated pedestrian space on one or both sides. Pedestrians in these locations were observed to walk along the edge of the roadway, although these areas do not generally see high levels of pedestrian activity compared to other parts of the Campus.

Off-Campus

Sidewalks
Most major streets in the vicinity of the Campus have sidewalks on both sides of the street, although Clement Street abutting the Campus (between 43rd Avenue and 45th Avenue) and Lincoln Park (east of 42nd Avenue) lacks sidewalks along the north side. Sidewalk width is at least four feet wide or greater, although obstructions such as utility poles, fire hydrants, and shrubbery may narrow the effective width, such as along the south side of Clement Street at the southeast corner of 42nd Avenue/Clement Street or the north side of Clement Street at the northwest corner of 43rd Avenue/Clement Street. Sidewalk pavement condition is generally good, although there is a high frequency of curb cuts because of the residential nature of the neighborhood and the need to secure access to ground-level garages for homes.

Crosswalks
Provisions of marked crosswalks at intersections varies by location and direction—in the immediate vicinity of the Campus, marked crosswalks are only provided across two legs at 42nd Avenue/Clement Street (west and south legs) and 43rd Avenue/Clement Street (east and south legs), although stop bars are provided on the pavement. Farther from the Campus, minor intersections along Clement Street west and east of the Campus generally lack marked crosswalks completely; major intersections south of the Campus at 42nd Avenue/Point Lobos Avenue, 42nd Avenue/Geary Boulevard, 43rd Avenue/Point Lobos Avenue, and 43rd Avenue/Geary Boulevard feature marked crosswalks on all legs. Crosswalk markings are low-

visibility designs (parallel lines) lacking special treatments (e.g., ladder, continental, or diagonal striping; high-visibility signage; flashing devices) and generally in poor condition, with substantial fading or cracking.

Curb Ramps
Similar to sidewalks, the provision of curb ramps varies by location and street corner. In the immediate vicinity of the Campus, curb ramps are missing at some street corners at 42nd Avenue/Clement Street (northeast corner) and 43rd Avenue/Clement Street (northwest corner), or may only be provided in one orientation (e.g., southwest corners at both intersections). Most existing curb ramps at these intersections and in the surrounding area are not compliant with the Americans with Disabilities Act (ADA), lacking tactile warning devices such as truncated dome tiles.

1.5.6 Vehicle Parking Conditions

On-Campus

Parking Supply
Existing off-street parking facilities on the Campus as of 2012 are described in the LRDP and consist of ten surface lots (Lot B through Lot L) and two parking structures (Building 209 and Building 212), providing a total of 1,253 parking spaces. Existing on-site parking facilities are illustrated in Figure 10 and summarized in Table 11.

Patients and visitors may currently park in Lot B, Lot H, Building 209, and Building 212, and the remainder of the facilities are designated for SFVAMC employees (with the exception of some spaces within Lot D reserved for use by the General Services Administration [GSA]). Not included within the summary of parking supply in Table 11 are four additional spaces provided near Building 32 (Child Care Center) for pick-up/drop-off activities, as well as curb space along Fort Miley Circle adjacent to Building 208, Building 209, Building 200, and Building 203 designated for various uses such as police parking and shuttle parking.

Table 11: Existing Campus Parking Inventory

Facility	Configuration	Function/User	Capacity (spaces)
Building 209	Structure	Employee/Visitor	422
Building 212	Structure	Patient	160
Lot B	Surface lot	Patient/Visitor	102
Lot C	Surface lot	Employee	13
Lot D	Surface lot	GSA/Employee	142
Lot E	Surface lot	Patient	23
Lot F	Surface lot	Employee	2
Lot G	Surface lot	Employee	87
Lot H	Surface lot	Patient/Visitor	17
Lot J	Surface lot	Employee	270
Lot K	Surface lot	Employee	7
Lot L	Surface lot	Employee	8
Total			1,253

Sources: VA, 2014b; VA, 2014c

Notes:
GSA = General Services Administration
Reflects status as of 2012, as reported in the LRDP. Some facilities listed have since been permanently or temporarily closed or restriped/reconfigured as a result of construction activities, Americans with Disabilities Act compliance, or other factors,

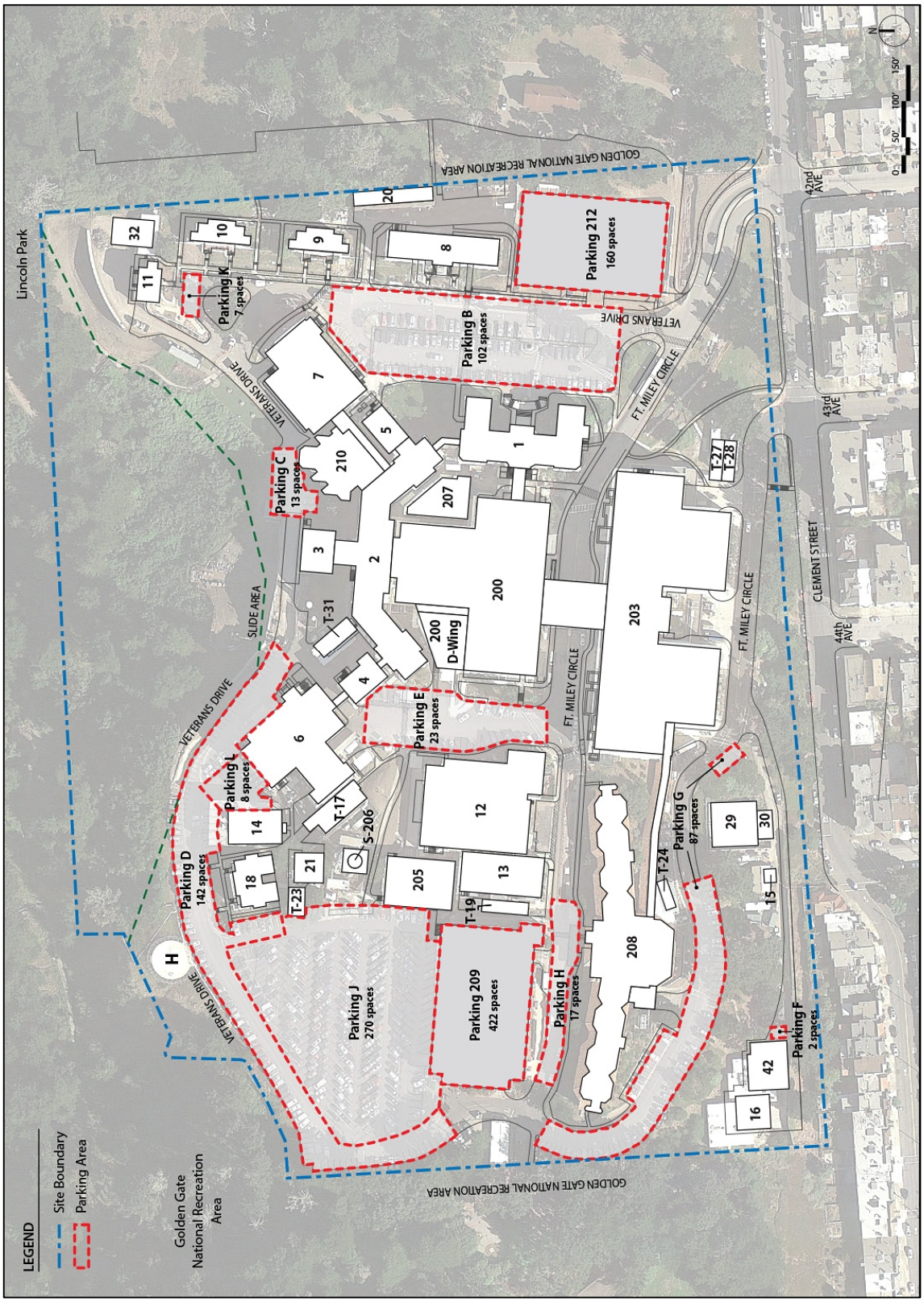

Figure 10: Off-Street Parking Facilities—Existing Conditions

It should also be noted that the parking supply summarized in Table 11 does not include the increase in supply provided by SFVAMC's valet parking programs for the two on-site parking structures (Building 209 and Buildings 212). Specifically, SFVAMC began providing valet parking for patients at Building 212 on March 19, 2012. A similar program has also been in effect since 2011 for users of Building 209. Although originally launched to offset the loss of parking capacity in Lot J as part of the construction of Building 211 and other facilities on the Campus, these valet parking programs currently provide an additional supply of approximately 150 spaces in Building 209 and 60 spaces within Building 212 because of greater space efficiencies.

Other recent changes not reflected in Table 11 include the closure of Lot K (now occupied by a temporary building) and the loss of approximately 10–12 spaces in Lot G adjacent to Building T-24 (to house a temporary building and trailer). Lot B has also been recently restriped to provide Americans with Disabilities Act (ADA) compliant spaces, resulting in a total of 75 marked spaces (a net loss of 27 spaces). When completed, the new Parking and Emergency Operations Structure under construction on Lot J will provide a net increase of up to 348 parking spaces on the Campus.

Parking Demand

A parking occupancy survey was conducted on Tuesday, September 10, 2013, for Campus parking facilities. This date was area.[10] Parking occupancy refers to the number of cars parked in a specific facility or area during one period of observation, and is expressed as the percentage of the total supply that is occupied by parked cars. It should be noted that the results of the parking occupancy survey are representative of 1-day field observations, and that occupancy can vary slightly from day to day.

Because of construction activities on Lot J related to Building 211 (the "Parking and Emergency Response Structure"), however, some of the on-site parking spaces normally available for use in Lot D, Lot E, and Lot J were instead cordoned off and unavailable at the time of the field observations. Installation of solar photovoltaic systems on the Campus also required the closure of portions of Building 209, while other construction activities also reduced regular parking capacity in Lot G. SFVAMC typically provides valet parking during construction to offset some of this loss in parking capacity. The current program in effect at the Campus encompasses Building 209 and Building 212 and provides approximately 210 additional spaces on the Campus. Given the changes to parking supply on the Campus as a result of construction of Building 211, supplementary data regarding on- and off-street parking utilization before the commencement of construction were also consulted to obtain a more accurate picture of parking conditions at the Campus under "normal" (i.e., non-construction) conditions.

Field observations from the parking survey, together with supplemental visual observations conducted on Thursday, March 13, 2014, indicated very high utilization of off-street parking facilities on the Campus on weekdays. The observations indicate that occupancy levels remain at or near capacity through the morning and midday periods, but decrease considerably by the evening survey period. Valet parking is well utilized in Building 209 (at or near 100 percent occupancy, where most supplementary circulation aisle space is used by the valet parking operator to provide additional spaces). Valet parking is less well utilized in Building 212, although occupancy surveys showed valet parking utilization topping out in the midday period, at slightly under 50 percent.

Because of construction activities related to Building 211, supplemental preconstruction data regarding on-site parking occupancy levels were obtained from a study prepared by CHS Consulting Group in 2003 for a proposed new building on the Campus for the Northern California Institute for Research and Education (NCIRE).[11] The data were obtained to help determine whether or not the observed occupancy levels in 2013 and 2014 represented "normal" (i.e., non-construction) conditions. The 2003 NCIRE Building Study observed 99 percent occupancy in employee spaces (937 of 948 spaces) and 86

[10] The parking occupancy survey was conducted on a scheduled street cleaning day to account for the parking changes during these days. Because street cleaning occurs two of the four weeks each month, it does not necessarily represent unique conditions. Typically, the areawide parking demand does not change when street cleaning is scheduled, but motorists tend to shift their parking locations to unaffected streets. Thus, the survey data can be considered representative of conditions on non-street-sweeping days at an areawide level.

[11] CHS Consulting Group, VA Medical Center NCIRE Building Transportation Study – Draft (February 10, 2003).

percent occupancy of patient and visitor spaces (229 of 266 spaces), for a combined 96 percent occupancy.[12] As a result, these occupancy levels generally corroborate the observed occupancy levels in 2013 and 2014. The 2013 and 2014 occupancy levels are slightly higher because of permanent changes in parking capacity since 2003 and the temporary loss in parking capacity that has resulted from construction activities on the Campus.

Off-Campus

As described in Section 1.4.2, on-street parking conditions were evaluated for a six-block area bounded by Clement Street to the north, Geary Boulevard to the south, 39th Avenue to the east, and 45th Avenue to the west, as illustrated in Figure 5.

Parking Supply

On-street parking in the vicinity of the Project site consists primarily of unmetered parallel parking. Angled parking is provided along the north side of Geary Boulevard between 43rd Avenue and 42nd Avenue and between 41st Avenue and 40th Avenue, and along the south side of Point Lobos Avenue between 43rd Avenue and 42nd Avenue. It should be noted that the angled parking provided on the north side of Geary Boulevard and south side of Point Lobos Avenue between 43rd Avenue and 42nd Avenue is located adjacent to a Walgreens store, the only major commercial land use in the immediate vicinity of the Campus. These spaces are designated as one-hour parking spaces between 8:00 a.m. and 6:00 p.m., and can be used by all motorists (i.e., these spaces are not designated for customer use only). All other on-street parking in the study area is adjacent to residential land uses, with the exception of parking along the north side of Clement Street abutting the south edge of the Campus.

Given that on-street parking within the study area is unmarked, the supply of on-street spaces has been estimated assuming 25 feet of curb space per vehicle. Based on this assumption, approximately 600 on-street parking spaces are currently provided in the parking study area. On-street parking capacity by block face is summarized in Figure 11.

Parking Demand

The parking study area, like most of the Richmond District, tends to have high on-street parking utilization, in part because the area has minimal parking restrictions (except during street cleaning) and no residential parking permits are required. In addition, many of the residential units have multiple tenants who do not have access to garage parking and therefore park on the street. More details about on-street parking restrictions for street cleaning (generally taking place for 2-hour periods during the second and fourth weeks of each month) are provided in the parking study included as Appendix G to this study.

Similar to on-Campus facilities, a parking occupancy survey of off-Campus (on-street) parking in the parking study area was conducted on Tuesday, September 10, 2013. Based on the field observations conducted, it was determined that on-street parking is well utilized throughout the day, although specific occupancy percentages can vary depending on location and peak period. During the weekday morning peak period, on-street parking occupancy ranges between 80 percent and 100 percent along most block faces, with an average overall occupancy of 87 percent. Parking occupancy along the north side of Clement Street (i.e., on-street parking nearest the Campus) was observed to be the lowest of any block face in the parking study area; however, the relatively lower occupancy levels may be attributed to the street cleaning restrictions in effect along this segment on the survey day, documented in Appendix E.

During the weekday midday peak period, on-street parking occupancy continued to range between 80 percent and 100 percent along most block faces, with an average overall occupancy of 90 percent. Parking spaces along the north side of Clement Street were observed to be nearly fully occupied, as the midday peak period occurs after the conclusion of street cleaning restrictions, at which time many motorists move their vehicles. Specifically, on-street parking spaces along the north side of Clement Street were found to be 100 percent occupied between 45th Avenue and 43rd Avenue, 92 percent occupied between 43rd Avenue and 42nd Avenue, and 93 percent occupied between 42nd Avenue and 39th Avenue during the weekday midday peak period.

[12] At the time of the study in 2003, a total of 1,214 spaces were counted on the Fort Miley Campus: 948 employee spaces and 266 patient and visitor spaces.

Figure 11: On-Street Parking Supply—Existing Conditions

During the weekday evening peak period, on-street parking occupancy levels are lower than during the weekday morning and midday peak periods, with many block faces experiencing occupancy levels below 80 percent. Average overall occupancy during the evening peak period was found to be 73 percent. On-street parking along Clement Street adjacent to the Project site remained relatively high, and lower occupancy levels were observed along Point Lobos Avenue and along roadways west of the Project site. Specifically, on-street parking spaces along the north side of Clement Street were found to be 100 percent occupied between 45th Avenue and 43rd Avenue, 85 percent occupied between 43rd Avenue and 42nd Avenue, and 53 percent occupied between 42nd Avenue and 39th Avenue during the weekday evening peak period.

On-street parking occupancy during the weekday morning, midday, and evening peak periods is illustrated in Figure 12. Detailed results of the parking occupancy survey are provided in Appendix E.

Because of on-site construction activities on the Campus and a corresponding decrease in available off-street parking during the field observations, additional sources of data regarding on-street parking conditions were consulted. Surveys conducted for the 2003 NCIRE Building Study documented weekday parking occupancy rates of 69 percent during the early morning, 75 percent during the midday, and 58 percent during the evening for the surrounding neighborhood.[13] Therefore, the average parking occupancies identified in field observations in 2013 are generally consistent with the survey data from 2003, with the higher observed utilization likely resulting from Campus construction activities that may have shifted some on-site parking demand into the surrounding neighborhood.

1.5.7 Freight Loading Conditions

Medical, office, and food supplies are delivered to the Campus on a daily basis. Service/delivery vehicles have the option of using either of the two main access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street when entering and exiting the Campus, depending on their ultimate destination on the Campus. As illustrated in Figure 2, freight loading facilities are scattered throughout the Campus, with many of the key Campus facilities having dedicated off-street docks for use by trucks and other service/delivery vehicles. Specifically, there are currently eleven (11) loading bays at the campus:

- Building 6 (Administration/Shops/Research): One (1) bay;
- Building 7 (Canteen/Auditorium/Chapel): One (1) bay;
- Building 12: Three (3) bays;
- Building 203 (Inpatient Hospital/Diagnostics/Specialty Care): Four (4) bays; and
- Building 208 (Community Living Center): Two (2) bays.

1.5.8 Emergency Vehicle Access Conditions

Fire Access
Fire response service on the Campus is provided by the San Francisco Fire Department (SFFD). Fire engines and trucks can currently enter and exit the Campus via either of the two main access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street and use internal roadways such as Veterans Drive or Fort Miley Circle to reach their ultimate destination on the Campus. Overall, the Campus currently provides adequate fire access.

Emergency Medical Access
SFVAMC currently provides only limited emergency medical services. Ambulances and other emergency medical vehicles arriving at the Campus are destined for Building 200 (Ambulatory Care Center), and typically enter the Campus via the 42nd Avenue access. Overall, the Campus currently provides adequate emergency medical access.

[13] The 2003 NCIRE Building study evaluated on-street parking conditions for a three-block study area bounded by Clement Street to the north, Geary Boulevard to the south, 40th Avenue to the east, and 43rd Avenue to the west, containing a total of approximately 533 on-street parking spaces.

Figure 12: On-Street Parking Occupancy—Existing Conditions

Figure 12b: On-Street Parking Occupancy Midday Peak Period

Figure 12c: On-Street Parking Occupancy Evening Peak Period

1.6 Regulatory Setting

This section provides a description of the major regulations governing the transportation assessment of the Project.

1.6.1 Federal

National Environmental Policy Act (NEPA) and Transportation Decision-Making
The principles of NEPA as they affect the transportation decision-making process include the following:

1. Assessment of transportation and parking impacts of the project
2. Analysis of alternatives to the project
3. Consideration of appropriate impact mitigation
4. Documentation and disclosure
5. Interagency coordination
6. Public involvement

Because the Project is a federal action with each of its NEPA alternatives' transportation and parking impacts assessed in this study, Items 1 through 4 above are satisfied by this TIS. Given that this TIS will serve as a technical appendix to the NEPA document currently being prepared for this Project, and thus, will be available for public review, including agency review, along with the NEPA document, Items 5 and 6 above will also be satisfied by this TIS.

1.6.2 State

As a federal Project, no State transportation plans, policies, or guidance apply.

1.6.3 Local

As a federal Project, no local transportation plans, policies, or guidance apply. However, in so much as the Project may have transportation-related impacts on the surrounding neighborhoods, the following City and County of San Francisco plans and guidance were utilized to assess the Project.

San Francisco General Plan: Transportation Element (Living Document), San Francisco Planning Department
The Transportation Element of the San Francisco General Plan describes policies and objectives for San Francisco's transportation system, including regional transportation, congestion management, vehicle circulation, transit, pedestrians, bicycles, vehicle parking, and goods movement. Relevant policies from the Transportation Element of the General Plan include the following:

- Policy 1.3: Give priority to public transit and other alternatives to the private automobile as the means of meeting San Francisco's transportation needs, particularly those of commuters.
- Policy 2.5: Provide incentives for the use of transit, carpools, vanpools, walking, and bicycling and reduce the need for new or expanded automobile and automobile parking facilities.
- Policy 12.1: Develop and implement strategies which provide incentives for individuals to use public transit, ridesharing, bicycling, and walking to the best advantage, thereby reducing the number of single occupant auto trips.
- Policy 16.5: Reduce parking demand through limiting the absolute amount of spaces and prioritizing the spaces for near-term and ride-share uses.
- Policy 33.1: Limit the provision of long-term automobile parking facilities at institutions and encourage such institutions to regulate existing facilities to assure use by near-term clients and visitors.

Transportation Impact Analysis Guidelines for Environmental Review (2002), San Francisco Planning Department
The Transportation Impact Analysis Guidelines for Environmental Review (SF Guidelines) describes the San Francisco Planning Department's guidelines for evaluating the transportation impacts of development projects. Included are descriptions of the analysis methodologies to be used in the analysis of traffic, transit, pedestrian, vehicle parking, and freight loading conditions, as well as empirical travel demand and travel behavior data collected in San Francisco.

San Francisco Planning Code (Living Document), San Francisco Planning Department
Although intended primarily to regulate planning-related issues such as land use/zoning, building height/bulk, historical preservation, and development impact fees, the Planning Code also codifies requirements related to the provision off-street parking (vehicles and bicycles) and freight loading facilities.

San Francisco Bicycle Plan (2009), San Francisco Municipal Transportation Agency (SFMTA)
The San Francisco Bicycle Plan identifies existing and planned bicycle facilities in the vicinity of the Project, as well as general policies to promote and increase safe bicycle use in San Francisco.

Regulations for Working in San Francisco Streets (8th edition, 2012), San Francisco Municipal Transportation Agency (SFMTA)
Known colloquially as the "Blue Book," Regulations for Working in San Francisco Streets outlines rules and guidance to minimize the disruption to transportation circulation resulting from construction activities. The Blue Book prescribes measures such as signage, flag control, construction zone protection, temporary pavement markings, and schedule coordination to deal with the effects of construction on the transportation system, including the removal of on-street parking; the closure of vehicle lanes, bicycle lanes, or sidewalks; the relocation of transit stops; and other effects.

2.0 Impact Analysis Methodology

This chapter summarizes the Project's estimated travel, vehicle parking, and freight loading demand, and discusses the criteria for determining significant environmental effects of the Project.

2.1 Project Demand Estimation Methodology

The Project would include changes to the type and intensity of land use, which would generate new demands on the transportation infrastructure serving the Project site. This section describes the analysis methodologies used to estimate these demands.

2.1.1 Travel Demand

Travel demand refers to the new vehicle, transit, bicycle, pedestrian, and other trips that would be generated by the Project. Travel demand estimates for the Project were developed based on data from the following sources:

- Transportation Impact Analysis Guidelines for Environmental Review (SF Guidelines)
  Published by the San Francisco Planning Department in October 2002, the SF Guidelines prescribes standard methodologies for analyzing transportation impacts of development projects in the City and County of San Francisco. The SF Guidelines also contains empirical data on travel behavior characteristics—namely, trip distribution, mode split, and average vehicle occupancy (AVO)—localized into four distinct quadrants (Superdistricts) of the city. The Campus is located within Superdistrict 2, representing northwestern San Francisco and including the Inner Richmond, Outer Richmond/Seacliff, the Presidio, the Marina, Cow Hollow/Pacific Heights, Laurel Heights, the Fillmore/Western Addition, the Haight, and Hayes Valley/North of Panhandle (NoPa). The Mission Bay Campus would be located within Superdistrict 3, representing most of central, eastern, and southeastern San Francisco and encompassing the Mission District, Castro/Noe Valley, Dogpatch/Potrero Hill, Mission Bay, Central Waterfront, Bayview/Hunters Point, Visitacion Valley, Outer Mission/Ingleside, Excelsior/Crocker Amazon, Diamond Heights/Glen Park, Portola/Silver Terrace, and Bernal Heights.

- U.S. Census
  The U.S. Census regularly collects and forecasts a variety of demographic data across the United States, including data on commute travel behavior, frequently referred to as "Journey to Work" data. Specifically, the U.S. Census provides data on residents' commute mode share ("means of transportation to work") and AVO, which can be obtained down to the Census tract level.

- Trip Generation
  Published by the Institute of Transportation Engineers (ITE), Trip Generation (9th ed., 2012) is the most commonly used source of land use-based trip generation rates, derived from empirical data collected through trip surveys at locations across the United States.

Details of the methodology for specific steps in the travel demand estimation process, including trip generation, mode split, and trip distribution, are described below.

Trip Generation

Trip Generation Rates

The person-trip generation for the Project includes trips made by patients, visitors, and employees of the proposed hospital, office, and research uses. Person-trips are typically estimated using trip generation rates contained in the SF Guidelines, but these rates are only provided for common uses such as residential, retail, restaurant, office, and industrial, as well as a subset of minor uses with unique tripmaking characteristics, such as supermarkets, hotels/motels, movie theaters, and daycare centers. The SF Guidelines does not provide rates for uses comparable to those proposed by the Project—namely, medical and medical-related uses such as hospitals, clinics, and medical research and development facilities. As a result, trip generation rates from ITE's Trip Generation (9th ed., 2012) were used in estimating the Project's

travel demand, in lieu of the SF Guidelines rates. The Project's proposed uses were cross-referenced to corresponding ITE land use categories in Trip Generation as follows:

- Facilities providing inpatient medical care or mental health services—such as the Building 200 expansion (Operating Room D-Wing), Building 203 (C Wing Extension/Ground-Floor Patient Welcome Center), and Building 24 (Mental Health Clinical Expansion)— were approximated as "Hospital" (Land Use 610).

- Facilities providing administrative or office-related functions found in typical office buildings—namely, the Building 207 expansion (IT Support Space)—were approximated as "Office Building" (Land Use 710).

- Facilities providing research functions—such as Building 23 (Mental Health Research Expansion), Building 41 (Research), and Building 43 (Research and Administrative)—were approximated as "Research and Development Center" (Land Use 760).

- Facilities providing living assistance—namely, the Building 208 extension (Community Living Center/National Cardiac Device Surveillance Center)—were approximated as "Nursing Home" (Land Use 620).

- Facilities providing temporary lodging—namely, Building 22 (Hoptel)—were approximated as "Motel" (Land Use 320).

- Facilities providing primarily outpatient medical care—such as Building 213 (Clinical Addition)—were approximated as "Medical–Dental Office Building" (Land Use 720).

ITE trip generation rates are developed through the aggregation of trip surveys conducted for various land uses in suburban areas throughout the United States. Specifically, sites represented in the ITE samples are generally highly automobile-dependent and automobile-oriented, with the majority of trips taken by automobiles. Therefore, the ITE rates can be assumed to represent an approximately 100 percent automobile mode share, except for land uses where there can reasonably be expected to be some share of trips made on alternative modes of travel even in suburban environments, such as schools.

The SF Guidelines, however, examines trips made by all modes of travel, in keeping with the multimodal nature of travel behavior in a dense, urban environment like San Francisco. As a result, the ITE trip generation rates were adjusted using an AVO rate to back-calculate an estimated total person-trip generation for each given land use. Because the ITE samples include sites at various locations throughout the country, 2000 U.S. Census data on AVO for commute trips—representing a nationwide average, consistent with the size and geographic scope of the ITE survey samples—were used to derive these equivalent person-trip rates. Table 12 presents the trip generation rates used in the analysis of the Project.

Work/Non-work Splits

The SF Guidelines provides work/non-work splits for the weekday p.m. peak hour for common land uses such as residential, retail, restaurant, office, and industrial. Although the Project proposes primarily medical and medical-related uses, some of the proposed functions to exhibit work/non-work splits that are similar to the common land uses included in the SF Guidelines.

In particular, facilities providing administrative or office-related functions found in typical office buildings—approximated to the ITE's "Office Building" (Land Use 710)—and facilities providing research functions—approximated to the ITE's "Research and Development Center" (Land Use 760)—were assumed to exhibit work/non-work splits similar to standard office uses under the SF Guidelines. Facilities providing living assistance or lodging—approximated to the ITE's "Nursing Home" (Land Use 620) or "Motel" (Land Use 320)—were assumed to exhibit work/non-work splits similar to hotel/motel uses under the SF Guidelines. Work/non-work splits for other uses proposed by the Project were estimated based on empirical data obtained through trip surveys.

The assumed work/non-work splits for each land use category are summarized in Table 13.

Table 12: Assumed Person-Trip Generation Rates

ITE Land Use	Trip Rate Unit	ITE Trip Rate (trips per unit)		Equivalent Person-Trip Rate[1] (trips per unit)	
		Weekday Daily	Weekday P.M. Peak Hour	Weekday Daily	Weekday P.M. Peak Hour
Hospital (610)	1,000 square feet (gross)	13.22	0.93	14.28	1.00
Office (710)	1,000 square feet (gross)	11.03	1.49	11.91	1.61
Research and Development Center (760)	1,000 square feet (gross)	8.11	1.07	8.76	1.16
Nursing Home (620)	1,000 square feet (gross)	7.60	0.74	8.21	0.80
Motel (320)	room	5.63	0.47	6.08	0.51
Medical–Dental Office Building (720)	1,000 square feet (gross)	36.13	3.57	39.02	3.86

Source: Trip Generation (9th ed.), 2012; SF Guidelines, 2002; 2000 U.S. Census.

Notes:
ITE = Institute of Transportation Engineers
(1) ITE trip generation rates are adjusted using a nationwide average vehicle occupancy of 1.08 passengers per vehicle, per 2000 U.S. Census data.

Table 13: Assumed Work/Non-work Splits

ITE Land Use	Work/Non-work Split (Weekday P.M. Peak Hour)		Data Source
	Work	Non-work	
Hospital (610)	30%	70%	Empirical data from trip surveys
Office (710)	83%	17%	SF Guidelines (“Office”)
Research and Development Center (760)	83%	17%	SF Guidelines (“Office”)
Nursing Home (620)	60%	40%	SF Guidelines (“Hotel/Motel”)
Motel (320)	60%	40%	SF Guidelines (“Hotel/Motel”)
Medical–Dental Office Building (720)	30%	70%	Empirical data from trip surveys

ITE = Institute of Transportation Engineers; SF Guidelines = San Francisco Planning Department’s Transportation Impact Analysis Guidelines for Environmental Review (October 2002)
Sources: City and County of San Francisco Planning Department, 2002

Inbound/Outbound Splits

The SF Guidelines provides inbound/outbound splits for residential and commercial (i.e., non-residential) uses. Similar to work/non-work splits, facilities providing administrative or office-related functions found in typical office buildings—approximated to the ITE’s “Office Building” (Land Use 710)—and facilities providing research functions—approximated to the ITE’s “Research and Development Center” (Land Use 760)—were assumed to exhibit directional splits similar to “commercial” uses under the SF Guidelines.

For the remainder of the proposed uses, non-work trips were assumed to exhibit similar directional splits as for “commercial” uses, but work trips were assumed to exhibit a more evenly distributed directional split than “commercial” uses. In particular, facilities providing medical care, living assistance, or similar functions would be expected to operate 24 hours a day, requiring two to three distinct employee shifts per position through the course of a 24-hour period. As a result, it was assumed that the directional split for work trips for these uses would be substantially less weighted than for typical commercial uses.

The assumed inbound/outbound splits for each land use category are summarized in Table 14.

Table 14: Assumed Inbound/Outbound Splits

ITE Land Use	Inbound/Outbound Split (Weekday P.M. Peak Hour)			
	Work Trips		Non-work Trips	
	Inbound	Outbound	Inbound	Outbound
Hospital (610)	50%	50%	50%	50%
Office (710)	0%	100%	50%	50%
Research and Development Center (760)	0%	100%	50%	50%
Nursing Home (620)	50%	50%	50%	50%
Motel (320)	50%	50%	50%	50%
Medical–Dental Office Building (720)	50%	50%	50%	50%

Sources: SF Planning Department, 2002; Data compiled by AECOM in 2014

Mode Split

The Project-generated person-trips were assigned to travel modes using mode split data to determine the number of trips expected on each given travel mode. For the purposes of this analysis, trips were divided into the following modes defined by the SF Guidelines:

- Auto
- Transit
- Walk
- Other (bicycle, motorcycle, taxi, and other modes)

Mode split and AVO information for the Project was based on data provided in the SF Guidelines for Superdistrict 2 (for the Fort Miley Campus) and Superdistrict 3 (for the potential new Mission Bay Campus), summarized in Table 15.

Trip Distribution

The trips generated by the Project were distributed to the four quadrants (Superdistricts) of San Francisco, the rest of the Bay Area (the East Bay, the North Bay, and the South Bay/Peninsula), and outside the region based on empirical trip distribution data from the SF Guidelines for Superdistrict 2 and Superdistrict 3, summarized in Table 16.

2.1.2 Vehicle Parking Demand

Similar to the methodology for calculating travel demand, the Project's vehicle parking demand was estimated using parking demand rates provided in ITE's Parking Generation (4th ed., 2010), the industry-accepted source for land use–based parking demand rates. The rates provided in Parking Generation are derived from empirical data collected through parking surveys at locations across the United States. The Project's proposed land uses were cross-referenced to corresponding ITE land use categories in Parking Generation as follows:

- Facilities providing inpatient medical care or mental health services—such as the Building 200 expansion (Operating Room D-Wing), Building 203 (C Wing Extension/Ground-Floor Patient Welcome Center), and Building 24 (Mental Health Clinical Expansion)— were approximated as "Hospital" (Land Use 610).

- Facilities providing administrative or office-related functions found in typical office buildings—namely, the Building 207 expansion (IT Support Space)—were approximated as "Office Building" (Land Use 701).

Table 15: Assumed Mode Split and Average Vehicle Occupancy

Off-Site Trip End	Work Trips					Visitor (Non-work) Trips				
	Mode Split				AVO	Mode Split				AVO
	Auto	Transit	Walk	Other		Auto	Transit	Walk	Other	
Superdistrict 2 (Fort Miley Campus)										
San Francisco										
Superdistrict 1	39.3	40.7	16.7	3.3	1.19	41.7	35.5	16.4	6.4	1.93
Superdistrict 2	41.0	24.4	30.6	4.0	1.14	50.9	23.7	19.7	5.7	1.96
Superdistrict 3	49.9	48.0	0.0	2.1	1.25	57.1	22.3	9.9	10.7	2.05
Superdistrict 4	55.9	38.9	3.0	2.2	1.22	63.4	32.4	4.2	0.0	2.16
Rest of Bay Area										
East Bay	67.4	31.0	0.0	1.6	2.02	52.2	25.0	14.1	8.7	2.20
North Bay	81.5	16.1	0.0	2.4	1.53	73.6	8.8	14.7	2.9	1.89
South Bay	69.9	27.5	0.0	2.6	1.21	80.5	8.3	5.6	5.6	2.30
Other	95.7	1.8	0.0	2.5	3.16	48.3	19.7	23.8	8.2	2.07
Total	52.8	31.7	12.6	2.9	1.23	54.8	23.4	15.2	6.6	2.06
Superdistrict 3 (Mission Bay Campus)										
San Francisco										
Superdistrict 1	46.9	32.7	17.7	2.7	1.30	36.0	19.2	33.3	11.5	2.03
Superdistrict 2	64.6	26.4	6.9	2.1	1.26	68.6	14.5	2.4	14.5	1.97
Superdistrict 3	59.7	20.6	15.1	4.6	1.25	43.7	21.5	25.4	9.4	2.43
Superdistrict 4	75.7	21.5	0.0	2.8	1.48	67.4	16.3	7.0	9.3	2.51
Rest of Bay Area										
East Bay	68.8	29.7	0.0	1.5	1.61	68.4	29.8	1.8	0.0	2.59
North Bay	86.9	10.5	0.0	2.6	1.44	100.0	0.0	0.0	0.0	2.11
South Bay	88.5	8.8	0.0	2.7	1.13	94.6	3.6	1.8	0.0	2.28
Other	61.8	35.3	0.0	2.9	1.56	73.6	21.1	0.0	5.3	1.68
Total	71.1	20.2	5.8	2.9	1.23	56.8	18.6	16.3	8.3	2.26

Note: AVO = average vehicle occupancy
Source: SF Planning Department, 2002.

- Facilities providing research functions were approximated as “University/College” (Land Use 550), reflecting the academic and institutional nature of these functions.
- Facilities providing living assistance—namely, the Building 208 extension (Community Living Center/National Cardiac Device Surveillance Center)—were approximated as “Nursing Home” (Land Use 620).
- Facilities providing temporary lodging—namely, Building 22 (Hoptel)—were approximated as “Motel” (Land Use 320).
- Facilities providing primarily outpatient medical care—such as Building 213 (Clinical Addition)—were approximated as “Medical–Dental Office Building” (Land Use 720).

Table 16: Assumed Trip Distribution

Off-Site Trip End	Trip Distribution	
	Work Trips	Visitor (Non-work) Trips
Superdistrict 2 (Fort Miley Campus)		
San Francisco		
Superdistrict 1	8.4%	13%
Superdistrict 2	35.2%	27%
Superdistrict 3	15.8%	14%
Superdistrict 4	15.1%	9 %
Rest of Bay Area		
East Bay	7.1%	11%
North Bay	7.0%	4%
South Bay	10.6%	8%
Other	0.8%	14%
Superdistrict 3 (Mission Bay Campus)		
San Francisco		
Superdistrict 1	8.3%	13%
Superdistrict 2	10.6%	14%
Superdistrict 3	23.9%	44%
Superdistrict 4	7.9%	7%
Rest of Bay Area		
East Bay	14.3%	9%
North Bay	5.6%	1%
South Bay	26.9%	9%
Other	2.5%	3%

Source: SF Planning Department, 2002.

Similar to ITE trip generation rates, the ITE parking demand rates represent data samples in automobile-dependent and automobile-oriented suburban areas with negligible transit, biking, and walking mode shares. To correct the ITE parking demand rates, mode splits from the SF Guidelines were applied to the rates, reflecting the multimodal nature of travel in San Francisco and producing a more accurate estimate of the actual increase in parking demand expected with the Project.

Table 17 presents the trip generation rates used in the analysis of the Project, together with the peak parking demand period(s) as identified in Parking Generation. As shown in Table 17, the equivalent parking rates are approximately half of the rates published by the ITE in Parking Generation, reflecting the presence of attractive, viable alternative modes of travel in San Francisco. Most of the selected land use categories exhibit peaking characteristics similar to existing facilities on the Campus and reasonably approximate the weekday midday (1:00 p.m. to 3:00 p.m.) peak period selected for the parking occupancy surveys summarized in Section 1.5.6.

2.1.3 Freight Loading Demand

The SF Guidelines provide truck trip generation rates for common land uses such as residential, retail, light industry, and office, but does not provide specific rates for medical or medical-related uses. In particular, medical and medical-related uses may have specific freight loading needs (e.g., medical equipment and supplies, biohazard waste disposal) that may not be adequately reflected by attempting to approximate these land uses with more common ones for which the SF Guidelines specifically provides truck trip generation rates.

Table 17: Assumed Vehicle Parking Demand Rates

ITE Land Use	Parking Rate Unit	ITE Parking Rate (spaces per unit)	Equivalent Parking Rate (spaces per unit)		ITE Peak Parking Demand Periods (Weekdays)
			Superdistrict 1 (Fort Miley Campus)	Superdistrict 3 (Mission Bay Campus)	
Hospital (610)	1,000 square feet (gross)	3.70	2.16		9:00 a.m.–10:00 a.m. 12:00 p.m.–1:00 p.m. 3:00 p.m.–4:00 p.m.
Office Building (701)	1,000 square feet (gross)	2.47	1.20		9:00 a.m.–5:00 p.m.
University/College (550)	1,000 square feet (gross)	1.20	0.69	0.89	No data provided
Nursing Home (620)	1,000 square feet (gross)	0.98	0.57		9:00 a.m.–10:00 a.m. 11:00 a.m.–4:00 p.m.
Motel (320)	1,000 square feet (gross)	0.71	0.41		No data provided
Medical–Dental Office Building (720)	1,000 square feet (gross)	3.20	1.87	2.09	10:00 a.m.–12:00 p.m. 2:00 p.m.–3:00 p.m.

Note: ITE = Institute of Transportation Engineers
Sources: ITE, 2010; SF Planning Department, 2002; Data compiled by AECOM in 2014

In addition, most large campus environments such as the Project site typically provide freight loading spaces within each campus building or facility. Vehicle parking for large campuses is typically shared among various campus facilities and provided in facilities designed specifically for vehicle storage, but the nature of freight loading activities requires that loading spaces be typically provided in each building as needed, in the form of a loading dock or dedicated curb space.

As such, analysis of freight loading impacts is typically conducted for each specific building, at a time when the design of such buildings has been determined to a sufficient level of detail to identify the location of proposed freight loading facilities, the proposed supply of freight loading spaces, and the access routes for service and delivery vehicles. In particular, larger trucks may require specific accommodations with regard to building features (e.g., loading dock dimensions) or roadway design (e.g., curb radii) that typically require detailed turning template analyses to determine accessibility and usability of proposed freight loading facilities.

The Project, however, represents a master plan for the Campus involving multiple buildings and uses and, as such, is being analyzed here as part of a program-level environmental review. Specific details such as building features and roadway design will only be determined as each component of the LRDP begins to move into the design and implementation phase. As such, this study does not assess freight loading impacts with regard to the demand and supply of freight loading spaces or the accessibility and usability of freight loading facilities (and any associated effects of accessibility and usability off Campus). It is assumed that these impacts will be evaluated at a later time as each LRDP component undergoes its required project-level environmental review.

2.2 Project Demand

This section summarizes the estimates of Project travel, vehicle parking, and freight loading demand calculated according to the methodologies described in Section 2.1.

2.2.1 Travel Demand

Trip Generation

Table 18 and Table 19 summarize the estimated total person-trips generated by the Project under both the short-term (Phase 1) and long-term (Phase 2) time frames for Alternative 1 and Alternative 3, respectively. The trips in Table 18 and Table 19 represent net-new person-trips, accounting for reductions in travel demand as a result of the demolition or replacement of existing Campus facilities, but should be considered conservative estimates because they do not take into

account the existing space deficiency at the Fort Miley Campus. Trips were not estimated for some uses, such as those involving non-habitable uses, because they would not be expected to generate or attract trips on their own, and were therefore excluded from the calculations. The travel demand calculations are included in Appendix F.

Because both Alternative 1 and Alternative 3 propose the same short-term actions, both alternatives would generate the same number of person-trips in the short-term time frame. As indicated in Table 18 and Table 19, Alternative 3 would generate substantially more net-new person-trips in the long-term time frame, but the majority of these trips would be concentrated at the potential new Mission Bay Campus.

2.2.2 Mode Split

Table 20 and Table 21 summarize the Project's estimated person-trips by mode during the weekday p.m. peak hour for Alternative 1 and Alternative 3, respectively.

Table 18: Net-New Person-Trip Generation—Alternative 1

Subphase		Action	ITE Land Use [Code]	Net New Gross Area in square feet	Net-New Person-Trips	
					Weekday Daily	Weekday P.M. Peak Hour
Short-term (Phase 1)						
1.1	Building 211: Emergency Operations Center/Parking Garage	Construction	EOC to be operated by existing staff (no new parking demand) Parking garage not a habitable space			
1.2	Trailer 17	Removal	R&D Center [760]	(1,700)	(15)	(2)
	Building 41: Research	Construction	R&D Center [760]	14,200	124	16
1.3	Buildings 5 and 7	Seismic Retrofit	Renovation of existing building/space			
1.4	Buildings 9 and 10	Seismic Retrofit	Renovation of existing building/space			
	Building 22: Hoptel[(1)]	Construction	Motel [320]	8,700	49	4
1.5	Buildings 209 and 211: Parking Garage Extensions	Construction	Not a habitable space			
1.6	Building 203: C-Wing Extension (Ground-Floor Patient Welcome Center)/Drop-Off Area with Canopy Structure	Construction	Hospital [610]	7,100	101	7
1.7	Building 200: Expansion (Operating Room D-Wing)	Construction	Hospital [610]	5,300	76	5
1.8	Building 20	Demolition	Currently used as storage			
	Building 24: Mental Health Clinical Expansion	Construction	Hospital [610]	15,600	223	16
1.9	Building 18	Demolition	R&D Center [760]	(9,700)	(85)	(11)
	Building 14	Demolition	R&D Center [760]	(6,400)	(56)	(7)
	Building 21	Demolition	R&D Center [760]	(1,700)	(15)	(2)
	Trailer 23	Removal	R&D Center [760]	(900)	(8)	(1)
	Structure 206: Water Tower	Installation	Not a habitable space			
	Structure 206: Water Tower	Removal	Not a habitable space			
	Building 40: Research	Construction	R&D Center [760]	110,000	963	127
1.10	Building 207: Expansion (IT Support Space)	Construction	Office Building [710]	7,000	83	11
1.11	Trailer 31	Removal	Hospital [610]	(1,500)	(21)	(2)
	Building 43: Research and Admin.	Construction	R&D Center [760]	15,000	131	17
1.12	Trailer 36: New Modular	Installation	R&D Center [760]	2,200	19	3

Subphase		Action	ITE Land Use [Code]	Net New Gross Area in square feet	Net-New Person-Trips	
					Weekday Daily	Weekday P.M. Peak Hour
1.13	Building 23: Mental Health Research Expansion	Construction	R&D Center [760]	15,000	131	17
1.14	Building 203: Extension (Psychiatric Intensive Care Unit C-Wing)	Construction	Hospital [610]	1,200	17	1
1.15	Trailer 24	Removal	Medical–Dental Office Building [720]	(1,000)	(39)	(4)
	Building 208: Extension (Community Living Center/National Cardiac Device Surveillance Center)	Construction	Nursing Home [620]	10,000	82	8
1.16	Building 8	Seismic Retrofit	Renovation of existing building/space			
	Building 1	Seismic Retrofit	Renovation of existing building/space			
	Building 6	Seismic Retrofit	Renovation of existing building/space			
1.17	Building 12	Demolition	R&D Center [760]	(38,900)	(341)	(45)
Subtotal					1,421	159
Long-term (Phase 2)						
2.1	Building 213: Clinical Addition Building	Construction		170,000	6,633	655
Subtotal					6,633	655
Total					8,055	815

Source: Data compiled by AECOM in 2014

Notes:

EOC = Emergency Operations Center; ITE = Institute of Transportation Engineers; R&D = research and development

Numerical values enclosed in parentheses indicate negative values (demolition of building/structure or reduction in trips).

(1) A guest room density of approximately 1 room per 1,000 gross square feet was assumed for the hoptel.

Table 19: Net-New Person-Trip Generation—Alternative 3

Subphase		Action	ITE Land Use [Code]	Net-New Gross Area in square feet	Net-New Person-Trips	
					Weekday Daily	Weekday P.M. Peak Hour
Short-term (Phase 1)						
Same as for Alternative 1						
Subtotal					1,421	159
Long-term (Phase 2)(1)						
2.1	Ambulatory Care Center	Construction	Medical–Dental Office Building [720]	140,000	5,463	540
2.2	Clinical Parking Garage (100 spaces)	Construction	Not a habitable space			
Subtotal					5,463	540
Total					6,884	699

Source: Data compiled by AECOM in 2014

Notes:

ITE = Institute of Transportation Engineers; R&D = research and development

(1) Under Alternative 3, the long-term (Phase 2) land use components of the LRDP would take place at the new Mission Bay Campus.

Table 20: Net-New Project Trips by Mode (Weekday P.M. Peak Hour)—Alternative 1

Direction	Net-New Person-Trips					Net-New Vehicle-Trips
	Auto	Transit	Walk	Other[1]	Total	
Short-term (Phase 1)						
Inbound	13	6	4	1	25	7
Outbound	67	39	17	4	127	49
Subtotal	81	45	20	6	152	57
Long-term (Phase 2)						
Inbound	177	85	47	18	327	101
Outbound	177	85	47	18	327	101
Subtotal	354	170	94	36	654	202
Total						
Inbound	190	91	51	19	352	108
Outbound	244	124	64	22	454	150
Total	435	215	114	42	806	259

Source: Data compiled by AECOM in 2014

Notes:
(1) "Other" includes bicycles, motorcycles, taxis, and other modes.

Table 21: Net-New Project Trips by Mode (Weekday P.M. Peak Hour)—Alternative 3

Direction	Net-New Person-Trips					Net-New Vehicle-Trips
	Auto	Transit	Walk	Other[1]	Total	
Short-term (Phase 1)						
Inbound	13	6	4	1	25	7
Outbound	67	39	17	4	127	49
Subtotal	81	45	20	6	152	57
Long-term (Phase 2)[2]						
Inbound	164	52	36	18	270	92
Outbound	164	52	36	18	270	92
Subtotal	327	104	72	37	540	184
Total						
Inbound	177	58	40	20	294	99
Outbound	231	91	53	23	397	141
Total	408	149	92	43	691	240

Source: Data compiled by AECOM in 2014

Notes:
(1) "Other" includes bicycles, motorcycles, taxis, and other modes.
(2) Under Alternative 3, the long-term (Phase 2) land use components of the LRDP would take place at the new Mission Bay Campus.

2.2.3 Vehicle Parking Demand

Table 22 and Table 23 summarize the weekday peak-hour vehicle parking demands for Alternative 1 and Alternative 3, respectively. The parking demand calculations are included in Appendix G.

Table 22: Net-New Project Parking Demand—Alternative 1

Subphase		Action	ITE Land Use [Code]	Net-New Gross Area in square feet	Net-New Weekday Peak Hour Parking Demand in spaces
Short-term (Phase 1)					
1.1	Building 211: Emergency Operations Center/Parking Garage	Construction	EOC to be operated by existing staff (no new parking demand) Parking garage not a habitable space		
1.2	Trailer 17	Removal	University/College [550]	(1,700)	(1)
	Building 41: Research	Construction	University/College [550]	14,200	9
1.3	Buildings 5 and 7	Seismic Retrofit	Renovation of existing building/space		
1.4	Buildings 9 and 10	Seismic Retrofit	Renovation of existing building/space		
	Building 22: Hoptel[(1)]	Construction	Motel [320]	8,700	3
1.5	Buildings 209 and 211: Parking Garage Extensions	Construction	Not a habitable space		
1.6	Building 203: C-Wing Extension (Ground-Floor Patient Welcome Center)/Drop-Off Area with Canopy Structure	Construction	Hospital [610]	7,100	14
1.7	Building 200: Expansion (Operating Room D-Wing)	Construction	Hospital [610]	5,300	11
1.8	Building 20	Demolition	Currently used as storage (no parking demand assumed)		
	Building 24: Mental Health Clinical Expansion	Construction	Hospital [610]	15,600	31
1.9	Building 18	Demolition	University/College [550]	(9,700)	(6)
	Building 14	Demolition	University/College [550]	(6,400)	(4)
	Building 21	Demolition	University/College [550]	(1,700)	(1)
	Trailer 23	Removal	University/College [550]	(900)	(1)
	Structure 206: Water Tower	Installation	Not a habitable space		
	Structure 206: Water Tower	Removal	Not a habitable space		
	Building 40: Research	Construction	University/College [550]	110,000	70
1.10	Building 207: Expansion (IT Support Space)	Construction	Office Building [701]	7,000	8
1.11	Trailer 31	Removal	Hospital [610]	(1,500)	(3)
	Building 43: Research and Admin.	Construction	University/College [550]	15,000	10
1.12	Trailer 36: New Modular	Installation	University/College [550]	2,200	1
1.13	Building 23: Mental Health Research Expansion	Construction	University/College [550]	15,000	10
1.14	Building 203: Extension (Psychiatric Intensive Care Unit C-Wing)	Construction	Hospital [610]	1,200	2
1.15	Trailer 24	Removal	Medical–Dental Office Building [720]	(1,000)	(2)
	Building 208: Extension (Community Living Center/National Cardiac Device Surveillance Center)	Construction	Nursing Home [620]	10,000	5
1.16	Building 8	Seismic Retrofit	Renovation of existing building/space		
	Building 1	Seismic Retrofit	Renovation of existing building/space		

	Building 6	Seismic Retrofit	Renovation of existing building/space		
1.17	Building 12	Demolition	University/College [550]	(38,900)	(25)
Subtotal					132
Long-term (Phase 2)					
2.1	Building 213: Clinical Addition Building	Construction	Medical–Dental Office Bldg. [720]	170,000	295
Subtotal					295
Total					426

Source: Data compiled by AECOM in 2014

Notes:

EOC = Emergency Operations Center; IT = information technology; ITE = Institute of Transportation Engineers

Numerical values enclosed in parentheses indicate negative values (demolition of building/structure or reduction in trips).

(1) A guest room density of approximately 1 room per 1,000 gross square feet was assumed for the hoptel.

Table 23: Net-New Project Parking Demand—Alternative 3

Subphase		Action	ITE Land Use [Code]	Net-New Gross Area in square feet	Net-New Weekday Peak Hour Parking Demand in spaces
Short-term (Phase 1)					
Same as for Alternative 1					
Subtotal					132
Long-term (Phase 2)(1)					
2.1	Ambulatory Care Center	Construction	Medical–Dental Office Building [720]	140,000	271
2.2	Clinical Parking Garage (100 spaces)	Construction	Not a habitable space		
Subtotal					271
Total					403

Source: Data compiled by AECOM in 2014

Notes:

ITE = Institute of Transportation Engineers

(1) Under Alternative 3, the long-term (Phase 2) land use components of the LRDP would take place at the new Mission Bay Campus.

2.2.4 Freight Loading Demand

As discussed in Section 2.1.3, it is assumed that freight loading impacts with regard to the demand and supply of freight loading spaces will be evaluated at a later time as each LRDP component undergoes its required project-level environmental review. As such, estimates of freight loading demand were not developed for this study.

2.3 Criteria for Determining Significance of Effects

Although the Project is a federal action and not subject to local transportation policies and guidance, insomuch as the Project may have transportation-related impacts on the surrounding neighborhoods, the following significance criteria used by the City and County of San Francisco Planning Department for the determination of transportation impacts associated with a proposed project were adopted for this study:

- The operational impact on signalized intersections is considered significant when project-related traffic causes the intersection LOS to deteriorate from LOS D or better to LOS E or LOS F, or from LOS E to LOS F. The operational impact on unsignalized intersections is considered significant when project-related traffic causes the intersection LOS to deteriorate from LOS D or better to LOS E or LOS F, or from LOS E to LOS F, and the conditions of the Manual on Uniform Traffic Control Devices (MUTCD) peak-hour signal warrant are met. In addition, a project would have a

significant adverse impact if it would cause major traffic hazards or contribute considerably to cumulative traffic increases that would cause deterioration in levels of service to unacceptable levels.

- The project would have a significant effect if it would 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 delays or operating costs such that significant adverse impacts in transit service levels could result.

- The project would have a significant effect if it would 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.

- The project would have a significant effect if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.

- The project would have a significant effect if it would result in a substantial parking deficit that could create hazardous conditions or significant delays affecting traffic, transit, bicycles, or pedestrians, and where particular characteristics of the project or its site demonstrably render use of other modes infeasible.

- A project would have a significant effect if it would result in a loading demand during the peak hour of loading activities that could not be accommodated within proposed on-site loading facilities or within convenient on-street loading zones, and create potentially hazardous conditions or significant delays affecting traffic, transit, bicycles, or pedestrians.

- The project would have a significant effect if it would result in inadequate emergency access.

The City and County of San Francisco does not have significance criteria related to roadway segments. In order to preserve consistency with the intersection analysis, the LOS-based criteria identified above for the study intersections were also applied to the study roadway segments.

3.0 Short-term Effects

The analysis of short-term effects evaluates conditions in Year 2020, including planned and proposed future development growth and transportation network changes in the study area, as well as background growth in travel demand in the City and region.

3.1 Methods and Assumptions

3.1.1 Background Growth

Background growth in travel demand within the Project vicinity consists of both general growth in the City and region, as well as growth from specific foreseeable developments. Background growth information is generally obtained by consulting travel demand forecasting models, which incorporate a variety of factors related to the transportation network and tripmaking behavior; land use, population, and socioeconomic characteristics; and other data in an attempt to project traffic volumes for a given forecast year.

For this study, the San Francisco Chained Activity Modeling Process (SF-CHAMP) model maintained by the San Francisco County Transportation Authority (SFCTA) was consulted in the development of background growth projections. SF-CHAMP is the standard travel demand model used to develop future-year travel forecasts for the analysis of development projects in San Francisco. SF-CHAMP is a state-of-the-art tool that models the city's transportation network (roadway and bikeway infrastructure, transit infrastructure and services, and the pedestrian environment) at a fine grain, while also comprehensively incorporating observations of city residents' travel patterns and other factors that may affect tripmaking behavior, such as vehicle ownership rates. SF-CHAMP was developed with a highly sensitive tour-based forecasting methodology that allows for trip chaining (or "trip linking"), which better replicates actual travel behavior and is more comprehensive than a traditional four-step model based on trip generation, mode split, trip distribution, and route assignment. To develop background growth projections, the SF-CHAMP model was used for both the baseline model year (2012) and forecast model year (2040).

Before estimating the background growth, the land use and socioeconomic inputs for the Traffic Analysis Zone (TAZ) containing the Project site were checked to determine whether or not the Project was already assumed in the future-year model. The Campus is located within TAZ 738, which is bounded by Clement Street/Seal Rock Drive at its southern end and encompasses all of the Campus and portions of the surrounding GGNRA land, but does not include any of the surrounding residential neighborhoods. Investigation of the changes in assumed employment levels for TAZ 738 between the baseline-year and forecast-year models confirmed that the Project was not explicitly included as part of the forecast-year model.

Traffic Forecasts

To estimate future-year traffic volumes for this study, a non-compounded annual growth rate was derived by consulting the baseline-year and forecast-year SF-CHAMP models and extracting the projected volume on the roadway links feeding into each of the study intersections. Some degree of variability was observed in the calculated growth rates. Many locations showed a negative growth rate, corresponding to a decrease in traffic between the baseline-year and future-year models. Locations with the highest calculated growth rates still only showed modest growth of about 0.25 percent per year.

To be consistent with previous studies conducted in the vicinity of the Project site, including the Presidio Trust Management Master Plan Environmental Impact Statement (May 2002),[14] a positive, conservative growth rate of 0.5 percent per year was assumed for the traffic analysis. A 0.5 percent growth rate can be considered reasonably conservative given the SF-CHAMP projections for minimal or negative growth in traffic volumes, as well as the general lack of large, undeveloped parcels in the vicinity of the Campus. The surrounding neighborhoods are largely built out, and any new growth in population or employment would likely require redevelopment of existing parcels.

[14] Final Environmental Impact Statement: Presidio Trust Management Plan – Land Use Policies for Area B of the Presidio of San Francisco (May 2002).

Transit Forecasts

Ridership projections for Muni lines serving the Campus were derived by examining ridership assignment outputs from SF-CHAMP for the baseline-year and forecast-year models. SF-CHAMP provides dedicated line-by-line boardings and alightings for each Muni line, known as "quickboards." Similar to the development of traffic forecasts, transit ridership forecasts can be developed by calculating annual growth rates from the baseline-year model ridership to the forecast-year model ridership based on the quickboard outputs. These growth rates can then be applied to the ridership data in Table 9, adjusting for the desired horizon year, to derive future-year ridership projections.

Given the nature of travel forecasting, however, the quickboards can produce counterintuitive results—such as unexpected decreases in ridership—when attempting to analyze ridership assignments at a microscopic (i.e., line-by-line) level. As a result, a direct application of line-based growth factors calculated from SF-CHAMP is typically considered impractical. Instead, future-year ridership is typically examined at the corridor-level, and the growth rates are calculated by aggregating the quickboard data for each line in the corridor, smoothing out any potential inconsistencies in the quickboard assignments. In particular, transit service along Geary Boulevard can be considered to comprise the three lines analyzed in Table 9, together with the 38BX Geary "B" Express. A non-compounded annual growth rate for transit ridership in the Geary Corridor was thus calculated by aggregating the quickboard assignments for these four lines.

The resulting ridership forecasts for the Geary Corridor were checked against the estimated ridership in 2035 for the Geary Corridor as calculated in the Transit Effectiveness Project Draft Environmental Impact Report (July 10, 2013) (TEP DEIR) (Planning Department Case No. 2011.0558E; State Clearinghouse No. 2011112030). Minor adjustments were made as necessary to ensure consistency with the TEP DEIR.

3.1.2 Transportation Network Modifications

Included in the analysis of short-term effects are changes to the transportation network proposed by SFMTA, including those associated with the Geary Corridor Bus Rapid Transit (BRT) Project, the Transit Effectiveness Project (TEP), and the San Francisco Bicycle Plan. These projects are discussed in more detail below.

Geary Corridor Bus Rapid Transit

This project would involve major upgrades to transit service in the Geary Corridor designed to decrease travel times on transit, improve transit reliability, and improve pedestrian safety and access to transit. The project encompasses the stretch of Geary Street/O'Farrell Street and Geary Boulevard from Market Street west to 34th Avenue and proposes the following improvements:

- Improvements to transit infrastructure and service, including exclusive, high-visibility bus-only lanes for most of the route within the project extents, mostly in a side-running alignment but with a center-running alignment from Palm Avenue west to 26th Avenue. Transit signal priority and new low-floor buses would also be introduced, and bus stops would be relocated, replaced, or upgraded as needed. All-new, high-amenity platform stations would be constructed in the center-running segment and bus bulbs would be constructed in side-running segments.

- Improvements to pedestrian safety, including high-visibility treatments for crosswalks, improved signage, construction of corner bulb-outs at intersections, and measures to reduce conflict between pedestrians and left-turning vehicles.

Within the project extents, BRT stops would generally follow the existing stopping pattern for 38L services, with stops located at Kearny Street (outbound only), Stockton Street, Powell Street, Leavenworth Street, Van Ness Avenue, Fillmore Street, Divisadero Street, Masonic Avenue/Presidio Avenue, Spruce Street, Arguello Boulevard, 6th Avenue, Park Presidio Boulevard, 17th Avenue, 21st Avenue, 25th Avenue, 30th Avenue, and 33rd Avenue.

The project is expected to result in a 25 percent reduction in travel time and a 20 percent improvement in transit reliability, resulting in a 10 to 20 percent increase in ridership on the improved sections of the corridor. Construction could begin in 2017, with revenue service beginning as early as 2019, becoming Muni's second BRT project after the Van Ness Avenue BRT.

Existing transit service in the Geary Corridor is structured around four distinct services or routes—one local service, one limited service, and two peak-period (commute) express services. Based on discussions with SFMTA staff, service in the Geary Corridor would be restructured with the commencement of BRT service into three lines operating four distinct services—one local, two limited, and one peak-period (commute) express. Each of the four services would operate with articulated buses (94 passengers per bus) at 6-minute headways during the peak hours, providing a combined total of 40 services per hour in the Geary Corridor. These services are described below.

- 38 Geary: Local service between Downtown and Fort Miley.

- 38 Geary Limited: Two limited services, one operating between Downtown and Geary Boulevard/25th Avenue and the other continuing west of 25th Avenue to Point Lobos Avenue/48th Avenue.

- 38X Geary Express: Express service between Downtown and Point Lobos Avenue/48th Avenue.

Transit Effectiveness Project
The Transit Effectiveness Project (TEP) would institute a series of sweeping, systemwide changes to Muni service to streamline operations, adapt to changes in travel patterns, and improve reliability and passenger experience. As described in the TEP DEIR, the proposed changes included the following projects:

- Service Improvements
  These projects include the creation of new routes, changes to the alignment of existing routes (including elimination of underutilized routes or segments), changes to frequency and service hours, changes to transit vehicle type on specific routes, changes to corridor service plans (e.g., adjustments to the scheduled mix of local, limited, and express services), and other minor changes (e.g., new stops on express services, expansion of limited service on weekends, or providing an additional day of service on weekends [e.g., Saturday or Sunday]).

- Service-Related Construction Improvements
  These projects represent service improvements that require investment in construction infrastructure, and include "Terminal and Transfer Point Improvements" (TTPI) (e.g., installation of new switches, installation of bus bulbs, expansion of bus layover facilities), "Overhead Wire Expansion" (OWE) (e.g., installation of new overhead wires and associated infrastructure to expand electric trolley coach service to new streets or allow electric trolley coaches to pass each other), and "Systemwide Construction Infrastructure" (SCI) (e.g., installation of new accessible platforms on the surface light rail network).

- Travel Time Reduction Proposals
  These projects include implementation of elements from SFMTA's Transit Preferential Streets (TPS) Toolkit—transit stop changes, lane geometry modifications, parking/turn restrictions, traffic signal and stop sign changes, and pedestrian improvements)—to 17 of the 23 corridors identified as part of Muni's "Rapid Network."

Specifically, the TEP proposes the following changes to routes in the Geary Corridor, where the weekday a.m. peak period is defined as 7:00 a.m. to 9:00 a.m., the weekday midday period as 9:00 a.m. to 2:00 p.m., and the weekday p.m. peak period as 4:00 p.m. to 6:00 p.m.:

- 38 Geary
  Service west of 33rd Avenue (i.e., Fort Miley and 48th Avenue/Point Lobos Avenue branches) would see minor changes to headways, as follows:
  - Weekday a.m. peak period: 12 minutes → 15 minutes
  - Weekday midday period: 16 minutes → 15 minutes
  - Weekday p.m. peak period: 16 minutes → 12 minutes

  Service east of 33rd Avenue would see minor changes to headways, as follows:

  - Weekday a.m. peak period: 12 minutes → 7.5 minutes
  - Weekday p.m. peak period: 8 minutes → 6 minutes

- 38L Geary Limited
  Service would be expanded to operate on Sundays. Minor changes to headways would be implemented, as follows:
  - Weekday a.m. peak period: 5.5 minutes → 5 minutes
  - Weekday midday: 5.5 minutes → 5 minutes
  - Weekday p.m. peak period: 5.5 minutes → 5 minutes

- 38AX Geary "A" Express
  New stops would be added at Bush Street/Van Ness Avenue (inbound) and Pine Street/Van Ness Avenue (outbound).

- 38BX Geary "B" Express
  New stops would be added at Bush Street/Van Ness Avenue (inbound) and Pine Street/Van Ness Avenue (outbound).

San Francisco Bicycle Plan
The San Francisco Bicycle Plan (June 26, 2009) (Bike Plan) outlines a series of improvements to San Francisco's bicycle route network, as well as supporting policies related to bicycle use (e.g., bicycle parking, traffic enforcement and safety) designed to promote and increase safe bicycle use in the city. With regard to the city's bicycle route network, the Bike Plan proposes changes to existing bicycle routes (e.g., relocation or realignment of routes), as well as expansions of the bicycle route network to new streets. In particular, the Bike Plan categorizes improvements to the bicycle route network into one of three categories:

- Near-term Bicycle Improvement Projects
  A series of 60 projects intended to be implemented in the near-term time frame and for which detailed design has already been conducted.

- Long-term Bicycle Improvement Projects
  These projects are intended to be implemented in the long-term time frame, and no schedule or detailed design has been developed for these projects.

- Minor Improvements to Bicycle Route Network
  These projects are minor treatments to improve conditions for bicycle use, including projects to address gaps or deficiencies in the bicycle route network. Typical improvements include pavement treatments and signage, traffic signal adjustments, and changes to on-street parking.

In terms of improvement to the bicycle route network in the vicinity of the Project, the Bike Plan proposes the following projects:

- Near-term Bicycle Improvement Projects
  - Route 95: Great Highway and Point Lobos Avenue Bicycle Lanes, El Camino Del Mar to Cabrillo Street (Project 7-3)

- Long-term Bicycle Improvement Projects
  - Geary Boulevard between 25th Avenue and Divisadero Street

- Minor Improvements to Bicycle Route Network

- Route 10: Lake Street between 28th Avenue and 30th Avenue
- Route 10/95: Clement Street/Seal Rock Drive between 30th and 34th Avenue and between 43rd Avenue and El Camino del Mar, and El Camino del Mar between Seal Rock Drive and Point Lobos Avenue
- Route 85: Legion of Honor Drive/34th Avenue between Lincoln Highway/El Camino del Mar and Cabrillo Street
- Route 95: El Camino del Mar between 28th Avenue and El Camino del Mar (Sea Cliff Avenue) and between McLaren Avenue and 30th Avenue, and 30th Avenue between El Camino del Mar and Lake Street
- Route 395: El Camino del Mar/Lincoln Highway between Legion of Honor Drive/34th Avenue and 30th Avenue

Since the lifting of an injunction that prevented implementation of the Bike Plan (subsequent to the data collection efforts conducted used to develop Existing Conditions for this study), many of the improvement projects have already been completed. In particular, a modified version of Project 7-3 was approved as an addendum to the San Francisco Bicycle Plan Final Environmental Impact Report (August 2009) (Planning Department Case No. 2007.0347E; State Clearinghouse No. 2008032052) on May 15, 2013, and has already been constructed.

3.2 2020 Short-term Alternative 4 Conditions

The following section summarizes the analysis results for 2020 Short-term Alternative 4 Conditions, which are presented here first because they represent the "no action" (i.e., "baseline" or "no Project") alternative, facilitating a comparison with the action alternatives (Alternative 1, Alternative 2, and Alternative 3) in the subsequent sections to determine Project impacts. For this reason, this section focuses on topics for which potential impacts of the Project are determined through quantitative analysis—namely, intersection and roadway segment operations for traffic conditions and Muni ridership and capacity for transit conditions. Topics for impacts evaluated qualitatively—such as bicycle, pedestrian, vehicle parking, freight loading, and emergency vehicle access conditions—are not discussed in this section.

3.2.1 Traffic Conditions

Intersections

Existing Conditions traffic volumes were combined with the estimated growth in traffic by 2020 resulting from planned development both within and outside of the study area—forecasted according to the methodology described in Section 3.1.1—to develop traffic volumes for 2020 Short-term Alternative 4 Conditions. The resulting traffic volumes and LOS at the study intersections are illustrated in Figure 13 and summarized in Table 24, respectively.

Table 24: Intersection Levels of Service—2020 Short-term Alternative 4 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	Existing Conditions		2020 Short-term Alternative 4 Conditions	
			LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)
1	34th Avenue/Clement Street	All-Way Stop	B	11.8	B	12.4
2	42nd Avenue/Clement Street	All-Way Stop	B	11.0	B	11.4
3	43rd Avenue/Clement Street	All-Way Stop	B	11.7	B	12.3
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	B	12.4	B	13.1
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	B	14.2	C	15.1

Note: LOS = level of service
Source: Data compiled by AECOM in 2014

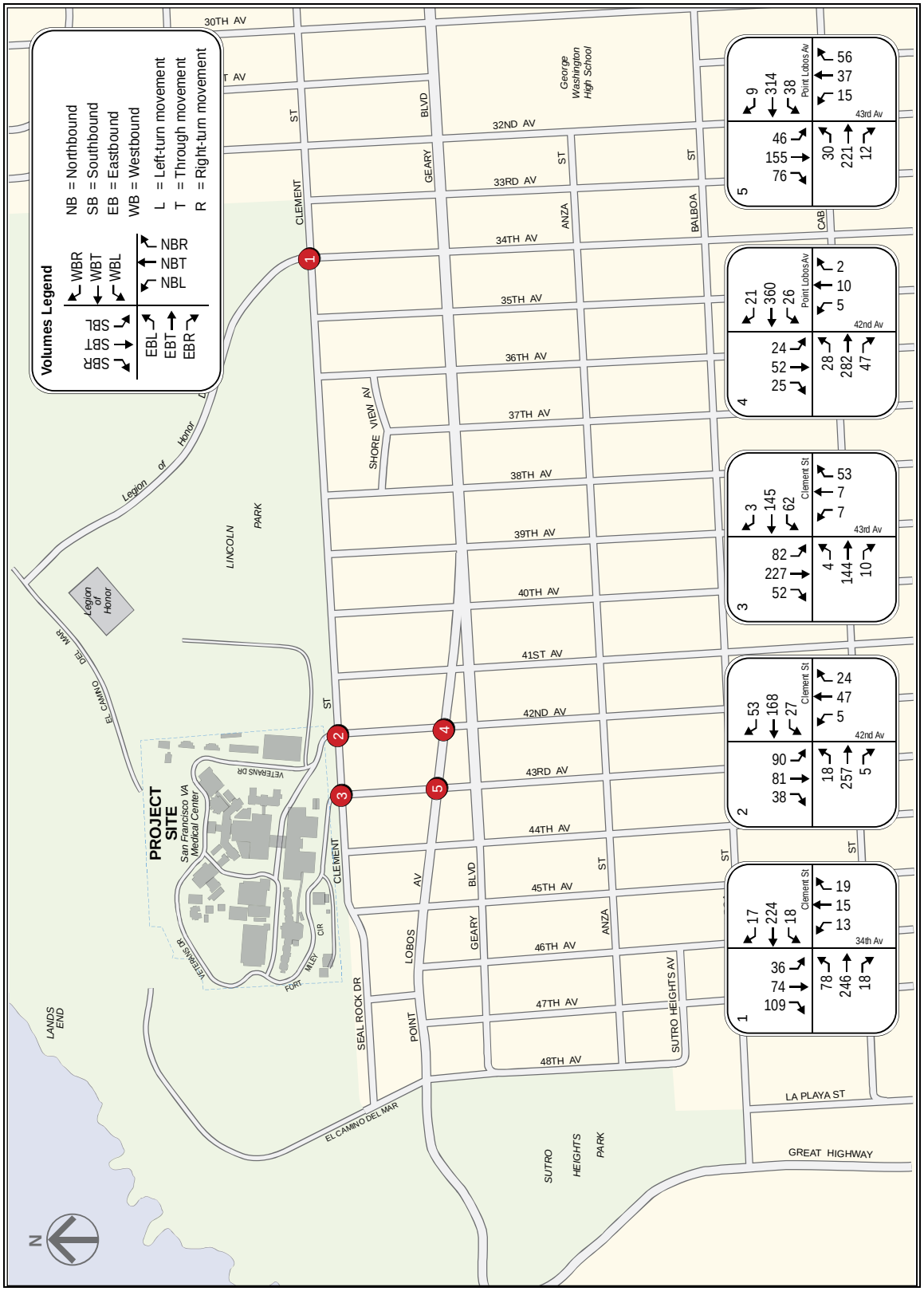

Figure 13: Intersection Traffic Volumes—2020 Short-term Alternative 4 Conditions

As shown in Table 24, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2020 Short-term Alternative 4 Conditions.

Roadway Segments

The expected LOS at the two study roadway segments under 2020 Short-term Alternative 4 Conditions is summarized in Table 25. As shown in Table 25, both roadway segments would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2020 Short-term Alternative 4 Conditions.

Table 25: Roadway Segment Levels of Service—2020 Short-term Alternative 4 Conditions (Weekday P.M. Peak Hour)

Roadway Segment	Direction	Existing Conditions		2020 Short-term Alternative 4 Conditions	
		LOS	v/c Ratio	LOS	v/c Ratio
1 42nd Avenue	Northbound	A	0.16	A	0.17
Between Clement Street and Point Lobos Avenue	Southbound	A	0.24	A	0.25
2 43rd Avenue	Northbound	A	0.16	A	0.17
Between Clement Street and Point Lobos Avenue	Southbound	C	0.64	C	0.66

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

3.2.2 Transit Conditions

Public Transit

Table 26 summarizes ridership, capacity, and capacity utilization of transit services in the Geary Corridor under 2020 Short-term Alternative 4 Conditions. As shown in Table 26, ridership would increase from Existing Conditions, but overall capacity improvements in the corridor as a result of BRT and the TEP would help to reduce overall capacity utilization.

Table 26: Muni Ridership and Capacity—2020 Short-term Alternative 4 Conditions (Weekday P.M. Peak Hour)

Direction	Existing Conditions			2020 Short-term Alternative 4 Conditions		
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization
Inbound	908	1,777	51%	1,142	2,820	41%
Outbound	1,814	2,528	72%	2,359	3,826	62%

Source: SFMTA, 2011.

Notes:
Ridership data based on conditions at the MLP for each line.

3.3 2020 Short-term Alternative 1 Conditions

The following section summarizes the analysis results for 2020 Short-term Alternative 1 Conditions. For quantitative analyses, results are compared against the results for 2020 Short-term Alternative 4 Conditions to determine any potential impacts as a result of the Project. For other analyses, conditions with the Project and any potential impacts are discussed qualitatively.

3.3.1 Operational Traffic Impacts

Intersections

The Project's estimated vehicle-trips under Phase 1 of Alternative 1, as summarized in Table 20, were added to traffic volumes for 2020 Short-term Alternative 4 Conditions to derive traffic volumes for 2020 Short-term Alternative 1 Conditions, illustrated in Figure 14. The resulting LOS at the study intersections under 2020 Short-term Alternative 1 Conditions is summarized in Table 27.

Table 27: Intersection Levels of Service—2020 Short-term Alternative 1 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	2020 Short-term Alternative 4 Conditions		2020 Short-term Alternative 1 Conditions	
			LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)
1	34th Avenue/Clement Street	All-Way Stop	B	12.4	B	12.8
2	42nd Avenue/Clement Street	All-Way Stop	B	11.4	B	11.8
3	43rd Avenue/Clement Street	All-Way Stop	B	12.3	B	13.6
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	B	13.1	B	13.3
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	C	15.1	C	15.9

Note: LOS = level of service
Source: Data compiled by AECOM in 2014

As shown in Table 27, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2020 Short-term Alternative 1 Conditions. As such, the Project would not result in significant operational impacts on any study intersections.

Roadway Segments

Roadway segment LOS for 2020 Short-term Alternative 1 Conditions is summarized in Table 28.

Table 28: Roadway Segment Levels of Service—2020 Short-term Alternative 1 Conditions (Weekday P.M. Peak Hour)

Roadway Segment		Direction	2020 Short-term Alternative 4 Conditions		2020 Short-term Alternative 1 Conditions	
			LOS	v/c Ratio	LOS	v/c Ratio
1	42nd Avenue	Northbound	A	0.17	A	0.18
	Between Clement Street and Point Lobos Avenue	Southbound	A	0.25	A	0.26
2	43rd Avenue	Northbound	A	0.17	A	0.17
	Between Clement Street and Point Lobos Avenue	Southbound	C	0.66	C	0.72

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

As shown in Table 28, both roadway segments would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2020 Short-term Alternative 1 Conditions. As such, the Project would not result in significant operational impacts on any roadway segments.

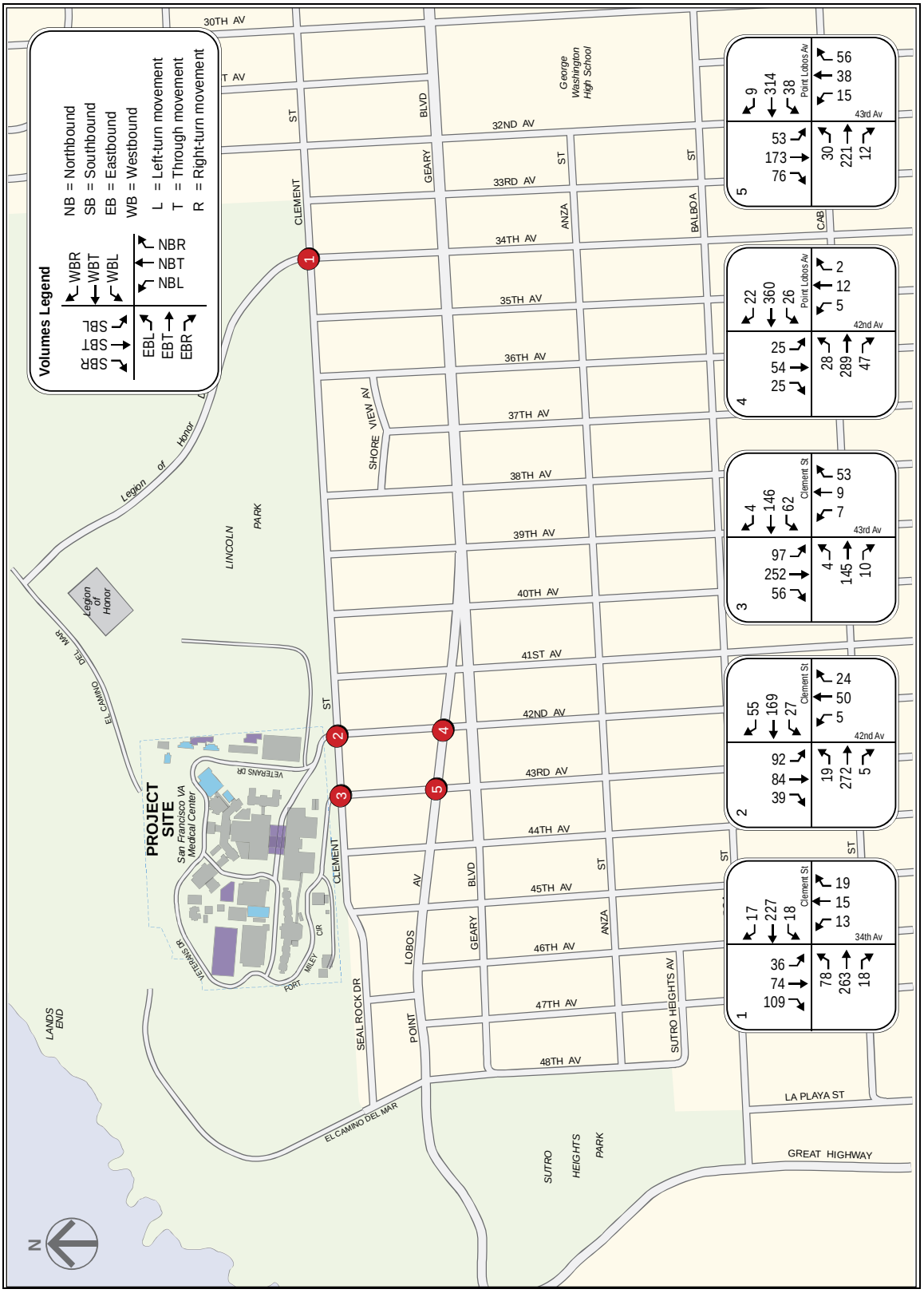

Figure 14: Intersection Traffic Volumes—2020 Short-term Alternative 1 Conditions

Passenger Vehicle Access

As described in Section 1.3.3, the Project would institute several changes to circulation on the Campus. Specifically, construction of the Patient Welcome Center would close Fort Miley Circle to through traffic and construct a new traffic circle, providing curb space for passenger pick-up and drop-off activities. Access between the east and west sides of the Campus would still be retained via Veterans Drive, although security gates would be installed on some segments surrounding proposed Building 40, effectively creating separate "employee" and "Veteran/visitor" zones on the Campus. The roadway between Building 200 and the future Building 213 would be narrowed as part of a traffic calming measure, and Fort Miley Circle west of Building 203 would be converted from one-way westbound traffic to two-way traffic.

These changes would generally improve passenger vehicle access by simplifying circulation through the Campus and segregating employee and Veteran/visitor vehicular traffic. Although a specific design for the proposed security gates near Building 40 has yet to be determined, a typical gate-processing time of 5 seconds would accommodate up to 720 vehicle movements per hour at each gate. The gates would likely be placed sufficiently within the confines of the Campus that any temporary vehicle queues that may develop would not extend outside of the Campus or cause major disruption to Campus circulation. Overall, the changes to passenger vehicle access proposed by the Project would result in, at most, only minor changes to travel times (either increase or decrease) and access routes, and would not constitute a significant operational impact on passenger vehicle access at the Campus.

East Fort Miley Access

The Project would not propose specific changes to GGNRA access to and from East Fort Miley, and the existing access road at the southwest corner of Building 212 would continue to serve traffic generated at this facility. The LRDP would implement some minor changes to the internal roadway network to better segregate employee and Veteran/visitor traffic across the Campus's two main access points on 42nd Avenue and 43rd Avenue. However, these changes would result in, at most, only minor changes in the total traffic volumes passing through the Veterans Drive/Fort Miley Circle intersection (either increase or decrease) and would not preclude GGNRA access into and out of East Fort Miley. Overall, the Project is not expected to result in significant operational impacts on GGNRA access into and out of East Fort Miley.

3.3.2 Operational Transit Impacts

Public Transit

Ridership and Capacity Effects

As shown in Table 20, Phase 1 of Alternative 1 would generate approximately 45 net-new transit trips (six inbound to the Project site and 39 outbound from the Project site) during the weekday p.m. peak hour. As a result of the Campus's location at the outer end of the Geary Corridor, well outside of Downtown San Francisco, the commute direction for the Project constitutes the "reverse commute" direction (i.e., traveling opposite to the general commute direction). In particular, passenger loads are substantially heavier on outbound buses in the Geary Corridor than on inbound buses in the Geary Corridor during the weekday p.m. peak hour as a result of passengers returning home from Downtown San Francisco, a trend reflected in the expected ridership and capacity utilization for 2020 Short-term Alternative 4 Conditions shown in Table 26.

Because of the Campus's location, however, the Project would only add a maximum of six passengers to the Geary Corridor in the outbound direction during the weekday p.m. peak hour, who could easily be accommodated without exceeding the 85 percent capacity utilization threshold established by the SFMTA Board. In particular, outbound transit service in the Geary Corridor is expected to operate at only 62 percent capacity utilization under 2020 Short-term Alternative 4 Conditions, as shown in Table 26. The addition of up to six passengers as a result of the Project would represent only a 0.2 percent increase in capacity utilization. This would not constitute a material change in the capacity utilization, which would continue to remain below the 85 percent threshold at 62 percent under 2020 Short-term Alternative 1 Conditions.

The majority of Project-generated transit ridership during the weekday p.m. peak hour would be leaving the Project site. Although the Project would generate approximately 39 new transit riders in this direction, inbound transit services in the Geary Corridor only operate at 41 percent capacity utilization during the weekday p.m. peak hour. The addition of up to 39

new riders generated by the Project would only increase the capacity utilization to a maximum of 42 percent, well below the 85 percent threshold.

In addition, it is likely that only some of these 39 new transit riders would choose to take Muni buses in the Geary Corridor. As shown in Table 10, SFVAMC currently provides two commuter shuttle routes, one serving transit hubs in Downtown San Francisco and the other serving the Golden Gate Bridge Toll Plaza. Although service on these routes is generally less frequent than Muni service in the Geary Corridor, the benefits of a free transit service offering faster (and less variable) travel times, higher-amenity vehicles, and a seat for the entire journey would likely attract many of these new riders. As a result, the actual increase in capacity utilization on inbound buses in the Geary Corridor is expected to be less than as described above.

Given these considerations, the Project is not expected to result in a significant operational impact on Muni capacity in either direction in the Geary Corridor.

Other Effects

As described in Section 1.3.3, the Project would institute several changes to circulation on the Campus. In particular, construction of the Patient Welcome Center would close Fort Miley Circle to through traffic. Muni buses directly serving the Campus on the 38 Geary's Fort Miley service would no longer loop via Fort Miley Circle to 43rd Avenue when continuing back inbound to Downtown San Francisco, instead using the new traffic circle to return via 42nd Avenue. A designated stop for Muni vehicles would be provided at the traffic circle. Overall, these changes would not constitute a significant operational impact on Muni service, and instead represent benefits to Muni service, including a minor savings in travel time and fuel (and, by consequence, operating costs).

The Project's proposed circulation changes would also better segregate traffic using the Campus's two main access points, with Veterans and visitors encouraged to use the 42nd Avenue access and employees encouraged to use the 43rd Avenue access. This change would not constitute a significant operational impact on Muni service because the potential for increased conflict between buses and other vehicles would be minimal, with some potential benefits generated by the segregation of employee traffic and buses during the peak hours. In particular, the Project's expected net increase of 57 vehicle-trips as shown in Table 20 would likely not substantially affect Muni operations, and the expected increase in average delays at 42nd Avenue/Clement Street would be negligible, as shown in Table 27.

More detail regarding on-site campus circulation can be found in the Draft SFVAMC Fort Miley Campus On-site Circulation Optional Recommendations memorandum (February 11, 2014), attached as Appendix H.

SFVAMC Shuttle Services

As described in Section 1.3.3, the Project would institute several changes to shuttle access and circulation at the Campus. In particular, stops would be relocated into two new locations—one at the new Patient Welcome Center traffic circle, with dedicated stops and curbside space, and another between Building 208 and Building 209—as shown in Figure 3. Shuttles would be provided with the additional option of entering and exiting the Campus via 43rd Avenue. Overall, these changes would result in, at most, only minor changes to travel times (either increase or decrease), and would not constitute a significant operational impact on shuttle services at the Campus.

Taxi Services

As described in Section 1.3.3, the Project would institute minor changes to the internal roadway network that would affect taxi circulation on the Campus. Similar to shuttle services, taxi services would be provided with dedicated stops at the new Patient Welcome Center traffic circle and a separate location between Building 208 and Building 209. Overall, these changes would result in, at most, only minor changes to travel times (either increase or decrease), and would not constitute a significant operational impact on taxi services at the Campus.

3.3.3 Operational Bicycle Impacts

A portion of the six Project trips shown as "other" in Table 20 would be completed by bicycle. With the current bicycle and vehicular traffic volumes on the adjacent streets, bicycle travel generally occurs without major impedances or safety

concerns. The Project's expected increase in bicycle trips in the area would not be substantial enough to affect overall bicycle circulation on the Campus or in the surrounding area, or the operations of adjacent bicycle facilities. Some portion of the Project's expected net increase of 57 vehicle-trips as shown in Table 20 would travel on or cross roadways with designated bikeways, but would likely not substantially increase the potential for conflicts between bicyclists and motorists.

As described in Section 1.3.3, the LRDP does not propose specific changes with regard to bicycle access on the Campus, and bicyclists would continue to be able to access the Campus as they currently do via the main access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. Although the LRDP would implement some minor changes to the internal roadway network, these changes would result in, at most, only minor changes to travel times (either increase or decrease), and would not conflict with existing or planned bicycle facilities outside of the Campus or constitute a hazard to bicycle users. Overall, the Project is not expected to result in significant operational impacts on bicycle conditions.

3.3.4 Operational Pedestrian Impacts

Pedestrian trips generated by the Project external to the Campus would include walk-only trips (i.e., trips completed exclusively on foot) to and from the Project site, as well as some portion of transit trips (those trips not involving transit services that physically enter and exit the Campus). Overall, the Project-generated net increase in pedestrian traffic during the weekday p.m. peak hour on the streets surrounding the Campus would comprise 20 walk trips and some portion of the 45 transit trips and 81 auto trips (for transit passengers or motorists accessing transit stops or parked vehicles at off-site locations) shown in Table 20.

Although pedestrian connections are provided into Lands End and the surrounding National Park Service lands, the majority of this traffic is expected to enter and exit the Campus via the main access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. With the current volumes of pedestrian traffic on the surrounding street network, the new pedestrian trips generated by the Project could be accommodated without any impacts on pedestrian safety or operations. The Project's expected net increase of 57 vehicle-trips as shown in Table 20 would also likely not substantially increase the potential for conflicts between pedestrians and vehicles, especially when distributing the traffic across two access points on the Campus at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. Both of these intersections feature all-way stop control, forcing motorists to come to a complete stop and visually check for the presence of pedestrians before proceeding through.

In addition, the Project would not conflict with existing pedestrian facilities or propose design features hazardous to pedestrians. As described in Section 1.3.3, external access to and from the Campus for pedestrians would remain unchanged, and primary access would continue to be provided via 42nd Avenue and 43rd Avenue. Within the Campus, the Project proposes some general changes to enhance pedestrian connectivity and the pedestrian realm, which are expected to improve overall pedestrian conditions on the Campus by creating new pedestrian routes, eliminating conflict points with motorized traffic, and implementing traffic calming measures to reduce vehicle speed. Overall, the Project is not expected to result in significant operational impacts on pedestrian conditions.

3.3.5 Operational Vehicle Parking Impacts

Parking conditions are not static; parking supply and demand varies from day to day, from day to night, from month to month, etc. Hence, the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel. Although parking conditions change over time, a substantial deficit in parking caused by a project that creates hazardous conditions or significant delays to traffic, transit, bicycles, or pedestrians could adversely affect the physical environment. Whether a deficit in parking creates such conditions depends on the magnitude of the shortfall and the ability of drivers to change travel patterns or switch to other travel modes. If a substantial deficit in parking caused by a project creates hazardous conditions or significant delays in travel, such a condition could also result in secondary physical environmental impacts (e.g., air quality or noise impacts caused by congestion), depending on the project and its setting.

The absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles, or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find

alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service or other modes (walking and biking) would be in keeping with the City's "Transit First" policy and numerous San Francisco General Plan policies, including those enumerated in the Transportation Element. The City's Transit First Policy, established in Article 8A, Section 8A.115 of the City's Charter, provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation."

This transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the Project site and then seek parking farther away if convenient parking is unavailable. The secondary effects of drivers searching for parking is typically offset by a reduction in vehicle-trips attributable to others who are aware of constrained parking conditions in a given area, and thus choose to reach their destination by other modes (i.e., walking, biking, transit, or taxi). Should this occur, any secondary environmental impacts that may result from a shortfall in parking in the vicinity of the Project site would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality and noise analyses, would reasonably address potential secondary effects.

Parking Demand and Supply

Based on the results presented in Table 22, the new uses proposed by the Project would generate a demand for 132 parking spaces under 2020 Short-term Alternative 1 Conditions. As described in Section 1.3.3, the Project would provide 306 net additional spaces at the Campus in the short-term time frame, exceeding the estimated new demand under 2020 Short-term Alternative 1 Conditions by 174 spaces.

Although some of these spaces would effectively "recapture" spillover demand generated by existing uses at the Campus that currently use on-street parking in the surrounding neighborhood, it should be noted that the proposed supply of new spaces would exceed the parking provision ratio for the Campus under Existing Conditions. In particular, as published in the LRDP, the site currently houses 987,500 square feet in existing habitable building inventory (as of June 7, 2012) and provides 1,253 parking spaces (as of 2012), resulting in a ratio of approximately 1.27 spaces per 1,000 square feet. The Project (Phase 1 and Phase 2), however, would result in a net increase of approximately 152,500 square feet in habitable building inventory and 306 parking spaces, equivalent to approximately 2.00 spaces per 1,000 square feet.

As indicated in Table 3 and discussed in Section 1.3.3, there would be a slight reduction in the total capacity of visitor and patient parking on the Campus. The overall magnitude of this reduction, however, is relatively small and would be offset by improved pick-up and drop-off access that would result from the proposed new traffic circle that would be adjacent to the proposed Patient Welcome Center. Overall parking capacity on the Campus would still increase. SFVAMC would be able to repurpose additional Campus parking currently identified for employee use by Table 3 for patient and visitor use, either temporarily or permanently, should the parking demand for Campus patients and visitors exceed the supply of designated spaces.

Planning Code Guidance

Although not explicitly required because the Project is a federal action, the Planning Code was also consulted regarding requirements for the provision of off-street (i.e., on-Campus) parking. The following three land use categories from the Planning Code, listed with their associated requirement for off-street parking supply, were determined to be the most comparable proxies for the uses proposed by the Project:

- Offices or studios of architects, engineers, interior designers, and other design professionals and studios of graphic artists: One space for each 1,000 square feet of occupied floor area, where the occupied floor area exceeds 5,000 square feet.

- Medical or dental office or outpatient clinic: One space for each 300 square feet of occupied floor area, where the occupied floor area exceeds 5,000 square feet.

- Residential care facility: In RH-1 and RH-2 districts, one for each 10 residents, where the number of residents exceeds nine.[15]

Each subphase of the LRDP was cross-referenced to one of the three uses above to determine the associated requirements for off-street parking supply according to the Planning Code. The results are summarized in Table 29 and the calculations are included in Appendix G.

As shown in Table 29, the Project would be required to provide 206 new parking spaces: 102 spaces for uses classified as "office," 94 spaces for uses classified as "medical office/clinic," and 10 spaces for uses classified as "residential care facility." As noted, the Project proposes to provide 306 net new parking spaces under 2020 Short-term Alternative 1 Conditions. Therefore, the Project's proposed parking supply would exceed the Planning Code requirements for the Project.

Table 29: Planning Code Requirements for Off-Street Parking Supply—Alternative 1 (Phase 1)

Subphase		Action	Planning Code Land Use[1] [2]	Net-New Gross Area in square feet	Required Supply in spaces
Short-term (Phase 1)					
1.1	Building 211: Emergency Operations Center/Parking Garage	Construction	EOC to be operated by existing staff (no new parking demand) Parking garage not a habitable space		
1.2	Trailer 17	Removal	Office	12,500	13
	Building 41: Research	Construction			
1.3	Buildings 5 and 7	Seismic Retrofit	Renovation of existing building/space		
1.4	Buildings 9 and 10	Seismic Retrofit	Renovation of existing building/space		
	Building 22: Hoptel	Construction	Residential care facility	8,700	0
1.5	Buildings 209 and 211: Parking Garage Extensions	Construction	Not a habitable space		
1.6	Building 203: C-Wing Extension (Ground-Floor Patient Welcome Center)/Drop-Off Area with Canopy Structure	Construction	Medical office/clinic	7,100	24
1.7	Building 200: Expansion (Operating Room D-Wing)	Construction	Medical office/clinic	5,300	18
1.8	Building 20	Demolition	Currently used as storage (no parking assumed)		
	Building 24: Mental Health Clinical Expansion	Construction	Medical office/clinic	15,600	52
1.9	Building 18	Demolition	Grouped under Building 40	(9,700)	Grouped under Building 40
	Building 14	Demolition		(6,400)	
	Building 21	Demolition		(1,700)	
	Trailer 23	Removal		(900)	
	Structure 206: Water Tower	Installation	Not a habitable space		
	Structure 206: Water Tower	Removal	Not a habitable space		
	Building 40: Research	Construction	Office	110,000	91
1.10	Building 207: Expansion (IT Support Space)	Construction	Office	7,000	7
1.11	Trailer 31	Removal	Medical office/clinic	(1,500)	(0)
	Building 43: Research and Admin.	Construction	Office	15,000	15
1.12	Trailer 36: New Modular	Installation	Office	2,200	0

[15] Although the Fort Miley Campus is officially located within a "P" (Public) zoning district, blocks in the surrounding neighborhood are located within RH-1 and RH-2 zoning districts. Given that any demand not met on the site will spill over into the surrounding neighborhood, the requirements for RH-1 and RH-2 districts have been applied for these uses. Resident/patient capacity of these facilities was calculated based on 1,000 square feet per resident/patient.

1.13	Building 23: Mental Health Research Expansion	Construction	Office	15,000	15
1.14	Building 203: Extension (Psychiatric Intensive Care Unit C-Wing)	Construction	Medical office/clinic	1,200	0
1.15	Trailer 24	Removal	Medical office/clinic	(1,000)	(0)
	Building 208: Extension (Community Living Center/National Cardiac Device Surveillance Center)	Construction	Residential care facility	10,000	10
1.16	Building 8	Seismic Retrofit	Renovation of existing building/space		
	Building 1	Seismic Retrofit	Renovation of existing building/space		
	Building 6	Seismic Retrofit	Renovation of existing building/space		
1.17	Building 12	Demolition	Office	(38,900)	(39)
Total					206

Source: VA, 2014b; Data compiled by AECOM in 2014

Notes:

EOC = Emergency Operations Center; IT = information technology

Numerical values enclosed in parentheses indicate negative values (demolition of building/structure or reduction in spaces).

(1) "Office" = Offices or studios of architects, engineers, interior designers and other design professionals, and studios of graphic artists
"Medical office/clinic" = Medical or dental office or outpatient clinic

(2) Where projects within the same subphase have been classified as the same land use according to the Planning Code, the calculation of the required parking supply is calculated based on the total (net) square footage of the projects. Where projects within the same subphase have been classified as different land uses according to the Planning Code, the required parking supply is calculated separately for the projects.

In summary, the Project (as part of 2020 Short-term Alternative 1 Conditions) would not result in a substantial parking deficit with the off-street parking currently proposed, and would supply parking at higher provision ratios than currently exist on the Campus for existing uses at the site.

In addition, the proposed off-street parking supply would not create hazardous conditions or significant delays affecting traffic, transit, bicycles, or pedestrians, and would not render use of transit or other alternative modes infeasible. As described in Section 1.3.3, the proposed parking would be provided in Building 209 and Building 211, located in the western half of the Campus. The existing access points to the Campus at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street would remain unchanged; the LRDP would not construct new access points to serve these new parking facilities.

The circulation changes proposed by the Project and the segregation of the Campus into separate zones for employees and Veterans/visitors, each with its own dedicated access point (43rd Avenue for employees and 42nd Avenue for Veterans/visitors), would minimize the effects of traffic heading to and from these parking facilities on transit vehicles and other Campus users.

Given these considerations, the Project is not expected to result in significant operational impacts related to parking.

3.3.6 Operational Freight Loading Impacts

As described in Section 1.3.3, the LRDP does not propose specific changes to Campus access for freight loading and service/delivery vehicles. These vehicles continue to be able to enter and exit the Campus via the existing access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. Although the LRDP would implement some minor changes to the internal roadway network, these changes would result in, at most, only minor changes to travel times (either increase or decrease) and access routes for trucks serving the Campus. For many buildings on Campus, however, access would remain unchanged, and service and delivery vehicles—such as delivery trucks serving the Canteen in Building 7—would continue to be able to access the Campus as they currently do. Overall, the Project is not expected to result in significant operational impacts on freight loading conditions.

As discussed in Section 1.3.3 and Section 2.1.3, specific details regarding the future provision of freight loading spaces will be determined as each specific LRDP component enters the design and implementation phase. As mentioned previously,

some of the proposed facilities may require specific freight loading needs or design features that cannot be fully evaluated until a more detailed design is available. As such, it is assumed that impacts related to the demand and supply of freight loading spaces or the accessibility and usability of freight loading facilities (and any associated off-Campus effects) would be evaluated at a later time as part of project-level environmental reviews for specific LRDP subphases.

3.3.7 Operational Emergency Vehicle Access Impacts

As described in Section 1.3.3, fire department access on the Campus would remain unchanged under the LRDP. For emergency medical access, ambulances would be rerouted to enter the Campus via the 43rd Avenue entrance (instead of via the 42nd Avenue entrance as they currently do), but would still have access to the Emergency Department located in the "D" Wing of Building 200. The LRDP would also implement minor changes to circulation within the Campus, which would affect how fire engines and trucks choose to access specific buildings or facilities on Campus when responding to emergencies. For example, the closure of through-access along Fort Miley Drive and the creation of the new Patient Welcome Center may require the removal of bollards (or other movable obstructions or features) during emergency situations to facilitate direct fire response access to portions of Building 200 or Building 203. Overall, these changes would result in, at most, only minor changes to travel times (either increase or decrease) and access routes; they would not eliminate emergency vehicle access to Campus facilities. As a result, these changes would not constitute a significant operational impact on emergency vehicle access.

3.3.8 Construction Impacts

This section evaluates the potential construction impacts of Phase 1 of the Project under Alternative 1 and includes the following components:

- Identification of haul truck routes to be used during construction
- Estimation of temporary traffic and parking demand, including haul truck and construction worker traffic, that would be generated during construction
- Identification of mitigation measures, such as overflow parking and other management strategies, to accommodate the temporary traffic and parking demand generated by construction activities and any associated loss of parking supply on the Campus

As Alternative 2 would have slightly different construction phasing than Alternative 1, this section also evaluates potential construction impacts of Phase 1 of the Project under Alternative 2.

More detail on Campus traffic and parking management during LRDP construction-related activities can be found in San Francisco Veterans Affairs Medical Center (Fort Miley Campus) Long Range Development Plan — Construction Traffic and Parking Management Plan (April 22, 2014) (Construction Traffic and Parking Management Plan), attached as Appendix I.

Construction-Related Haul Truck Routes

Haul trucks traveling to and from the Campus during construction would be expected to use truck traffic routes established by SFMTA. In particular, SFMTA has developed the San Francisco Truck Traffic Routes map (2010), a conceptual route map of truck traffic routes in San Francisco, for inclusion by the City and County of San Francisco in its next update to the General Plan. Specifically, the map identifies potential routes for trucks traveling through the City, focusing on regional freeways/highways and surface arterials. Based on this map, large trucks would be expected to use the following routes:

- From points north of the Campus: U.S. 101 → SR 1 (Veterans Boulevard/Park Presidio Boulevard) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue
- From points south of the Campus: I-280 → SR 1 (Junipero Serra Boulevard/19th Avenue/Crossover Drive/Park Presidio Boulevard) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue; or, alternatively,

U.S. 101 (Bayshore Freeway/Central Freeway) → Mission Street → U.S. 101 (Van Ness Avenue) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue

- From points east of the Campus: I-80 → U.S. 101 (Central Freeway) → Mission Street → U.S. 101 (Van Ness Avenue) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue

These routes would minimize the impacts of haul track activity farther away from the Campus. Still, haul truck activity could result in temporary but significant impacts, either at the Campus itself or in the immediate vicinity, on traffic and transportation and vehicle parking, as well as air quality, noise, and vibration.

Impact TRANS-CONST-1a: Haul trucks generated by construction-related activities at the Campus could result in temporary but significant impacts related to traffic and transportation, vehicle parking, air quality, noise, and vibration at the Campus itself or in the immediate vicinity.

Mitigation Measure TRANS-CONST-1a: SFVAMC should use only a combination of the three haul truck routes identified above for LRDP construction-related activities—use of alternative routes, particularly through the surrounding neighborhoods, should be actively discouraged. SFVAMC and its construction contractors should monitor truck arrivals and, if necessary, implement a queue abatement program to ensure that haul trucks do not queue up and idle on the Campus or on adjacent or nearby streets, minimizing adverse effects on traffic and transportation, vehicle parking, air quality, noise, and vibration. Implementation of Mitigation Measure TRANS-CONST-1a would mitigate Impact TRANS-CONST-1a to less-than-significant levels.

Construction-Related Traffic and Parking Demand

Construction-Period Parking Capacity

To implement some of the subphases identified in the LRDP, portions of the on-Campus parking areas may require temporary conversion for various construction-related activities such as excavation, staging of equipment and materials, and installation of temporary modular structures for a limited time period. These activities would result in a temporary loss of on-site parking capacity, as illustrated for specific subphases in Table 1. When combined with increased parking demand on the site from construction workers, vendors, and other construction-related traffic, this temporary loss in on-site parking capacity would generally intensify the parking situation at the Campus.

To alleviate some of the loss in parking capacity during on-Campus construction activities, SFVAMC is currently providing valet parking at its two primary on-site parking structures, Building 209 and Building 212. The LRDP proposes to continue providing valet parking until the end of construction of Subphase 1.9 (i.e., through December 2018 under Alternative 1), as described in Section 1.3.3. This measure would partially offset the temporary loss in parking capacity and reduce spillover effects into the surrounding neighborhood.

Construction Traffic Estimation Methodology

Detailed construction plans have not yet been developed for most of the subphases identified in the LRDP. As a result, estimates of traffic during construction of various subphases are currently unavailable. To assess the potential impacts of construction-related traffic, estimates of both vendor/haul truck trips and construction worker trips were developed based on the California Emissions Estimator Model (CalEEMod) Version 2013.2.2, the accepted model for modeling construction-related air quality and greenhouse gas emissions in California, published and maintained by the California Air Pollution Control Officers Association (CAPCOA) (2013).

Vendor/haul truck traffic was estimated for four different construction actions: demolition, seismic retrofit, construction, and removal/installation. Construction worker trips were estimated for each of six different construction phases: demolition, site preparation, grading, building construction, architectural coating, and asphalt paving. General assumptions were made regarding building envelope (volume), haul truck capacity, and construction duration, and combined with CalEEMod recommended standards for equipment needs and construction worker vehicle-trip factors. Additional adjustments to the construction traffic estimates were made to account for major earthwork/grading (cut-and-fill) activities associated with some subphases of the LRDP. More detail on the traffic estimation methodology is provided in the Construction Traffic and Parking Management Plan.

Construction Traffic Estimates

As described in Section 1.3.2 and summarized in Table 1, Alternative 1 and Alternative 2 would be equivalent in terms of gross square footage, building locations, and intended building function in the LRDP horizon year (2030), but would have different construction phasing plans, schedules, and temporary modular swing-space programs.

Under Phase 1 of Alternative 1, vendor and haul truck traffic would peak at 36 vehicles (72 trips) per day in December 2015, and construction worker trips would peak at 72 vehicles (144 trips) per day in December 2015. As a result, construction activities under Phase 1 of Alternative 1 would generate their maximum traffic volumes in December 2015, with as many as 108 vehicles (216 trips) in one day. Under Phase 1 of Alternative 2, vendor and haul truck traffic would peak at 36 vehicles (72 trips) per day in January 2016, and construction worker trips would peak at 64 vehicles (128 trips) per day in January 2016. As a result, construction activities under Phase 1 of Alternative 2 would generate their maximum traffic volumes in January 2016, with as many as 100 vehicles (200 trips) in one day. Under both alternatives, construction traffic in other months would generally be much lower than the peak month, with most months generating a maximum traffic volume that would not exceed 50 vehicles (100 trips) in one day.

The pending completion of Building 211 (Emergency Operations Center/Parking Garage) in July 2014 would increase parking capacity on the Campus by 200 spaces. This increased parking capacity is intended primarily to accommodate future growth on the Campus and existing spillover demand in the surrounding residential neighborhoods, but would also likely be able to accommodate most of the temporary parking demand generated by construction-related activities.

In addition, it is anticipated that the actual maximum parking demand generated by construction-related activities on any one day during the peak month of construction traffic (December 2015) would be substantially less than 100 vehicles. In particular, although most construction workers would require parking spaces for the entire day, vendor trucks may require parking spaces for only short periods of time to deliver materials or equipment or perform contracted tasks. This may allow for some potential to share parking spaces during the day as turnover occurs. Haul trucks importing or exporting soil or debris would remain at the Campus for only short periods of time, and therefore would not be expected to require dedicated parking spaces.

As stated previously, SFVAMC would continue to provide valet parking until the end of Subphase 1.9, providing an additional 180 spaces of parking capacity even after Building 211 has been completed but before the full LRDP has been implemented. Therefore, there would likely be sufficient on-site parking capacity to accommodate the estimated temporary increase in parking demand that would result from construction-related activities. The subsequent (March 2016) completion of the Building 209 and Building 211 extensions under Subphase 1.5 would further increase on-site parking capacity by 250 spaces, which would likely be sufficient to accommodate the parking demand generated by construction of subsequent subphases of the LRDP. However, because of limitations in the construction traffic estimation methodology, unforeseen circumstances such as delays or other necessary changes to the construction schedule, or other factors, there is still some potential for the temporary increase in parking demand generated by construction-related activities to exceed the available on-site parking supply.

> Impact TRANS-CONST-1b: Although on-site parking capacity at the Campus would likely be sufficient to accommodate any temporary increase in parking demand generated by construction-related activities, there is still some potential that the increased parking demand generated by these activities may exceed the available on-site parking supply due to limitations in the construction traffic estimation methodology, unforeseen circumstances such as delays or other necessary changes to the construction schedule, or other factors. Such a situation could potentially result in temporary but significant impacts on traffic and transportation and vehicle parking at the Campus itself or in the immediate vicinity.
>
> Mitigation Measure TRANS-CONST-1b: SFVAMC should conduct supplementary surveys of parking occupancy several weeks after completion of Building 211 to determine the utilization of the new parking structure and overall occupancy of on-site facilities throughout the day. The survey should also consider on-street parking in the surrounding area to estimate how much spillover demand has been “recaptured” on the site as a result of the increased parking supply. As construction plans for specific subphases of the LRDP are developed, construction contractors should work with SFVAMC to compare their own estimates of construction-related traffic and parking demand to the estimated parking

capacity and surveyed occupancy levels, to determine whether additional temporary measures are required to mitigate expected parking constraints.

Should these coordination efforts indicate that construction activities could result in a major parking deficit on the Campus, SFVAMC should implement measures to ensure that construction-related parking demand, as well as any associated parking loss in on-site parking capacity required to accommodate construction-related activities, do not result in additional spillover into the surrounding neighborhood beyond current conditions.

Some or all of the following programs (or other measures as deemed necessary and adequate to ensure that there is no increase in spillover parking demand into the surrounding neighborhood beyond current conditions) could be implemented by SFVAMC:

- Expand the Campus valet parking program. To alleviate the loss in on-site parking capacity as a result of on-Campus construction activities, SFVAMC currently operates a valet parking program in Building 209 and Building 212. After completion of Building 211, this program could be made permanent and expanded to include the new parking structure. Based on the estimates provided in the LRDP, Building 211 would provide a total of 461 marked spaces, but a valet parking program for this structure could provide approximately 140 additional spaces, based on the 30 percent increase in parking efficiency documented in field surveys of parking occupancy in Building 209.

- Require general contractors to establish carpool/vanpool programs and encourage transit use. Because some construction workers reside outside of San Francisco, a vanpool service could be tailored to meet worker needs by operating as a "commuter shuttle" to major transit facilities, such as the Bay Area Rapid Transit (BART) stations at Civic Center or 16th Street/Mission. To encourage transit use among construction workers, the contractor could provide free or discounted transit passes. A vanpool service could also be implemented in conjunction with a remote (i.e., off-site) "park-and-ride" facility, affording construction workers some of the convenience of a private vehicle and reducing some of the construction-related traffic effects in the immediate vicinity of the Campus. To implement such a solution, SFVAMC could purchase property to serve this purpose, or work along with its contractor to negotiate with the relevant property owners and parking operators to lease spaces in an off-site surface lot or parking structure for a fixed period of time. The vanpool service could be contracted out to a third-party service provider, operating on a fixed schedule during the morning and evening commute periods and on an on-call basis during the midday period, similar to existing contracts to provide the commuter shuttle routes listed in Table 10.

- Require general contractors to optimize staging-area needs and coordinate vendor arrival schedules. In the development of construction plans, contractors should be required to optimize site utilization and schedule arrivals to minimize the associated traffic and vehicle parking impacts on the Campus community and surrounding neighborhoods.

Implementation of Mitigation Measure TRANS-CONST-1b would mitigate Impact TRANS-CONST-1b to less-than-significant levels.

As part of Alternative 1 as described in Table 1 and Section 1.3.2, temporary modular swing space would be provided in four separate locations on the Campus, including Lot B. Lot B currently provides patient and visitor parking, including most of the Campus's Americans with Disabilities Act (ADA)–compliant spaces for patients and visitors. Use of this parking facility to accommodate temporary modular structures during Campus construction would require the temporary provision of replacement ADA spaces elsewhere on the Campus or other measures to ensure ADA compliance.

Impact TRANS-CONST-1c: Use of Lot B to accommodate temporary modular structures during Campus construction would substantially reduce the Campus's existing supply of ADA spaces for patients and visitors, which would result in a significant impact on vehicle parking at the site for these Campus users.

Mitigation Measure TRANS-CONST-1c: SFVAMC will implement temporary strategies to ensure ADA compliance while Lot B is in use for modular swing space. Potential strategies could include temporarily striping ADA spaces in other parking facilities on the Campus, such as Building 212, or implementing valet parking at the traffic circle outside the Patient Welcome Center for patients and visitors requiring ADA accommodations.

Implementation of Mitigation Measure TRANS-CONST-1c would mitigate Impact TRANS-CONST-1c to a less-than-significant level.

Construction-Related Effects on Traffic, Transit, and Pedestrian Circulation

It is anticipated that LRDP construction activities would take place primarily Monday through Friday between 7:30 a.m. and 6:00 p.m. Any Saturday work is assumed to occur between 8:00 a.m. and 4:00 p.m. on an as-needed basis, in compliance with the San Francisco Noise Control Ordinance (Article 29 of the City and County of San Francisco Police Code) and San Francisco Department of Building Inspection permit conditions. It is anticipated that no regular travel lanes or Muni bus stops would need to be closed or relocated during the LRDP construction period. Because detailed construction plans for each of the LRDP subphases have yet to be developed, however, there is still some potential for construction-related activities to result in temporary disruptions to circulation within or in the vicinity of the Campus for traffic, transit, and pedestrians. In particular, the placement of temporary swing space in Lot B under Alternative 1 may cause some disruption to circulation on the east side of the Campus, the primary access for Veterans and visitors. In addition, construction-related activities taking place simultaneously and/or close to each other could amplify the effects of these activities on Campus circulation. While these effects would generally not be substantial enough to constitute a significant impact, the following improvement measure is recommended to alleviate these effects.

Improvement Measure TRANS-CONST-1a: Should construction activities require the closure of sidewalks or other pedestrian facilities within or outside of the Campus, protective measures should be implemented and equipment erected to ensure pedestrian safety. In high-conflict areas (either vehicle/pedestrian or vehicle/vehicle) such as access gates into construction sites, flag workers should be deployed to minimize traffic and pedestrian disruption and ensure the safety of Campus users.

Should it be determined that any travel lanes would require closure during construction, the lane closures should be coordinated with the City to minimize impacts on local traffic. In general, temporary traffic and transportation changes must be coordinated through SFMTA's Interdepartmental Staff Committee on Traffic and Transportation (ISCOTT) and require a public meeting. As part of this process, the construction management plan may be reviewed by SFMTA's Transportation Advisory Committee to resolve internal differences between different transportation modes. SFVAMC would follow the Regulations for Working in San Francisco Streets ("The Blue Book") (2012) and would reimburse SFMTA for the costs of installation and removal of temporary striping and signage changes required during Project construction.

SFVAMC and its construction contractors would need to meet with SFMTA, the San Francisco Fire Department, the San Francisco Planning Department, and other City agencies to determine feasible measures to reduce any construction-related effects, including any potential transit disruption and pedestrian circulation impacts during LRDP construction. To this effect, SFVAMC and its construction contractor(s) should consider implementing the following measures:

- Schedule most construction-related travel (i.e., deliveries, hauling, and worker trips) to occur during off-peak hours.
- Develop on-site detour routes to facilitate traffic movement through construction zones.
- Where feasible, temporarily restripe roadways—such as turn lanes, through lanes, and parking lanes—at affected locations to minimize driver confusion and optimize traffic flow.
- Where feasible, temporarily remove on-street parking to secure adequate traffic flow at those locations affected by construction closures.

- Post signage to encourage drivers to proceed at slower, safer travel speeds through construction zones.

- Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures.

Under Alternative 1, SFVAMC will also prepare and implement measures to minimize effects on circulation for traffic, transit, bicycles, pedestrians, and emergency vehicles in and around Lot B while temporary modular swing space occupies this site. Lot B and the adjacent section of Veterans Drive are currently designed with a one-way circulation pattern (northbound traffic along the east edge of the lot, southbound traffic along the west side of the lot); however, the presence of modular structures at this location, existing curbside parking activities, and the loss of parking capacity at Lot B could result in temporary disruption of circulation through this part of the Campus. Potential measures could include the following:

- Enhance signage and striping to reinforce the current one-way circulation pattern around Lot B.

- Discourage illegal parking, whether curbside along the east side of Veterans Drive adjacent to Building 8 (Mental Health) and Building 9 (Hoptel) or elsewhere in and around Lot B.

- Temporarily relocate curbside parking along the east side of Veterans Drive to other parts of the Campus.

- Temporarily convert any remaining parking spaces in Lot B from perpendicular parking to parallel parking.

Pedestrian crossings at blind spots or locations with limited visibility for drivers (such as between modular structures) should also be discouraged, or properly designed with high-visibility markings and signage that force drivers to slow or stop. Adequate access for ambulances transporting patients to the Campus and emergency vehicles responding to Campus emergencies should be preserved at all times. Specific details of temporary measures to address any potential effects on Campus circulation should be discussed between SFVAMC and the general contractors during the construction planning process, at which time the magnitude of such effects can be more readily ascertained.

Although temporary modular swing space would be provided at a single location under Alternative 2 (at the site of the current Building 12 and future Building 213), similar measures to those cited above for Alternative 1 should be implemented as needed to minimize the effects of construction-related activities on traffic, transit, bicycle, pedestrian, and emergency vehicle circulation. In particular, measures should be taken to ensure adequate safety and access for pedestrians crossing between Building 12 and surrounding facilities such as Building 200, Building 203, and Building 208. Illegal parking should be discouraged, and existing perpendicular parking may need to be converted to parallel parking or temporarily closed to minimize effects on Campus circulation.

Construction-related activities occurring simultaneously and/or close to each other on the Campus could amplify the effects of these activities on overall Campus circulation. For example, the construction of the Building 209 and Building 211 extensions under Subphase 1.5 (March 2015 to March 2016) would partially overlap with the construction of Building 40 under Subphase 1.9 (December 2015 through December 2018). The close proximity of these two sites may affect constructability or on-Campus haul truck routes. In these cases, SFVAMC should serve as a liaison between the various general contractors for each construction project for coordination of construction-related activities to minimize potential secondary effects on Campus circulation. SFVAMC should work collaboratively with contractors to secure adequate haul truck access and minimize disruption to Campus user access, considering a variety of potential solutions such as limiting haul truck access to specific Campus access points or Campus roadways. In the case of Building 40 and the Building 209 and Building 211 extensions, for example, haul trucks could be restricted to the Campus's 43rd Avenue entrance, minimizing any impacts on circulation in the patient/visitor zone of the Campus.

3.4 2020 Short-term Alternative 3 Conditions

The following section summarizes the analysis results for 2020 Short-term Alternative 3 Conditions. Because both Alternative 1 and Alternative 3 propose the same series of actions in the short-term time frame (Phase 1), potential impacts would be as discussed for 2020 Short-term Alternative 1 Conditions in Section 3.3.

3.4.1 Operational Traffic Impacts

Any operational traffic impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.1.

3.4.2 Operational Transit Impacts

Any operational transit impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.2.

3.4.3 Operational Bicycle Impacts

Any operational bicycle impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.3.

3.4.4 Operational Pedestrian Impacts

Any operational pedestrian impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.4.

3.4.5 Operational Vehicle Parking Impacts

Any operational vehicle parking impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.5.

3.4.6 Operational Freight Loading Impacts

Any operational freight loading impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.6.

3.4.7 Operational Emergency Vehicle Access Impacts

Any operational emergency vehicle access impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.7.

3.4.8 Construction Impacts

Any construction impacts under 2020 Short-term Alternative 3 Conditions would be similar to those under 2020 Short-term Alternative 1 Conditions, as summarized in Section 3.3.8.

3.5 2020 Short-term Conclusions

The operation of new facilities and structures proposed under Phase 1 of the LRDP is not expected to result in any significant operational impacts on traffic, transit, bicycle, pedestrian, vehicle parking, freight loading, or emergency vehicle access conditions. However, construction-related activities in the short-term time frame could potentially result in temporary but significant impacts on traffic and transportation, vehicle parking, air quality, noise, and vibration at the Campus itself or in the immediate vicinity. These impacts and associated mitigation measures are discussed in more detail in Section 3.3.8.

4.0 Long-term Effects

The analysis of long-term effects evaluates conditions in Year 2027, including planned and proposed future development growth and transportation network changes in the study area, as well as background growth in travel demand in the City and region.

4.1 Methods and Assumptions

4.1.1 Background Growth

The methodologies used to develop traffic and transit forecasts in the long-term time frame are identical to those used for the short-term time frame, as summarized in Section 3.1.1.

4.1.2 Transportation Network Modifications

The analysis of long-term effects includes the same changes to the transportation network identified in the analysis of short-term effects, summarized in Section 3.1.2. No additional relevant changes to the transportation network by Year 2027, beyond what was identified for the short-term analysis, were identified for the long-term analysis.

4.2 2027 Long-term Alternative 4 Conditions

The following section summarizes the analysis results for 2027 Long-term Alternative 4 Conditions, which is presented here first because it represents the "no action" (i.e., "baseline" or "no Project") alternative, facilitating a comparison with the action alternatives (Alternative 1, Alternative 2, and Alternative 3) in the subsequent sections to determine Project impacts. For this reason, this section focuses on topics for which potential impacts of the Project are determined through quantitative analysis—namely, intersection and roadway segment operations for traffic conditions and Muni ridership and capacity for transit conditions. Topics for impacts evaluated qualitatively—such as bicycle, pedestrian, vehicle parking, freight loading, and emergency vehicle access conditions—are not discussed in this section.

4.2.1 Traffic Conditions

Intersections

Traffic volumes and LOS at the study intersections under 2027 Long-term Alternative 4 Conditions are illustrated in Figure 15 and summarized in Table 30.

Table 30: Intersection Levels of Service—2027 Long-term Alternative 4 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	Existing Conditions		2020 Short-term Alternative 4 Conditions		2027 Long-term Alternative 4 Conditions	
			LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)
1	34th Avenue/Clement Street	All-Way Stop	B	11.8	B	12.4	B	12.9
2	42nd Avenue/Clement Street	All-Way Stop	B	11.0	B	11.4	B	11.8
3	43rd Avenue/Clement Street	All-Way Stop	B	11.7	B	12.3	B	12.8
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	B	12.4	B	13.1	B	13.7
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	B	14.2	C	15.1	C	16.2

Note: LOS = level of service
Source: Data compiled by AECOM in 2014

As shown in Table 30, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2027 Long-term Alternative 4 Conditions.

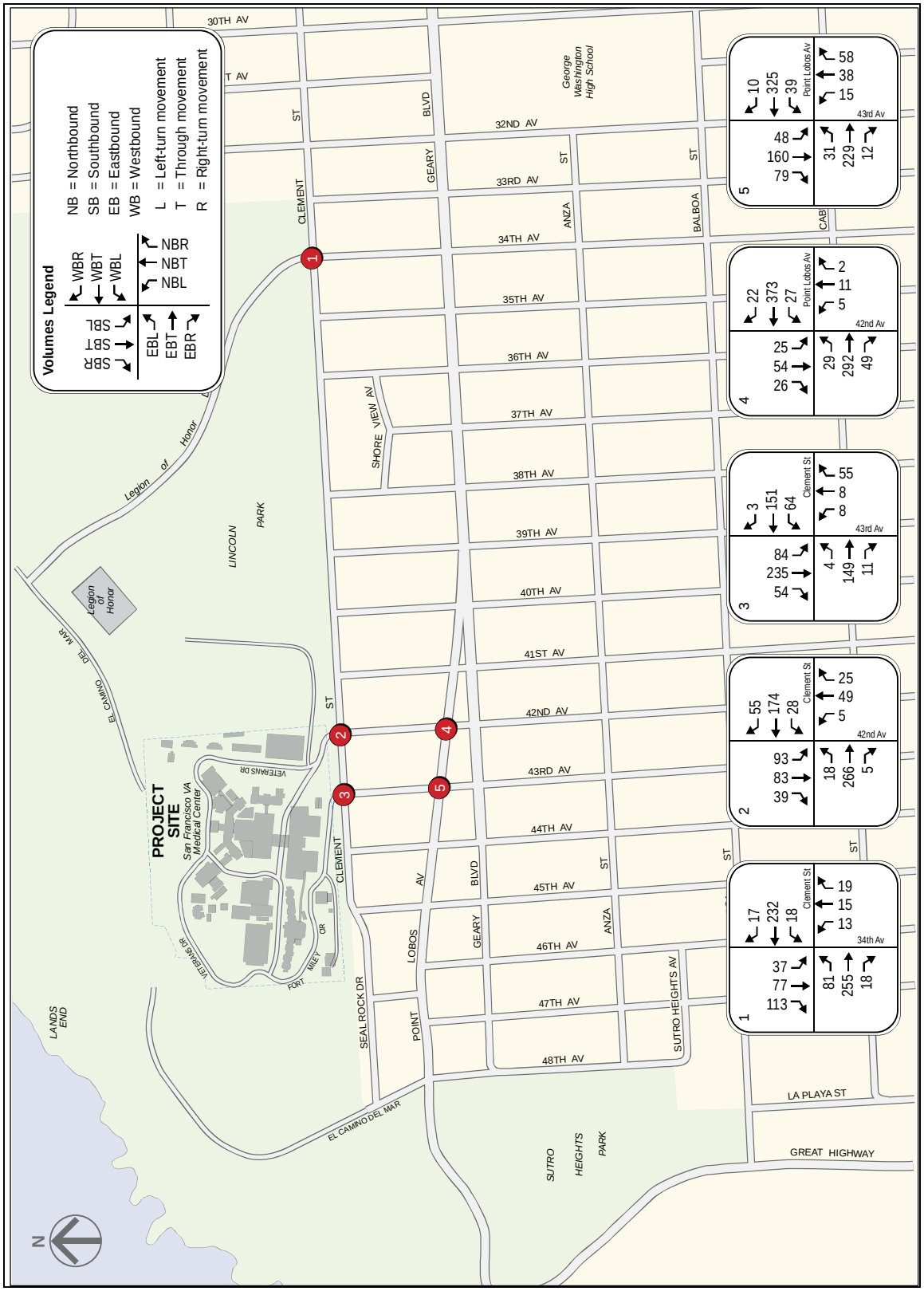

Figure 15: Intersection Traffic Volumes—2027 Long-term Alternative 4 Conditions

Roadway Segments

The expected LOS at the two study roadway segments under 2027 Long-term Alternative 4 Conditions is summarized in Table 31. As shown in Table 31, both roadway segments would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2027 Long-term Alternative 4 Conditions.

Table 31: Roadway Segment Levels of Service—2027 Long-term Alternative 4 Conditions (Weekday P.M. Peak Hour)

Roadway Segment	Direction	Existing Conditions		2020 Short-term Alternative 4 Conditions		2027 Long-term Alternative 4 Conditions	
		LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio
1 42nd Avenue	Northbound	A	0.16	A	0.17	A	0.18
Between Clement Street and Point Lobos Avenue	Southbound	A	0.24	A	0.25	A	0.26
2 43rd Avenue	Northbound	A	0.16	A	0.17	A	0.18
Between Clement Street and Point Lobos Avenue	Southbound	C	0.64	C	0.66	C	0.69

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

4.2.2 Transit Conditions

Public Transit

Table 32 summarizes ridership, capacity, and capacity utilization of transit services in the Geary Corridor under 2027 Long-term Alternative 4 Conditions. As shown in Table 32, ridership would increase from Existing Conditions, but overall capacity improvements in the corridor as a result of BRT and the TEP would keep overall capacity utilization similar to Existing Conditions.

Table 32: Muni Ridership and Capacity—2027 Long-term Alternative 4 Conditions (Weekday P.M. Peak Hour)

Direction	Existing Conditions			2020 Short-term Alternative 4 Conditions			2027 Long-term Alternative 4 Conditions		
	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization	Ridership	Capacity	Utilization
Inbound	908	1,777	51%	1,142	2,820	41%	1,324	2,820	47%
Outbound	1,814	2,528	72%	2,359	3,826	62%	2,783	3,826	73%

Source: SFMTA, 2011.

Notes:
Ridership data based on conditions at the MLP for each line.

4.3 2027 Long-term Alternative 1 Conditions

The following section summarizes the analysis results for 2027 Long-term Alternative 1 Conditions. For quantitative analyses, results are compared against the results for 2027 Long-term Alternative 4 Conditions to determine any potential impacts of the Project. For other analyses, conditions with the Project and any potential impacts are discussed qualitatively.

As indicated in Table 1, implementation of the LRDP is expected to be completed in March 2026. Alternative 1 assumes that all of the LRDP's long-term (Phase 2) components occur at the Fort Miley Campus, and Alternative 3—evaluated in Section 4.4—assumes that some of the components instead take place at a potential new Mission Bay Campus, as described in Section 1.3.1. Consequently, Alternative 1 represents the worst-case scenario conditions at the Fort Miley Campus, given that land uses are more heavily concentrated at the Campus under this alternative.

4.3.1 Operational Traffic Impacts

Intersections

The Project's estimated vehicle-trips under Phase 1 and Phase 2 of Alternative 1, as summarized in Table 20, were added to traffic volumes for 2027 Long-term Alternative 4 Conditions to derive traffic volumes for 2027 Long-term Alternative 1 Conditions, illustrated in Figure 16. The resulting LOS at the study intersections under 2027 Long-term Alternative 1 Conditions is summarized in Table 33.

Table 33: Intersection Levels of Service—2027 Long-term Alternative 1 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	2027 Long-term Alternative 4 Conditions		2027 Long-term Alternative 1 Conditions	
			LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)
1	34th Avenue/Clement Street	All-Way Stop	B	12.9	C	15.0
2	42nd Avenue/Clement Street	All-Way Stop	B	11.8	C	15.1
3	43rd Avenue/Clement Street	All-Way Stop	B	12.8	C	17.3
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	B	13.7	C	16.0
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	C	16.2	C	19.0

Note: LOS = level of service
Source: Data compiled by AECOM in 2014

As shown in Table 33, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2027 Long-term Alternative 1 Conditions. As such, the Project would not result in significant operational impacts on any study intersections.

Roadway Segments

Roadway segment LOS for 2027 Long-term Alternative 1 Conditions is summarized in Table 34.

Table 34: Roadway Segment Levels of Service—2027 Long-term Alternative 1 Conditions (Weekday P.M. Peak Hour)

Roadway Segment		Direction	2027 Long-term Alternative 4 Conditions		2027 Long-term Alternative 1 Conditions	
			LOS	v/c Ratio	LOS	v/c Ratio
1	42nd Avenue	Northbound	A	0.18	A	0.26
	Between Clement Street and Point Lobos Avenue	Southbound	A	0.26	B	0.34
2	43rd Avenue	Northbound	A	0.18	A	0.23
	Between Clement Street and Point Lobos Avenue	Southbound	C	0.69	D	0.80

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

Although southbound 43rd Avenue between Clement Street and Point Lobos Avenue would degrade to LOS D, both roadway segments would operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour under 2027 Long-term Alternative 1 Conditions, as shown in Table 34. As such, the Project would not result in significant operational impacts on any roadway segments.

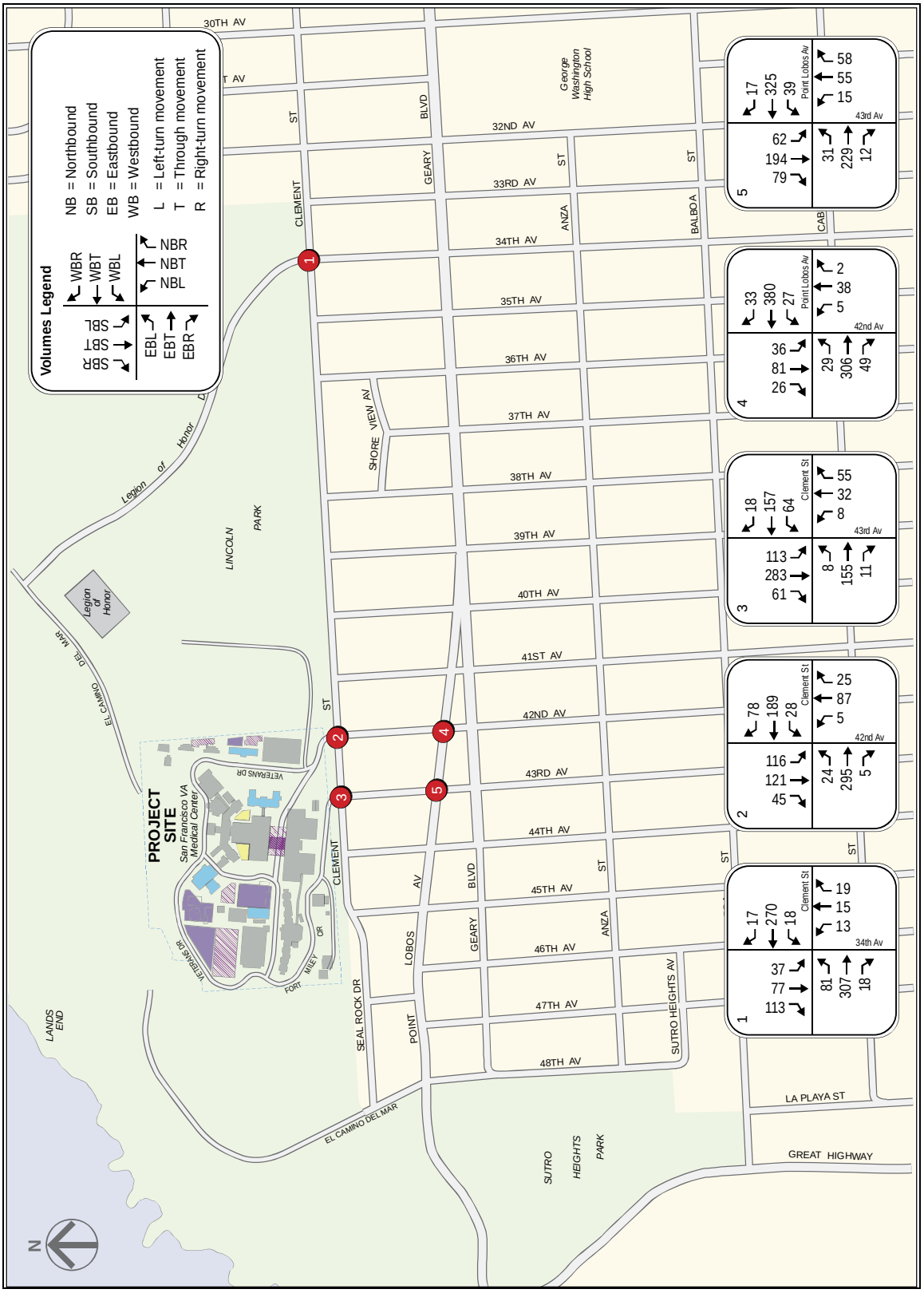

Figure 16: Intersection Traffic Volumes—2027 Long-term Alternative 1 Conditions

Passenger Vehicle Access

As discussed in Section 3.3.1, the changes to passenger vehicle access would simplify circulation through the Campus and help to segregate employee and Veteran/visitor vehicular traffic. These changes would result in, at most, only minor changes to travel times (either increase or decrease) and access routes, and would not constitute a significant operational impact on passenger vehicle access at the Campus.

East Fort Miley Access

As discussed in Section 3.3.1, the LRDP does not propose specific changes to GGNRA access to and from East Fort Miley, and the existing access road at the southwest corner of Building 212 would continue to serve traffic generated at this facility. The changes to the internal roadway network proposed by the LRDP would result in, at most, only minor changes in the total traffic volumes passing through the Veterans Drive/Fort Miley Circle intersection (either increase or decrease) and would not preclude GGNRA access into and out of East Fort Miley. Overall, the Project is not expected to result in significant operational impacts on GGNRA access into and out of East Fort Miley.

4.3.2 Operational Transit Impacts

Public Transit

Ridership and Capacity Effects
As shown in Table 20, Alternative 1 would generate 215 net-new transit trips (91 inbound to the Project site and 124 outbound from the Project site) during the weekday p.m. peak hour when combining ridership generated by both short-term and long-term actions. As discussed in Section 3.3.2, the Campus's location at the outer end of the Geary Corridor means that the commute direction for the Project constitutes the "reverse commute" direction. Trips heading inbound to the Project site would take outbound transit services in the Geary Corridor, and trips heading outbound from the Project site would take inbound transit services in the Geary Corridor.

In particular, outbound transit service in the Geary Corridor is expected to operate at 73 percent capacity utilization under 2027 Long-term Alternative 4 Conditions, as shown in Table 32. The addition of up to 91 passengers as a result of the Project would increase capacity utilization to 75 percent, which would still remain below the 85 percent threshold. In the opposite direction, inbound transit service in the Geary Corridor is expected to operate at only 47 percent capacity utilization during the weekday p.m. peak hour. Even with the addition of up to 124 new transit riders generated by the Project, capacity utilization would still only increase to 51 percent, well below the 85 percent threshold.

Similar to 2020 Short-term Alternative 1 Conditions as discussed in Section 3.3.2, it is likely that only some of these 124 new transit riders leaving the Project site would choose to take Muni buses in the Geary Corridor. Many of these riders would be expected to use the commuter shuttle services provided by SFVAMC, such that the actual increase in capacity utilization on inbound buses in the Geary Corridor is expected to be less than as described above.

Overall, the Project is not expected to result in a significant operational impact on Muni capacity in either direction in the Geary Corridor.

Other Effects
As discussed in Section 3.3.2, the changes to circulation on the Campus for Muni buses would represent only minor changes and would not constitute a significant operational impact on Muni service. Although Phase 1 and Phase 2 of the Project would generate a combined net increase of 259 vehicle-trips as shown in Table 20, only some of these vehicles would interact with Muni buses (many would actually be employee vehicles using the employee access at 42nd Avenue/Clement Street and would likely not interact with Muni buses at all). Overall, the expected increase in average delays at 42nd Avenue/Clement Street would be minimal, as shown in Table 33.

SFVAMC Shuttle Services

As discussed in Section 3.3.2, the changes to shuttle access and circulation at the Campus would result in, at most, only minor changes to travel times (either increase or decrease), and would not constitute a significant operational impact on shuttle services at the Campus.

Taxi Services

As discussed in Section 3.3.2, the changes to taxi access and circulation at the Campus would result in, at most, only minor changes to travel times (either increase or decrease), and would not constitute a significant operational impact on shuttle services at the Campus.

4.3.3 Operational Bicycle Impacts

A portion of the 42 net-new Project trips during the weekday p.m. peak hour shown as "other" in Table 20 (combining ridership generated by both short-term and long-term actions) would be completed by bicycle. Similar to 2020 Short-term Alternative 1 Conditions as discussed in Section 3.3.3, the expected increase in bicycle trips would not be substantial enough to affect overall bicycle circulation in the Campus or surrounding area or the operations of adjacent bicycle facilities. Some portion of the Project's expected net increase of 259 vehicle-trips as shown in Table 20 would travel on or cross roadways with designated bikeways. However, this would likely not substantially increase the potential for conflicts between bicyclists and motorists, especially when the traffic is distributed across two access points on the Campus (42nd Avenue/Clement Street and 43rd Avenue/Clement Street) and across two different directions (entering and exiting the Campus).

As discussed in Section 3.3.3, the LRDP does not propose specific changes with regard to bicycle access on the Campus, and bicyclists would continue to be able to access the Campus as they currently do via 42nd Avenue and 43rd Avenue. The changes to the internal roadway network proposed by the LRDP would result in, at most, only minor changes to travel times (either increase or decrease), and would not conflict with existing or planned bicycle facilities outside of the Campus or constitute a hazard to bicycle users. Overall, the Project is not expected to result in significant operational impacts on bicycle conditions.

4.3.4 Operational Pedestrian Impacts

The net increase in pedestrian traffic generated by the Project (Phase 1 and Phase 2) during the weekday p.m. peak hour on the streets surrounding the Campus would comprise 114 walk trips and some portion of the 215 transit trips and 435 auto trips (for transit passengers or motorists accessing transit stops or parked vehicles at off-site locations) shown in Table 20. Similar to 2020 Short-term Alternative 1 Conditions as discussed in Section 3.3.4, the new pedestrian trips generated by the Project could be accommodated without any impacts on pedestrian safety or operations. The Project's expected net increase of 259 vehicle-trips as shown in Table 20 would also likely not substantially increase the potential for conflicts between pedestrians and vehicles, especially when the traffic is distributed across two access points on the Campus (42nd Avenue/Clement Street and 43rd Avenue/Clement Street), both of which feature all-way stop control.

As discussed in Section 3.3.3, the Project would not conflict with existing pedestrian facilities or propose design features hazardous to pedestrians. External access to and from the Campus for pedestrians would remain unchanged, but proposed changes within the Campus would generally improve pedestrian conditions. Overall, the Project is not expected to result in significant operational impacts on pedestrian conditions.

4.3.5 Operational Vehicle Parking Impacts

As discussed in Section 3.3.5, parking conditions are not static; parking supply and demand varies from day to day, from day to night, from month to month, etc. Hence, the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel. Although parking conditions change over time, a substantial deficit in parking caused by a project that creates hazardous conditions or significant delays to traffic, transit, bicycles, or pedestrians could adversely affect the physical environment. Whether a deficit in parking creates such conditions depends on the magnitude of the shortfall and the ability of drivers to change travel patterns or switch to other travel modes. If a substantial deficit in parking caused by a project creates hazardous conditions or significant delays in travel, such a condition could also result in secondary physical environmental impacts (e.g., air quality or noise impacts caused by congestion), depending on the project and its setting.

The absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles, or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service or other modes (walking and biking) would be in keeping with the City's "Transit First" policy and numerous San Francisco General Plan policies, including those enumerated in the Transportation Element. The City's Transit First Policy, established in Article 8A, Section 8A.115 of the City's Charter, provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation."

This transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the Project site and then seek parking farther away if convenient parking is unavailable. The secondary effects of drivers searching for parking are typically offset by a reduction in vehicle-trips attributable to others who are aware of constrained parking conditions in a given area, and thus choose to reach their destination by other modes (i.e., walking, biking, transit, or taxi). If this occurs, any secondary environmental impacts that may result from a shortfall in parking in the vicinity of the Project site would be minor. The traffic assignments used in the transportation analysis, as well as in the associated air quality and noise analyses, would reasonably address potential secondary effects.

Parking Demand and Supply

As shown in Table 22, the Project (Phase 1 and Phase 2) would generate a demand for 426 new parking spaces under 2027 Long-term Alternative 1 Conditions, based on ITE parking demand rates. Overall, the Project would provide 306 net new off-street spaces at the Campus, which would result in an unmet parking demand of 120 spaces.

Although the estimated demand would exceed the supply proposed by the Project, it should be noted that the Campus is located within an urban environment where alternative modes attract a reasonably substantial share of the total travel demand. As described above, the presence of viable alternative modes of travel such as transit, biking, and walking would likely induce some Campus users to shift to other modes of travel, in keeping with San Francisco's "Transit First" policy.

As indicated in Table 3 and discussed in Section 1.3.3, there would be a slight reduction in the total capacity of visitor and patient parking on the Campus. The overall magnitude of this reduction, however, is relatively small, and would be offset by improved pick-up and drop-off access that would result from completion of the proposed new traffic circle adjacent to the proposed Patient Welcome Center. Overall parking capacity on the Campus would still increase. SFVAMC would have the ability to purpose additional Campus parking currently identified for employee use in Table 3 for patient and visitor use, either temporarily or permanently, should the parking demand for Campus patients and visitors exceed the supply of designated spaces.

Planning Code Guidance

Although not explicitly required because the Project is a federal action, guidance from the Planning Code regarding requirements for the provision of off-street (i.e., on-Campus) parking were also consulted. The Project's required supply of off-street parking according to the San Francisco Planning Code was calculated using the methodology described in Section 3.3.5. The results are summarized in Table 35.

As shown in Table 35, the Project (Phase 1 and Phase 2) would be required to provide 773 new parking spaces (206 spaces in the short-term time frame and 567 spaces in the long-term time frame). Because the Project would provide 306 net new spaces on the Campus, the Project's proposed parking supply would not meet Planning Code requirements.

As discussed previously, however, a deficit in the Project's parking supply relative to the estimated demand and/or Planning Code requirements, in and of itself, would not constitute a significant impact related to vehicle parking conditions. The Project proposes to provide on-site parking at higher provision ratios than currently exist on the Campus for existing uses on at the site, and the Campus is well-served by transit and other viable alternative modes of travel, including a variety of shuttle services for patients, visitors, and SFVAMC staff and employees.

In addition, the proposed supply of parking would not create hazardous conditions or significant delays affecting traffic, transit, bicycles, or pedestrians, and would not render use of transit or other alternative modes infeasible.

Table 35: Planning Code Requirements for Off-Street Parking Supply—Alternative 1 (Phase 2)

Subphase	Action	Planning Code Land Use[(1)]	Net-New Gross Area in square feet	Required Supply in spaces
Short-term (Phase 1)				
See Table 29 for detailed calculations of Phase 1 required parking supply				
Subtotal				206
Long-term (Phase 2)				
2.1 Building 213: Clinical Addition Building	Construction	Medical office/clinic	170,000	567
Subtotal				567
Total				773

Source: Data compiled by AECOM in 2014

Notes:
(1) "Medical office/clinic" = Medical or dental office or outpatient clinic

Given these considerations, the Project is not expected to result in significant operational impacts related to parking. Should the secondary effects of the parking deficit cause concern, however, expansion of the existing valet parking program to include the additional parking structures proposed by the Project could provide as much as 150 additional spaces.

4.3.6 Operational Freight Loading Impacts

As discussed in Section 3.3.6, the LRDP does not propose specific changes to Campus access for freight loading and service/delivery vehicles, and the existing access via 42nd Avenue and 43rd Avenue would remain unchanged. The changes to the internal roadway network would result in, at most, only minor changes to travel times (either increase or decrease) and access routes for trucks serving the Campus, and would not constitute a significant operational impact on freight loading conditions.

Similarly, specific details regarding the future provision of freight loading spaces will only be determined as each specific LRDP component enters the design and implementation phase. As mentioned previously, some of the proposed facilities may require specific freight loading needs or design features that cannot be fully evaluated until a more detailed design is available. As such, it is assumed that impacts related to the demand and supply of freight loading spaces or the accessibility and usability of freight loading facilities (and any associated off-Campus effects) will be evaluated at a later time as part of project-level environmental reviews for specific LRDP subphases.

4.3.7 Operational Emergency Vehicle Access Impacts

As discussed in Section 3.3.7, fire department access on the Campus would remain unchanged under the LRDP, but emergency medical access would be rerouted via the 43rd Avenue entrance. These changes, together with changes to the internal roadway network, would result in, at most, only minor changes to travel times (either increase or decrease) and access routes for emergency vehicles, and would not constitute a significant operational impact on emergency vehicle access.

4.3.8 Construction Impacts

Under Phase 2 of Alternative 1, vendor and haul truck traffic would peak at 36 vehicles (72 trips) per day in April 2024, and construction worker trips would peak at 44 vehicles (88 trips) per day in January 2026. Construction activities under Phase 2 of Alternative 1 would generate their maximum traffic volumes in April 2024, with as many as 77 vehicles (154 trips) in one day. Under Phase 2 of Alternative 2, vendor and haul truck traffic would peak at 36 vehicles (72 trips) per day in May 2024, and construction worker trips would peak at 45 vehicles (90 trips) per day in May 2024. As a result, construction activities under Phase 2 of Alternative 2 would generate their maximum traffic volumes in May 2024, with as many as 81 vehicles (162

trips) in one day. Under both alternatives, construction traffic in other months would generally be much lower than the peak month, with most months generating a maximum traffic volume that would not exceed 50 vehicles (100 trips) in one day.

Overall, construction of Phase 2 would generate a lower peak-month traffic volume than construction of Phase 1. As a result, construction-related impacts under Phase 2 are expected to be similar to or slightly less severe than construction-related impacts under Phase 1. Mitigation measures for any potentially significant impacts under Phase 2 would be as described for Phase 1 in Section 3.3.8.

4.4 2027 Long-term Alternative 3 Conditions

The following section summarizes the analysis results for 2027 Long-term Alternative 3 Conditions. For quantitative analyses, results are compared against the results for 2027 Long-term Alternative 4 Conditions to determine any potential impacts of the Project. For other analyses, conditions with the Project and any potential impacts are discussed qualitatively.

As indicated in Table 1, implementation of the LRDP is expected to be completed in March 2026. In contrast to Alternative 1, which assumes that all of the LRDP's long-term (Phase 2) components occur at the Fort Miley Campus, Alternative 3 assumes that some of these components instead take place at a potential new Mission Bay Campus. Specifically, the potential new Mission Bay Campus would feature a 140,000-square-foot ambulatory care center and associated parking structure as summarized in Table 2.

Because a specific location and detailed facilities plan for an extension campus in Mission Bay have yet to be determined, a detailed quantitative analysis of transportation impacts at the Mission Bay Campus has not been conducted. The quantitative analysis of Alternative 3 in this section instead focuses on the Fort Miley Campus and the associated LRDP short-term (Phase 1) actions completed there under Alternative 3. Further analysis to assess transportation impacts at the Mission Bay Campus would be required as part of a subsequent environmental review once a specific location and detailed facilities plan have been identified.

4.4.1 Operational Traffic Impacts

As stated above, the quantitative analysis of operational traffic impacts under 2027 Long-term Alternative 3 Conditions focuses on the Fort Miley Campus and the LRDP short-term actions completed there under Alternative 3.

Intersections

The estimated vehicle-trips under Phase 1 of Alternative 3, as summarized in Table 21, were added to traffic volumes for 2027 Long-term Alternative 4 Conditions to derive traffic volumes for 2027 Long-term Alternative 3 Conditions, illustrated in Figure 17. The resulting LOS at the study intersections under 2027 Long-term Alternative 3 Conditions is summarized in Table 36.

As shown in Table 36, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2027 Long-term Alternative 3 Conditions. As such, the Project would not result in significant operational impacts on any study intersections.

Roadway Segments

Roadway segment LOS for 2027 Long-term Alternative 3 Conditions is summarized in Table 37.

Although southbound 43rd Avenue between Clement Street and Point Lobos Avenue would degrade to LOS D, both roadway segments would operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour under 2027 Long-term Alternative 3 Conditions, as shown in Table 37. As such, the Project would not result in significant operational impacts on any roadway segments.

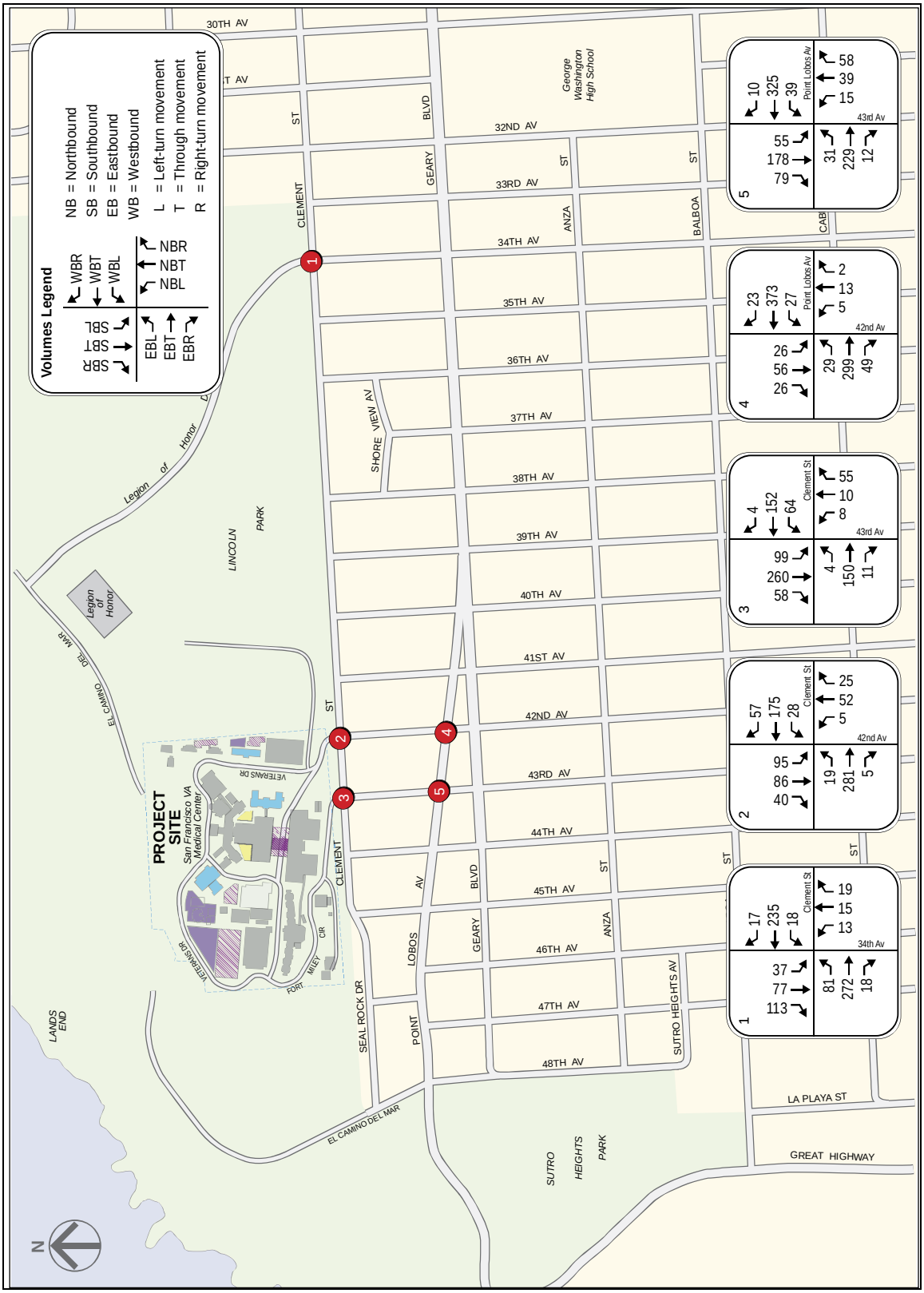

Figure 17: Intersection Traffic Volumes—2027 Long-term Alternative 3 Conditions

Table 36: Intersection Levels of Service—2027 Long-term Alternative 3 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	2027 Long-term Alternative 4 Conditions		2027 Long-term Alternative 3 Conditions	
			LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)
1	34th Avenue/Clement Street	All-Way Stop	B	12.9	B	13.3
2	42nd Avenue/Clement Street	All-Way Stop	B	11.8	B	12.2
3	43rd Avenue/Clement Street	All-Way Stop	B	12.8	B	14.3
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	B	13.7	B	14.0
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	C	16.2	C	17.1

Note: LOS = level of service
Source: Data compiled by AECOM in 2014

Table 37: Roadway Segment Levels of Service—2027 Long-term Alternative 3 Conditions (Weekday P.M. Peak Hour)

Roadway Segment		Direction	2027 Long-term Alternative 4 Conditions		2027 Long-term Alternative 3 Conditions	
			LOS	v/c Ratio	LOS	v/c Ratio
1	42nd Avenue	Northbound	A	0.18	A	0.18
	Between Clement Street and Point Lobos Avenue	Southbound	A	0.26	A	0.27
2	43rd Avenue	Northbound	A	0.18	A	0.18
	Between Clement Street and Point Lobos Avenue	Southbound	C	0.69	D	0.74

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

Passenger Vehicle Access

As discussed in Section 3.3.1, the changes to passenger vehicle access would simplify circulation through the Campus and help to segregate employee and Veteran/visitor vehicular traffic. These changes would result in, at most, only minor changes to travel times (either increase or decrease) and access routes, and would not constitute a significant operational impact on passenger vehicle access at the Campus.

East Fort Miley Access

As discussed in Section 3.3.1, the LRDP does not propose specific changes to GGNRA access to and from East Fort Miley, and the existing access road at the southwest corner of Building 212 would continue to serve traffic generated at this facility. The changes to the internal roadway network proposed by the LRDP would result in, at most, only minor changes in the total traffic volumes passing through the Veterans Drive/Fort Miley Circle intersection (either increase or decrease) and would not preclude GGNRA access into and out of East Fort Miley. Overall, the Project is not expected to result in significant operational impacts on GGNRA access into and out of East Fort Miley.

Mission Bay Campus

As shown in Table 21, the potential new Mission Bay Campus would generate approximately 184 vehicle-trips (92 inbound to the site and 92 outbound from the site) during the weekday p.m. peak hour. As a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess traffic impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.4.2 Operational Transit Impacts

Public Transit

As stated above, the quantitative analysis of transit impacts under 2027 Long-term Alternative 3 Conditions focuses on the Fort Miley Campus and the LRDP short-term actions completed there under Alternative 3.

Ridership and Capacity Effects
As shown in Table 21, Alternative 3 would generate 45 net-new transit trips (six inbound to the Campus and 39 outbound from the Campus) during the weekday p.m. peak hour, far fewer than Alternative 1. As discussed in Section 3.3.2, the Campus's location at the outer end of the Geary Corridor means that the commute direction for the Project constitutes the "reverse commute" direction—trips heading inbound to the Project site would take outbound transit services in the Geary Corridor, and trips heading outbound from the Project site would take inbound transit services in the Geary Corridor.

In particular, outbound transit service in Geary Corridor is expected to operate at only 73 percent capacity utilization under 2027 Long-term Alternative 4 Conditions, as shown in Table 32. The addition of up to six passengers as a result of the Project would only represent a 0.2 percent increase in capacity utilization. This would not constitute a material change in the capacity utilization, which would continue to remain below the 85 percent threshold at 73 percent under 2027 Long-term Alternative 3 Conditions. In the opposite direction, inbound transit service in the Geary Corridor is expected to operate at only 47 percent capacity utilization during the weekday p.m. peak hour. Even with the addition of up to 39 new transit riders generated by the Project, capacity utilization would still only increase continue to 48 percent, well below the 85 percent threshold.

Overall, the Project is not expected to result in a significant operational impact on Muni capacity in either direction in the Geary Corridor.

Other Effects
As discussed in Section 3.3.2, the changes to circulation on the Campus for Muni buses would represent only minor changes and would not constitute a significant operational impact on Muni service. In particular, the Project's expected net increase of 57 vehicle-trips as shown in Table 21 would likely not substantially affect Muni operations, and the expected increase in average delays at 42nd Avenue/Clement Street would be negligible, as shown in Table 36.

SFVAMC Shuttle Services

As discussed in Section 3.3.2, the changes to shuttle access and circulation at the Campus would result in, at most, only minor changes to travel times (either increase or decrease), and would not constitute a significant operational impact on shuttle services at the Campus.

Taxi Services

As discussed in Section 3.3.2, the changes to taxi access and circulation at the Campus would result in, at most, only minor changes to travel times (either increase or decrease), and would not constitute a significant operational impact on shuttle services at the Campus.

Mission Bay Campus

As shown in Table 21, the potential new Mission Bay Campus would generate approximately 104 transit trips (52 inbound to the site and 52 outbound from the site) during the weekday p.m. peak hour. Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess transit impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.4.3 Operational Bicycle Impacts

A portion of the six net-new Project trips shown as "other" in Table 21 would be completed by bicycle. Similar to 2020 Short-term Alternative 1 Conditions as discussed in Section 3.3.3, the expected increase in bicycle trips would not be

substantial enough to affect overall bicycle circulation in the Campus or surrounding area or the operations of adjacent bicycle facilities. The Project's expected net increase of 57 vehicle-trips as shown in Table 21 would also likely not substantially increase the potential for conflicts between bicyclists and motorists.

As discussed in Section 3.3.3, the LRDP does not propose specific changes with regard to bicycle access on the Campus, and bicyclists would continue to be able to access the Campus as they currently do via 42nd Avenue and 43rd Avenue. The changes to the internal roadway network proposed by the LRDP would result in, at most, only minor changes to travel times (either increase or decrease), and would not conflict with existing or planned bicycle facilities outside of the Campus or constitute a hazard to bicycle users. Overall, the Project is not expected to result in significant operational impacts on bicycle conditions.

Mission Bay Campus

A portion of the 37 Project trips during the weekday p.m. peak hour shown as "other" in Table 21 for Phase 2 would be completed by bicycle. Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess bicycle impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.4.4 Operational Pedestrian Impacts

The Project-generated net increase in pedestrian traffic during the weekday p.m. peak hour on the streets surrounding the Campus would comprise 20 walk trips and some portion of the 45 transit trips and 81 auto trips (for transit passengers or motorists accessing transit stops or parked vehicles at off-site locations) shown in Table 21. Similar to 2020 Short-term Alternative 1 Conditions as discussed in Section 3.3.4, the new pedestrian trips generated by the Project could be accommodated without any impacts on pedestrian safety or operations. Some portion of the Project's expected net increase of 57 vehicle-trips as shown in Table 21 would travel on or cross roadways with designated bikeways, but would likely not substantially increase the potential for conflicts between bicyclists and motorists.

As discussed in Section 3.3.4, the Project would not conflict with existing pedestrian facilities or propose design features hazardous to pedestrians. External access to and from the Campus for pedestrians would remain unchanged, but proposed changes within the Campus would generally improve pedestrian conditions. Overall, the Project is not expected to result in significant operational impacts on pedestrian conditions.

Mission Bay Campus

Pedestrian trips generated at the potential new Mission Bay Campus during the weekday p.m. peak hour would include approximately 72 walk trips, plus some portion of the 104 transit trips shown in Table 21, depending on the proposed shuttle services and on-site parking supply provided at the Mission Bay Campus. As a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess pedestrian impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.4.5 Operational Vehicle Parking Impacts

As discussed in Section 3.3.5, parking conditions are not static; parking supply and demand varies from day to day, from day to night, from month to month, etc. Hence, the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel. Although parking conditions change over time, a substantial deficit in parking caused by a project that creates hazardous conditions or significant delays to traffic, transit, bicycles, or pedestrians could adversely affect the physical environment. Whether a deficit in parking creates such conditions depends on the magnitude of the shortfall and the ability of drivers to change travel patterns or switch to other travel modes. If a substantial deficit in parking caused by a project creates hazardous conditions or significant delays in travel, such a condition could also result in secondary physical environmental impacts (e.g., air quality or noise impacts caused by congestion), depending on the project and its setting.

The absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles, or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service or other modes (walking and biking), would be in keeping with the City's "Transit First" policy and numerous San Francisco General Plan policies, including those enumerated in the Transportation Element. The City's Transit First Policy, established in Article 8A, Section 8A.115 of the City's Charter, provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation."

This transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the Project site and then seek parking farther away if convenient parking is unavailable. The secondary effects of drivers searching for parking is typically offset by a reduction in vehicle-trips attributable to others who are aware of constrained parking conditions in a given area, and thus choose to reach their destination by other modes (i.e., walking, biking, transit, or taxi). If this occurs, any secondary environmental impacts that may result from a shortfall in parking in the vicinity of the Project site would be minor. The traffic assignments used in the transportation analysis, as well as in the associated air quality and noise analyses, would reasonably address potential secondary effects.

Parking Demand and Supply

As indicated in Table 23, the new uses proposed by the Project would generate a demand for 132 parking spaces at the Campus, similar to 2020 Short-term Alternative 1 Conditions as described in Section 3.3.5. As described in Section 1.3.3, the Project would provide 306 net additional spaces at the Campus, exceeding the estimated new demand by 174 spaces.

Although some of these spaces would "recapture" unmet demand on the Campus that currently spills into the surrounding neighborhood, the proposed supply of 306 spaces would exceed the parking provision ratio for the Campus under Existing Conditions, as described in Section 3.3.5.

Given these considerations, the Project is not expected to result in significant operational impacts related to parking.

Mission Bay Campus

As indicated in Table 23, the new uses proposed by the Project would generate a demand for 271 parking spaces at the potential new Mission Bay Campus. As a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess vehicle parking impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.4.6 Operational Freight Loading Impacts

As discussed in Section 3.3.6, the LRDP does not propose specific changes to Campus access for freight loading and service/delivery vehicles, and the existing access via 42nd Avenue and 43rd Avenue would remain unchanged. The changes to the internal roadway network would result in, at most, only minor changes to travel times (either increase or decrease) and access routes for trucks serving the Campus, and would not constitute a significant operational impact on freight loading conditions.

Similarly, specific details regarding the future provision of freight loading spaces will only be determined as each specific LRDP component enters the design and implementation phase. As mentioned previously, some of the proposed facilities may require specific freight loading needs or design features that cannot be fully evaluated until a more detailed design is available. As such, it is assumed that impacts related to the demand and supply of freight loading spaces or the accessibility and usability of freight loading facilities (and any associated off-Campus effects) will be evaluated at a later time as part of project-level environmental reviews for specific LRDP subphases.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, any analysis to assess freight loading impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.4.7 Operational Emergency Vehicle Access Impacts

As discussed in Section 3.3.7, fire department access on the Campus would remain unchanged under the LRDP, but emergency medical access would be rerouted via the 43rd Avenue entrance. These changes, together with changes to the internal roadway network, would result in, at most, only minor changes to travel times (either increase or decrease) and access routes for emergency vehicles, and would not constitute a significant operational impact on emergency vehicle access.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, any analysis to assess emergency vehicle access impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.4.8 Construction Traffic Impacts

Long-term (Phase 2) actions under Alternative 3 do not propose any major construction-related activities at the Fort Miley Campus. As such, there would be no additional construction impacts beyond what was identified in Section 3.4.8 for 2020 Short-term Alternative 3 Conditions. Construction impacts at the potential new Mission Bay Campus are discussed below.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, any analysis to assess freight loading impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

4.5 2027 Long-term Conclusions

The operation of new facilities and structures proposed under Phase 2 of the LRDP is not expected to result in any significant operational impacts on traffic, transit, bicycle, pedestrian, vehicle parking, freight loading, or emergency vehicle access conditions at the Fort Miley Campus. However, construction-related activities in the long-term time frame under Alternative 1 could potentially result in temporary but significant impacts on traffic and transportation, vehicle parking, air quality, noise, and vibration at the Campus itself or in the immediate vicinity. These impacts and associated mitigation measures are discussed in more detail in Section 4.3.8.

A specific location and detailed facilities plan for the new Mission Bay Campus have yet to be determined, and, as such, analysis of transportation-related impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

5.0 Cumulative Effects

The analysis of cumulative effects evaluates conditions in Year 2040, including planned and proposed future development growth and transportation network changes in the study area, as well as background growth in travel demand in the City and region.

5.1 Methods and Assumptions

5.1.1 Background Growth

The methodologies used to develop traffic and transit forecasts in the cumulative time frame are identical to those used for the short-term time frame, as summarized in Section 3.1.1.

5.1.2 Transportation Network Modifications

The analysis of cumulative effects includes the same changes to the transportation network identified in the analysis of short-term effects, summarized in Section 3.1.2. No additional relevant changes to the transportation network by Year 2040, beyond what was identified for the short-term analysis, were identified for the cumulative analysis.

5.2 2040 Cumulative Alternative 4 Conditions

The following section summarizes the analysis results for 2040 Cumulative Alternative 4 Conditions, which is presented here first because it represents the "no action" (i.e., "baseline" or "no Project") alternative, facilitating a comparison with the action alternatives (Alternative 1, Alternative 2, and Alternative 3) in the subsequent sections to determine Project impacts. For this reason, this section focuses on topics for which potential impacts of the Project are determined through quantitative analysis—namely, intersection and roadway segment operations for traffic conditions and Muni ridership and capacity for transit conditions. Topics for impacts evaluated qualitatively—such as bicycle, pedestrian, vehicle parking, freight loading, and emergency vehicle access conditions—are not discussed in this section.

5.2.1 Traffic Conditions

Intersections

Traffic volumes and LOS at the study intersections under 2040 Cumulative Alternative 4 Conditions are illustrated in Figure 18 and summarized in Table 38, respectively.

Table 38: Intersection Levels of Service— 2040 Cumulative Alternative 4 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	Existing Conditions		2020 Short-term Alternative 4 Conditions		2027 Long-term Alternative 4 Conditions		2040 Long-term Alternative 4 Conditions	
			LOS	Delay[(1)]	LOS	Delay[(1)]	LOS	Delay[(1)]	LOS	Delay[(1)]
1	34th Avenue/Clement Street	All-Way Stop	B	11.8	B	12.4	B	12.9	B	14.1
2	42nd Avenue/Clement Street	All-Way Stop	B	11.0	B	11.4	B	11.8	B	12.7
3	43rd Avenue/Clement Street	All-Way Stop	B	11.7	B	12.3	B	12.8	B	14.0
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	B	12.4	B	13.1	B	13.7	C	15.3
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	B	14.2	C	15.1	C	16.2	C	19.0

Source: Data compiled by AECOM in 2014

Notes:
LOS = level of service
(1) Delay in seconds per vehicle.

As shown in Table 38, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2040 Cumulative Alternative 4 Conditions.

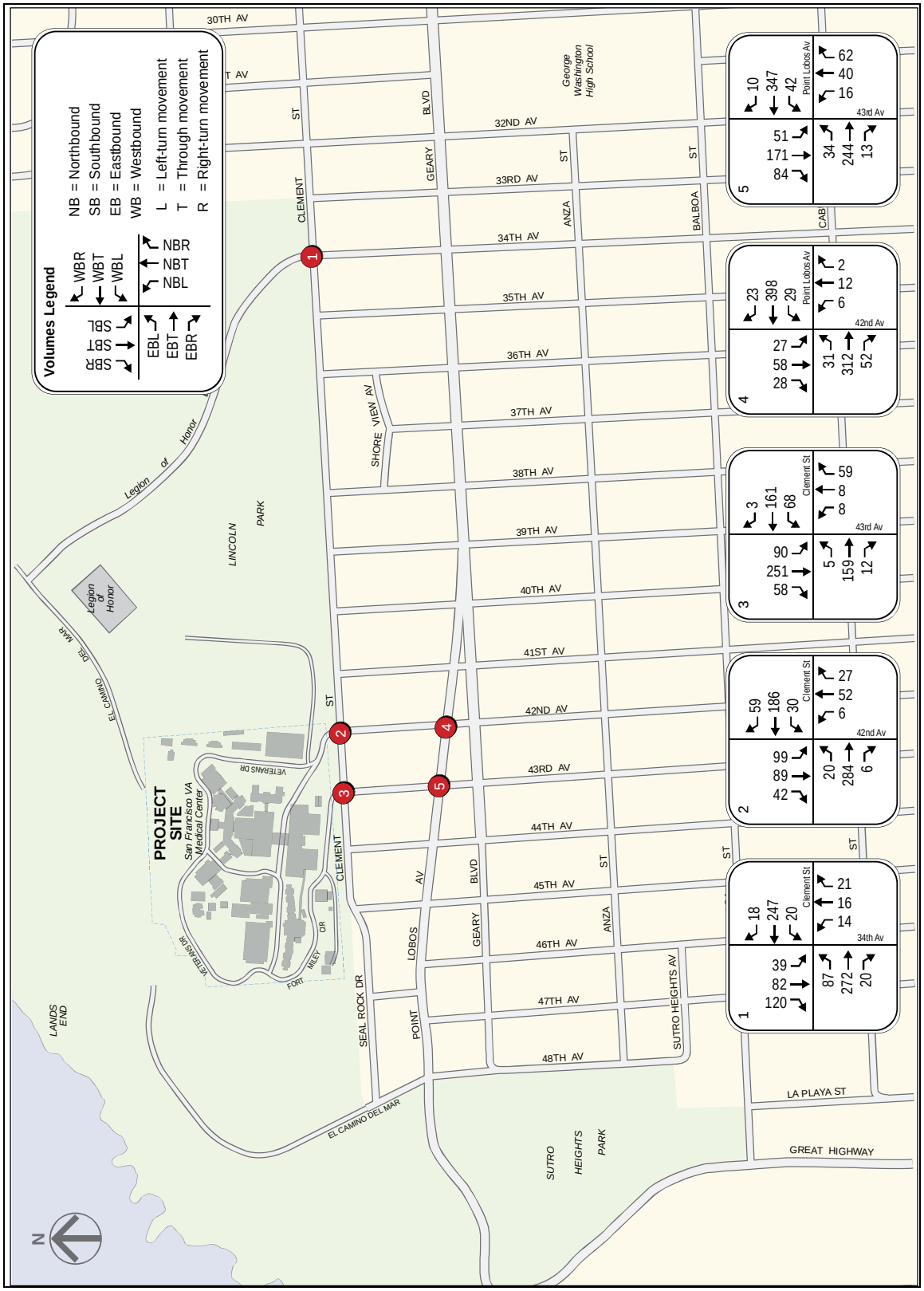

Figure 18: Intersection Traffic Volumes—2040 Cumulative Alternative 4 Conditions

Roadway Segments

The expected LOS at the two study roadway segments under 2040 Cumulative Alternative 4 Conditions is summarized in Table 39. As shown in Table 39, both roadway segments would operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour under 2040 Cumulative Alternative 4 Conditions.

Table 39: Roadway Segment Levels of Service—2040 Cumulative Alternative 4 Conditions (Weekday P.M. Peak Hour)

Roadway Segment	Direction	Existing Conditions		2020 Short-term Alternative 4 Conditions		2027 Long-term Alternative 4 Conditions		2040 Cumulative Alternative 4 Conditions	
		LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio
1 42nd Avenue	Northbound	A	0.16	A	0.17	A	0.18	A	0.19
Between Clement Street and Point Lobos Avenue	Southbound	A	0.24	A	0.25	A	0.26	A	0.28
2 43rd Avenue	Northbound	A	0.16	A	0.17	A	0.18	A	0.19
Between Clement Street and Point Lobos Avenue	Southbound	C	0.64	C	0.66	C	0.69	D	0.73

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

5.2.2 Transit Conditions

Public Transit

Table 40 summarizes ridership, capacity, and capacity utilization of transit services in the Geary Corridor under 2040 Cumulative Alternative 4 Conditions. As shown in Table 40, ridership would increase from Existing Conditions. Although inbound service in the Geary Corridor during the weekday p.m. peak hour would remain below the 85 percent threshold, outbound service would exceed the threshold, reaching 93 percent capacity utilization.

Table 40: Muni Ridership and Capacity—2040 Cumulative Alternative 4 Conditions (Weekday P.M. Peak Hour)

Direction	Existing Conditions			2020 Short-term Alternative 4 Conditions			2027 Long-term Alternative 4 Conditions			2040 Cumulative Alternative 4 Conditions		
	Rider-ship	Capacity	Utili-zation	Rider-ship	Capacity	Utili-zation	Rider-ship	Capacity	Utili-zation	Rider-ship	Capacity	Utili-zation
Inbound	908	1,777	51%	1,142	2,820	41%	1,324	2,820	47%	1,661	2,820	59%
Outbound	1,814	2,528	72%	2,359	3,826	62%	2,783	3,826	73%	3,570	3,826	93%

Source: SFMTA, 2011.

Notes:
Ridership data based on conditions at the MLP for each line.
Bold indicates capacity utilization of 85 percent or greater.

5.3 2040 Cumulative Alternative 1 Conditions

The following section summarizes the analysis results for 2040 Cumulative Alternative 1 Conditions. For quantitative analyses, results are compared against the results for 2040 Cumulative Alternative 4 Conditions to determine any potential impacts as a result of the Project. For other analyses, conditions with the Project and any potential impacts are discussed qualitatively.

5.3.1 Operational Traffic Impacts

Intersections

The Project's estimated vehicle-trips under Phase 1 and Phase 2 of Alternative 1, as summarized in Table 20, were added to traffic volumes for 2027 Long-term Alternative 4 Conditions to derive traffic volumes for 2040 Cumulative Alternative 1 Conditions traffic volumes, illustrated in Figure 19. The resulting LOS at the study intersections under 2040 Cumulative Alternative 1 Conditions is summarized in Table 41.

Table 41: Intersection Levels of Service—2040 Cumulative Alternative 1 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	2040 Cumulative Alternative 4 Conditions		2040 Cumulative Alternative 1 Conditions	
			LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)
1	34th Avenue/Clement Street	All-Way Stop	B	14.1	C	17.0
2	42nd Avenue/Clement Street	All-Way Stop	B	12.7	C	16.9
3	43rd Avenue/Clement Street	All-Way Stop	B	14.0	C	20.3
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	C	15.3	C	18.4
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	C	19.0	C	23.3

Notes: LOS = level of service
Source: Data compiled by AECOM in 2014

As shown in Table 41, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2040 Cumulative Alternative 1 Conditions. As such, the Project would not result in, or make a considerable contribution to, a significant operational impact at any study intersections.

Roadway Segments

Roadway segment LOS for 2040 Cumulative Alternative 1 Conditions is summarized in Table 42.

Table 42: Roadway Segment Levels of Service—2040 Cumulative Alternative 1 Conditions (Weekday P.M. Peak Hour)

Roadway Segment		Direction	2040 Cumulative Alternative 4 Conditions		2040 Cumulative Alternative 1 Conditions	
			LOS	v/c Ratio	LOS	v/c Ratio
1	42nd Avenue	Northbound	A	0.19	A	0.27
	Between Clement Street and Point Lobos Avenue	Southbound	A	0.28	B	0.36
2	43rd Avenue	Northbound	A	0.19	A	0.24
	Between Clement Street and Point Lobos Avenue	Southbound	D	0.73	D	0.84

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

As shown in Table 42, both roadway segments would operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour under 2040 Cumulative Alternative 1 Conditions. As such, the Project would not result in, or make a considerable contribution to, a significant operational impact on any roadway segments.

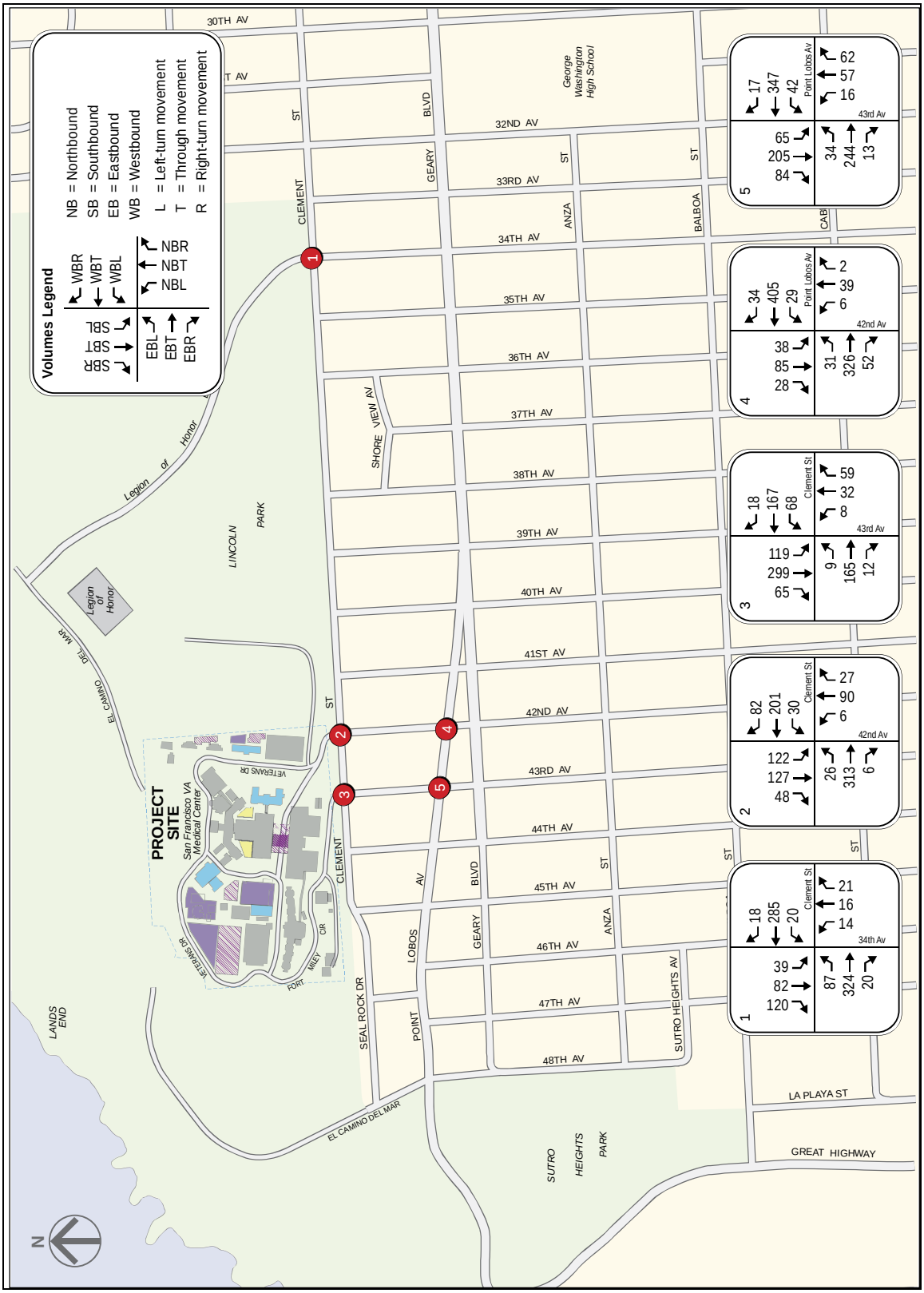

Figure 19: Intersection Traffic Volumes—2040 Cumulative Alternative 1 Conditions

Passenger Vehicle Access

Passenger vehicle access conditions under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.1. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on passenger vehicle access.

East Fort Miley Access

East Fort Miley access conditions under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.1. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on GGNRA access into and out of East Fort Miley.

5.3.2 Operational Transit Impacts

Public Transit

Ridership and Capacity Effects

As shown in Table 20, Alternative 1 would generate 215 transit trips (91 inbound to the Project site and 124 outbound from the Project site) during the weekday p.m. peak hour when combining ridership generated by both short-term and long-term actions. As discussed in Section 3.3.2, the Campus's location at the outer end of the Geary Corridor means that the commute direction for the Project constitutes the "reverse commute" direction. Trips heading inbound to the Project site would take outbound transit services in the Geary Corridor, and trips heading outbound from the Project site would take inbound transit services in the Geary Corridor.

In particular, outbound transit service in the Geary Corridor is expected to operate at 93 percent capacity utilization under 2040 Cumulative Alternative 4 Conditions, exceeding the 85 percent threshold as shown in Table 40. The addition of up to 91 passengers as a result of the Project would increase capacity utilization to 96 percent. However, the added Project ridership would contribute only 3.7 percent of the total ridership in the corridor, which would not represent a considerable contribution to the total ridership. In the opposite direction, inbound transit service in the Geary Corridor is expected to operate at only 59 percent capacity utilization during the weekday p.m. peak hour. Even with the addition of up to 124 new transit riders generated by the Project, capacity utilization would still only increase to 63 percent, well below the 85 percent threshold.

Similar to 2020 Short-term Alternative 1 Conditions as discussed in Section 3.3.2, it is likely that only some of these 124 new transit riders leaving the Project site would choose to take Muni buses in the Geary Corridor. Many of these riders would be expected to use the commuter shuttle services provided by SFVAMC, such that the actual increase in capacity utilization on inbound buses in the Geary Corridor is expected to be less than as described above.

Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on Muni capacity in either direction in the Geary Corridor.

Other Effects

Other conditions for Muni service under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.2. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on Muni service.

SFVAMC Shuttle Services

Transit conditions for shuttle services under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.2. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on shuttle services.

Taxi Services

Conditions for taxi services under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.2. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on taxi services.

5.3.3 Operational Bicycle Impacts

Bicycle conditions under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.3. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on bicycle conditions.

5.3.4 Operational Pedestrian Impacts

Pedestrian conditions under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.4. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on pedestrian conditions.

5.3.5 Operational Vehicle Parking Impacts

Vehicle parking conditions under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.5. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on vehicle parking conditions.

5.3.6 Operational Freight Loading Impacts

Freight loading conditions under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.6. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on freight loading conditions.

5.3.7 Operational Emergency Vehicle Access Impacts

Emergency vehicle access conditions under 2040 Cumulative Alternative 1 Conditions are expected to be similar to those under 2027 Long-term Alternative 1 Conditions, as summarized in Section 4.3.7. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on emergency vehicle access conditions.

5.3.8 Construction Impacts

At this time, there are no foreseeable construction activities on or in the immediate vicinity of the Campus in the cumulative time frame. As a result, no construction-related transportation impacts are expected.

5.4 2040 Cumulative Alternative 3 Conditions

The following section summarizes the analysis results for 2040 Cumulative Alternative 3 Conditions. For quantitative analyses, results are compared against the results for 2040 Cumulative Alternative 4 Conditions to determine any potential impacts as a result of the Project. For other analyses, conditions with the Project and any potential impacts are discussed qualitatively.

Because a specific location and detailed facilities plan for an extension campus in Mission Bay have yet to be determined, a detailed quantitative analysis of transportation impacts at the Mission Bay Campus has not been conducted. The quantitative analysis of Alternative 3 in this section instead focuses on the Fort Miley Campus and the associated LRDP short-term (Phase 1) actions completed there under Alternative 3. Further analysis to assess transportation impacts at the Mission Bay Campus would be required as part of a subsequent environmental review once a specific location and detailed facilities plan have been identified.

5.4.1 Operational Traffic Impacts

As stated above, the quantitative analysis of operational traffic impacts under 2040 Cumulative Alternative 3 Conditions focuses on the Fort Miley Campus and the LRDP short-term actions completed there under Alternative 3.

Intersections

The estimated vehicle-trips under Phase 1 of Alternative 3, as summarized in Table 21, were added to traffic volumes for 2040 Cumulative Alternative 4 Conditions to derive traffic volumes for 2040 Cumulative Alternative 3 Conditions, illustrated in Figure 20. The resulting LOS at the study intersections is summarized in Table 43.

As shown in Table 43, all five study intersections would operate at acceptable conditions (LOS C or better) during the weekday p.m. peak hour under 2040 Cumulative Alternative 3 Conditions. As such, the Project would not result in, or make a considerable contribution to, a significant operational impact at any study intersections.

Table 43: Intersection Levels of Service—2040 Cumulative Alternative 3 Conditions (Weekday P.M. Peak Hour)

Intersection		Control Type	2040 Cumulative Alternative 4 Conditions		2040 Cumulative Alternative 3 Conditions	
			LOS	Delay (seconds/ vehicle)	LOS	Delay (seconds/ vehicle)
1	34th Avenue/Clement Street	All-Way Stop	B	14.1	B	14.7
2	42nd Avenue/Clement Street	All-Way Stop	B	12.7	B	13.2
3	43rd Avenue/Clement Street	All-Way Stop	B	14.0	C	16.1
4	42nd Avenue/Point Lobos Avenue	All-Way Stop	C	15.3	C	15.6
5	43rd Avenue/Point Lobos Avenue	All-Way Stop	C	19.0	C	20.4

Notes: LOS = level of service
Source: Data compiled by AECOM in 2014

Roadway Segments

Roadway segment LOS for 2040 Cumulative Alternative 3 Conditions is summarized in Table 44. As shown in Table 44, both roadway segments would operate at acceptable conditions (LOS D or better) during the weekday p.m. peak hour under 2040 Cumulative Alternative 3 Conditions. As such, the Project would not result in, or make a considerable contribution to, a significant operational impact on any roadway segments.

Table 44: Roadway Segment Levels of Service—2040 Cumulative Alternative 3 Conditions (Weekday P.M. Peak Hour)

Roadway Segment		Direction	2040 Cumulative Alternative 4 Conditions		2040 Cumulative Alternative 3 Conditions	
			LOS	v/c Ratio	LOS	v/c Ratio
1	42nd Avenue	Northbound	A	0.19	A	0.19
	Between Clement Street and Point Lobos Avenue	Southbound	A	0.28	B	0.28
2	43rd Avenue	Northbound	A	0.19	A	0.19
	Between Clement Street and Point Lobos Avenue	Southbound	D	0.73	D	0.79

Notes: LOS = level of service; v/c = volume-to-capacity
Source: Data compiled by AECOM in 2014

Passenger Vehicle Access

Passenger vehicle access conditions under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.1. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on passenger vehicle access.

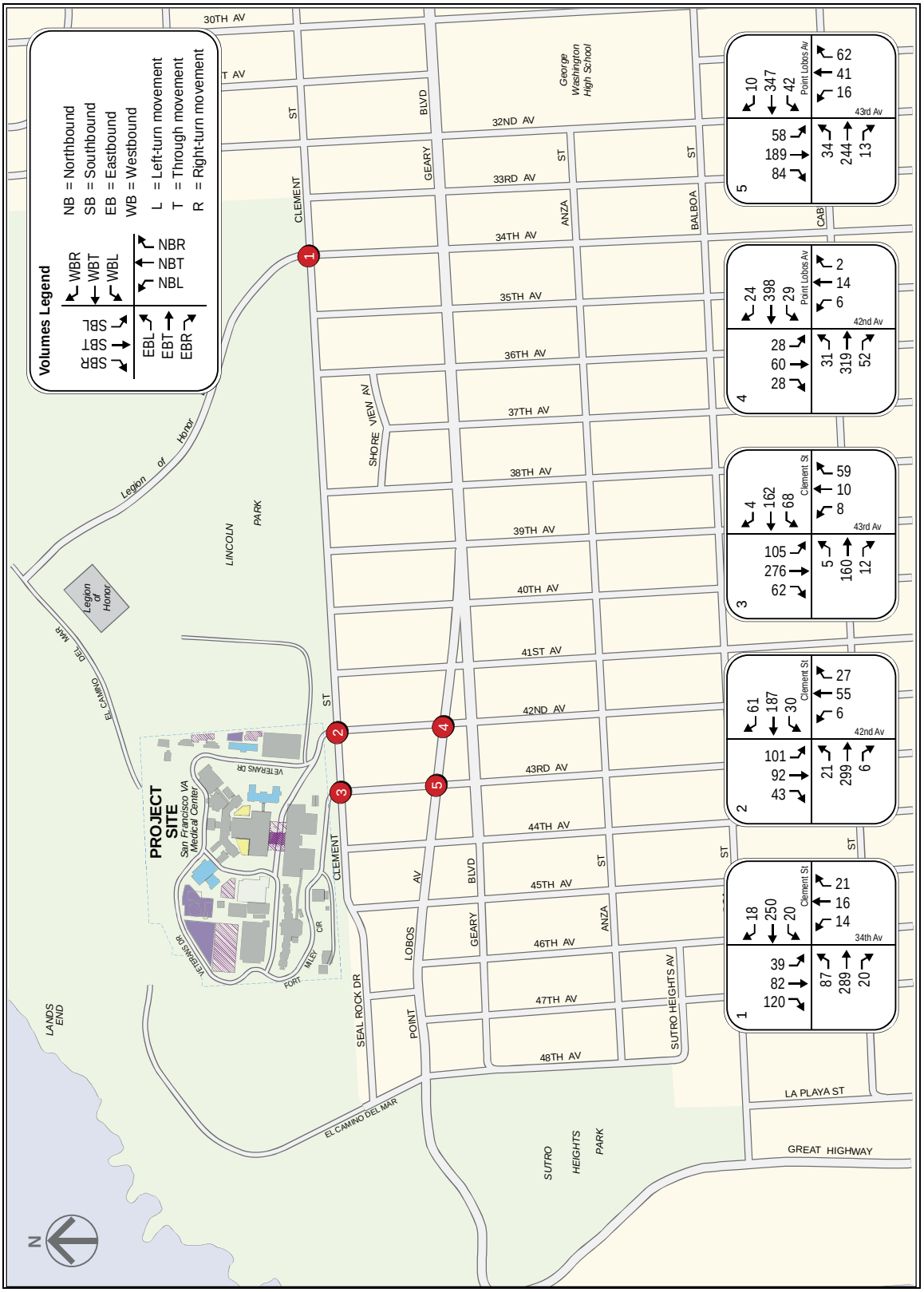

Figure 20: Intersection Traffic Volumes—2040 Cumulative Alternative 3 Conditions

East Fort Miley Access

East Fort Miley access conditions under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.1. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on GGNRA access into and out of East Fort Miley.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess traffic impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

5.4.2 Operational Transit Impacts

Public Transit

As stated above, the quantitative analysis of operational transit impacts under 2027 Long-term Alternative 3 Conditions focuses on the Fort Miley Campus and the LRDP short-term actions completed there under Alternative 3.

Ridership and Capacity Effects

As shown in Table 21, Alternative 3 would generate 45 transit trips (six inbound to the Campus and 39 outbound from the Campus) during the weekday p.m. peak hour, far fewer than Alternative 1. As discussed in Section 3.3.2, the Campus's location at the outer end of the Geary Corridor means that the commute direction for the Project constitutes the "reverse commute" direction. Trips heading inbound to the Project site would take outbound transit services in the Geary Corridor, and trips heading outbound from the Project site would take inbound transit services in the Geary Corridor.

In particular, outbound transit service in Geary Corridor is expected to operate at 93 percent capacity utilization under 2040 Cumulative Alternative 4 Conditions, exceeding the 85 percent threshold as shown in Table 40. The addition of up to six passengers as a result of the Project would represent only a 0.1 percent increase in capacity utilization. This level of ridership increase would not materially affect capacity utilization, which would continue to remain at 93 percent under 2040 Cumulative Alternative 3 Conditions. In the opposite direction, inbound transit service in the Geary Corridor is expected to operate at only 59 percent capacity utilization during the weekday p.m. peak hour. Even with the addition of up to 39 new transit riders generated by the Project, capacity utilization would only increase to 60 percent, well below the 85 percent threshold.

Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on Muni capacity in either direction in the Geary Corridor.

Other Effects

Other conditions for Muni service under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.2. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on Muni service.

SFVAMC Shuttle Services

Transit conditions for shuttle services under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.2. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on shuttle services.

Taxi Services

Conditions for taxi services under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.2. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on taxi services.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess transit impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

5.4.3 Operational Bicycle Impacts

Bicycle conditions under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.3. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on bicycle conditions.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess bicycle impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

5.4.4 Operational Pedestrian Impacts

Pedestrian conditions under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.4. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on pedestrian conditions.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess pedestrian impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

5.4.5 Operational Vehicle Parking Impacts

Parking conditions under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.5. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on vehicle parking conditions.

5.4.6 Operational Freight Loading Impacts

Freight loading conditions under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.6. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on freight loading conditions.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, further analysis to assess freight loading impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

5.4.7 Operational Emergency Vehicle Access Impacts

Emergency vehicle access conditions under 2040 Cumulative Alternative 3 Conditions are expected to be similar to those under 2027 Long-term Alternative 3 Conditions, as summarized in Section 4.4.7. Overall, the Project is not expected to result in, or make a considerable contribution to, a significant operational impact on emergency vehicle access conditions.

Mission Bay Campus

Because a specific location and detailed facilities plan for the potential new Mission Bay Campus have not yet been determined, any analysis to assess emergency vehicle access impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

5.4.8 Construction Traffic Impacts

At this time, there are no foreseeable construction activities on or in the immediate vicinity of the Campus in the cumulative time frame. As a result, no construction-related transportation impacts are expected.

Mission Bay Campus

Because the potential new Mission Bay Campus would be located in the Mission Bay area, which is currently undergoing redevelopment, there may be construction activities around the proposed site in the cumulative time frame. Further analysis of construction impacts in the cumulative time frame would be required once a specific location and detailed facilities plan for the Mission Bay Campus has been determined.

5.5 2040 Cumulative Conclusion

Neither Alternative 1 nor Alternative 3 is expected to result in, or make a considerable contribution to, any significant operational impacts on traffic, transit, bicycle, pedestrian, vehicle parking, freight loading, or emergency vehicle access conditions at the Fort Miley Campus.

A specific location and detailed facilities plan for the new Mission Bay Campus have yet to be determined, and, as such, analysis of transportation-related impacts at the Mission Bay Campus would be required as part of a subsequent environmental review, once these details have been determined.

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AECOM Transportation December 19, 2014

San Francisco VA Medical Center Long Range Development Plan

Transportation Impact Study (TIS) Technical Appendices

Prepared for the Department of Veterans Affairs

San Francisco VA Medical Center
Long Range Development Plan
Transportation Impact Study (TIS)
Technical Appendices

Prepared for the Department of Veterans Affairs

December 19, 2014

Appendix A
Intersection Turning Movement Counts

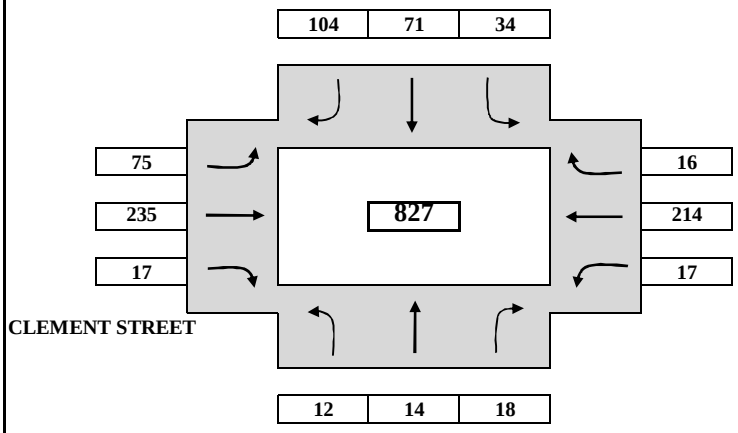
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

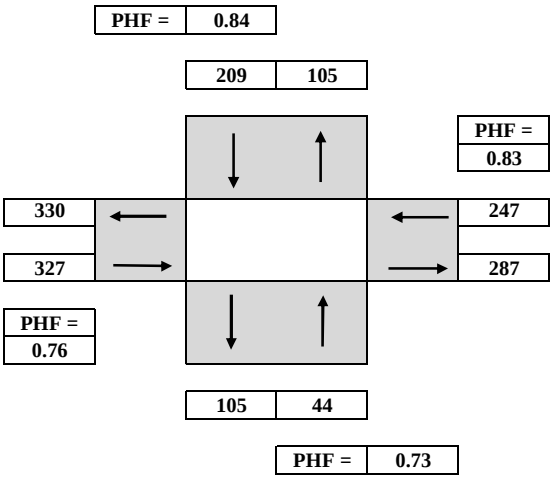
PROJECT:	**SFVAMC - DATA COLLECTION**	**SURVEY DATE:**	**2/15/2011**	**DAY:**	**TUESDAY**
N-S APPROACH:	**34TH AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH	**CLEMENT STREET**	**JURISDICTION:**	**SAN FRANCISCO**	**FILE:**	**3102011-1PM**

PEAK HOUR
5:00 PM TO 6:00 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
From		To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA															
4:00 PM	to	4:15 PM	0	8	4	9	11	16	23	53	3	1	39	9	**176**
4:15 PM	to	4:30 PM	2	12	10	16	23	30	44	118	8	9	78	10	**360**
4:30 PM	to	4:45 PM	2	19	15	25	32	48	69	181	14	13	124	14	**556**
4:45 PM	to	5:00 PM	5	25	20	29	52	66	86	250	16	17	173	19	**758**
5:00 PM	to	5:15 PM	9	26	24	41	66	88	115	322	22	22	220	24	**979**
5:15 PM	to	5:30 PM	11	32	31	46	90	112	132	382	25	23	259	28	**1171**
5:30 PM	to	5:45 PM	14	36	33	58	110	142	147	431	29	28	322	32	**1382**
5:45 PM	to	6:00 PM	17	39	38	63	123	170	161	485	33	34	387	35	**1585**
TOTAL BY PERIOD															
4:00 PM	to	4:15 PM	0	8	4	9	11	16	23	53	3	1	39	9	**176**
4:15 PM	to	4:30 PM	2	4	6	7	12	14	21	65	5	8	39	1	**184**
4:30 PM	to	4:45 PM	0	7	5	9	9	18	25	63	6	4	46	4	**196**
4:45 PM	to	5:00 PM	3	6	5	4	20	18	17	69	2	4	49	5	**202**
5:00 PM	to	5:15 PM	4	1	4	12	14	22	29	72	6	5	47	5	**221**
5:15 PM	to	5:30 PM	2	6	7	5	24	24	17	60	3	1	39	4	**192**
5:30 PM	to	5:45 PM	3	4	2	12	20	30	15	49	4	5	63	4	**211**
5:45 PM	to	6:00 PM	3	3	5	5	13	28	14	54	4	6	65	3	**203**
HOURLY TOTALS															
4:00 PM	to	5:00 PM	5	25	20	29	52	66	86	250	16	17	173	19	**758**
4:15 PM	to	5:15 PM	9	18	20	32	55	72	92	269	19	21	181	15	**803**
4:30 PM	to	5:30 PM	9	20	21	30	67	82	88	264	17	14	181	18	**811**
4:45 PM	to	5:45 PM	12	17	18	33	78	94	78	250	15	15	198	18	**826**
5:00 PM	to	6:00 PM	12	14	18	34	71	104	75	235	17	17	214	16	**827**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

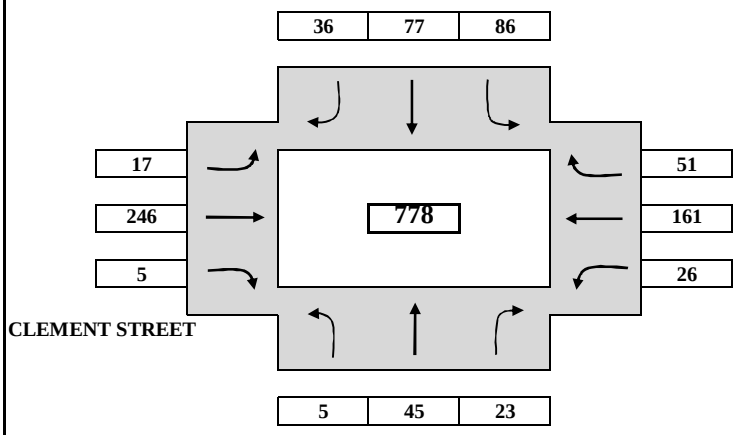
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

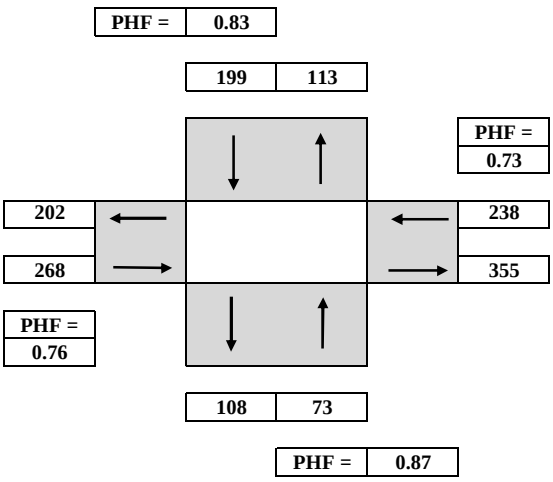
PROJECT:	**SFVAMC - DATA COLLECTION**	**SURVEY DATE:**	**2/15/2011**	**DAY:**	**TUESDAY**
N-S APPROACH:	**42ND AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH	**CLEMENT STREET**	**JURISDICTION:**	**SAN FRANCISCO**	**FILE:**	**3102011-2PM**

PEAK HOUR
4:15 PM TO 5:15 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
From		To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA															
4:00 PM	to	4:15 PM	1	7	3	17	22	8	4	53	1	4	34	11	**165**
4:15 PM	to	4:30 PM	3	16	9	36	41	16	10	134	2	9	63	24	**363**
4:30 PM	to	4:45 PM	5	28	16	60	62	22	16	182	2	15	99	37	**544**
4:45 PM	to	5:00 PM	5	41	19	83	82	39	20	233	5	22	140	49	**738**
5:00 PM	to	5:15 PM	6	52	26	103	99	44	21	299	6	30	195	62	**943**
5:15 PM	to	5:30 PM	7	56	36	118	110	50	26	353	7	38	225	74	**1100**
5:30 PM	to	5:45 PM	7	63	40	131	123	54	28	412	8	43	281	87	**1277**
5:45 PM	to	6:00 PM	8	71	45	146	139	61	33	454	10	50	345	97	**1459**
TOTAL BY PERIOD															
4:00 PM	to	4:15 PM	1	7	3	17	22	8	4	53	1	4	34	11	**165**
4:15 PM	to	4:30 PM	2	9	6	19	19	8	6	81	1	5	29	13	**198**
4:30 PM	to	4:45 PM	2	12	7	24	21	6	6	48	0	6	36	13	**181**
4:45 PM	to	5:00 PM	0	13	3	23	20	17	4	51	3	7	41	12	**194**
5:00 PM	to	5:15 PM	1	11	7	20	17	5	1	66	1	8	55	13	**205**
5:15 PM	to	5:30 PM	1	4	10	15	11	6	5	54	1	8	30	12	**157**
5:30 PM	to	5:45 PM	0	7	4	13	13	4	2	59	1	5	56	13	**177**
5:45 PM	to	6:00 PM	1	8	5	15	16	7	5	42	2	7	64	10	**182**
HOURLY TOTALS															
4:00 PM	to	5:00 PM	5	41	19	83	82	39	20	233	5	22	140	49	**738**
4:15 PM	to	5:15 PM	5	45	23	86	77	36	17	246	5	26	161	51	**778**
4:30 PM	to	5:30 PM	4	40	27	82	69	34	16	219	5	29	162	50	**737**
4:45 PM	to	5:45 PM	2	35	24	71	61	32	12	230	6	28	182	50	**733**
5:00 PM	to	6:00 PM	3	30	26	63	57	22	13	221	5	28	205	48	**721**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

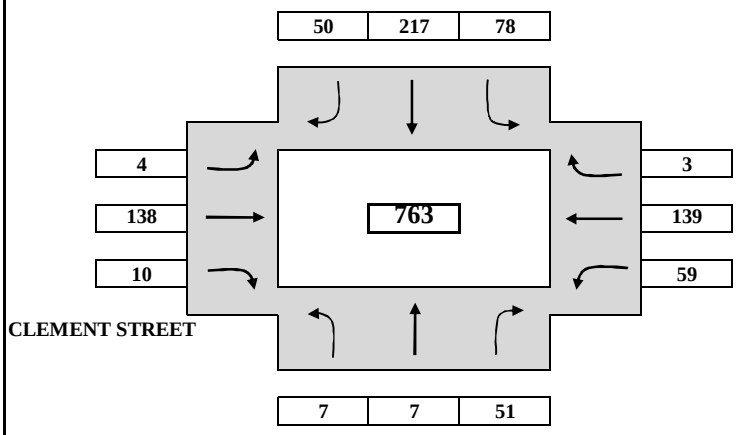
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

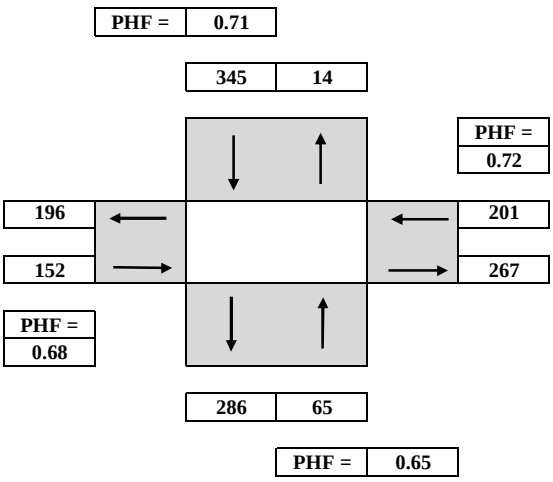
PROJECT:	**SFVAMC - DATA COLLECTION**	**SURVEY DATE:**	**2/15/2011**	**DAY:**	**TUESDAY**
N-S APPROACH:	**43RD AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH	**CLEMENT STREET**	**JURISDICTION:**	**SAN FRANCISCO**	**FILE:**	**3102011-3PM**

PEAK HOUR
4:15 PM TO 5:15 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
From		To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA															
4:00 PM	to	4:15 PM	4	4	17	10	31	7	2	33	1	9	33	0	**151**
4:15 PM	to	4:30 PM	5	7	30	30	87	17	5	84	3	23	60	0	**351**
4:30 PM	to	4:45 PM	8	9	44	42	129	33	6	112	5	39	86	2	**515**
4:45 PM	to	5:00 PM	10	10	59	70	205	50	6	134	8	57	125	2	**736**
5:00 PM	to	5:15 PM	11	11	68	88	248	57	6	171	11	68	172	3	**914**
5:15 PM	to	5:30 PM	11	13	80	105	275	67	6	203	12	80	197	4	**1053**
5:30 PM	to	5:45 PM	13	15	90	113	299	73	6	244	15	98	239	5	**1210**
5:45 PM	to	6:00 PM	15	16	100	123	330	86	6	276	17	120	284	8	**1381**
TOTAL BY PERIOD															
4:00 PM	to	4:15 PM	4	4	17	10	31	7	2	33	1	9	33	0	**151**
4:15 PM	to	4:30 PM	1	3	13	20	56	10	3	51	2	14	27	0	**200**
4:30 PM	to	4:45 PM	3	2	14	12	42	16	1	28	2	16	26	2	**164**
4:45 PM	to	5:00 PM	2	1	15	28	76	17	0	22	3	18	39	0	**221**
5:00 PM	to	5:15 PM	1	1	9	18	43	7	0	37	3	11	47	1	**178**
5:15 PM	to	5:30 PM	0	2	12	17	27	10	0	32	1	12	25	1	**139**
5:30 PM	to	5:45 PM	2	2	10	8	24	6	0	41	3	18	42	1	**157**
5:45 PM	to	6:00 PM	2	1	10	10	31	13	0	32	2	22	45	3	**171**
HOURLY TOTALS															
4:00 PM	to	5:00 PM	10	10	59	70	205	50	6	134	8	57	125	2	**736**
4:15 PM	to	5:15 PM	7	7	51	78	217	50	4	138	10	59	139	3	**763**
4:30 PM	to	5:30 PM	6	6	50	75	188	50	1	119	9	57	137	4	**702**
4:45 PM	to	5:45 PM	5	6	46	71	170	40	0	132	10	59	153	3	**695**
5:00 PM	to	6:00 PM	5	6	41	53	125	36	0	142	9	63	159	6	**645**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

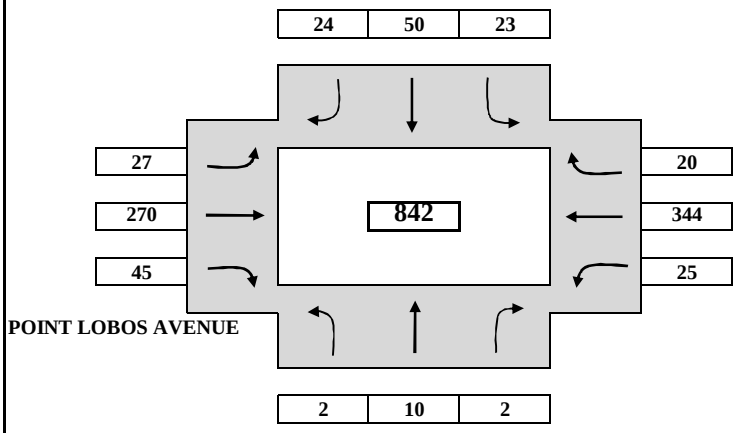
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

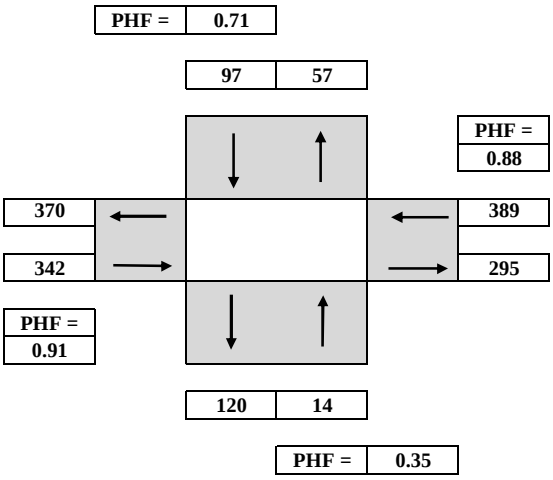
PROJECT:	**SFVAMC - DATA COLLECTION**	**SURVEY DATE:**	**2/15/2011**	**DAY:**	**TUESDAY**
N-S APPROACH:	**42ND AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH	**POINT LOBOS AVENUE**	**JURISDICTION:**	**SAN FRANCISCO**	**FILE:**	**3102011-4PM**

PEAK HOUR 5:00 PM TO 6:00 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME	PERIOD		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
From		To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA															
4:00 PM	to	4:15 PM	2	4	0	14	13	7	5	61	9	4	78	4	**201**
4:15 PM	to	4:30 PM	2	8	0	20	23	14	14	122	26	8	145	7	**389**
4:30 PM	to	4:45 PM	3	15	0	26	38	22	22	191	41	12	214	17	**601**
4:45 PM	to	5:00 PM	4	22	2	32	55	28	27	254	49	15	288	25	**801**
5:00 PM	to	5:15 PM	4	24	2	38	68	33	40	317	59	20	359	30	**994**
5:15 PM	to	5:30 PM	5	27	2	45	78	39	43	375	72	23	446	36	**1191**
5:30 PM	to	5:45 PM	5	29	3	49	90	47	47	444	87	32	541	42	**1416**
5:45 PM	to	6:00 PM	6	32	4	55	105	52	54	524	94	40	632	45	**1643**
TOTAL BY PERIOD															
4:00 PM	to	4:15 PM	2	4	0	14	13	7	5	61	9	4	78	4	**201**
4:15 PM	to	4:30 PM	0	4	0	6	10	7	9	61	17	4	67	3	**188**
4:30 PM	to	4:45 PM	1	7	0	6	15	8	8	69	15	4	69	10	**212**
4:45 PM	to	5:00 PM	1	7	2	6	17	6	5	63	8	3	74	8	**200**
5:00 PM	to	5:15 PM	0	2	0	6	13	5	13	63	10	5	71	5	**193**
5:15 PM	to	5:30 PM	1	3	0	7	10	6	3	58	13	3	87	6	**197**
5:30 PM	to	5:45 PM	0	2	1	4	12	8	4	69	15	9	95	6	**225**
5:45 PM	to	6:00 PM	1	3	1	6	15	5	7	80	7	8	91	3	**227**
HOURLY TOTALS															
4:00 PM	to	5:00 PM	4	22	2	32	55	28	27	254	49	15	288	25	**801**
4:15 PM	to	5:15 PM	2	20	2	24	55	26	35	256	50	16	281	26	**793**
4:30 PM	to	5:30 PM	3	19	2	25	55	25	29	253	46	15	301	29	**802**
4:45 PM	to	5:45 PM	2	14	3	23	52	25	25	253	46	20	327	25	**815**
5:00 PM	to	6:00 PM	2	10	2	23	50	24	27	270	45	25	344	20	**842**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

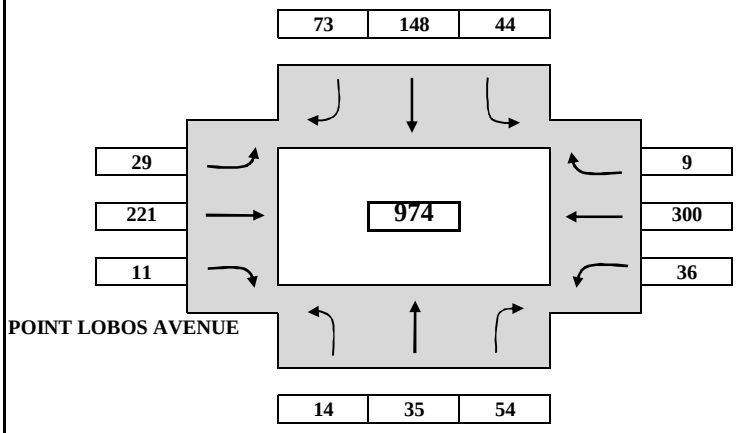
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

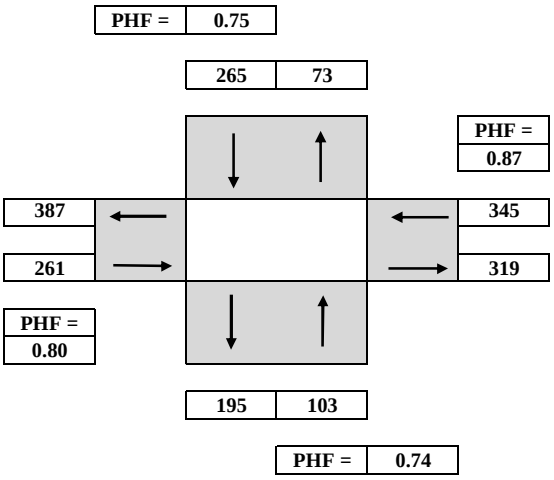
PROJECT:	**SFVAMC - DATA COLLECTION**	**SURVEY DATE:**	**2/15/2011**	**DAY:**	**TUESDAY**
N-S APPROACH:	**43RD AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH	**POINT LOBOS AVENUE**	**JURISDICTION:**	**SAN FRANCISCO**	**FILE:**	**3102011-5PM**

PEAK HOUR 4:45 PM TO 5:45 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME	PERIOD		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
From		To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA															
4:00 PM	to	4:15 PM	0	17	9	13	23	12	8	59	2	11	73	3	**230**
4:15 PM	to	4:30 PM	2	30	26	24	67	29	13	111	4	22	133	4	**465**
4:30 PM	to	4:45 PM	6	42	45	35	96	40	18	170	6	31	196	8	**693**
4:45 PM	to	5:00 PM	10	53	52	51	142	66	27	227	11	39	263	11	**952**
5:00 PM	to	5:15 PM	13	60	71	61	183	88	32	278	13	44	328	13	**1184**
5:15 PM	to	5:30 PM	13	65	87	69	215	98	41	328	14	57	408	16	**1411**
5:30 PM	to	5:45 PM	20	77	99	79	244	113	47	391	17	67	496	17	**1667**
5:45 PM	to	6:00 PM	24	86	103	86	278	125	53	464	20	77	576	20	**1912**
TOTAL BY PERIOD															
4:00 PM	to	4:15 PM	0	17	9	13	23	12	8	59	2	11	73	3	**230**
4:15 PM	to	4:30 PM	2	13	17	11	44	17	5	52	2	11	60	1	**235**
4:30 PM	to	4:45 PM	4	12	19	11	29	11	5	59	2	9	63	4	**228**
4:45 PM	to	5:00 PM	4	11	7	16	46	26	9	57	5	8	67	3	**259**
5:00 PM	to	5:15 PM	3	7	19	10	41	22	5	51	2	5	65	2	**232**
5:15 PM	to	5:30 PM	0	5	16	8	32	10	9	50	1	13	80	3	**227**
5:30 PM	to	5:45 PM	7	12	12	10	29	15	6	63	3	10	88	1	**256**
5:45 PM	to	6:00 PM	4	9	4	7	34	12	6	73	3	10	80	3	**245**
HOURLY TOTALS															
4:00 PM	to	5:00 PM	10	53	52	51	142	66	27	227	11	39	263	11	**952**
4:15 PM	to	5:15 PM	13	43	62	48	160	76	24	219	11	33	255	10	**954**
4:30 PM	to	5:30 PM	11	35	61	45	148	69	28	217	10	35	275	12	**946**
4:45 PM	to	5:45 PM	14	35	54	44	148	73	29	221	11	36	300	9	**974**
5:00 PM	to	6:00 PM	14	33	51	35	136	59	26	237	9	38	313	9	**960**

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

Appendix B
Intersection Level of Service Calculations

SFVAMC
Existing No Project
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Del/ Veh	V/ C	Future LOS	Del/ Veh	V/ C	Change in
# 1 34th Ave / Clement St	B	11.8	0.525	B	11.8	0.525	+ 0.000 V/C
# 2 42nd Ave / Clement St	B	11.0	0.438	B	11.0	0.438	+ 0.000 V/C
# 3 43rd Avenue / Clement Street	B	11.7	0.550	B	11.7	0.550	+ 0.000 V/C
# 4 42nd Ave / Point Lobos Ave	B	12.4	0.571	B	12.4	0.571	+ 0.000 V/C
# 5 43rd Ave / Point Lobos Ave	B	14.2	0.617	B	14.2	0.617	+ 0.000 V/C

SFVAMC
Existing No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.525	
Loss Time (sec):	0	Average Delay (sec/veh):	11.8	
Optimal Cycle:	0	Level Of Service:	B	

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	12	14	18	34	71	104	75	235	17	17	214	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	12	14	18	34	71	104	75	235	17	17	214	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	13	16	20	38	79	116	83	261	19	19	238	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	13	16	20	38	79	116	83	261	19	19	238	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	13	16	20	38	79	116	83	261	19	19	238	18
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.32	0.41	0.16	0.34	0.50	0.23	0.72	0.05	0.07	0.87	0.06
Final Sat.:	151	176	226	103	216	316	159	497	36	46	584	44
Capacity Analysis Module:												
Vol/Sat:	0.09	0.09	0.09	0.37	0.37	0.37	0.53	0.53	0.53	0.41	0.41	0.41
Crit Moves:		****			****			****			****	
Delay/Veh:	9.1	9.1	9.1	10.9	10.9	10.9	13.1	13.1	13.1	11.3	11.3	11.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.1	9.1	9.1	10.9	10.9	10.9	13.1	13.1	13.1	11.3	11.3	11.3
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.1			10.9			13.1			11.3		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.1			10.9			13.1			11.3		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.5	1.0	1.0	1.0	0.6	0.6	0.6

Note: Queue reported is the number of cars per lane.

SFVAMC
Existing No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.438
Loss Time (sec):	0	Average Delay (sec/veh):	11.0
Optimal Cycle:	0	Level Of Service:	B

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	5	45	23	86	77	36	17	246	5	26	161	51
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	45	23	86	77	36	17	246	5	26	161	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	50	26	96	86	40	19	273	6	29	179	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	50	26	96	86	40	19	273	6	29	179	57
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	50	26	96	86	40	19	273	6	29	179	57
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.62	0.31	0.43	0.39	0.18	0.06	0.92	0.02	0.11	0.68	0.21
Final Sat.:	40	361	185	270	242	113	43	624	13	75	463	147
Capacity Analysis Module:												
Vol/Sat:	0.14	0.14	0.14	0.35	0.35	0.35	0.44	0.44	0.44	0.39	0.39	0.39
Crit Moves:		****			****			****			****	
Delay/Veh:	9.2	9.2	9.2	11.0	11.0	11.0	11.7	11.7	11.7	10.9	10.9	10.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.2	9.2	9.2	11.0	11.0	11.0	11.7	11.7	11.7	10.9	10.9	10.9
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:		9.2			11.0			11.7			10.9	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.2			11.0			11.7			10.9	
LOS by Appr:		A			B			B			B	
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.5	0.7	0.7	0.7	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

SFVAMC
Existing No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.550
Loss Time (sec):	0	Average Delay (sec/veh):	11.7
Optimal Cycle:	0	Level Of Service:	B

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	7	7	51	78	217	50	4	138	10	59	139	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	7	51	78	217	50	4	138	10	59	139	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	8	57	87	241	56	4	153	11	66	154	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	8	57	87	241	56	4	153	11	66	154	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	8	57	87	241	56	4	153	11	66	154	3
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.11	0.78	0.23	0.63	0.14	0.03	0.91	0.06	0.29	0.70	0.01
Final Sat.:	69	69	506	158	438	101	16	568	41	186	438	9
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.11	0.55	0.55	0.55	0.27	0.27	0.27	0.35	0.35	0.35
Crit Moves:		****			****			****			****	
Delay/Veh:	8.6	8.6	8.6	13.4	13.4	13.4	10.1	10.1	10.1	10.9	10.9	10.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.6	8.6	8.6	13.4	13.4	13.4	10.1	10.1	10.1	10.9	10.9	10.9
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:		8.6			13.4			10.1			10.9	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.6			13.4			10.1			10.9	
LOS by Appr:		A			B			B			B	
AllWayAvgQ:	0.1	0.1	0.1	1.1	1.1	1.1	0.3	0.3	0.3	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

SFVAMC
Existing No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.571
Loss Time (sec): 0 Average Delay (sec/veh): 12.4
Optimal Cycle: 0 Level Of Service: B

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	10	2	23	50	24	27	270	45	25	344	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	10	2	23	50	24	27	270	45	25	344	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	11	2	26	56	27	30	300	50	28	382	22
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	11	2	26	56	27	30	300	50	28	382	22
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	11	2	26	56	27	30	300	50	28	382	22
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.29	0.59	0.12	0.24	0.51	0.25	0.08	0.79	0.13	0.06	0.89	0.05
Final Sat.:	155	311	62	137	299	143	59	593	99	49	669	39
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.04	0.19	0.19	0.19	0.51	0.51	0.51	0.57	0.57	0.57
Crit Moves:		****			****		****					****
Delay/Veh:	9.0	9.0	9.0	9.7	9.7	9.7	12.2	12.2	12.2	13.4	13.4	13.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.0	9.0	9.0	9.7	9.7	9.7	12.2	12.2	12.2	13.4	13.4	13.4
LOS by Move:	A	A	A	A	A	A	B	B	B	B	B	B
ApproachDel:		9.0			9.7			12.2			13.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.0			9.7			12.2			13.4	
LOS by Appr:		A			A			B			B	
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.2	0.9	0.9	0.9	1.2	1.2	1.2

Note: Queue reported is the number of cars per lane.

SFVAMC
Existing No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.617
Loss Time (sec): 0 Average Delay (sec/veh): 14.2
Optimal Cycle: 0 Level Of Service: B

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	14	35	54	44	148	73	29	221	11	36	300	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	35	54	44	148	73	29	221	11	36	300	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	16	39	60	49	164	81	32	246	12	40	333	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	39	60	49	164	81	32	246	12	40	333	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	16	39	60	49	164	81	32	246	12	40	333	10
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.34	0.52	0.17	0.56	0.27	0.11	0.85	0.04	0.10	0.87	0.03
Final Sat.:	70	175	271	96	325	160	66	505	25	65	541	16
Capacity Analysis Module:												
Vol/Sat:	0.22	0.22	0.22	0.51	0.51	0.51	0.49	0.49	0.49	0.62	0.62	0.62
Crit Moves:			****			****		****		****		
Delay/Veh:	10.4	10.4	10.4	13.8	13.8	13.8	13.4	13.4	13.4	16.2	16.2	16.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.4	10.4	10.4	13.8	13.8	13.8	13.4	13.4	13.4	16.2	16.2	16.2
LOS by Move:	B	B	B	B	B	B	B	B	B	C	C	C
ApproachDel:		10.4			13.8			13.4			16.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		10.4			13.8			13.4			16.2	
LOS by Appr:		B			B			B			C	
AllWayAvgQ:	0.2	0.2	0.2	0.8	0.8	0.8	0.8	0.8	0.8	1.3	1.3	1.3

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 No Project
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/Veh	Base V/C	Future LOS	Future Del/Veh	Future V/C	Change in V/C
# 1 34th Ave / Clement St	B	12.4	0.558	B	12.4	0.558	+ 0.000
# 2 42nd Ave / Clement St	B	11.4	0.464	B	11.4	0.464	+ 0.000
# 3 43rd Avenue / Clement Street	B	12.3	0.582	B	12.3	0.582	+ 0.000
# 4 42nd Ave / Point Lobos Ave	B	13.1	0.603	B	13.1	0.603	+ 0.000
# 5 43rd Ave / Point Lobos Ave	C	15.1	0.655	C	15.1	0.655	+ 0.000

SFVAMC
2020 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.558
Loss Time (sec): 0 Average Delay (sec/veh): 12.4
Optimal Cycle: 0 Level Of Service: B

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	13	15	19	36	74	109	78	246	18	18	224	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	15	19	36	74	109	78	246	18	18	224	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	14	17	21	40	82	121	87	273	20	20	249	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	17	21	40	82	121	87	273	20	20	249	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	17	21	40	82	121	87	273	20	20	249	19
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.32	0.40	0.16	0.34	0.50	0.23	0.72	0.05	0.07	0.86	0.07
Final Sat.:	148	171	216	103	211	311	155	489	36	46	573	43
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.10	0.39	0.39	0.39	0.56	0.56	0.56	0.43	0.43	0.43
Crit Moves:		****			****			****			****	
Delay/Veh:	9.3	9.3	9.3	11.3	11.3	11.3	13.9	13.9	13.9	11.8	11.8	11.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.3	9.3	9.3	11.3	11.3	11.3	13.9	13.9	13.9	11.8	11.8	11.8
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.3			11.3			13.9			11.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.3			11.3			13.9			11.8		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.5	1.1	1.1	1.1	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.464
Loss Time (sec):	0	Average Delay (sec/veh):	11.4
Optimal Cycle:	0	Level Of Service:	B

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	47	24	90	81	38	18	257	5	27	168	53
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	47	24	90	81	38	18	257	5	27	168	53
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	52	27	100	90	42	20	286	6	30	187	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	52	27	100	90	42	20	286	6	30	187	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	52	27	100	90	42	20	286	6	30	187	59
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.06	0.62	0.32	0.43	0.39	0.18	0.06	0.92	0.02	0.11	0.68	0.21
Final Sat.:	38	353	180	265	238	112	43	615	12	73	456	144
Capacity Analysis Module:												
Vol/Sat:	0.15	0.15	0.15	0.38	0.38	0.38	0.46	0.46	0.46	0.41	0.41	0.41
Crit Moves:		****			****			****			****	
Delay/Veh:	9.4	9.4	9.4	11.4	11.4	11.4	12.2	12.2	12.2	11.3	11.3	11.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.4	9.4	9.4	11.4	11.4	11.4	12.2	12.2	12.2	11.3	11.3	11.3
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.4			11.4			12.2			11.3		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.4			11.4			12.2			11.3		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.5	0.8	0.8	0.8	0.6	0.6	0.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.582
Loss Time (sec):	0	Average Delay (sec/veh):	12.3
Optimal Cycle:	0	Level Of Service:	B

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	7	7	53	82	227	52	4	144	10	62	145	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	7	53	82	227	52	4	144	10	62	145	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	8	59	91	252	58	4	160	11	69	161	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	8	59	91	252	58	4	160	11	69	161	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	8	59	91	252	58	4	160	11	69	161	3
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.10	0.10	0.80	0.23	0.63	0.14	0.03	0.91	0.06	0.30	0.69	0.01
Final Sat.:	66	66	497	156	433	99	16	560	39	184	430	9
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.12	0.58	0.58	0.58	0.29	0.29	0.29	0.37	0.37	0.37
Crit Moves:		****			****			****			****	
Delay/Veh:	8.7	8.7	8.7	14.3	14.3	14.3	10.4	10.4	10.4	11.3	11.3	11.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.7	8.7	8.7	14.3	14.3	14.3	10.4	10.4	10.4	11.3	11.3	11.3
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	8.7			14.3			10.4			11.3		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.7			14.3			10.4			11.3		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	1.2	1.2	1.2	0.3	0.3	0.3	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.603
Loss Time (sec): 0 Average Delay (sec/veh): 13.1
Optimal Cycle: 0 Level Of Service: B

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	10	2	24	52	25	28	282	47	26	360	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	10	2	24	52	25	28	282	47	26	360	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	11	2	27	58	28	31	313	52	29	400	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	11	2	27	58	28	31	313	52	29	400	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	11	2	27	58	28	31	313	52	29	400	23
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.29	0.59	0.12	0.24	0.51	0.25	0.08	0.79	0.13	0.06	0.89	0.05
Final Sat.:	152	303	61	135	293	141	58	588	98	48	663	39
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.04	0.20	0.20	0.20	0.53	0.53	0.53	0.60	0.60	0.60
Crit Moves:	****			****			****			****		
Delay/Veh:	9.2	9.2	9.2	9.9	9.9	9.9	12.7	12.7	12.7	14.3	14.3	14.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.2	9.2	9.2	9.9	9.9	9.9	12.7	12.7	12.7	14.3	14.3	14.3
LOS by Move:	A	A	A	A	A	A	B	B	B	B	B	B
ApproachDel:	9.2			9.9			12.7			14.3		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.2			9.9			12.7			14.3		
LOS by Appr:	A			A			B			B		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.2	1.0	1.0	1.0	1.4	1.4	1.4

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.655
Loss Time (sec): 0 Average Delay (sec/veh): 15.1
Optimal Cycle: 0 Level Of Service: C

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	15	37	56	46	155	76	30	221	12	38	314	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	37	56	46	155	76	30	221	12	38	314	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	17	41	62	51	172	84	33	246	13	42	349	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	41	62	51	172	84	33	246	13	42	349	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	41	62	51	172	84	33	246	13	42	349	10
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.34	0.52	0.17	0.56	0.27	0.11	0.84	0.05	0.11	0.87	0.02
Final Sat.:	70	172	260	95	320	157	66	489	27	64	532	15
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.24	0.54	0.54	0.54	0.50	0.50	0.50	0.66	0.66	0.66
Crit Moves:		****			****			****			****	
Delay/Veh:	10.7	10.7	10.7	14.6	14.6	14.6	13.9	13.9	13.9	17.8	17.8	17.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.7	10.7	10.7	14.6	14.6	14.6	13.9	13.9	13.9	17.8	17.8	17.8
LOS by Move:	B	B	B	B	B	B	B	B	B	C	C	C
ApproachDel:	10.7			14.6			13.9			17.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.7			14.6			13.9			17.8		
LOS by Appr:	B			B			B			C		
AllWayAvgQ:	0.2	0.2	0.2	0.9	0.9	0.9	0.8	0.8	0.8	1.5	1.5	1.5

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 + Phase 1 (Alt 1 +2)
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 34th Ave / Clement St	B	12.4	0.558	B	12.8	0.587	+ 0.028 V/C
# 2 42nd Ave / Clement St	B	11.4	0.464	B	11.8	0.496	+ 0.031 V/C
# 3 43rd Avenue / Clement Street	B	12.3	0.582	B	13.6	0.656	+ 0.074 V/C
# 4 42nd Ave / Point Lobos Ave	B	13.1	0.603	B	13.3	0.608	+ 0.005 V/C
# 5 43rd Ave / Point Lobos Ave	C	15.1	0.655	C	15.9	0.669	+ 0.014 V/C

SFVAMC
2020 + Phase 1 (Alt 1 +2)
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.587
Loss Time (sec): 0 | Average Delay (sec/veh): 12.8
Optimal Cycle: 0 | Level Of Service: B

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	13	15	19	36	74	109	78	246	18	18	224	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	15	19	36	74	109	78	246	18	18	224	17
Added Vol:	0	0	0	0	0	0	0	17	0	0	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	15	19	36	74	109	78	263	18	18	227	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	14	17	21	40	82	121	87	292	20	20	252	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	17	21	40	82	121	87	292	20	20	252	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	17	21	40	82	121	87	292	20	20	252	19
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.32	0.40	0.16	0.34	0.50	0.22	0.73	0.05	0.07	0.87	0.06
Final Sat.:	146	168	213	101	208	306	148	498	34	45	570	43
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.10	0.40	0.40	0.40	0.59	0.59	0.59	0.44	0.44	0.44
Crit Moves:		****			****			****				****
Delay/Veh:	9.4	9.4	9.4	11.5	11.5	11.5	14.6	14.6	14.6	12.0	12.0	12.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.4	9.4	9.4	11.5	11.5	11.5	14.6	14.6	14.6	12.0	12.0	12.0
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.4			11.5			14.6			12.0		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.4			11.5			14.6			12.0		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.5	1.2	1.2	1.2	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 + Phase 1 (Alt 1 +2)
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.496
Loss Time (sec): 0 | Average Delay (sec/veh): 11.8
Optimal Cycle: 0 | Level Of Service: B

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	47	24	90	81	38	18	257	5	27	168	53
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	47	24	90	81	38	18	257	5	27	168	53
Added Vol:	0	3	0	2	3	1	1	15	0	0	1	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	50	24	92	84	39	19	272	5	27	169	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	56	27	102	93	43	21	302	6	30	188	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	56	27	102	93	43	21	302	6	30	188	61
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	56	27	102	93	43	21	302	6	30	188	61
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.06	0.64	0.30	0.43	0.39	0.18	0.06	0.92	0.02	0.11	0.67	0.22
Final Sat.:	35	354	170	259	237	110	43	610	11	71	446	145
Capacity Analysis Module:												
Vol/Sat:	0.16	0.16	0.16	0.39	0.39	0.39	0.50	0.50	0.50	0.42	0.42	0.42
Crit Moves:		****			****			****			****	
Delay/Veh:	9.6	9.6	9.6	11.7	11.7	11.7	12.8	12.8	12.8	11.5	11.5	11.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.6	9.6	9.6	11.7	11.7	11.7	12.8	12.8	12.8	11.5	11.5	11.5
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.6			11.7			12.8			11.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.6			11.7			12.8			11.5		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.5	0.8	0.8	0.8	0.6	0.6	0.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 + Phase 1 (Alt 1 +2)
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.656
Loss Time (sec): 0 | Average Delay (sec/veh): 13.6
Optimal Cycle: 0 | Level Of Service: B

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	7	7	53	82	227	52	4	144	10	62	145	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	7	7	53	82	227	52	4	144	10	62	145	3
Added Vol:	0	2	0	15	25	4	0	1	0	0	1	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	9	53	97	252	56	4	145	10	62	146	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	8	10	59	108	280	62	4	161	11	69	162	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	10	59	108	280	62	4	161	11	69	162	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	10	59	108	280	62	4	161	11	69	162	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.10	0.13	0.77	0.24	0.62	0.14	0.03	0.91	0.06	0.29	0.69	0.02
Final Sat.:	62	80	468	164	427	95	15	540	37	176	415	11
Capacity Analysis Module:												
Vol/Sat:	0.13	0.13	0.13	0.66	0.66	0.66	0.30	0.30	0.30	0.39	0.39	0.39
Crit Moves:			****		****			****			****	
Delay/Veh:	8.9	8.9	8.9	16.6	16.6	16.6	10.7	10.7	10.7	11.7	11.7	11.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.9	8.9	8.9	16.6	16.6	16.6	10.7	10.7	10.7	11.7	11.7	11.7
LOS by Move:	A	A	A	C	C	C	B	B	B	B	B	B
ApproachDel:	8.9			16.6			10.7			11.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.9			16.6			10.7			11.7		
LOS by Appr:	A			C			B			B		
AllWayAvgQ:	0.1	0.1	0.1	1.6	1.6	1.6	0.3	0.3	0.3	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 + Phase 1 (Alt 1 +2)
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.608
Loss Time (sec): 0 | Average Delay (sec/veh): 13.3
Optimal Cycle: 0 | Level Of Service: B

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	10	2	24	52	25	28	282	47	26	360	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	10	2	24	52	25	28	282	47	26	360	21
Added Vol:	0	2	0	1	2	0	0	7	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	12	2	25	54	25	28	289	47	26	360	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	13	2	28	60	28	31	321	52	29	400	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	13	2	28	60	28	31	321	52	29	400	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	13	2	28	60	28	31	321	52	29	400	24
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.26	0.63	0.11	0.24	0.52	0.24	0.08	0.79	0.13	0.06	0.89	0.05
Final Sat.:	135	323	54	136	294	136	57	588	96	47	657	40
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.04	0.20	0.20	0.20	0.55	0.55	0.55	0.61	0.61	0.61
Crit Moves:		****		****				****			****	
Delay/Veh:	9.2	9.2	9.2	10.0	10.0	10.0	13.1	13.1	13.1	14.5	14.5	14.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.2	9.2	9.2	10.0	10.0	10.0	13.1	13.1	13.1	14.5	14.5	14.5
LOS by Move:	A	A	A	A	A	A	B	B	B	B	B	B
ApproachDel:	9.2			10.0			13.1			14.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.2			10.0			13.1			14.5		
LOS by Appr:	A			A			B			B		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.2	1.1	1.1	1.1	1.4	1.4	1.4

Note: Queue reported is the number of cars per lane.

SFVAMC
2020 + Phase 1 (Alt 1 +2)
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.669
Loss Time (sec): 0 | Average Delay (sec/veh): 15.9
Optimal Cycle: 0 | Level Of Service: C

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	15	37	56	46	155	76	30	221	12	38	314	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	37	56	46	155	76	30	221	12	38	314	9
Added Vol:	0	1	0	7	18	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	15	38	56	53	173	76	30	221	12	38	314	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	17	42	62	59	192	84	33	246	13	42	349	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	42	62	59	192	84	33	246	13	42	349	10
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	42	62	59	192	84	33	246	13	42	349	10
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.35	0.51	0.18	0.57	0.25	0.11	0.84	0.05	0.11	0.87	0.02
Final Sat.:	67	170	251	100	327	143	65	477	26	63	521	15
Capacity Analysis Module:												
Vol/Sat:	0.25	0.25	0.25	0.59	0.59	0.59	0.51	0.51	0.51	0.67	0.67	0.67
Crit Moves:		****			****			****			****	
Delay/Veh:	10.9	10.9	10.9	16.0	16.0	16.0	14.4	14.4	14.4	18.6	18.6	18.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.9	10.9	10.9	16.0	16.0	16.0	14.4	14.4	14.4	18.6	18.6	18.6
LOS by Move:	B	B	B	C	C	C	B	B	B	C	C	C
ApproachDel:	10.9			16.0			14.4			18.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.9			16.0			14.4			18.6		
LOS by Appr:	B			C			B			C		
AllWayAvgQ:	0.2	0.2	0.2	1.1	1.1	1.1	0.9	0.9	0.9	1.6	1.6	1.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 No Project
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/Veh	Base V/C	Future LOS	Future Del/Veh	Future V/C	Change in V/C
# 1 34th Ave / Clement St	B	12.9	0.583	B	12.9	0.583	+ 0.000
# 2 42nd Ave / Clement St	B	11.8	0.485	B	11.8	0.485	+ 0.000
# 3 43rd Avenue / Clement Street	B	12.8	0.609	B	12.8	0.609	+ 0.000
# 4 42nd Ave / Point Lobos Ave	B	13.7	0.631	B	13.7	0.631	+ 0.000
# 5 43rd Ave / Point Lobos Ave	C	16.2	0.689	C	16.2	0.689	+ 0.000

SFVAMC
2027 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.583
Loss Time (sec): 0 Average Delay (sec/veh): 12.9
Optimal Cycle: 0 Level Of Service: B

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	13	15	19	37	77	113	81	255	18	18	232	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	15	19	37	77	113	81	255	18	18	232	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	14	17	21	41	86	126	90	283	20	20	258	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	17	21	41	86	126	90	283	20	20	258	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	17	21	41	86	126	90	283	20	20	258	19
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.32	0.40	0.16	0.34	0.50	0.23	0.72	0.05	0.07	0.87	0.06
Final Sat.:	144	167	211	100	209	307	154	486	34	44	569	42
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.10	0.41	0.41	0.41	0.58	0.58	0.58	0.45	0.45	0.45
Crit Moves:		****			****			****			****	
Delay/Veh:	9.4	9.4	9.4	11.7	11.7	11.7	14.6	14.6	14.6	12.2	12.2	12.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.4	9.4	9.4	11.7	11.7	11.7	14.6	14.6	14.6	12.2	12.2	12.2
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.4			11.7			14.6			12.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.4			11.7			14.6			12.2		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.6	0.6	0.6	1.2	1.2	1.2	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.485
Loss Time (sec):	0	Average Delay (sec/veh):	11.8
Optimal Cycle:	0	Level Of Service:	B

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	5	49	25	93	83	39	18	266	5	28	174	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	49	25	93	83	39	18	266	5	28	174	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	54	28	103	92	43	20	296	6	31	193	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	54	28	103	92	43	20	296	6	31	193	61
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	54	28	103	92	43	20	296	6	31	193	61
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.06	0.62	0.32	0.43	0.39	0.18	0.06	0.92	0.02	0.11	0.68	0.21
Final Sat.:	35	347	177	262	234	110	41	609	11	72	450	142
Capacity Analysis Module:												
Vol/Sat:	0.16	0.16	0.16	0.39	0.39	0.39	0.49	0.49	0.49	0.43	0.43	0.43
Crit Moves:	****			****					****			****
Delay/Veh:	9.5	9.5	9.5	11.7	11.7	11.7	12.6	12.6	12.6	11.6	11.6	11.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.5	9.5	9.5	11.7	11.7	11.7	12.6	12.6	12.6	11.6	11.6	11.6
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.5			11.7			12.6			11.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.5			11.7			12.6			11.6		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.5	0.5	0.5	0.8	0.8	0.8	0.6	0.6	0.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.609
Loss Time (sec):	0	Average Delay (sec/veh):	12.8
Optimal Cycle:	0	Level Of Service:	B

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	8	8	55	84	235	54	4	149	11	64	151	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	55	84	235	54	4	149	11	64	151	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	9	9	61	93	261	60	4	166	12	71	168	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	9	61	93	261	60	4	166	12	71	168	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	9	61	93	261	60	4	166	12	71	168	3
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.11	0.78	0.23	0.63	0.14	0.02	0.91	0.07	0.29	0.70	0.01
Final Sat.:	69	69	476	153	429	98	15	549	41	180	425	8
Capacity Analysis Module:												
Vol/Sat:	0.13	0.13	0.13	0.61	0.61	0.61	0.30	0.30	0.30	0.39	0.39	0.39
Crit Moves:	****			****				****			****	
Delay/Veh:	8.9	8.9	8.9	15.1	15.1	15.1	10.6	10.6	10.6	11.7	11.7	11.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.9	8.9	8.9	15.1	15.1	15.1	10.6	10.6	10.6	11.7	11.7	11.7
LOS by Move:	A	A	A	C	C	C	B	B	B	B	B	B
ApproachDel:	8.9			15.1			10.6			11.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	8.9			15.1			10.6			11.7		
LOS by Appr:	A			C			B			B		
AllWayAvgQ:	0.1	0.1	0.1	1.3	1.3	1.3	0.4	0.4	0.4	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.631
Loss Time (sec):	0	Average Delay (sec/veh):	13.7
Optimal Cycle:	0	Level Of Service:	B

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	11	2	25	54	26	29	292	49	27	373	22
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	11	2	25	54	26	29	292	49	27	373	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	12	2	28	60	29	32	324	54	30	414	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	12	2	28	60	29	32	324	54	30	414	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	12	2	28	60	29	32	324	54	30	414	24
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.61	0.11	0.24	0.51	0.25	0.08	0.79	0.13	0.06	0.89	0.05
Final Sat.:	140	308	56	134	289	139	58	583	98	48	657	39
Capacity Analysis Module:												
Vol/Sat:	0.04	0.04	0.04	0.21	0.21	0.21	0.56	0.56	0.56	0.63	0.63	0.63
Crit Moves:		****				****		****				****
Delay/Veh:	9.3	9.3	9.3	10.1	10.1	10.1	13.3	13.3	13.3	15.2	15.2	15.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.3	9.3	9.3	10.1	10.1	10.1	13.3	13.3	13.3	15.2	15.2	15.2
LOS by Move:	A	A	A	B	B	B	B	B	B	C	C	C
ApproachDel:		9.3			10.1			13.3			15.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.3			10.1			13.3			15.2	
LOS by Appr:		A			B			B			C	
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.2	1.1	1.1	1.1	1.5	1.5	1.5

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.689
Loss Time (sec):	0	Average Delay (sec/veh):	16.2
Optimal Cycle:	0	Level Of Service:	C

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	15	38	58	48	160	79	31	229	12	39	325	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	38	58	48	160	79	31	229	12	39	325	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	17	42	64	53	178	88	34	254	13	43	361	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	42	64	53	178	88	34	254	13	43	361	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	42	64	53	178	88	34	254	13	43	361	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.34	0.52	0.17	0.56	0.27	0.11	0.85	0.04	0.10	0.87	0.03
Final Sat.:	66	166	253	94	314	155	65	480	25	63	524	16
Capacity Analysis Module:												
Vol/Sat:	0.25	0.25	0.25	0.57	0.57	0.57	0.53	0.53	0.53	0.69	0.69	0.69
Crit Moves:			****		****			****				****
Delay/Veh:	11.0	11.0	11.0	15.5	15.5	15.5	14.7	14.7	14.7	19.4	19.4	19.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.0	11.0	11.0	15.5	15.5	15.5	14.7	14.7	14.7	19.4	19.4	19.4
LOS by Move:	B	B	B	C	C	C	B	B	B	C	C	C
ApproachDel:		11.0			15.5			14.7			19.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.0			15.5			14.7			19.4	
LOS by Appr:		B			C			B			C	
AllWayAvgQ:	0.2	0.2	0.2	1.0	1.0	1.0	0.9	0.9	0.9	1.8	1.8	1.8

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Del/ Veh	V/ C	Future LOS	Del/ Veh	V/ C	Change in
# 1 34th Ave / Clement St	B	12.9	0.583	C	15.0	0.680	+ 0.097 V/C
# 2 42nd Ave / Clement St	B	11.8	0.485	C	15.1	0.608	+ 0.123 V/C
# 3 43rd Avenue / Clement Street	B	12.8	0.609	C	17.3	0.773	+ 0.164 V/C
# 4 42nd Ave / Point Lobos Ave	B	13.7	0.631	C	16.0	0.702	+ 0.071 V/C
# 5 43rd Ave / Point Lobos Ave	C	16.2	0.689	C	19.0	0.742	+ 0.052 V/C

SFVAMC
2027 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.680
Loss Time (sec): 0 Average Delay (sec/veh): 15.0
Optimal Cycle: 0 Level Of Service: C

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	13	15	19	37	77	113	81	255	18	18	232	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	15	19	37	77	113	81	255	18	18	232	17
Added Vol:	0	0	0	0	0	0	0	52	0	0	38	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	15	19	37	77	113	81	307	18	18	270	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	14	17	21	41	86	126	90	341	20	20	300	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	17	21	41	86	126	90	341	20	20	300	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	17	21	41	86	126	90	341	20	20	300	19
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.32	0.40	0.16	0.34	0.50	0.20	0.76	0.04	0.06	0.88	0.06
Final Sat.:	133	153	194	95	198	291	132	502	29	38	567	36
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.11	0.43	0.43	0.43	0.68	0.68	0.68	0.53	0.53	0.53
Crit Moves:		****			****			****			****	
Delay/Veh:	9.8	9.8	9.8	12.4	12.4	12.4	18.0	18.0	18.0	13.8	13.8	13.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.8	9.8	9.8	12.4	12.4	12.4	18.0	18.0	18.0	13.8	13.8	13.8
LOS by Move:	A	A	A	B	B	B	C	C	C	B	B	B
ApproachDel:	9.8			12.4			18.0			13.8		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.8			12.4			18.0			13.8		
LOS by Appr:	A			B			C			B		
AllWayAvgQ:	0.1	0.1	0.1	0.6	0.6	0.6	1.8	1.8	1.8	1.0	1.0	1.0

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.608
Loss Time (sec): 0 Average Delay (sec/veh): 15.1
Optimal Cycle: 0 Level Of Service: C

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	49	25	93	83	39	18	266	5	28	174	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	49	25	93	83	39	18	266	5	28	174	55
Added Vol:	0	38	0	23	38	6	6	29	0	0	15	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	87	25	116	121	45	24	295	5	28	189	78
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	97	28	129	134	50	27	328	6	31	210	87
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	97	28	129	134	50	27	328	6	31	210	87
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	97	28	129	134	50	27	328	6	31	210	87
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.04	0.75	0.21	0.41	0.43	0.16	0.07	0.91	0.02	0.09	0.65	0.26
Final Sat.:	21	364	105	230	240	89	44	539	9	56	381	157
Capacity Analysis Module:												
Vol/Sat:	0.27	0.27	0.27	0.56	0.56	0.56	0.61	0.61	0.61	0.55	0.55	0.55
Crit Moves:			****		****			****			****	
Delay/Veh:	11.2	11.2	11.2	15.4	15.4	15.4	16.4	16.4	16.4	14.7	14.7	14.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.2	11.2	11.2	15.4	15.4	15.4	16.4	16.4	16.4	14.7	14.7	14.7
LOS by Move:	B	B	B	C	C	C	C	C	C	B	B	B
ApproachDel:	11.2			15.4			16.4			14.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	11.2			15.4			16.4			14.7		
LOS by Appr:	B			C			C			B		
AllWayAvgQ:	0.3	0.3	0.3	1.0	1.0	1.0	1.3	1.3	1.3	1.0	1.0	1.0

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.773
Loss Time (sec): 0 Average Delay (sec/veh): 17.3
Optimal Cycle: 0 Level Of Service: C

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	8	8	55	84	235	54	4	149	11	64	151	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	55	84	235	54	4	149	11	64	151	3
Added Vol:	0	24	0	29	48	7	4	6	0	0	6	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	32	55	113	283	61	8	155	11	64	157	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	9	36	61	126	314	68	9	172	12	71	174	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	36	61	126	314	68	9	172	12	71	174	20
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	36	61	126	314	68	9	172	12	71	174	20
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.08	0.34	0.58	0.25	0.62	0.13	0.05	0.89	0.06	0.27	0.66	0.07
Final Sat.:	47	186	320	162	407	88	25	487	35	152	373	43
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.19	0.77	0.77	0.77	0.35	0.35	0.35	0.47	0.47	0.47
Crit Moves:			****			****		****			****	
Delay/Veh:	9.9	9.9	9.9	23.0	23.0	23.0	11.8	11.8	11.8	13.4	13.4	13.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.9	9.9	9.9	23.0	23.0	23.0	11.8	11.8	11.8	13.4	13.4	13.4
LOS by Move:	A	A	A	C	C	C	B	B	B	B	B	B
ApproachDel:	9.9			23.0			11.8			13.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.9			23.0			11.8			13.4		
LOS by Appr:	A			C			B			B		
AllWayAvgQ:	0.2	0.2	0.2	2.7	2.7	2.7	0.4	0.4	0.4	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.702
Loss Time (sec):	0	Average Delay (sec/veh):	16.0
Optimal Cycle:	0	Level Of Service:	C

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	5	11	2	25	54	26	29	292	49	27	373	22
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	11	2	25	54	26	29	292	49	27	373	22
Added Vol:	0	27	0	11	27	0	0	14	0	0	7	11
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	38	2	36	81	26	29	306	49	27	380	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	42	2	40	90	29	32	340	54	30	422	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	42	2	40	90	29	32	340	54	30	422	37
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	42	2	40	90	29	32	340	54	30	422	37
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.85	0.04	0.25	0.57	0.18	0.07	0.80	0.13	0.06	0.86	0.08
Final Sat.:	53	400	21	134	302	97	52	546	87	43	602	52
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.11	0.30	0.30	0.30	0.62	0.62	0.62	0.70	0.70	0.70
Crit Moves:		****		****				****			****	
Delay/Veh:	10.0	10.0	10.0	11.3	11.3	11.3	15.7	15.7	15.7	18.5	18.5	18.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.0	10.0	10.0	11.3	11.3	11.3	15.7	15.7	15.7	18.5	18.5	18.5
LOS by Move:	B	B	B	B	B	B	C	C	C	C	C	C
ApproachDel:	10.0			11.3			15.7			18.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.0			11.3			15.7			18.5		
LOS by Appr:	B			B			C			C		
AllWayAvgQ:	0.1	0.1	0.1	0.3	0.3	0.3	1.4	1.4	1.4	2.0	2.0	2.0

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.742
Loss Time (sec):	0	Average Delay (sec/veh):	19.0
Optimal Cycle:	0	Level Of Service:	C

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	15	38	58	48	160	79	31	229	12	39	325	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	38	58	48	160	79	31	229	12	39	325	10
Added Vol:	0	17	0	14	34	0	0	0	0	0	0	7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	15	55	58	62	194	79	31	229	12	39	325	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	17	61	64	69	216	88	34	254	13	43	361	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	61	64	69	216	88	34	254	13	43	361	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	61	64	69	216	88	34	254	13	43	361	19
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.12	0.43	0.45	0.18	0.58	0.24	0.11	0.85	0.04	0.10	0.86	0.04
Final Sat.:	53	195	206	102	318	130	61	449	24	58	487	25
Capacity Analysis Module:												
Vol/Sat:	0.31	0.31	0.31	0.68	0.68	0.68	0.57	0.57	0.57	0.74	0.74	0.74
Crit Moves:		****		****				****			****	
Delay/Veh:	12.0	12.0	12.0	19.7	19.7	19.7	16.2	16.2	16.2	22.9	22.9	22.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.0	12.0	12.0	19.7	19.7	19.7	16.2	16.2	16.2	22.9	22.9	22.9
LOS by Move:	B	B	B	C	C	C	C	C	C	C	C	C
ApproachDel:	12.0			19.7			16.2			22.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	12.0			19.7			16.2			22.9		
LOS by Appr:	B			C			C			C		
AllWayAvgQ:	0.3	0.3	0.3	1.6	1.6	1.6	1.0	1.0	1.0	2.2	2.2	2.2

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 34th Ave / Clement St	B	12.9	0.583	B	13.3	0.612	+ 0.029 V/C
# 2 42nd Ave / Clement St	B	11.8	0.485	B	12.2	0.517	+ 0.031 V/C
# 3 43rd Avenue / Clement Street	B	12.8	0.609	B	14.3	0.684	+ 0.074 V/C
# 4 42nd Ave / Point Lobos Ave	B	13.7	0.631	B	14.0	0.636	+ 0.005 V/C
# 5 43rd Ave / Point Lobos Ave	C	16.2	0.689	C	17.1	0.705	+ 0.016 V/C

SFVAMC
2027 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.612
Loss Time (sec): 0 Average Delay (sec/veh): 13.3
Optimal Cycle: 0 Level Of Service: B

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	13	15	19	37	77	113	81	255	18	18	232	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	15	19	37	77	113	81	255	18	18	232	17
Added Vol:	0	0	0	0	0	0	0	17	0	0	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	15	19	37	77	113	81	272	18	18	235	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	14	17	21	41	86	126	90	302	20	20	261	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	17	21	41	86	126	90	302	20	20	261	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	17	21	41	86	126	90	302	20	20	261	19
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.28	0.32	0.40	0.16	0.34	0.50	0.22	0.73	0.05	0.07	0.87	0.06
Final Sat.:	142	164	207	99	206	303	147	494	33	43	565	41
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.10	0.41	0.41	0.41	0.61	0.61	0.61	0.46	0.46	0.46
Crit Moves:		****			****		****					****
Delay/Veh:	9.5	9.5	9.5	11.8	11.8	11.8	15.5	15.5	15.5	12.4	12.4	12.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.5	9.5	9.5	11.8	11.8	11.8	15.5	15.5	15.5	12.4	12.4	12.4
LOS by Move:	A	A	A	B	B	B	C	C	C	B	B	B
ApproachDel:	9.5			11.8			15.5			12.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.5			11.8			15.5			12.4		
LOS by Appr:	A			B			C			B		
AllWayAvgQ:	0.1	0.1	0.1	0.6	0.6	0.6	1.4	1.4	1.4	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.517
Loss Time (sec):	0	Average Delay (sec/veh):	12.2
Optimal Cycle:	0	Level Of Service:	B

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	5	49	25	93	83	39	18	266	5	28	174	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	49	25	93	83	39	18	266	5	28	174	55
Added Vol:	0	3	0	2	3	1	1	15	0	0	1	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	52	25	95	86	40	19	281	5	28	175	57
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	6	58	28	106	96	44	21	312	6	31	194	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	58	28	106	96	44	21	312	6	31	194	63
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	58	28	106	96	44	21	312	6	31	194	63
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.06	0.64	0.30	0.43	0.39	0.18	0.06	0.92	0.02	0.11	0.67	0.22
Final Sat.:	33	347	167	257	232	108	41	604	11	70	440	143
Capacity Analysis Module:												
Vol/Sat:	0.17	0.17	0.17	0.41	0.41	0.41	0.52	0.52	0.52	0.44	0.44	0.44
Crit Moves:		****		****				****				****
Delay/Veh:	9.7	9.7	9.7	12.0	12.0	12.0	13.3	13.3	13.3	11.9	11.9	11.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.7	9.7	9.7	12.0	12.0	12.0	13.3	13.3	13.3	11.9	11.9	11.9
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.7			12.0			13.3			11.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.7			12.0			13.3			11.9		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.1	0.1	0.1	0.6	0.6	0.6	0.9	0.9	0.9	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.684
Loss Time (sec):	0	Average Delay (sec/veh):	14.3
Optimal Cycle:	0	Level Of Service:	B

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	8	8	55	84	235	54	4	149	11	64	151	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	55	84	235	54	4	149	11	64	151	3
Added Vol:	0	2	0	15	25	4	0	1	0	0	1	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	10	55	99	260	58	4	150	11	64	152	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	9	11	61	110	289	64	4	167	12	71	169	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	11	61	110	289	64	4	167	12	71	169	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	11	61	110	289	64	4	167	12	71	169	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.14	0.75	0.24	0.62	0.14	0.02	0.91	0.07	0.29	0.69	0.02
Final Sat.:	65	81	448	161	423	94	14	530	39	173	411	11
Capacity Analysis Module:												
Vol/Sat:	0.14	0.14	0.14	0.68	0.68	0.68	0.31	0.31	0.31	0.41	0.41	0.41
Crit Moves:		****			****			****			****	
Delay/Veh:	9.1	9.1	9.1	17.7	17.7	17.7	11.0	11.0	11.0	12.1	12.1	12.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.1	9.1	9.1	17.7	17.7	17.7	11.0	11.0	11.0	12.1	12.1	12.1
LOS by Move:	A	A	A	C	C	C	B	B	B	B	B	B
ApproachDel:	9.1			17.7			11.0			12.1		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.1			17.7			11.0			12.1		
LOS by Appr:	A			C			B			B		
AllWayAvgQ:	0.1	0.1	0.1	1.8	1.8	1.8	0.4	0.4	0.4	0.6	0.6	0.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.636
Loss Time (sec):	0	Average Delay (sec/veh):	14.0
Optimal Cycle:	0	Level Of Service:	B

Street Name:	42nd Ave									Point Lobos Ave								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign					
Rights:	Include				Include				Include				Include					
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0			
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	5		11		2	25		54		26	29		292		49	27		373		22
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	5		11		2	25		54		26	29		292		49	27		373		22
Added Vol:	0		2		0	1		2		0	0		7		0	0		0		1
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	5		13		2	26		56		26	29		299		49	27		373		23
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.90		0.90		0.90	0.90		0.90		0.90	0.90		0.90		0.90	0.90		0.90		0.90
PHF Volume:	6		14		2	29		62		29	32		332		54	30		414		26
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
Reduced Vol:	6		14		2	29		62		29	32		332		54	30		414		26
PCE Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
MLF Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
FinalVolume:	6		14		2	29		62		29	32		332		54	30		414		26
Saturation Flow Module:																				
Adjustment:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Lanes:	0.25		0.65		0.10	0.24		0.52		0.24	0.08		0.79		0.13	0.06		0.89		0.05
Final Sat.:	125		325		50	134		289		134	56		581		95	47		652		40
Capacity Analysis Module:																				
Vol/Sat:	0.04		0.04		0.04	0.22		0.22		0.22	0.57		0.57		0.57	0.64		0.64		0.64
Crit Moves:			****					****					****					****		
Delay/Veh:	9.3		9.3		9.3	10.2		10.2		10.2	13.7		13.7		13.7	15.4		15.4		15.4
Delay Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
AdjDel/Veh:	9.3		9.3		9.3	10.2		10.2		10.2	13.7		13.7		13.7	15.4		15.4		15.4
LOS by Move:	A		A		A	B		B		B	B		B		B	C		C		C
ApproachDel:	9.3					10.2					13.7					15.4				
Delay Adj:	1.00					1.00					1.00					1.00				
ApprAdjDel:	9.3					10.2					13.7					15.4				
LOS by Appr:	A					B					B					C				
AllWayAvgQ:	0.0		0.0		0.0	0.2		0.2		0.2	1.2		1.2		1.2	1.6		1.6		1.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2027 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.705
Loss Time (sec):	0	Average Delay (sec/veh):	17.1
Optimal Cycle:	0	Level Of Service:	C

Street Name:	43rd Ave									Point Lobos Ave								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign					
Rights:	Include				Include				Include				Include					
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0			
Lanes:	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	15		38		58	48		160		79	31		229		12	39		325		10
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	15		38		58	48		160		79	31		229		12	39		325		10
Added Vol:	0		1		0	7		18		0	0		0		0	0		0		0
PasserByVol:	0		0		0	0		0		0	0		0		0	0		0		0
Initial Fut:	15		39		58	55		178		79	31		229		12	39		325		10
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.90		0.90		0.90	0.90		0.90		0.90	0.90		0.90		0.90	0.90		0.90		0.90
PHF Volume:	17		43		64	61		198		88	34		254		13	43		361		11
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
Reduced Vol:	17		43		64	61		198		88	34		254		13	43		361		11
PCE Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
MLF Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
FinalVolume:	17		43		64	61		198		88	34		254		13	43		361		11
Saturation Flow Module:																				
Adjustment:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Lanes:	0.13		0.35		0.52	0.18		0.57		0.25	0.11		0.85		0.04	0.10		0.87		0.03
Final Sat.:	63		164		244	99		320		142	64		469		25	61		512		16
Capacity Analysis Module:																				
Vol/Sat:	0.26		0.26		0.26	0.62		0.62		0.62	0.54		0.54		0.54	0.71		0.71		0.71
Crit Moves:					****			****					****							****
Delay/Veh:	11.2		11.2		11.2	17.1		17.1		17.1	15.2		15.2		15.2	20.4		20.4		20.4
Delay Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
AdjDel/Veh:	11.2		11.2		11.2	17.1		17.1		17.1	15.2		15.2		15.2	20.4		20.4		20.4
LOS by Move:	B		B		B	C		C		C	C		C		C	C		C		C
ApproachDel:	11.2					17.1					15.2					20.4				
Delay Adj:	1.00					1.00					1.00					1.00				
ApprAdjDel:	11.2					17.1					15.2					20.4				
LOS by Appr:	B					C					C					C				
AllWayAvgQ:	0.2		0.2		0.2	1.3		1.3		1.3	0.9		0.9		0.9	1.9		1.9		1.9

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 No Project
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/Veh	Base V/C	Future LOS	Future Del/Veh	Future V/C	Change in V/C
# 1 34th Ave / Clement St	B	14.1	0.639	B	14.1	0.639	+ 0.000
# 2 42nd Ave / Clement St	B	12.7	0.534	B	12.7	0.534	+ 0.000
# 3 43rd Avenue / Clement Street	B	14.0	0.664	B	14.0	0.664	+ 0.000
# 4 42nd Ave / Point Lobos Ave	C	15.3	0.684	C	15.3	0.684	+ 0.000
# 5 43rd Ave / Point Lobos Ave	C	19.0	0.760	C	19.0	0.760	+ 0.000

SFVAMC
2040 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.639
Loss Time (sec): 0 Average Delay (sec/veh): 14.1
Optimal Cycle: 0 Level Of Service: B

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	14	16	21	39	82	120	87	272	20	20	247	18
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	16	21	39	82	120	87	272	20	20	247	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	16	18	23	43	91	133	97	302	22	22	274	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	18	23	43	91	133	97	302	22	22	274	20
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	16	18	23	43	91	133	97	302	22	22	274	20
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.31	0.42	0.16	0.34	0.50	0.23	0.72	0.05	0.07	0.87	0.06
Final Sat.:	136	155	204	97	203	298	151	473	35	45	552	40
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.11	0.45	0.45	0.45	0.64	0.64	0.64	0.50	0.50	0.50
Crit Moves:		****				****	****				****	
Delay/Veh:	9.7	9.7	9.7	12.4	12.4	12.4	16.5	16.5	16.5	13.2	13.2	13.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.7	9.7	9.7	12.4	12.4	12.4	16.5	16.5	16.5	13.2	13.2	13.2
LOS by Move:	A	A	A	B	B	B	C	C	C	B	B	B
ApproachDel:	9.7			12.4			16.5			13.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.7			12.4			16.5			13.2		
LOS by Appr:	A			B			C			B		
AllWayAvgQ:	0.1	0.1	0.1	0.6	0.6	0.6	1.5	1.5	1.5	0.8	0.8	0.8

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.534
Loss Time (sec): 0 Average Delay (sec/veh): 12.7
Optimal Cycle: 0 Level Of Service: B

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	6	52	27	99	89	42	20	284	6	30	186	59
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	52	27	99	89	42	20	284	6	30	186	59
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	58	30	110	99	47	22	316	7	33	207	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	58	30	110	99	47	22	316	7	33	207	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	58	30	110	99	47	22	316	7	33	207	66
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.61	0.32	0.43	0.39	0.18	0.06	0.92	0.02	0.11	0.68	0.21
Final Sat.:	38	327	170	253	228	107	42	591	12	70	437	139
Capacity Analysis Module:												
Vol/Sat:	0.18	0.18	0.18	0.43	0.43	0.43	0.53	0.53	0.53	0.47	0.47	0.47
Crit Moves:			****		****			****			****	
Delay/Veh:	9.9	9.9	9.9	12.5	12.5	12.5	13.8	13.8	13.8	12.5	12.5	12.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.9	9.9	9.9	12.5	12.5	12.5	13.8	13.8	13.8	12.5	12.5	12.5
LOS by Move:	A	A	A	B	B	B	B	B	B	B	B	B
ApproachDel:	9.9			12.5			13.8			12.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.9			12.5			13.8			12.5		
LOS by Appr:	A			B			B			B		
AllWayAvgQ:	0.2	0.2	0.2	0.6	0.6	0.6	1.0	1.0	1.0	0.8	0.8	0.8

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.664
Loss Time (sec): 0 Average Delay (sec/veh): 14.0
Optimal Cycle: 0 Level Of Service: B

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	8	8	59	90	251	58	5	159	12	68	161	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	59	90	251	58	5	159	12	68	161	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	9	9	66	100	279	64	6	177	13	76	179	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	9	66	100	279	64	6	177	13	76	179	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	9	66	100	279	64	6	177	13	76	179	3
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.11	0.11	0.78	0.23	0.63	0.14	0.03	0.90	0.07	0.29	0.70	0.01
Final Sat.:	63	63	462	151	420	97	17	529	40	175	415	8
Capacity Analysis Module:												
Vol/Sat:	0.14	0.14	0.14	0.66	0.66	0.66	0.33	0.33	0.33	0.43	0.43	0.43
Crit Moves:		****			****			****			****	
Delay/Veh:	9.2	9.2	9.2	17.1	17.1	17.1	11.2	11.2	11.2	12.4	12.4	12.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.2	9.2	9.2	17.1	17.1	17.1	11.2	11.2	11.2	12.4	12.4	12.4
LOS by Move:	A	A	A	C	C	C	B	B	B	B	B	B
ApproachDel:	9.2			17.1			11.2			12.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.2			17.1			11.2			12.4		
LOS by Appr:	A			C			B			B		
AllWayAvgQ:	0.1	0.1	0.1	1.7	1.7	1.7	0.4	0.4	0.4	0.6	0.6	0.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.684
Loss Time (sec): 0 Average Delay (sec/veh): 15.3
Optimal Cycle: 0 Level Of Service: C

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	6	12	2	27	58	28	31	312	52	29	398	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	12	2	27	58	28	31	312	52	29	398	23
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	13	2	30	64	31	34	347	58	32	442	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	13	2	30	64	31	34	347	58	32	442	26
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	13	2	30	64	31	34	347	58	32	442	26
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.30	0.60	0.10	0.24	0.51	0.25	0.08	0.79	0.13	0.06	0.89	0.05
Final Sat.:	146	291	49	130	280	135	57	572	95	47	646	37
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.23	0.23	0.23	0.61	0.61	0.61	0.68	0.68	0.68
Crit Moves:		****			****			****			****	
Delay/Veh:	9.5	9.5	9.5	10.4	10.4	10.4	14.7	14.7	14.7	17.2	17.2	17.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.5	9.5	9.5	10.4	10.4	10.4	14.7	14.7	14.7	17.2	17.2	17.2
LOS by Move:	A	A	A	B	B	B	B	B	B	C	C	C
ApproachDel:		9.5			10.4			14.7			17.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.5			10.4			14.7			17.2	
LOS by Appr:		A			B			B			C	
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.2	1.4	1.4	1.4	1.9	1.9	1.9

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 No Project
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.760
Loss Time (sec): 0 Average Delay (sec/veh): 19.0
Optimal Cycle: 0 Level Of Service: C

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	16	40	62	51	171	84	34	244	13	42	347	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	40	62	51	171	84	34	244	13	42	347	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	18	44	69	57	190	93	38	271	14	47	386	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	44	69	57	190	93	38	271	14	47	386	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	44	69	57	190	93	38	271	14	47	386	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.34	0.52	0.17	0.56	0.27	0.12	0.84	0.04	0.11	0.87	0.02
Final Sat.:	62	154	239	90	303	149	64	460	24	61	508	15
Capacity Analysis Module:												
Vol/Sat:	0.29	0.29	0.29	0.63	0.63	0.63	0.59	0.59	0.59	0.76	0.76	0.76
Crit Moves:		****			****			****			****	
Delay/Veh:	11.7	11.7	11.7	17.7	17.7	17.7	16.6	16.6	16.6	23.8	23.8	23.8
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.7	11.7	11.7	17.7	17.7	17.7	16.6	16.6	16.6	23.8	23.8	23.8
LOS by Move:	B	B	B	C	C	C	C	C	C	C	C	C
ApproachDel:		11.7			17.7			16.6			23.8	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.7			17.7			16.6			23.8	
LOS by Appr:		B			C			C			C	
AllWayAvgQ:	0.3	0.3	0.3	1.3	1.3	1.3	1.1	1.1	1.1	2.4	2.4	2.4

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 34th Ave / Clement St	B	14.1	0.639	C	17.0	0.739	+ 0.100 V/C
# 2 42nd Ave / Clement St	B	12.7	0.534	C	16.9	0.666	+ 0.132 V/C
# 3 43rd Avenue / Clement Street	B	14.0	0.664	C	20.3	0.834	+ 0.170 V/C
# 4 42nd Ave / Point Lobos Ave	C	15.3	0.684	C	18.4	0.762	+ 0.077 V/C
# 5 43rd Ave / Point Lobos Ave	C	19.0	0.760	C	23.3	0.819	+ 0.059 V/C

SFVAMC
2040 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.739
Loss Time (sec): 0 Average Delay (sec/veh): 17.0
Optimal Cycle: 0 Level Of Service: C

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	14	16	21	39	82	120	87	272	20	20	247	18
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	16	21	39	82	120	87	272	20	20	247	18
Added Vol:	0	0	0	0	0	0	0	52	0	0	38	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	14	16	21	39	82	120	87	324	20	20	285	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	16	18	23	43	91	133	97	360	22	22	317	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	18	23	43	91	133	97	360	22	22	317	20
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	16	18	23	43	91	133	97	360	22	22	317	20
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.31	0.42	0.16	0.34	0.50	0.20	0.75	0.05	0.06	0.88	0.06
Final Sat.:	127	145	191	92	193	282	131	487	30	39	549	35
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.12	0.47	0.47	0.47	0.74	0.74	0.74	0.58	0.58	0.58
Crit Moves:			****	****				****			****	
Delay/Veh:	10.2	10.2	10.2	13.3	13.3	13.3	21.1	21.1	21.1	15.2	15.2	15.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.2	10.2	10.2	13.3	13.3	13.3	21.1	21.1	21.1	15.2	15.2	15.2
LOS by Move:	B	B	B	B	B	B	C	C	C	C	C	C
ApproachDel:	10.2			13.3			21.1			15.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.2			13.3			21.1			15.2		
LOS by Appr:	B			B			C			C		
AllWayAvgQ:	0.1	0.1	0.1	0.7	0.7	0.7	2.3	2.3	2.3	1.2	1.2	1.2

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.666
Loss Time (sec): 0 Average Delay (sec/veh): 16.9
Optimal Cycle: 0 Level Of Service: C

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	6	52	27	99	89	42	20	284	6	30	186	59
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	52	27	99	89	42	20	284	6	30	186	59
Added Vol:	0	38	0	23	38	6	6	29	0	0	15	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	90	27	122	127	48	26	313	6	30	201	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	100	30	136	141	53	29	348	7	33	223	91
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	100	30	136	141	53	29	348	7	33	223	91
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	100	30	136	141	53	29	348	7	33	223	91
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.73	0.22	0.41	0.43	0.16	0.07	0.91	0.02	0.10	0.64	0.26
Final Sat.:	23	339	102	223	232	88	43	522	10	55	369	151
Capacity Analysis Module:												
Vol/Sat:	0.30	0.30	0.30	0.61	0.61	0.61	0.67	0.67	0.67	0.60	0.60	0.60
Crit Moves:	****				****			****			****	
Delay/Veh:	11.8	11.8	11.8	17.1	17.1	17.1	18.9	18.9	18.9	16.5	16.5	16.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.8	11.8	11.8	17.1	17.1	17.1	18.9	18.9	18.9	16.5	16.5	16.5
LOS by Move:	B	B	B	C	C	C	C	C	C	C	C	C
ApproachDel:	11.8			17.1			18.9			16.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	11.8			17.1			18.9			16.5		
LOS by Appr:	B			C			C			C		
AllWayAvgQ:	0.3	0.3	0.3	1.2	1.2	1.2	1.6	1.6	1.6	1.2	1.2	1.2

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec): 100 Critical Vol./Cap.(X): 0.834
Loss Time (sec): 0 Average Delay (sec/veh): 20.3
Optimal Cycle: 0 Level Of Service: C

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	8	8	59	90	251	58	5	159	12	68	161	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	59	90	251	58	5	159	12	68	161	3
Added Vol:	0	24	0	29	48	7	4	6	0	0	6	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	32	59	119	299	65	9	165	12	68	167	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	9	36	66	132	332	72	10	183	13	76	186	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	36	66	132	332	72	10	183	13	76	186	20
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	36	66	132	332	72	10	183	13	76	186	20
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.08	0.32	0.60	0.25	0.62	0.13	0.05	0.89	0.06	0.27	0.66	0.07
Final Sat.:	43	173	318	158	398	87	26	471	34	148	364	39
Capacity Analysis Module:												
Vol/Sat:	0.21	0.21	0.21	0.83	0.83	0.83	0.39	0.39	0.39	0.51	0.51	0.51
Crit Moves:	****				****			****			****	
Delay/Veh:	10.3	10.3	10.3	28.5	28.5	28.5	12.6	12.6	12.6	14.5	14.5	14.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.3	10.3	10.3	28.5	28.5	28.5	12.6	12.6	12.6	14.5	14.5	14.5
LOS by Move:	B	B	B	D	D	D	B	B	B	B	B	B
ApproachDel:	10.3			28.5			12.6			14.5		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.3			28.5			12.6			14.5		
LOS by Appr:	B			D			B			B		
AllWayAvgQ:	0.2	0.2	0.2	3.6	3.6	3.6	0.5	0.5	0.5	0.8	0.8	0.8

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.762
Loss Time (sec):	0	Average Delay (sec/veh):	18.4
Optimal Cycle:	0	Level Of Service:	C

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	6	12	2	27	58	28	31	312	52	29	398	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	12	2	27	58	28	31	312	52	29	398	23
Added Vol:	0	27	0	11	27	0	0	14	0	0	7	11
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	39	2	38	85	28	31	326	52	29	405	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	43	2	42	94	31	34	362	58	32	450	38
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	43	2	42	94	31	34	362	58	32	450	38
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	43	2	42	94	31	34	362	58	32	450	38
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.13	0.83	0.04	0.25	0.56	0.19	0.07	0.80	0.13	0.06	0.87	0.07
Final Sat.:	59	385	20	130	292	96	51	535	85	42	591	50
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.11	0.32	0.32	0.32	0.68	0.68	0.68	0.76	0.76	0.76
Crit Moves:		****			****			****			****	
Delay/Veh:	10.3	10.3	10.3	11.8	11.8	11.8	17.8	17.8	17.8	21.9	21.9	21.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.3	10.3	10.3	11.8	11.8	11.8	17.8	17.8	17.8	21.9	21.9	21.9
LOS by Move:	B	B	B	B	B	B	C	C	C	C	C	C
ApproachDel:	10.3			11.8			17.8			21.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.3			11.8			17.8			21.9		
LOS by Appr:	B			B			C			C		
AllWayAvgQ:	0.1	0.1	0.1	0.4	0.4	0.4	1.8	1.8	1.8	2.6	2.6	2.6

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 1
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.819
Loss Time (sec):	0	Average Delay (sec/veh):	23.3
Optimal Cycle:	0	Level Of Service:	C

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	16	40	62	51	171	84	34	244	13	42	347	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	40	62	51	171	84	34	244	13	42	347	10
Added Vol:	0	17	0	14	34	0	0	0	0	0	0	7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	16	57	62	65	205	84	34	244	13	42	347	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	18	63	69	72	228	93	38	271	14	47	386	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	63	69	72	228	93	38	271	14	47	386	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	63	69	72	228	93	38	271	14	47	386	19
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.12	0.42	0.46	0.18	0.58	0.24	0.12	0.84	0.04	0.10	0.86	0.04
Final Sat.:	51	183	199	97	306	125	60	428	23	57	471	23
Capacity Analysis Module:												
Vol/Sat:	0.35	0.35	0.35	0.74	0.74	0.74	0.63	0.63	0.63	0.82	0.82	0.82
Crit Moves:	****				****				****		****	
Delay/Veh:	12.9	12.9	12.9	23.7	23.7	23.7	18.8	18.8	18.8	29.6	29.6	29.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.9	12.9	12.9	23.7	23.7	23.7	18.8	18.8	18.8	29.6	29.6	29.6
LOS by Move:	B	B	B	C	C	C	C	C	C	D	D	D
ApproachDel:	12.9			23.7			18.8			29.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	12.9			23.7			18.8			29.6		
LOS by Appr:	B			C			C			D		
AllWayAvgQ:	0.3	0.3	0.3	2.1	2.1	2.1	1.3	1.3	1.3	3.1	3.1	3.1

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Del/ Veh	V/ C	Future LOS	Del/ Veh	V/ C	Change in
# 1 34th Ave / Clement St	B	14.1	0.639	B	14.7	0.669	+ 0.029 V/C
# 2 42nd Ave / Clement St	B	12.7	0.534	B	13.2	0.566	+ 0.033 V/C
# 3 43rd Avenue / Clement Street	B	14.0	0.664	C	16.1	0.741	+ 0.077 V/C
# 4 42nd Ave / Point Lobos Ave	C	15.3	0.684	C	15.6	0.691	+ 0.006 V/C
# 5 43rd Ave / Point Lobos Ave	C	19.0	0.760	C	20.4	0.777	+ 0.018 V/C

SFVAMC
2040 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #1 34th Ave / Clement St

Cycle (sec): 100 Critical Vol./Cap.(X): 0.669
Loss Time (sec): 0 Average Delay (sec/veh): 14.7
Optimal Cycle: 0 Level Of Service: B

Street Name:	34th Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	14	16	21	39	82	120	87	272	20	20	247	18
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	14	16	21	39	82	120	87	272	20	20	247	18
Added Vol:	0	0	0	0	0	0	0	17	0	0	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	14	16	21	39	82	120	87	289	20	20	250	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	16	18	23	43	91	133	97	321	22	22	278	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	18	23	43	91	133	97	321	22	22	278	20
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	16	18	23	43	91	133	97	321	22	22	278	20
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.31	0.42	0.16	0.34	0.50	0.22	0.73	0.05	0.07	0.87	0.06
Final Sat.:	133	152	200	96	201	294	145	480	33	44	549	40
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.12	0.45	0.45	0.45	0.67	0.67	0.67	0.51	0.51	0.51
Crit Moves:		****			****			****			****	
Delay/Veh:	9.8	9.8	9.8	12.6	12.6	12.6	17.6	17.6	17.6	13.4	13.4	13.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.8	9.8	9.8	12.6	12.6	12.6	17.6	17.6	17.6	13.4	13.4	13.4
LOS by Move:	A	A	A	B	B	B	C	C	C	B	B	B
ApproachDel:	9.8			12.6			17.6			13.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.8			12.6			17.6			13.4		
LOS by Appr:	A			B			C			B		
AllWayAvgQ:	0.1	0.1	0.1	0.7	0.7	0.7	1.7	1.7	1.7	0.9	0.9	0.9

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 42nd Ave / Clement St

Cycle (sec):	100	Critical Vol./Cap.(X):	0.566
Loss Time (sec):	0	Average Delay (sec/veh):	13.2
Optimal Cycle:	0	Level Of Service:	B

Street Name:	42nd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	6	52	27	99	89	42	20	284	6	30	186	59
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	52	27	99	89	42	20	284	6	30	186	59
Added Vol:	0	3	0	2	3	1	1	15	0	0	1	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	55	27	101	92	43	21	299	6	30	187	61
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	61	30	112	102	48	23	332	7	33	208	68
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	61	30	112	102	48	23	332	7	33	208	68
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	61	30	112	102	48	23	332	7	33	208	68
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.07	0.62	0.31	0.43	0.39	0.18	0.06	0.92	0.02	0.11	0.67	0.22
Final Sat.:	36	326	160	248	226	106	41	586	12	69	428	139
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.19	0.45	0.45	0.45	0.57	0.57	0.57	0.49	0.49	0.49
Crit Moves:		****			****			****			****	
Delay/Veh:	10.1	10.1	10.1	12.9	12.9	12.9	14.6	14.6	14.6	12.9	12.9	12.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.1	10.1	10.1	12.9	12.9	12.9	14.6	14.6	14.6	12.9	12.9	12.9
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
ApproachDel:	10.1			12.9			14.6			12.9		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.1			12.9			14.6			12.9		
LOS by Appr:	B			B			B			B		
AllWayAvgQ:	0.2	0.2	0.2	0.7	0.7	0.7	1.1	1.1	1.1	0.8	0.8	0.8

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #3 43rd Avenue / Clement Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.741
Loss Time (sec):	0	Average Delay (sec/veh):	16.1
Optimal Cycle:	0	Level Of Service:	C

Street Name:	43rd Ave						Clement St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	8	8	59	90	251	58	5	159	12	68	161	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	59	90	251	58	5	159	12	68	161	3
Added Vol:	0	2	0	15	25	4	0	1	0	0	1	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	10	59	105	276	62	5	160	12	68	162	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	9	11	66	117	307	69	6	178	13	76	180	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	11	66	117	307	69	6	178	13	76	180	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	11	66	117	307	69	6	178	13	76	180	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.10	0.13	0.77	0.24	0.62	0.14	0.03	0.90	0.07	0.29	0.69	0.02
Final Sat.:	59	74	435	157	414	93	16	511	38	168	400	10
Capacity Analysis Module:												
Vol/Sat:	0.15	0.15	0.15	0.74	0.74	0.74	0.35	0.35	0.35	0.45	0.45	0.45
Crit Moves:		****			****			****			****	
Delay/Veh:	9.4	9.4	9.4	20.7	20.7	20.7	11.6	11.6	11.6	13.0	13.0	13.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.4	9.4	9.4	20.7	20.7	20.7	11.6	11.6	11.6	13.0	13.0	13.0
LOS by Move:	A	A	A	C	C	C	B	B	B	B	B	B
ApproachDel:	9.4			20.7			11.6			13.0		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.4			20.7			11.6			13.0		
LOS by Appr:	A			C			B			B		
AllWayAvgQ:	0.1	0.1	0.1	2.3	2.3	2.3	0.4	0.4	0.4	0.7	0.7	0.7

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #4 42nd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.691
Loss Time (sec): 0 Average Delay (sec/veh): 15.6
Optimal Cycle: 0 Level Of Service: C

Street Name:	42nd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	6	12	2	27	58	28	31	312	52	29	398	23
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	12	2	27	58	28	31	312	52	29	398	23
Added Vol:	0	2	0	1	2	0	0	7	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	14	2	28	60	28	31	319	52	29	398	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	7	16	2	31	67	31	34	354	58	32	442	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	7	16	2	31	67	31	34	354	58	32	442	27
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	7	16	2	31	67	31	34	354	58	32	442	27
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.27	0.64	0.09	0.24	0.52	0.24	0.08	0.79	0.13	0.06	0.89	0.05
Final Sat.:	131	307	44	131	280	131	55	571	93	47	640	39
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.24	0.24	0.24	0.62	0.62	0.62	0.69	0.69	0.69
Crit Moves:			****	****				****			****	
Delay/Veh:	9.6	9.6	9.6	10.5	10.5	10.5	15.2	15.2	15.2	17.6	17.6	17.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	9.6	9.6	9.6	10.5	10.5	10.5	15.2	15.2	15.2	17.6	17.6	17.6
LOS by Move:	A	A	A	B	B	B	C	C	C	C	C	C
ApproachDel:	9.6			10.5			15.2			17.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.6			10.5			15.2			17.6		
LOS by Appr:	A			B			C			C		
AllWayAvgQ:	0.0	0.0	0.0	0.2	0.2	0.2	1.5	1.5	1.5	2.0	2.0	2.0

Note: Queue reported is the number of cars per lane.

SFVAMC
2040 + Phase 1 and 2 - Alternative 2
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #5 43rd Ave / Point Lobos Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.777
Loss Time (sec): 0 Average Delay (sec/veh): 20.4
Optimal Cycle: 0 Level Of Service: C

Street Name:	43rd Ave						Point Lobos Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1!	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Volume Module:												
Base Vol:	16	40	62	51	171	84	34	244	13	42	347	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	40	62	51	171	84	34	244	13	42	347	10
Added Vol:	0	1	0	7	18	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	16	41	62	58	189	84	34	244	13	42	347	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	18	46	69	64	210	93	38	271	14	47	386	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	46	69	64	210	93	38	271	14	47	386	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	46	69	64	210	93	38	271	14	47	386	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.13	0.34	0.53	0.18	0.57	0.25	0.12	0.84	0.04	0.11	0.87	0.02
Final Sat.:	60	153	231	95	309	137	62	448	24	60	496	14
Capacity Analysis Module:												
Vol/Sat:	0.30	0.30	0.30	0.68	0.68	0.68	0.61	0.61	0.61	0.78	0.78	0.78
Crit Moves:		****			****			****			****	
Delay/Veh:	12.0	12.0	12.0	19.9	19.9	19.9	17.3	17.3	17.3	25.4	25.4	25.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.0	12.0	12.0	19.9	19.9	19.9	17.3	17.3	17.3	25.4	25.4	25.4
LOS by Move:	B	B	B	C	C	C	C	C	C	D	D	D
ApproachDel:	12.0			19.9			17.3			25.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	12.0			19.9			17.3			25.4		
LOS by Appr:	B			C			C			D		
AllWayAvgQ:	0.3	0.3	0.3	1.6	1.6	1.6	1.2	1.2	1.2	2.6	2.6	2.6

Note: Queue reported is the number of cars per lane.

Appendix C
Roadway Segment Level of Service Calculations

SFVA Intersection and Roadway Segment Volumes
No Project Conditions

Existing (2011) Conditions

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	12	5	7	5	14			
	Through	14	45	7	10	35			
	Right	18	23	51	2	54			
EB	Left	75	17	4	27	29			
	Through	235	246	138	270	211			
	Right	17	5	10	45	11			
SB	Left	34	86	78	23	44			
	Through	71	77	217	50	148			
	Right	104	36	50	24	73			
WB	Left	17	26	59	25	36			
	Through	214	161	139	344	300			
	Right	16	51	3	20	9			
Northbound								73	73
Southbound								108	286

V/C Ratios of Roadway Segments
Capacity: 450 vehicles per hour per direction
(assumed for a local residential road)

	a	b
v/c: NB	0.16	0.16
v/c: SB	0.24	0.64

Background Traffic Volume Growth	
Annual Growth Rate	0.5%
Growth by 2020	1.046
Growth by 2027	1.083
Growth by 2040	1.156

Near-Term (2020) Conditions - WITHOUT PROJECT (Alternative 4)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	13	5	7	5	15			
	Through	15	47	7	10	37			
	Right	19	24	53	2	56			
EB	Left	78	18	4	28	30			
	Through	246	257	144	282	221			
	Right	18	5	10	47	12			
SB	Left	36	90	82	24	46			
	Through	74	81	227	52	155			
	Right	109	38	52	25	76			
WB	Left	18	27	62	26	38			
	Through	224	168	145	360	314			
	Right	17	53	3	21	9			
Northbound								76	76
Southbound								113	299

	a	b
v/c: NB	0.17	0.17
v/c: SB	0.25	0.66

Long-Term (2027) Conditions - WITHOUT PROJECT (Alternative 4)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	13	5	8	5	15			
	Through	15	49	8	11	38			
	Right	19	25	55	2	58			
EB	Left	81	18	4	29	31			
	Through	255	266	149	292	229			
	Right	18	5	11	49	12			
SB	Left	37	93	84	25	48			
	Through	77	83	235	54	160			
	Right	113	39	54	26	79			
WB	Left	18	28	64	27	39			
	Through	232	174	151	373	325			
	Right	17	55	3	22	10			
Northbound								79	79
Southbound								117	310

	a	b
v/c: NB	0.18	0.18
v/c: SB	0.26	0.69

Cumulative (2040) Conditions - WITHOUT PROJECT (Alternative 4)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	14	6	8	6	16			
	Through	16	52	8	12	40			
	Right	21	27	59	2	62			
EB	Left	87	20	5	31	34			
	Through	272	284	159	312	244			
	Right	20	6	12	52	13			
SB	Left	39	99	90	27	51			
	Through	82	89	251	58	171			
	Right	120	42	58	28	84			
WB	Left	20	30	68	29	42			
	Through	247	186	161	398	347			
	Right	18	59	3	23	10			
Northbound								84	84
Southbound								125	331

	a	b
v/c: NB	0.19	0.19
v/c: SB	0.28	0.73

SFVA Intersection and Roadway Segment Volumes
Total Trips - Alt 1

Existing (2011) Conditions

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	12	5	7	5	14			
	Through	14	45	7	10	35			
	Right	18	23	51	2	54			
EB	Left	75	17	4	27	29			
	Through	235	246	138	270	211			
	Right	17	5	10	45	11			
SB	Left	34	86	78	23	44			
	Through	71	77	217	50	148			
	Right	104	36	50	24	73			
WB	Left	17	26	59	25	36			
	Through	214	161	139	344	300			
	Right	16	51	3	20	9			
Northbound								73	73
Southbound								108	286

V/C Ratios of Roadway Segments
Capacity: 450 vehicles per hour per direction
(assumed for a local residential road)

	a	b
v/c: NB	0.16	0.16
v/c: SB	0.24	0.64

Near-Term (2020) Conditions - WITH PROJECT (Alternative 1)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	13	5	7	5	15			
	Through	15	50	9	12	38			
	Right	19	24	53	2	56			
EB	Left	78	19	4	28	30			
	Through	263	272	145	289	221			
	Right	18	5	10	47	12			
SB	Left	36	92	97	25	53			
	Through	74	84	252	54	173			
	Right	109	39	56	25	76			
WB	Left	18	27	62	26	38			
	Through	227	169	146	360	314			
	Right	17	55	4	22	9			
Northbound								79	77
Southbound								116	324

	a	b
v/c: NB	0.18	0.17
v/c: SB	0.26	0.72

Long-Term (2027) Conditions - WITH PROJECT (Alternative 1)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	13	5	8	5	15			
	Through	15	87	32	38	55			
	Right	19	25	55	2	58			
EB	Left	81	24	8	29	31			
	Through	307	295	155	306	229			
	Right	18	5	11	49	12			
SB	Left	37	116	113	36	62			
	Through	77	121	283	81	194			
	Right	113	45	61	26	79			
WB	Left	18	28	64	27	39			
	Through	270	189	157	380	325			
	Right	17	78	18	33	17			
Northbound								117	103
Southbound								155	358

	a	b
v/c: NB	0.26	0.23
v/c: SB	0.34	0.80

Cumulative (2040) Conditions - WITH PROJECT (Alternative 1)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	14	6	8	6	16			
	Through	16	90	32	39	57			
	Right	21	27	59	2	62			
EB	Left	87	26	9	31	34			
	Through	324	313	165	326	244			
	Right	20	6	12	52	13			
SB	Left	39	122	119	38	65			
	Through	82	127	299	85	205			
	Right	120	48	65	28	84			
WB	Left	20	30	68	29	42			
	Through	285	201	167	405	347			
	Right	18	82	18	34	17			
Northbound								122	108
Southbound								163	379

	a	b
v/c: NB	0.27	0.24
v/c: SB	0.36	0.84

SFVA Intersection and Roadway Segment Volumes
Total Trips - Alt 3

Existing (2011) Conditions

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	12	5	7	5	14			
	Through	14	45	7	10	35			
	Right	18	23	51	2	54			
EB	Left	75	17	4	27	29			
	Through	235	246	138	270	211			
	Right	17	5	10	45	11			
SB	Left	34	86	78	23	44			
	Through	71	77	217	50	148			
	Right	104	36	50	24	73			
WB	Left	17	26	59	25	36			
	Through	214	161	139	344	300			
	Right	16	51	3	20	9			
Northbound								73	73
Southbound								108	286

V/C Ratios of Roadway Segments
Capacity: 450 vehicles per hour per direction
(assumed for a local residential road)

	a	b
v/c: NB	0.16	0.16
v/c: SB	0.24	0.64

Near-Term (2020) Conditions - WITH PROJECT (Alternative 3)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	13	5	7	5	15			
	Through	15	50	9	12	38			
	Right	19	24	53	2	56			
EB	Left	78	19	4	28	30			
	Through	263	272	145	289	221			
	Right	18	5	10	47	12			
SB	Left	36	92	97	25	53			
	Through	74	84	252	54	173			
	Right	109	39	56	25	76			
WB	Left	18	27	62	26	38			
	Through	227	169	146	360	314			
	Right	17	55	4	22	9			
Northbound								79	77
Southbound								116	324

	a	b
v/c: NB	0.18	0.17
v/c: SB	0.26	0.72

Long-Term (2027) Conditions - WITH PROJECT (Alternative 3)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	13	5	8	5	15			
	Through	15	52	10	13	39			
	Right	19	25	55	2	58			
EB	Left	81	19	4	29	31			
	Through	272	281	150	299	229			
	Right	18	5	11	49	12			
SB	Left	37	95	99	26	55			
	Through	77	86	260	56	178			
	Right	113	40	58	26	79			
WB	Left	18	28	64	27	39			
	Through	235	175	152	373	325			
	Right	17	57	4	23	10			
Northbound								82	80
Southbound								120	335

	a	b
v/c: NB	0.18	0.18
v/c: SB	0.27	0.74

Cumulative (2040) Conditions - WITH PROJECT (Alternative 3)

		Intersections						Roadway Segments	
		1	2	3	4	5		a	b
NB	Left	14	6	8	6	16			
	Through	16	55	10	14	41			
	Right	21	27	59	2	62			
EB	Left	87	21	5	31	34			
	Through	289	299	160	319	244			
	Right	20	6	12	52	13			
SB	Left	39	101	105	28	58			
	Through	82	92	276	60	189			
	Right	120	43	62	28	84			
WB	Left	20	30	68	29	42			
	Through	250	187	162	398	347			
	Right	18	61	4	24	10			
Northbound								87	85
Southbound								128	356

	a	b
v/c: NB	0.19	0.19
v/c: SB	0.28	0.79

Appendix D
Transit Ridership and Capacity Calculations

Line	Direction	TEP Ridership	MLP	Capacity			Utilization	SF Model Ridership		Annual Growth Rate	Future Ridership			Future Capacity			Utilization		
		2011		Buses per hour	Capacity per bus	Total		2010	2035		2020	2027	2040	2020	2027	2040	2020	2027	2040
38 Geary	Inbound	352	Geary Boulevard / Laguna Street	8	94	752	46.8%	3,323	3,968		439	506	631	940	940	940			
	Outbound	450	Geary Boulevard / Franklin Street	7.5	94	705	63.8%	4,199	5,496		580	681	868						
38L Geary Limited	Inbound	556	Geary Boulevard / Divisadero Street	10.9	94	1,025	54.2%	3,659	7,787		693	799	997	1,880	1,880	1,880			
	Outbound	862	Geary Boulevard / Van Ness Avenue	10.9	94	1,025	84.1%	4,479	10,924		1,111	1,304	1,663						
38AX Geary A Express	Inbound																		
	Outbound	280	Pine Street / Montgomery Street	6.7	63	420	66.7%	311	59		361	424	540						
38BX Geary A Express	Inbound																		
	Outbound	222	Pine Street / Montgomery Street	6.0	63	378	58.7%	191	56		286	336	428						
38X Geary Express	Inbound																		
	Outbound										647	759	969						
Corridor Total	Inbound	908				1,777	51.1%	6,982	11,755	2.73%	1,131	1,305	1,628	2,820	2,820	2,820	40.1%	46.3%	57.7%
	Outbound	1,814				2,528	71.7%	9,180	16,535	3.20%	2,337	2,744	3,500						
Values from TEP Draft EIR	Inbound																		
	Outbound	1,814				2,528	71.7%												
Adjustments											1,142	1,324	1,661	2,820	2,820	2,820	40.5%	46.9%	58.9%
											2,359	2,783	3,570	3,826	3,826	3,826	61.7%	72.7%	93.3%

Outbound ridership for 2020, 2027, and 2040 were calculated by prorating the TEP's assumed growth rate for Existing to 2035. Inbound ridership was adjusted to match the TEP growth rates.

Outbound capacity assumed to stay constant in future years. No adjustments made to inbound capacity.

Appendix E
Parking Study

AECOM

December 19, 2014

San Francisco VA Medical Center Long Range Development Plan

Parking Study

Prepared for U.S. Department of Veterans Affairs

San Francisco VA Medical Center
Long Range Development Plan
Parking Study
Prepared for U.S. Department of Veterans Affairs
December 19, 2014

Prepared by Carol Shariat, TE

Prepared by Ryan Niblock

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1.0 Introduction

This study has been conducted as part of an overall evaluation of existing parking conditions for the San Francisco Veterans Affairs Medical Center (SFVAMC) Fort Miley Campus, herein referred to as the "Project." As part of the Project, construction of new patient care, research, hoptel,[1] and administration uses (and associated parking facilities) is proposed to upgrade the SFVAMC facilities. To evaluate the parking activity associated with proposed Project uses, and to understand parking conditions in the surrounding Project area, this study examines existing on-site and on-street parking conditions surrounding the Project site.

1.1 Project Location

The existing SFVAMC Fort Miley Campus is a 29-acre site located at Fort Miley (within Lincoln Park) in northwestern San Francisco, California. The site is bounded on the north, east, and west sides by National Park Service lands (part of the Golden Gate National Recreation Area) and on the south side by Clement Street, with access points at 42nd Avenue/Clement Street and 43rd Avenue/Clement Street. The location of the Project site is identified in Figure 1.

1.2 Study Scope and Approach

The study evaluates on-site and on-street parking conditions within and surrounding the Project site. On-street parking conditions were evaluated within a six-block area bounded by Clement Street to the north, 39th Avenue to the east, Geary Boulevard to the south, and 45th Avenue to the west, all located within San Francisco's Richmond District. It should be noted that this parking study area was selected for analysis based on the City and County of San Francisco Planning Department's Transportation Impact Analysis Guidelines for Environmental Review (2002), which require that any parking analysis consider a parking area within a two-block radius of a project site. Parking facilities within the SFVAMC Fort Miley Campus were also evaluated. Parking conditions were assessed during weekday peak periods in the morning (9–11 AM), midday (1–3 PM), and evening (7–9 PM), because these time periods represent the busiest hours for parking demand.

[1] A hoptel is an overnight, shared lodging facility for eligible Veterans receiving healthcare services. This temporary lodging is available to Veterans who need to travel 50 or more miles from their homes to the Campus.

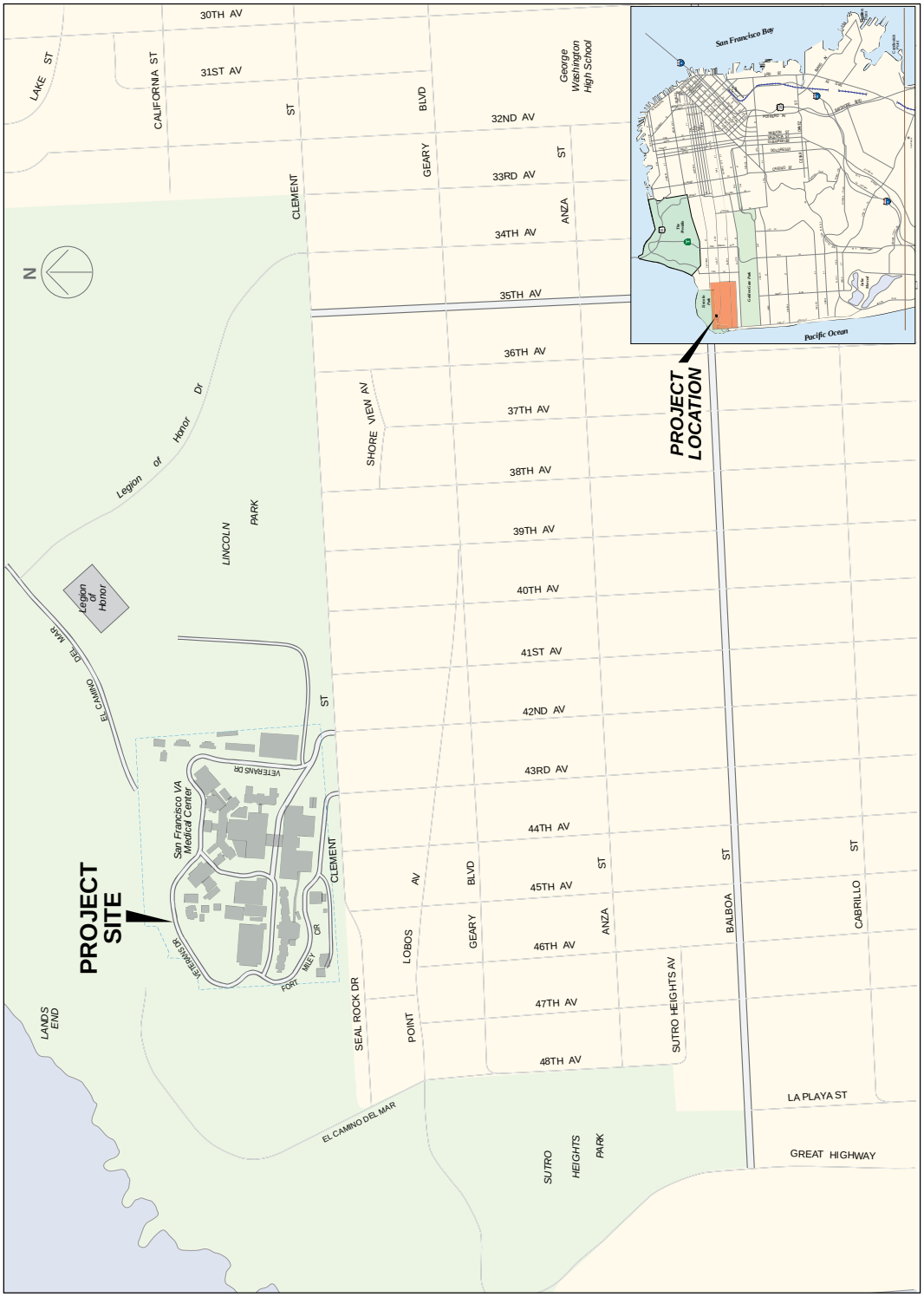

Figure 1: Project Location

2.0 Existing Conditions

This chapter describes the existing parking facilities in the Project study area, the data collected at these existing facilities, and existing parking occupancy.

2.1 Existing Facilities

2.1.1 On-Street Parking

On-street parking in the vicinity of the Project site consists primarily of unmetered parallel parking. Angled parking is provided along the north side of Geary Boulevard between 43rd Avenue and 42nd Avenue and between 41st Avenue and 40th Avenue, and along the south side of Point Lobos Avenue between 43rd Avenue and 42nd Avenue. It should be noted that the angled parking provided on the north side of Geary Boulevard and on the south side of Point Lobos Avenue between 43rd Avenue and 42nd Avenue is located adjacent to a Walgreens store, the only commercial land use in the Project study area. The angled parking spaces adjacent to Walgreens are 1-hour parking spaces between 8:00 AM and 6:00 PM, and can be used by all motorists (i.e., these spaces are not designated customer-only parking spaces). The Project site and Lincoln Park are located along the north side of Clement Street. All other on-street parking in the area is adjacent to residential land uses. The on-street parking study area (i.e., the area bounded by Clement Street to the north, 39th Avenue to the east, Geary Boulevard to the south, and 45th Avenue to the west) is illustrated in Figure 2.

The Project area, like most of the Richmond District, tends to have high on-street parking utilization, in part because the area has minimal parking restrictions and no residential parking permits. Restrictions that do apply within the parking study area are related to street sweeping, which occurs during the second and fourth weeks of each month, and are detailed in Figures 3a through 3d. Given that on-street parking within the Project study area is not marked, the number of on-street parking spaces has been estimated assuming 25 feet per vehicle. Based on this assumption, approximately 600 on-street parking spaces are currently provided in the parking study area. On-street parking capacity by block face is summarized in Figure 4.

2.1.2 On-site Parking

Existing on-site parking facilities consist of 10 surface lots (Lot B through Lot L) and two parking structures (Building 209 and Building 212).[(2)] In total, 1,253 on-site parking spaces are currently provided on the SFVAMC Fort Miley Campus. Existing on-site parking facilities are illustrated in Figure 5 and summarized in Table 1.

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(2) For purposes of this parking study, the existing Campus parking inventory is based on data summarized in the SFVAMC Fort Miley Campus Long Range Development Plan, which is based on baseline conditions of 2012.

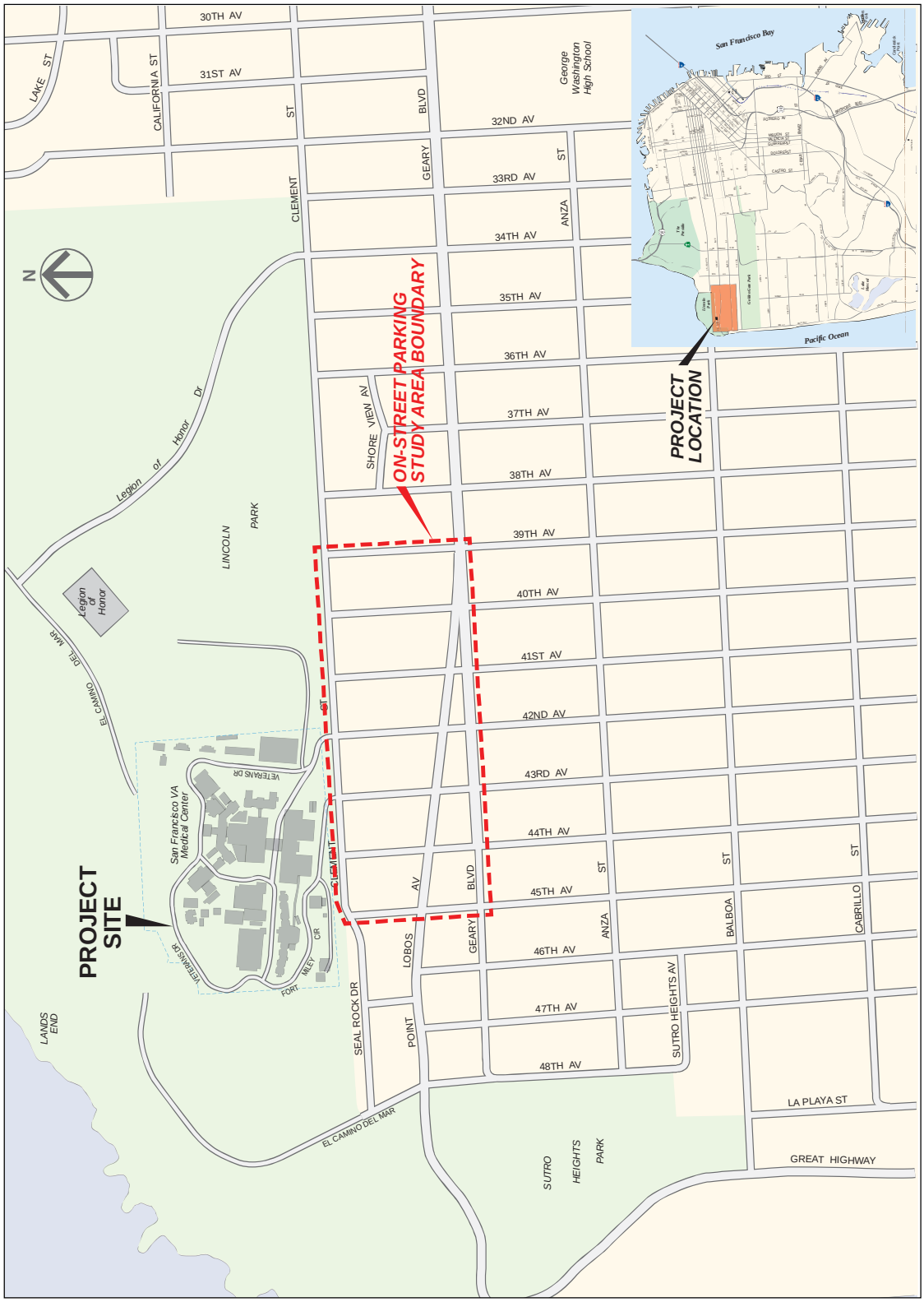

Figure 2: Existing On-Street Parking Study Area

Figure 3a: Existing On-Street Parking Restrictions – 2nd and 4th Tuesday of the Month

Figure 3b: Existing On-Street Parking Restrictions – 2nd and 4th Wednesday of the Month

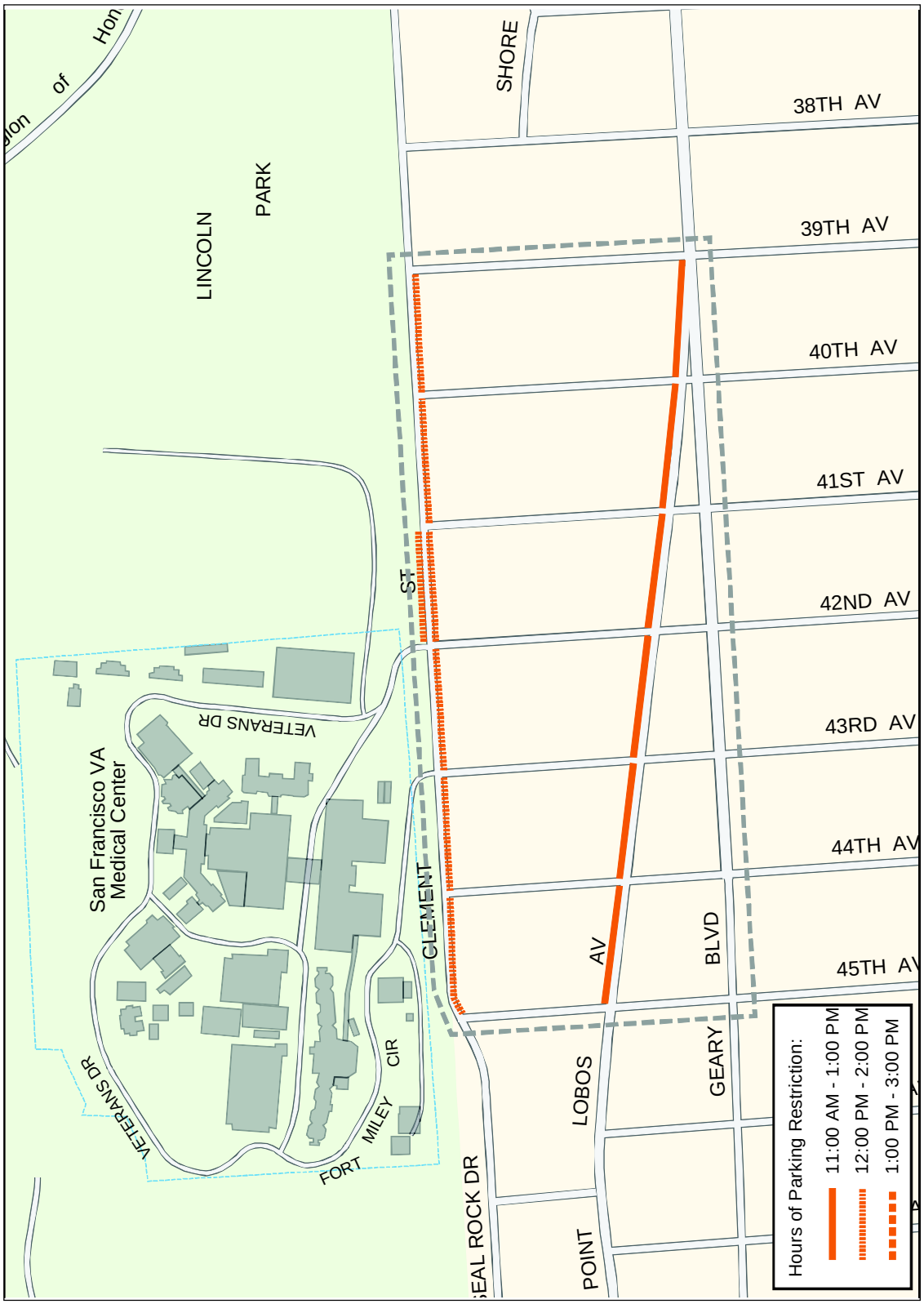

Figure 3c: Existing On-Street Parking Restrictions – 2nd and 4th Thursday of the Month

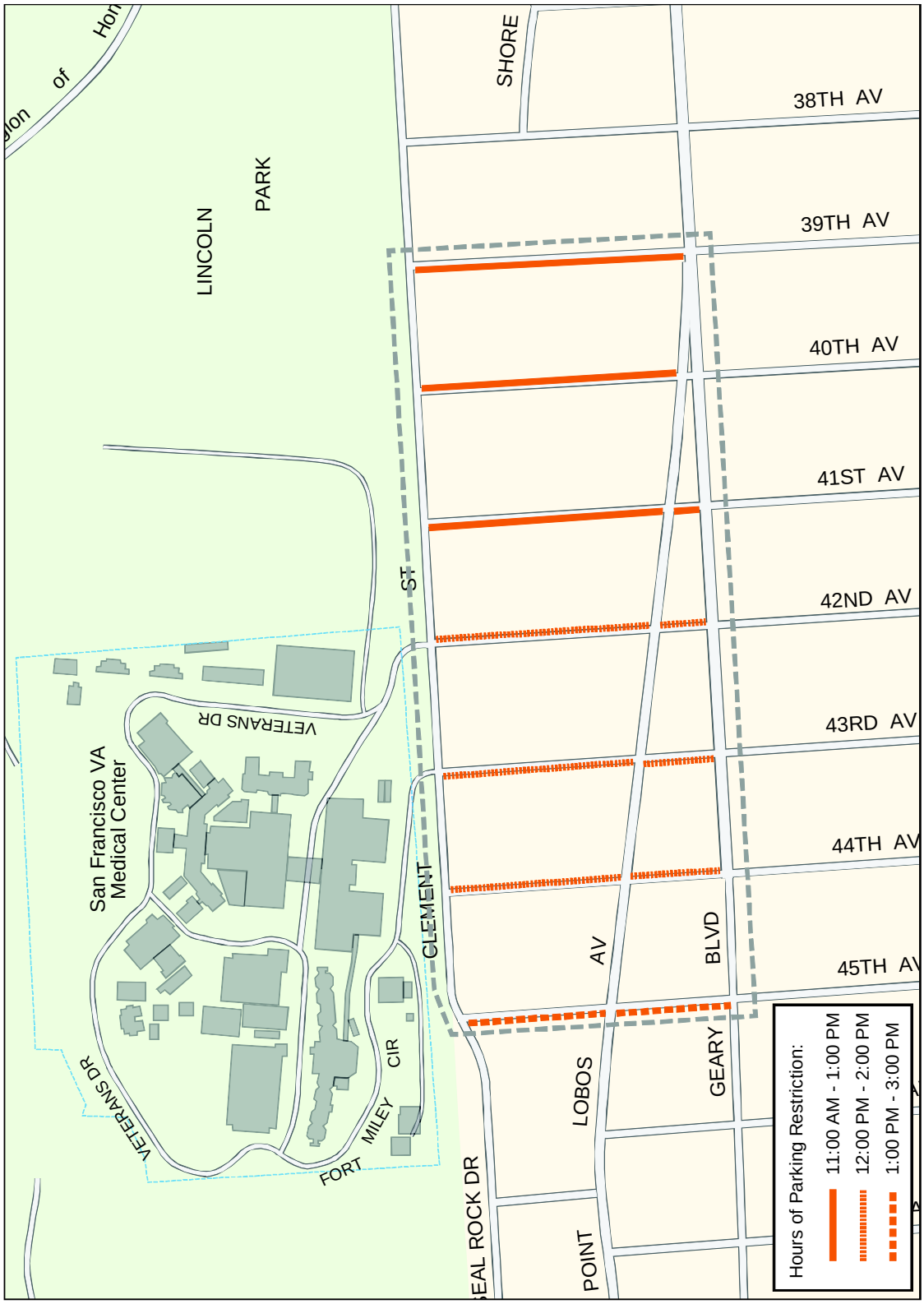

Figure 3d: Existing On-Street Parking Restrictions – 2nd and 4th Friday of the Month

Figure 4: Existing On-Street Parking Capacity

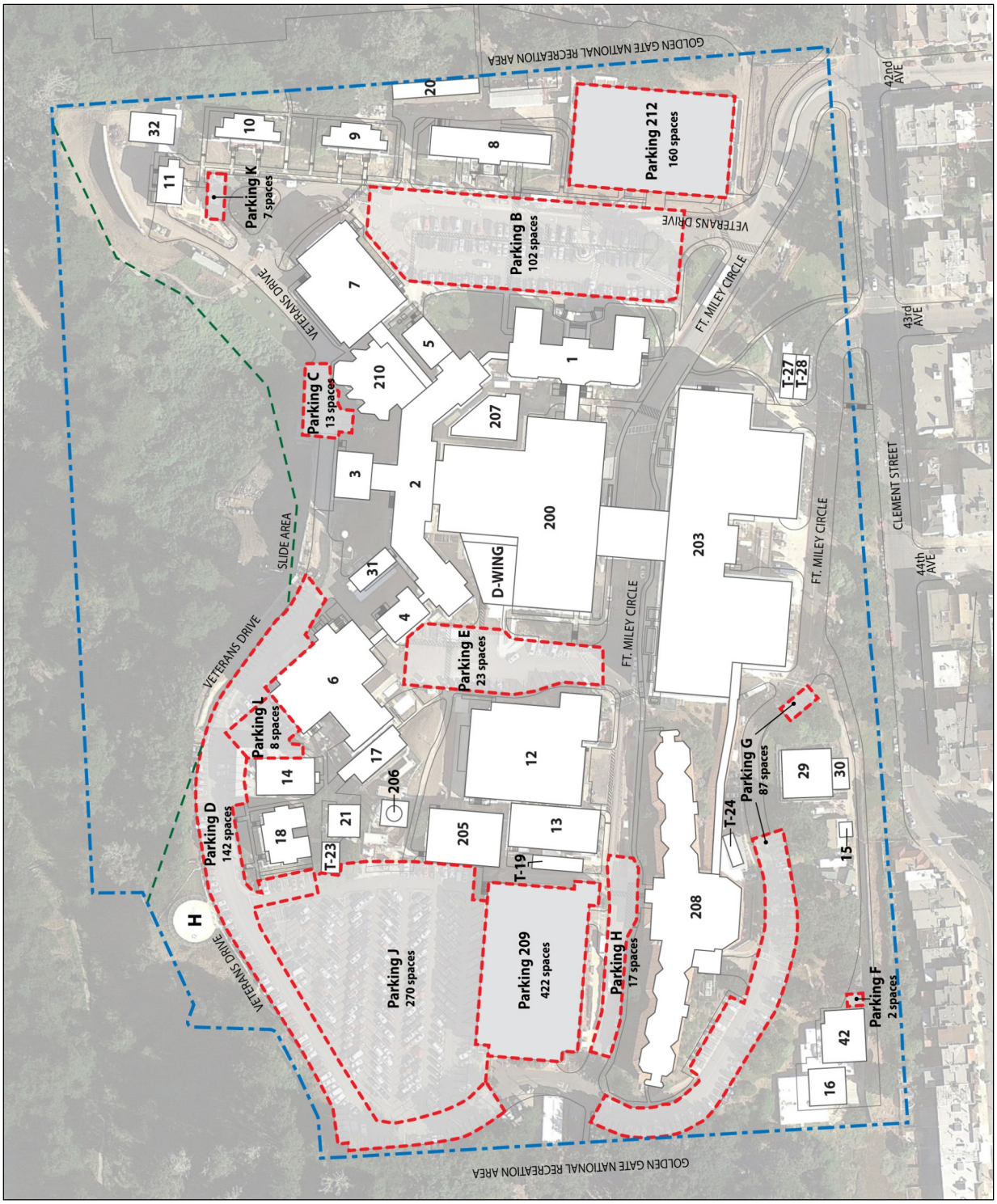

Figure 5: Existing On-Site Parking Facilities

Table 1: Existing On-Site Parking Supply

Facility	Parking Type	Function/User	Supply
Building 209	Structure	Patient/Employee	422
Building 212	Structure	Patient	160
Lot B	Surface lot	Patient/Visitor	102
Lot C	Surface lot	Employee	13
Lot D	Surface lot	GSA/Employee	142
Lot E	Surface lot	Patient	23
Lot F	Surface lot	Employee	2
Lot G	Surface lot	Employee	87
Lot H	Surface lot	Patient/Visitor	17
Lot J	Surface lot	Employee	270
Lot K	Surface lot	Employee	7
Lot L	Surface lot	Employee	8
Total			1,253

Source: SFVAMC Long Range Development Plan, 2014.
Notes: Reflects status as of 2012, as reported in the LRDP. Some facilities listed have since been permanently or temporarily closed or restriped/reconfigured as a result of construction activities, Americans with Disabilities Act compliance, or other factors.

As shown in Table 1, patients and visitors generally use parking facilities at Buildings 209 and 212 and Lots B, D, E, and H. Employees typically use parking facilities at Building 209 and Lots C, D, F, G, J, K, and L. General Services Administration (GSA) parking is provided in Lot D.

2.2 Data Collection

A parking occupancy survey was conducted on Tuesday, September 10, 2013, for on-street parking spaces in the Project vicinity and within on-site parking facilities. This date was chosen for evaluation because it is representative of typical weekday parking conditions in this area.[3] Parking conditions were analyzed on a weekday during the morning (9–11 AM), midday (1–3 PM), and evening (7–9 PM) peak periods. Parking occupancy refers to the number of cars parked in a specific facility or area during one period of observation, and is expressed as the percentage of the total supply that is occupied by parked cars. It should be noted that the results of the parking occupancy survey are representative of 1-day field observations, and that occupancy can vary slightly from day to day.

[3] The parking occupancy survey was conducted on a scheduled street cleaning day to account for the parking changes during these days. Because street cleaning occurs two of the four weeks each month, it does not necessarily represent unique conditions. Typically, the areawide parking demand does not change when street cleaning is scheduled, but motorists tend to shift their parking locations to unaffected streets. Thus, the survey data can be considered representative of conditions on non-street-sweeping days at an areawide level.

2.3 On-Street Parking Occupancy

On-street parking occupancy during the weekday morning, midday, and evening peak periods is illustrated in Figures 6a, 6b, and 6c. Detailed results of the parking occupancy survey are provided in Appendix A.

Based on the field observations conducted, it was determined that on-street parking is well used throughout the day, although particular occupancy percentages can vary depending on location and peak period. During the weekday morning peak period, on-street parking occupancy ranges between 80 percent and 100 percent along most block faces, with an average overall occupancy of 87 percent. Parking along the north side of Clement Street (i.e., on-street parking nearest the Project site) was observed to be the lowest in the parking study area; however, the relatively lower occupancy levels may be attributed to the street sweeping restrictions along this segment, shown previously in Figure 3a.

During the weekday midday peak period, on-street parking occupancy continued to range between 80 percent and 100 percent along most block faces, with an average overall occupancy of 90 percent. Parking spaces along the north side of Clement Street were observed to be nearly fully occupied, because the midday peak period occurs after the conclusion of street sweeping restrictions. Specifically, on-street parking spaces along the north side of Clement Street were found to be 100 percent occupied between 45th Avenue and 43rd Avenue, 92 percent occupied between 43rd Avenue and 42nd Avenue, and 93 percent occupied between 42nd Avenue and 39th Avenue.

During the weekday evening peak period, on-street parking occupancy levels are lower than during the weekday morning and midday peak periods, with many block faces experiencing occupancy levels below 80 percent. Average overall occupancy during the evening peak period was found to be 73 percent. On-street parking along Clement Street adjacent to the Project site remained relatively high, and lower occupancy levels were observed along Point Lobos Avenue and along roadways west of the Project site. Specifically, on-street parking spaces along the north side of Clement Street were found to be 100 percent occupied between 45th Avenue and 43rd Avenue, 85 percent occupied between 43rd Avenue and 42nd Avenue, and 53 percent occupied between 42nd Avenue and 39th Avenue.

Figure 6a: Existing On-Street Parking Occupancy – Morning Peak Period

Figure 6b: Existing On-Street Parking Occupancy – Midday Peak Period

Figure 6c: Existing On-Street Parking Occupancy – Evening Peak Period

2.4 On-Site Parking Occupancy

Based on the field surveys, on-site parking occupancy was observed to effectively reach capacity during both the weekday morning and midday peak periods. At those times, occupancies approaching 100 percent (or exceeding 100 percent, when including illegally parked vehicles) of capacity for striped parking spaces were recorded. (The efficiency gains from valet parking were not included.) These periods correspond with times when daily parking levels by employees, patients, and visitors are at their highest.

Field observations also indicated that valet parking in Building 209 is well utilized (at or near 100 percent occupancy, where most supplementary circulation aisle space is used by the valet parking operator to provide additional spaces), but less well utilized in Building 212. Overall parking occupancy at the Campus dropped substantially by the evening survey period, when vehicles are parked primarily by overnight patients and employees working overnight. Detailed results of the parking occupancy survey are provided in Appendix B.

Because of construction activities in Lot J related to Building 211 (the "Parking and Emergency Response Structure"), however, some of the on-site parking spaces normally available for use in Lots D, E, and J were instead cordoned off and unavailable at the time of the field observations. The installation of solar photovoltaic systems on the Campus at the time also required the closure of portions of Building 209. Other construction activities also reduced regular parking capacity in Lot G. SFVAMC typically provides valet parking during construction to offset some of this loss in parking capacity. The valet parking program in effect during construction of Building 211 encompasses Buildings 209 and 212 and provides approximately 210 additional spaces on the Campus.

Given the changes to parking supply on the Campus with construction of Building 211, supplementary data about on- and off-street parking utilization (before the start of construction) were consulted to obtain a more accurate picture of parking conditions at the Campus under "normal" (non-construction) conditions. Specifically, supplemental preconstruction data identifying on-site parking occupancy levels were obtained from a 2003 study prepared for a proposed new building on the Campus for the Northern California Institute for Research and Education (NCIRE) (VA, 2003). This information was used to help determine whether the observed occupancy levels in 2013 and 2014 represented "normal" (nonconstruction) conditions.

The 2003 NCIRE Building Study observed 99 percent occupancy of employee spaces (937 of 948 spaces) and 86 percent occupancy of patient and visitor spaces (229 of 266 spaces), for a combined

96 percent occupancy.[4] As a result, these occupancy levels generally corroborate the occupancy levels observed in 2013 and 2014. The 2013 and 2014 occupancy levels are slightly higher because of permanent changes in parking capacity that have occurred since 2003 and because of the temporary loss in parking capacity caused by construction activities on the Campus.

[4] At the time of the study in 2003, a total of 1,214 spaces were counted on the SFVAMC Fort Miley Campus: 948 employee spaces and 266 patient and visitor spaces.

3.0 Summary of Results

On-street parking spaces in the parking study area were 87 percent occupied during the morning peak period, 90 percent occupied during the midday peak period, and 73 percent occupied during the evening peak period. Specifically, on-street parking spaces directly adjacent to the Project site along the north side of Clement Street (i.e., between 45th Avenue and 42nd Avenue) were found to be between 93 percent and 100 percent occupied during the midday peak period, and between 85 percent and 100 percent occupied during the evening peak period.

On-site parking spaces were found to exhibit occupancy levels at or near 100 percent for the striped spaces during the morning and midday peak periods. Supplemental valet programs were also generally well utilized, but had capacity to accommodate additional vehicles. During the evening peak period, on-site parking spaces dropped considerably in contrast to on-street parking occupancy levels, which ranged from 85 to 100 percent occupied along Clement Street adjacent to the Project site and averaged 73 percent occupied throughout the entire Project study area.

4.0 References

U.S. Department of Veterans Affairs (VA). 2003 (February 10). VA Medical Center NCIRE Building Transportation Study—Draft. Prepared by CHS Consulting Group. San Francisco, CA.

AECOM

June 11, 2014

San Francisco VA Medical Center Long Range Development Plan

Final Parking Study – Technical Appendix

Appendix A
Existing On-Street Parking Occupancy Study

SF VAMC -- Parking Restrictions and Regulations

▪▪▪▪▪ On-Street Parking Study Area Boundary

No Parking (Street Sweeping) 2nd/4th week of the month

- TUESDAY
- WEDNESDAY
- THURSDAY
- FRIDAY

- 11AM-1PM
- 12PM-2PM
- 1PM-3PM

SF VAMC PARKING STUDY

On-Street Parking Occupancy Survey

Street	Side of Street	Supply (spaces)	Occupied Spaces			Percent Occupied			Notes
			AM (9-11am)	MIDDAY (1-3pm)	PM (7-9pm)	AM (9-11am)	MIDDAY (1-3pm)	PM (7-9pm)	
Clement Street									
between 45th Ave and Veteran's Dr (west)	north	24	4	24	24	17%	100%	100%	Street sweeping (AM)
between 45th and 44th Ave	south	6	6	6	4	100%	100%	67%	
between 44th and 43rd Ave	south	10	10	10	8	100%	100%	80%	
between Veteran's Dr (west) and Veteran's Dr (east)	north	13	2	12	11	15%	92%	85%	Street sweeping (AM)
between 43rd and 42nd Ave	south	7	7	7	7	100%	100%	100%	
between Veteran's Dr (east) and 39th Ave	north	43	38	40	23	88%	93%	53%	Street sweeping (AM)
between 42nd and 41st Ave	south	11	10	8	7	91%	73%	64%	
between 41st and 40th Ave	south	10	9	10	5	90%	100%	50%	PM (+1 Motorcycle)
between 40th and 39th Ave	south	8	8	9	8	100%	113%	100%	
Point Lobos Avenue									
between 45th and 44th Ave	north	5	5	4	4	100%	80%	80%	
	south	8	7	1	5	88%	13%	63%	
between 44th and 43rd Ave	north	7	7	3	2	100%	43%	29%	Bus Stop (Muni 38, 38AX, 38L)
	south	7	7	3	4	100%	43%	57%	
between 43rd and 42nd Ave	north	7	6	6	4	86%	86%	57%	
	south	18	16	8	6	89%	44%	33%	Walgreen's customer parking
between 42nd and 41st Ave	north	4	4	3	2	100%	75%	50%	Bus Stop (Muni 38, 38AX, 38L)
	south	4	4	4	3	100%	100%	75%	
between 41st and 40th Ave	north	9	8	9	2	89%	100%	22%	
	south	8	8	8	7	100%	100%	88%	
Geary Boulevard									
between 45th and 44th Ave	north	11	9	10	9	82%	91%	82%	
	south	6	5	5	6	83%	83%	100%	
between 44th and 43rd Ave	north	11	10	10	9	91%	91%	82%	
	south	10	10	6	10	100%	60%	100%	
between 43rd and 42nd Ave	north	15	14	15	11	93%	100%	73%	Walgreen's customer parking
	south	8	8	7	7	100%	88%	88%	
between 42nd and 41st Ave	north	7	7	7	7	100%	100%	100%	PM (+1 Motorcycle)
	south	0	0	0	1				Bus Stop (Muni 38, 38L)
between 41st and 40th Ave	north	14	12	14	8	86%	100%	57%	
	south	10	8	4	10	80%	40%	100%	
between 40th and 39th Ave	north	4	4	3	5	100%	75%	125%	Bus Stop (Muni 38, 38AX, 38L)
	south	4	4	3	4	100%	75%	100%	Bus Stop (Muni 38, 38L)
45th Avenue									
between Clement St and Point Lobos Ave	east	13	11	10	10	85%	77%	77%	
	west	12	10	12	11	83%	100%	92%	
between Point Lobos Ave and Geary Blvd	east	8	8	6	8	100%	75%	100%	
	west	9	8	10	6	89%	111%	67%	

SF VAMC PARKING STUDY

On-Street Parking Occupancy Survey

Street	Side of Street	Supply (spaces)	Occupied Spaces			Percent Occupied			Notes
			AM (9-11am)	MIDDAY (1-3pm)	PM (7-9pm)	AM (9-11am)	MIDDAY (1-3pm)	PM (7-9pm)	
44th Avenue									
between Clement St and Point Lobos Ave	east	10	10	10	10	100%	100%	100%	
	west	12	10	12	9	83%	100%	75%	
between Point Lobos Ave and Geary Blvd	east	6	6	6	5	100%	100%	83%	
	west	8	7	8	4	88%	100%	50%	
43rd Avenue									
between Clement St and Point Lobos Ave	east	18	17	18	14	94%	100%	78%	PM (+1 Motorcycle)
	west	16	15	14	13	94%	88%	81%	AM (+1 Motorcycle) , PM (+1 Motorcycle)
between Point Lobos Ave and Geary Blvd	east	4	4	3	4	100%	75%	100%	
	west	5	4	4	1	80%	80%	20%	
42nd Avenue									
between Clement St and Point Lobos Ave	east	20	19	18	17	95%	90%	85%	
	west	18	17	17	12	94%	94%	67%	
between Point Lobos Ave and Geary Blvd	east	2	2	2	2	100%	100%	100%	
	west	2	1	2	1	50%	100%	50%	
41st Avenue									
between Clement St and Point Lobos Ave	east	20	20	20	16	100%	100%	80%	
	west	20	19	20	16	95%	100%	80%	PM (+2 Motorcycle)
between Point Lobos Ave and Geary Blvd	east	2	2	2	2	100%	100%	100%	
	west	0	0	1	0				
40th Avenue									
between Clement St and Geary Blvd/Point Lobos Ave	east	24	22	24	10	92%	100%	42%	
	west	20	16	19	10	80%	95%	50%	
39th Avenue									
between Clement St and Geary Blvd	east	15	15	15	13	100%	100%	87%	AM (+1 Motorcycle), PM (+1 Motorcycle)
	west	25	23	24	20	92%	96%	80%	
TOTAL Occupied		598	523	536	437	87%	90%	73%	
TOTAL Available			75	62	161				

Appendix B
Existing On-Site Parking Occupancy Study

B A Y M E T R I C S

P A R K I N G S T A L L O C C U P A N C Y S U M M A R Y

PROJECT NAME:	SFVAMC PARKING OCCUPANCY SURVEY		
LOCATION:	4150 CLEMENT STREET, SAN FRANCISCO, CALIFORN	SURVEY DATE:	9/10/2013
SURVEY TIME:	9-11 AM; 1-3PM; 7-9PM	SURVEY DAY:	TUESDAY
JURISDICTION:	SAN FRANCISCO	FILE:	3309083-PARKING

S U R V E Y D A T A

FACILITY	TYPE	SUPPLY	OCCUPIED					
			AM		MD		PM	
			9-10	10-11	1-2	2-3	7-8	8-9
BUILDING 209 (GENERAL)	GENERAL	348	348	348	348	347	105	97
	VALET PARKING		149	149	136	133	0	0
Partially closed for construction	HANDICAP	4	4	4	4	4	2	2
	CHARGING STATION	2	2	2	2	2	3	3
	TOTAL (non-valet)	354	*354*	*354*	*354*	*353*	*110*	*102*
			100%	*100%*	*100%*	*100%*	*31%*	*29%*
	TOTAL (valet)		*149*	*149*	*136*	*133*	*0*	*0*
BUILDING 212 (GENERAL)	GENERAL	160	148	162	160	154	23	13
	VALET PARKING		12	20	27	9	0	0
	TOTAL (non-valet)	*160*	*148*	*162*	*160*	*154*	*23*	*13*
			93%	*101%*	*100%*	*96%*	*14%*	*8%*
	TOTAL (valet)		*12*	*20*	*27*	*9*	*0*	*0*
B. OPEN LOT (PATIENT & VISITOR)	GENERAL	30	30	30	30	30	20	27
	HANDICAP	45	45	45	45	45	8	11
	TOTAL (non-valet)	*75*	*75*	*75*	*75*	*75*	*28*	*38*
			100%	*100%*	*100%*	*100%*	*37%*	*51%*
C. CURB PARKING	AUTHORIZED	13	13	13	12	13	3	4
	ILLEGAL PARKED		3	4	4	4	3	10
	TOTAL (non-valet)	*13*	*16*	*17*	*16*	*17*	*6*	*14*
			123%	*131%*	*123%*	*131%*	*46%*	*108%*
D. OPEN LOT (EMPLOYEE)	GENERAL	132	130	132	131	118	30	25
	GSA	15	15	15	17	16	11	12
Lot L and some spaces at NE corner of Lot J also included in this count	VAN POOL	3	3	3	3	3	0	0
	RV SPACE	3	1	3	3	3	2	2
	ILLEGAL PARKED		4	4	6	3	1	1
	TOTAL (non-valet)	*153*	*153*	*157*	*160*	*143*	*44*	*40*
			100%	*103%*	*105%*	*93%*	*29%*	*26%*
E. OPEN LOT (EMPLOYEE)	GENERAL	9	9	9	9	9	6	8
	HANDICAP	20	20	20	20	20	10	11
Partially closed / reconfigured for construction	ILLEGAL PARKED		3	1	3	4	3	2
	TOTAL (non-valet)	*29*	*32*	*30*	*32*	*33*	*19*	*21*
			110%	*103%*	*110%*	*114%*	*66%*	*72%*
F. OPEN LOT	CLOSED FOR CONSTRUCTION							
G. OPEN LOT (EMPLOYEE)	GENERAL	49	49	48	48	43	26	27
	HANDICAP	1	1	1	1	1	0	0
Partially closed for construction	TOTAL (non-valet)	*50*	*50*	*49*	*49*	*44*	*26*	*27*
			100%	*98%*	*98%*	*88%*	*52%*	*54%*
H. CURB PARKING (PATIENT)	WHITE CURVE	16	16	16	16	16	7	5
	MRI	2	2	2	2	1	0	0
	TOTAL (non-valet)	*18*	*18*	*18*	*18*	*17*	*7*	*5*
			100%	*100%*	*100%*	*94%*	*39%*	*28%*
J. OPEN LOT	CLOSED FOR CONSTRUCTION; Some spaces at NE corner still available for use counted with Lot D							
K. OPEN LOT	CLOSED FOR TEMPORARY MODULAR SPACE							
L. OPEN LOT	COUNTED WITH LOT D							
TOTAL (non-valet)		852	846	862	864	836	263	260
			99%	101%	101%	98%	31%	31%
TOTAL (valet)			161	169	163	142	0	0

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

Adjustments and notes by AECOM.

Supply may not exactly match LRDP existing inventory due to restriping / reconfiguration or closure of some spaces due to construction activities, ADA compliance, or other factors.

Appendix F
Project Travel Demand

ITE Land Use	ITE Trip Rate				In / Out Rate			
	Weekday Daily	Weekday AM Peak Hour	Weekday PM Peak Hour	Unit	Weekday AM Peak Hour In	Weekday AM Peak Hour Out	Weekday PM Peak Hour In	Weekday PM Peak Hour Out
Motel (320)	5.63	0.45	0.47	room	36%	64%	54%	46%
Hospital (610)	13.22	1.12	0.93	1,000 GSF	59%	41%	42%	58%
Nursing Home (620)	7.60	0.55	0.74	1,000 GSF	71%	29%	52%	48%
Office Building (710)	11.03	1.55	1.49	1,000 GSF	88%	12%	17%	83%
Medical-Dental Office	36.13	2.39	3.57	1,000 GSF	79%	21%	28%	72%
Research & Developm	8.11	1.22	1.07	1,000 GSF	83%	17%	15%	85%

AVO	1.08

Alternative 1 Near-Term (Phase 1)

Phase	Proposed Action	Action	Gross Area (sq ft) New SF	Gross Area (sq ft) Demo SF	Gross Area (sq ft) Net New	ITE Land Use	Independent Variable		Vehicle-Trips Daily	Vehicle-Trips Weekday AM Peak Hour In	Vehicle-Trips Weekday AM Peak Hour Out	Vehicle-Trips Weekday AM Peak Hour Total	Vehicle-Trips Weekday PM Peak Hour In	Vehicle-Trips Weekday PM Peak Hour Out	Vehicle-Trips Weekday PM Peak Hour Total	Person-Trips Daily	Person-Trips Weekday AM Peak Hour In	Person-Trips Weekday AM Peak Hour Out	Person-Trips Weekday AM Peak Hour Total	Person-Trips Weekday PM Peak Hour In	Person-Trips Weekday PM Peak Hour Out	Person-Trips Weekday PM Peak Hour Total
1.1	Building 211: Emergency Operations	Construction	5,000		5,000																	
1.2	Trailer 17	Removal		(1,700)	(1,700)	Research & D	(1.7)	1,000 GSF	(14)	(2)	(0)	(2)	(0)	(2)	(2)	(15)	(2)	(0)	(2)	(0)	(2)	(2)
	Building 41: Research	Construction	14,200		14,200	Research & D	14.2	1,000 GSF	115	14	3	17	2	13	15	124	16	3	19	2	14	16
1.3	Buildings 5 and 7	Seismic Retrofit																				
1.4	Buildings 9 and 10	Seismic Retrofit																				
	Building 22: Hoptel	Construction	8,700		8,700	Motel (320)	8.0	room	45	1	2	4	2	2	4	49	1	2	4	2	2	4
1.5	Buildings 209 and 211: Parking Gara	Construction																				
1.6	Building 203: C-Wing Extension (Gro	Construction	7,100		7,100	Hospital (610)	7.1	1,000 GSF	94	5	3	8	3	4	7	101	5	4	9	3	4	7
1.7	Building 200: Expansion (Operating R	Construction	5,300		5,300	Hospital (610)	5.3	1,000 GSF	70	4	2	6	2	3	5	76	4	3	6	2	3	5
1.8	Building 20	Demolition		(2,300)	(2,300)																	
	Building 24: Mental Health Clinical Ex	Construction	15,600		15,600	Hospital (610)	15.6	1,000 GSF	206	10	7	17	6	8	15	223	11	8	19	7	9	16
1.9	Building 18	Demolition		(9,700)	(9,700)	Research & D	(9.7)	1,000 GSF	(79)	(10)	(2)	(12)	(2)	(9)	(10)	(85)	(11)	(2)	(13)	(2)	(10)	(11)
	Building 14	Demolition		(6,400)	(6,400)	Research & D	(6.4)	1,000 GSF	(52)	(6)	(1)	(8)	(1)	(6)	(7)	(56)	(7)	(1)	(8)	(1)	(6)	(7)
	Building 21	Demolition		(1,700)	(1,700)	Research & D	(1.7)	1,000 GSF	(14)	(2)	(0)	(2)	(0)	(2)	(2)	(15)	(2)	(0)	(2)	(0)	(2)	(2)
	Trailer 23	Removal		(900)	(900)	Research & D	(0.9)	1,000 GSF	(7)	(1)	(0)	(1)	(0)	(1)	(1)	(8)	(1)	(0)	(1)	(0)	(1)	(1)
	Structure 206: Water Tower	Installation																				
	Structure 206: Water Tower	Removal																				
	Building 40: Research	Construction	110,000		110,000	Research & D	110.0	1,000 GSF	892	111	23	134	18	100	118	963	120	25	145	19	108	127
1.10	Building 207: Expansion (IT Support	Construction	7,000		7,000	Office Buildin	7.0	1,000 GSF	77	10	1	11	2	9	10	83	10	1	12	2	9	11
1.11	Trailer 31	Removal		(1,500)	(1,500)	Hospital (610)	(1.5)	1,000 GSF	(20)	(1)	(1)	(2)	(1)	(1)	(1)	(21)	(1)	(1)	(2)	(1)	(1)	(2)
	Building 43:Research and Admin.	Construction	15,000		15,000	Research & D	15.0	1,000 GSF	122	15	3	18	2	14	16	131	16	3	20	3	15	17
1.12	Trailer 36: New Modular	Installation	2,200		2,200	Research & D	2.2	1,000 GSF	18	2	0	3	0	2	2	19	2	0	3	0	2	3
1.13	Building 23: Mental Health Research	Construction	15,000		15,000	Research & D	15.0	1,000 GSF	122	15	3	18	2	14	16	131	16	3	20	3	15	17
1.14	Building 203: Extension (Psychiatric I	Construction	1,200		1,200	Hospital (610)	1.2	1,000 GSF	16	1	1	1	0	1	1	17	1	1	1	1	1	1
1.15	Trailer 24	Removal		(1,000)	(1,000)	Medical-Denta	(1.0)	1,000 GSF	(36)	(2)	(1)	(2)	(1)	(3)	(4)	(39)	(2)	(1)	(3)	(1)	(3)	(4)
	Building 208: Extension (Community	Construction	10,000		10,000	Nursing Home	10.0	1,000 GSF	76	4	2	6	4	4	7	82	4	2	6	4	4	8
1.16	Building 8	Seismic Retrofit																				
	Building 1	Seismic Retrofit																				
	Building 6	Seismic Retrofit																				
1.17	Building 12	Demolition		(38,900)	(38,900)	Research & D	(38.9)	1,000 GSF	(315)	(39)	(8)	(47)	(6)	(35)	(42)	(341)	(43)	(9)	(51)	(7)	(38)	(45)
	Total		**216,300**	**-64,100**	**152,200**				**1,316**	**129**	**38**	**167**	**33**	**115**	**148**	**1,421**	**140**	**41**	**180**	**36**	**124**	**159**

Land Use	Person-Trips Weekday Daily	Person-Trips Weekday PM
R&D	850	112
Hotel	49	4
Office	83	11
Hospital	356	24
Nursing Home	82	8
Total	**1,421**	**159**

Alternative 1 Long-Term (Phase 2)

Phase	Proposed Action	Action	Gross Area (sq ft) New SF	Gross Area (sq ft) Demo SF	Gross Area (sq ft) Net New	ITE Land Use	Independent Variable		Vehicle-Trips Daily	Vehicle-Trips Weekday AM Peak Hour In	Vehicle-Trips Weekday AM Peak Hour Out	Vehicle-Trips Weekday AM Peak Hour Total	Vehicle-Trips Weekday PM Peak Hour In	Vehicle-Trips Weekday PM Peak Hour Out	Vehicle-Trips Weekday PM Peak Hour Total	Person-Trips Daily	Person-Trips Weekday AM Peak Hour In	Person-Trips Weekday AM Peak Hour Out	Person-Trips Weekday AM Peak Hour Total	Person-Trips Weekday PM Peak Hour In	Person-Trips Weekday PM Peak Hour Out	Person-Trips Weekday PM Peak Hour Total
2.1	Bldng 213 - Clinical Addition	Construction	170,000		170,000	Medical-Denta	170.0	1,000 GSF	6,142	321	85	406	170	437	607	6,633	347	92	439	184	472	655
	Total		**170,000**	**0**	**170,000**				**6,142**	**321**	**85**	**406**	**170**	**437**	**607**	**6,633**	**347**	**92**	**439**	**184**	**472**	**655**
	Alternative 1 Total		**386,300**	**-64,100**	**322,200**				**7,458**	**450**	**123**	**573**	**203**	**552**	**755**	**8,055**	**487**	**133**	**619**	**219**	**596**	**815**

Land Use	Person-Trips Weekday Daily	Person-Trips Weekday PM
R&D		
Hotel		
Office		
Hospital	6,633	655
Nursing Home		
Total	**6,633**	**655**

Alternative 3 Near-Term (Phase 1)

Phase	Proposed Action	Action	Gross Area (sq ft) New SF	Gross Area (sq ft) Demo SF	Gross Area (sq ft) Net New	ITE Land Use	Independent Variable		Vehicle-Trips Daily	Vehicle-Trips Weekday AM Peak Hour In	Vehicle-Trips Weekday AM Peak Hour Out	Vehicle-Trips Weekday AM Peak Hour Total	Vehicle-Trips Weekday PM Peak Hour In	Vehicle-Trips Weekday PM Peak Hour Out	Vehicle-Trips Weekday PM Peak Hour Total	Person-Trips Daily	Person-Trips Weekday AM Peak Hour In	Person-Trips Weekday AM Peak Hour Out	Person-Trips Weekday AM Peak Hour Total	Person-Trips Weekday PM Peak Hour In	Person-Trips Weekday PM Peak Hour Out	Person-Trips Weekday PM Peak Hour Total
1.1	Building 211: Emergency Operations	Construction	5,000		5,000																	
1.2	Trailer 17	Removal		(1,700)	(1,700)	Research & D	(1.7)	1,000 GSF	(14)	(2)	(0)	(2)	(0)	(2)	(2)	(15)	(2)	(0)	(2)	(0)	(2)	(2)
	Building 41: Research	Construction	14,200		14,200	Research & D	14.2	1,000 GSF	115	14	3	17	2	13	15	124	16	3	19	2	14	16
1.3	Buildings 5 and 7	Seismic Retrofit																				
1.4	Buildings 9 and 10	Seismic Retrofit																				
	Building 22: Hoptel	Construction	8,700		8,700	Motel (320)	8.0	room	45	1	2	4	2	2	4	49	1	2	4	2	2	4
1.5	Buildings 209 and 211: Parking Gara	Construction																				
1.6	Building 203: C-Wing Extension (Gro	Construction	7,100		7,100	Hospital (610)	7.1	1,000 GSF	94	5	3	8	3	4	7	101	5	4	9	3	4	7
1.7	Building 200: Expansion (Operating R	Construction	5,300		5,300	Hospital (610)	5.3	1,000 GSF	70	4	2	6	2	3	5	76	4	3	6	2	3	5
1.8	Building 20	Demolition		(2,300)	(2,300)																	
	Building 24: Mental Health Clinical Ex	Construction	15,600		15,600	Hospital (610)	15.6	1,000 GSF	206	10	7	17	6	8	15	223	11	8	19	7	9	16
1.9	Building 18	Demolition		(9,700)	(9,700)	Research & D	(9.7)	1,000 GSF	(79)	(10)	(2)	(12)	(2)	(9)	(10)	(85)	(11)	(2)	(13)	(2)	(10)	(11)
	Building 14	Demolition		(6,400)	(6,400)	Research & D	(6.4)	1,000 GSF	(52)	(6)	(1)	(8)	(1)	(6)	(7)	(56)	(7)	(1)	(8)	(1)	(6)	(7)
	Building 21	Demolition		(1,700)	(1,700)	Research & D	(1.7)	1,000 GSF	(14)	(2)	(0)	(2)	(0)	(2)	(2)	(15)	(2)	(0)	(2)	(0)	(2)	(2)
	Trailer 23	Removal		(900)	(900)	Research & D	(0.9)	1,000 GSF	(7)	(1)	(0)	(1)	(0)	(1)	(1)	(8)	(1)	(0)	(1)	(0)	(1)	(1)
	Structure 206: Water Tower	Installation																				
	Structure 206: Water Tower	Removal																				
	Building 40: Research	Construction	110,000		110,000	Research & D	110.0	1,000 GSF	892	111	23	134	18	100	118	963	120	25	145	19	108	127
1.10	Building 207: Expansion (IT Support	Construction	7,000		7,000	Office Buildin	7.0	1,000 GSF	77	10	1	11	2	9	10	83	10	1	12	2	9	11
1.11	Trailer 31	Removal		(1,500)	(1,500)	Hospital (610)	(1.5)	1,000 GSF	(20)	(1)	(1)	(2)	(1)	(1)	(1)	(21)	(1)	(1)	(2)	(1)	(1)	(2)
	Building 43:Research and Admin.	Construction	15,000		15,000	Research & D	15.0	1,000 GSF	122	15	3	18	2	14	16	131	16	3	20	3	15	17
1.12	Trailer 36: New Modular	Installation	2,200		2,200	Research & D	2.2	1,000 GSF	18	2	0	3	0	2	2	19	2	0	3	0	2	3
1.13	Building 23: Mental Health Research	Construction	15,000		15,000	Research & D	15.0	1,000 GSF	122	15	3	18	2	14	16	131	16	3	20	3	15	17
1.14	Building 203: Extension (Psychiatric I	Construction	1,200		1,200	Hospital (610)	1.2	1,000 GSF	16	1	1	1	0	1	1	17	1	1	1	1	1	1
1.15	Trailer 24	Removal		(1,000)	(1,000)	Medical-Denta	(1.0)	1,000 GSF	(36)	(2)	(1)	(2)	(1)	(3)	(4)	(39)	(2)	(1)	(3)	(1)	(3)	(4)
	Building 208: Extension (Community	Construction	10,000		10,000	Nursing Home	10.0	1,000 GSF	76	4	2	6	4	4	7	82	4	2	6	4	4	8
1.16	Building 8	Seismic Retrofit																				
	Building 1	Seismic Retrofit																				
	Building 6	Seismic Retrofit																				
1.17	Building 12	Demolition		(38,900)	(38,900)	Research & D	(38.9)	1,000 GSF	(315)	(39)	(8)	(47)	(6)	(35)	(42)	(341)	(43)	(9)	(51)	(7)	(38)	(45)
	Total		**216,300**	**-64,100**	**152,200**				**1,316**	**129**	**38**	**167**	**33**	**115**	**148**	**1,421**	**140**	**41**	**180**	**36**	**124**	**159**

Land Use	Person-Trips Weekday Daily	Person-Trips Weekday PM
R&D	850	112
Hotel	49	4
Office	83	11
Hospital	356	24
Nursing Home	82	8
Total	**1,421**	**159**

Alternative 3 Long-Term (Phase 2)

Phase	Proposed Action	Action	Gross Area (sq ft) New SF	Gross Area (sq ft) Demo SF	Gross Area (sq ft) Net New	ITE Land Use	Independent Variable		Vehicle-Trips Daily	Vehicle-Trips Weekday AM Peak Hour In	Vehicle-Trips Weekday AM Peak Hour Out	Vehicle-Trips Weekday AM Peak Hour Total	Vehicle-Trips Weekday PM Peak Hour In	Vehicle-Trips Weekday PM Peak Hour Out	Vehicle-Trips Weekday PM Peak Hour Total	Person-Trips Daily	Person-Trips Weekday AM Peak Hour In	Person-Trips Weekday AM Peak Hour Out	Person-Trips Weekday AM Peak Hour Total	Person-Trips Weekday PM Peak Hour In	Person-Trips Weekday PM Peak Hour Out	Person-Trips Weekday PM Peak Hour Total
2.1	Ambulatory Care Center	Construction	140,000		140,000	Medical-Denta	140.0	1,000 GSF	5,058	264	70	335	140	360	500	5,463	285	76	361	151	389	540
	Total		**140,000**	**0**	**140,000**				**5,058**	**264**	**70**	**335**	**140**	**360**	**500**	**5,463**	**285**	**76**	**361**	**151**	**389**	**540**
	Alternative 3 Total		**356,300**	**-64,100**	**292,200**				**6,374**	**394**	**108**	**502**	**173**	**474**	**647**	**6,884**	**425**	**116**	**542**	**187**	**512**	**699**

Land Use	Person-Trips Weekday Daily	Person-Trips Weekday PM
R&D	0	0
Hotel		
Office		
Hospital	5,463	540
Nursing Home		
Total	**5,463**	**540**

Appendix G

Project Vehicle Parking Demand and Planning Code Requirements

ITE Land Use	ITE Parking Rate		Adjustments		Equivalent Rate
	Weekday Peak Hour	Unit	*SF Guidelines* Auto Share	*SF Guidelines* AVO	
Motel (320)	0.71	room	54%	1.59	0.41
University / College (550)	1.2	1,000 GSF	53%	1.41	0.69
Hospital (610)	3.7	1,000 GSF	54%	1.83	2.16
Nursing Home (620)	0.98	1,000 GSF	54%	1.59	0.57
Office Building (701)	2.47	1,000 GSF	45%	1.06	1.20
Medical-Dental Office Building (720)	3.2	1,000 GSF	54%	1.83	1.87
MB: Medical-Dental Office Building (720)	3.2	room	61%	1.96	2.09
MB: University / College (550)	1.2	1,000 GSF	69%	1.45	0.89

Land Use	Planning Code Requirement		
	Rate	Minimum	Unit
Offices or stuc	1.0	5.0	1,000 GSF
Medical or der	3.3	5.0	1,000 GSF
Residential ca	1.0	10.0	1,000 GSF

Alternative 1 Near-Term (Phase 1)

Phase	Proposed Action	ITE Land Use	Independent Variable		Parking Demand	Land Use	Independent Variable		Parking Demand
1.1	Building 211: Emergency Operations	Center / Parking Garage							
1.2	Trailer 17	University / College (550)	(1.7)	1,000 GSF	(1)	Offices or stuc	(1.7)	1,000 GSF	
	Building 41: Research	University / College (550)	14.2	1,000 GSF	9	Offices or stuc	12.5	1,000 GSF	13
1.3	Buildings 5 and 7								
1.4	Buildings 9 and 10								
	Building 22: Hoptel	Motel (320)	8.0	room	3	Residential ca	8.7	1,000 GSF	0
1.5	Buildings 209 and 211: Parking Garage	Extensions							
1.6	Building 203: C-Wing Extension (Gro	Hospital (610)	7.1	1,000 GSF	14	Medical or der	7.1	1,000 GSF	24
1.7	Building 200: Expansion (Operating F	Hospital (610)	5.3	1,000 GSF	11	Medical or der	5.3	1,000 GSF	18
1.8	Building 20								
	Building 24: Mental Health Clinical E	Hospital (610)	15.6	1,000 GSF	31	Medical or der	15.6	1,000 GSF	52
1.9	Building 18	University / College (550)	(9.7)	1,000 GSF	(6)	Offices or stuc	(9.7)	1,000 GSF	
	Building 14	University / College (550)	(6.4)	1,000 GSF	(4)	Offices or stuc	(6.4)	1,000 GSF	
	Building 21	University / College (550)	(1.7)	1,000 GSF	(1)	Offices or stuc	(1.7)	1,000 GSF	
	Trailer 23	University / College (550)	(0.9)	1,000 GSF	(1)	Offices or stuc	(0.9)	1,000 GSF	
	Structure 206: Water Tower								
	Structure 206: Water Tower								
	Building 40: Research	University / College (550)	110.0	1,000 GSF	70	Offices or stuc	91.3	1,000 GSF	91
1.10	Building 207: Expansion (IT Support	Office Building (701)	7.0	1,000 GSF	8	Offices or stuc	7.0	1,000 GSF	7
1.11	Trailer 31	Hospital (610)	(1.5)	1,000 GSF	(3)	Medical or der	(1.5)	1,000 GSF	0
	Building 43:Research and Admin.	University / College (550)	15.0	1,000 GSF	10	Offices or stuc	15.0	1,000 GSF	15
1.12	Trailer 36: New Modular	University / College (550)	2.2	1,000 GSF	1	Offices or stuc	2.2	1,000 GSF	0
1.13	Building 23: Mental Health Research	University / College (550)	15.0	1,000 GSF	10	Offices or stuc	15.0	1,000 GSF	15
1.14	Building 203: Extension (Psychiatric	Hospital (610)	1.2	1,000 GSF	2	Medical or der	1.2	1,000 GSF	0
1.15	Trailer 24	Medical-Dental Office Building (720)	(1.0)	1,000 GSF	(2)	Medical or der	(1.0)	1,000 GSF	0
	Building 208: Extension (Community	Nursing Home (620)	10.0	1,000 GSF	5	Residential ca	10.0	1,000 GSF	10
1.16	Building 8								
	Building 1								
	Building 6								
1.17	Building 12	University / College (550)	(38.9)	1,000 GSF	(25)	Offices or stuc	(38.9)	1,000 GSF	(39)
	Total				**132**				**206**

Alternative 1 Long-Term (Phase 2)

Phase	Proposed Action	ITE Land Use	Independent Variable		Parking Demand	Land Use	Independent Variable		Parking Demand
2.1	Blding 213 - Clinical Addition	Medical-Dental Office Building (720)	170.0	1,000 GSF	295	Medical or der	170.0	1,000 GSF	567
	Total				**295**				**567**

Alternative 1 Total	**426**		**773**

Alternative 3 Near-Term (Phase 1)

Phase	Proposed Action	ITE Land Use	Independent Variable		Parking Demand	Land Use	Independent Variable		Parking Demand
1.1	Building 211: Emergency Operations	Center / Parking Garage							
1.2	Trailer 17	University / College (550)	(1.7)	1,000 GSF	(1)	Offices or stuc	(1.7)	1,000 GSF	
	Building 41: Research	University / College (550)	14.2	1,000 GSF	9	Offices or stuc	12.5	1,000 GSF	13
1.3	Buildings 5 and 7								
1.4	Buildings 9 and 10								
	Building 22: Hoptel	Motel (320)	8.0	room	3	Residential ca	8.7	1,000 GSF	0
1.5	Buildings 209 and 211: Parking Garage	Extensions							
1.6	Building 203: C-Wing Extension (Gro	Hospital (610)	7.1	1,000 GSF	14	Medical or der	7.1	1,000 GSF	24
1.7	Building 200: Expansion (Operating F	Hospital (610)	5.3	1,000 GSF	11	Medical or der	5.3	1,000 GSF	18
1.8	Building 20								
	Building 24: Mental Health Clinical E	Hospital (610)	15.6	1,000 GSF	31	Medical or der	15.6	1,000 GSF	52
1.9	Building 18	University / College (550)	(9.7)	1,000 GSF	(6)	Offices or stuc	(9.7)	1,000 GSF	
	Building 14	University / College (550)	(6.4)	1,000 GSF	(4)	Offices or stuc	(6.4)	1,000 GSF	
	Building 21	University / College (550)	(1.7)	1,000 GSF	(1)	Offices or stuc	(1.7)	1,000 GSF	
	Trailer 23	University / College (550)	(0.9)	1,000 GSF	(1)	Offices or stuc	(0.9)	1,000 GSF	
	Structure 206: Water Tower								
	Structure 206: Water Tower								
	Building 40: Research	University / College (550)	110.0	1,000 GSF	70	Offices or stuc	91.3	1,000 GSF	91
1.10	Building 207: Expansion (IT Support	Office Building (701)	7.0	1,000 GSF	8	Offices or stuc	7.0	1,000 GSF	7
1.11	Trailer 31	Hospital (610)	(1.5)	1,000 GSF	(3)	Medical or der	(1.5)	1,000 GSF	0
	Building 43:Research and Admin.	University / College (550)	15.0	1,000 GSF	10	Offices or stuc	15.0	1,000 GSF	15
1.12	Trailer 36: New Modular	University / College (550)	2.2	1,000 GSF	1	Offices or stuc	2.2	1,000 GSF	0
1.13	Building 23: Mental Health Research	University / College (550)	15.0	1,000 GSF	10	Offices or stuc	15.0	1,000 GSF	15
1.14	Building 203: Extension (Psychiatric	Hospital (610)	1.2	1,000 GSF	2	Medical or der	1.2	1,000 GSF	0
1.15	Trailer 24	Medical-Dental Office Building (720)	(1.0)	1,000 GSF	(2)	Medical or der	(1.0)	1,000 GSF	0
	Building 208: Extension (Community	Nursing Home (620)	10.0	1,000 GSF	5	Residential ca	10.0	1,000 GSF	10
1.16	Building 8								
	Building 1								
	Building 6								
1.17	Building 12	University / College (550)	(38.9)	1,000 GSF	(25)	Offices or stuc	(38.9)	1,000 GSF	(39)
	Total				**132**				**206**

Alternative 3 Long-Term (Phase 2)

Phase	Proposed Action	ITE Land Use	Independent Variable		Parking Demand	Land Use	Independent Variable		Parking Demand
2.1	Ambulatory Care Center	MB: Medical-Dental Office Building (720)	140.0	room	271	Medical or der	140.0	1,000 GSF	467
						Offices or stuc	0.0	1,000 GSF	0
	Total				**271**				**467**

Alternative 3 Total	**403**

Appendix H

On-Site Circulation Optional Recommendations (Memorandum)

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Memorandum

To	Allan Federman, COR & Project Manager	Pages	5
Subject	Final SFVAMC Fort Miley Campus On-site Circulation Optional Recommendations		
From	Carol Shariat, TE, Senior Transportation Engineer, and Anthony Mangonon, Transportation Planner		
Cc	Ross Goddard, Tim Erney, Kelsey Bennett, and David Reel		
From	June 11, 2014		

This memo provides suggested design elements and recommendations for consideration by the U.S. Department of Veterans Affairs (VA) as part of the long-term planning for the San Francisco Veterans Affairs Medical Center (SFVAMC) Fort Miley Campus. This memo suggests potential changes to elements such as bike, pedestrian, and vehicular routes; parking; gates; and bus stops that could be considered as VA continues to design circulation and related infrastructure on the Campus. In addition, potential travel demand management strategies are included for VA's consideration.

#	Design Element	Optional Recommendations
1	**Bike routes**	• Bike routes should be clearly defined and marked within the internal roadway system, and bike roadway signs should be placed where clearly visible to both bicyclists and motor vehicles for visitors/employees using alternative modes of transportation. Class I bike paths or Class II bike lanes within the site should be considered to increase alternative modes of travel and decrease automobile use. Ideally, bike circulation within the Campus should be limited and cyclists should be encouraged to exit the roadways and access bike parking facilities as early as possible. • To minimize the conflict between bicyclists and visitors/patients, cyclists should not be allowed to ride along the open space areas where elderly or sick patients are walking or where passengers are alighting from bus, taxi, or public drop-off facilities.

#	Design Element	Optional Recommendations
2	**Pedestrian routes**	• Pedestrian routes should be well defined and identifiable within the internal roadway system and parking areas. Safe pedestrian paths of travel should be clearly marked with way-finding signage to and from and within the parking and drop-off areas. In addition, the preferred pedestrian access points to and from the Campus should be clearly demarcated.
3	**Fort Miley Circle—mixture of drop-off activities** It is understood that the new traffic circle proposed at the west end of Fort Miley Circle will be accessed by Muni buses, shuttle buses, taxis and public visitors dropping off and picking up patients, reconfigured from the existing configuration. This is desirable because the traffic circle is located near the Patient Welcome Center entrance and is a convenience for visitors. However, this arrangement may cause congestion and conflicts to arise because of the parking maneuvers of many different vehicles. Muni or shuttle bus services may have difficulty circulating and accessing their designated bus stop areas because a variety of public vehicle or taxi parking activities may be occurring in a small space. This may cause buses to be delayed and obstructed from exiting the traffic circle.	• Before the traffic circle is designed, a layout should be developed that optimizes the pick-up/drop-off area for transit, taxis, shuttles, and patients. Pick-up/drop-off zones should be established for each user within the circle with well-designed signage for each designated area. • The traffic circle radius should be designed such that Muni or other large buses can easily maneuver around the circle.
4	**90-degree parking on Veterans Drive** Veterans Drive will be required to carry reasonably high traffic volumes at certain periods of the day, and to accommodate shuttle bus movements, taxis, delivery trucks, and fire access. Given that reversing maneuvers out of 90-degree parking typically take about 20–30 seconds, there is the potential for delays to these vehicles.	To alert drivers that slowdowns may occur as they enter parking areas, the following measures could be implemented: • Speed bumps could be installed ahead of the first perpendicular spaces on Campus, such as before Parking Area G and south of Parking Lot B, to reduce vehicle speeds in these areas. • Signs should be installed informing vehicles that perpendicular parking spaces are located ahead and that vehicles may be backing up. • Angled parking could also be considered; however, a reduction in spaces would result.

#	Design Element	Optional Recommendations
5	**Intersection of Fort Miley Circle/Veterans Drive/Parking Lot B** This intersection will accommodate a complex mixture of traffic movements to/from several directions. Traffic can veer to/from Veterans Drive or Parking Lot B from the same general location off the Fort Miley Circle roadway. Both of these access roads provide two-way access and intersect with two-way traffic movements accessing the traffic circle.	• It is recommended that priority be given to movements along Fort Miley Circle to ensure that the potentially congested traffic circle area can clear of traffic as quickly as possible. Thus, a stop sign should be added on Veterans Drive for vehicles traveling southbound on Veterans Drive.
6	**Golden Gate National Recreation Area (GGNRA) vehicle access driveway** In addition to the complex number of traffic movements associated with the proposed intersection of Fort Miley Circle/Veterans Drive, the only vehicle access route into the GGNRA is the driveway connected to this intersection located south of Lot 212. Furthermore, this driveway increases the complexity and potential confusion at this intersection.	• It is recommended that consideration be given to removing this driveway access from the site and constructing a new driveway access point off of Clement Street for GGNRA vehicles at a location east of the Campus or a new driveway located off of Camino del Mar. This would separate the truck movements from other traffic movements at this intersection, reducing confusion. • It is recommended that VA work closely with the GGNRA to understand the volume and types of trucks that must access this driveway each day to determine the full extent of the impact of this driveway if it remains within the Campus. Truck turning templates should be developed to confirm whether trucks will be unable to complete this movement in one maneuver and to ascertain how many maneuvers this movement may require.
7	**Employee gates** A gate-control system is being considered for installation south of Parking Lot 209 and northeast of Building 6 to restrict these sections of Veterans Drive to VA employees only. It is possible that the delays experienced by employees at the "gates" may result in the spill-back of traffic queues onto the public sections of Veterans Drive, which may delay shuttle bus services and other vehicle movements and block access to/from parking spaces.	• It is recommended that the "gates" be installed in a location that allows two to four vehicles to queue, and thus does not block the access to other internal roadways or disrupt shuttle bus and other traffic movements. • Signs should be installed that clearly designate employee parking versus visitor/patient parking. • Gate mechanisms and operating plans should be developed so that traffic continues to flow quickly forward and result in less queuing.

#	Design Element	Optional Recommendations
8	**Shuttle bus stops** Shuttle bus stops will be provided between Buildings 208 and 209 and within the traffic circle outside the Patient Welcome Center.	• Shuttle bus stops should be clearly designated and separated from taxi zones or drop-off areas to ensure that taxis or other vehicles do not spill over into the shuttle bus stop areas. • Pedestrian safety should be prioritized in any locations where they are required to cross the street to access stops. Safe, clearly signed and controlled crossing facilities should be provided. • Traffic calming measures such as speed bumps should be put in place to ensure particularly low-speed environments at bus stops and crossing facilities where pedestrians circulate.
9	**Travel demand management (TDM) strategies** It is recommended that a TDM strategy for the SFVAMC Fort Miley Campus be developed to reduce the car dependency of employees of and visitors to the site and lower parking requirements for personal vehicles. This may have the ability to be successful in reducing the volume of traffic accessing the site, improving circulation efficiency and encouraging use of transit, shuttles, and carpooling.	A TDM strategy for the Campus should be developed. To be most successful, it is recommended that the strategy concentrate on targeting employees who are regular visitors to the site. Employees should specifically be encouraged to use alternatives instead of driving personal vehicles. A SFVAMC directive should be established that makes it easy to use transit/walk/bike or carpool to travel to/from the Campus each day. With mobility options, employees and visitors are more inspired to change their travel and behavior patterns. Programs could include: • Car-share vehicles located on-site. • Designated secure bike parking and shower/change room facilities. • Shuttle buses to surrounding commercial districts at lunch and dinner times. • Internal bike-share and car-share program available for employees to travel to meetings or lunch destinations. • Transit subsidies for employees.

Appendix I

Construction Traffic and Parking Management Plan (Memorandum)

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Memorandum

To	Allan Federman, Project Manager/COR	Pages	22
Subject	San Francisco Veterans Affairs Medical Center (Fort Miley Campus) Long Range Development Plan—Construction Traffic and Parking Management Plan		
From	Anthony Mangonon Carol Shariat, PE		
Cc	Kelsey Bennett, MPA, LEED-AP David Reel Tim Erney, AICP, PTP		
Date	December 19, 2014		

This memorandum constitutes the proposed traffic and parking management plan for the Fort Miley Campus (Campus) of the San Francisco Veterans Affairs Medical Center (SFVAMC) during construction of the proposed Long Range Development Plan (LRDP). This plan identifies haul truck routes that would be used and estimates the haul truck and construction worker traffic that would be generated during the construction phases. This plan also identifies overflow parking and other management strategies that would accommodate the estimated temporary traffic and parking demand generated by construction activities and any associated temporary loss of parking supply on the Campus.[1]

Three development scenarios have been analyzed in the programmatic environmental review of the LRDP:

- Alternative 1: SFVAMC Fort Miley Campus Buildout Alternative 1 (Preferred Alternative)

  Alternative 1 proposes 554,452 gross square feet of net new development at the Campus, along with seismic upgrades to various existing structures on the Campus in one short-term phase (Phase 1) and one long-term phase (Phase 2). In terms of habitable building inventory, Alternative 1 proposes 386,300 square feet of new construction and demolition of 64,100 square feet in existing facilities, resulting in 322,200 gross square feet of net new development.

- Alternative 2: SFVAMC Fort Miley Campus Buildout Alternative 2

  Alternative 2 is identical to Alternative 1 in terms of the total amount and type of operational space proposed, but would involve different phasing and implementation schedules for some components of the LRDP, resulting in a different, longer construction schedule.

- Alternative 3: SFVAMC Fort Miley Campus Plus Mission Bay Campus Alternative

  Alternative 3 retains all of the short-term (Phase 1) components of Alternative 1, but would locate all of the long-term (Phase 2) components off Campus at an unknown site, to be determined and purchased later by VA, within the Mission Bay area of San Francisco (the "Mission Bay Campus").

[1] Overflow parking and other management strategies recommended in this memorandum would likely be included as construction-traffic and parking-management mitigation measures in the traffic, circulation, and parking section of the Transportation Impact Study and Final Environmental Impact Statement (EIS) for the SFVAMC LRDP.

This plan focuses primarily on Alternative 1 and Alternative 2, but also includes a supplementary section discussing Alternative 3.

Construction-Related Haul Truck Routes

Haul trucks traveling to and from the Campus during construction would be expected to use truck traffic routes established by the San Francisco Municipal Transportation Agency (SFMTA, i.e., Muni). SFMTA has developed the *San Francisco Truck Traffic Routes* map (SFMTA, 2010), a conceptual route map of truck traffic routes in San Francisco, for inclusion by the City and County of San Francisco (City) in its next general plan update. Based on this map, large trucks would be expected to use the following routes:

- *From points north of the Campus:* United States Highway 101 (U.S. 101) → State Route 1 (SR 1) (Veterans Boulevard/Park Presidio Boulevard) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue

- *From points south of the Campus:* Interstate 280 (I-280) → SR 1 (Junipero Serra Boulevard/19th Avenue/Crossover Drive/Park Presidio Boulevard) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue; or, alternatively, U.S. 101 (Bayshore Freeway/Central Freeway) → Mission Street → U.S. 101 (Van Ness Avenue) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue

- *From points east of the Campus:* Interstate 80 (I-80) → U.S. 101 (Central Freeway) → Mission Street → U.S. 101 (Van Ness Avenue) → Geary Boulevard → Point Lobos Avenue → 42nd Avenue or 43rd Avenue

These routes are illustrated in **Figure 1**.

Recommended Measures

Only a combination of these three identified haul routes should be used for LRDP construction-related activities. SFVAMC and its construction contractors should monitor arrivals to ensure that haul trucks do not queue up and idle on the Campus or on adjacent or nearby streets. An adequate monitoring and queue-abatement program would be necessary to limit potential construction-related traffic, air, noise, vibration, and visual impacts on workers, visitors, neighbors, and business personnel at the site and in the vicinity.

Construction-Related Traffic and Parking Demand

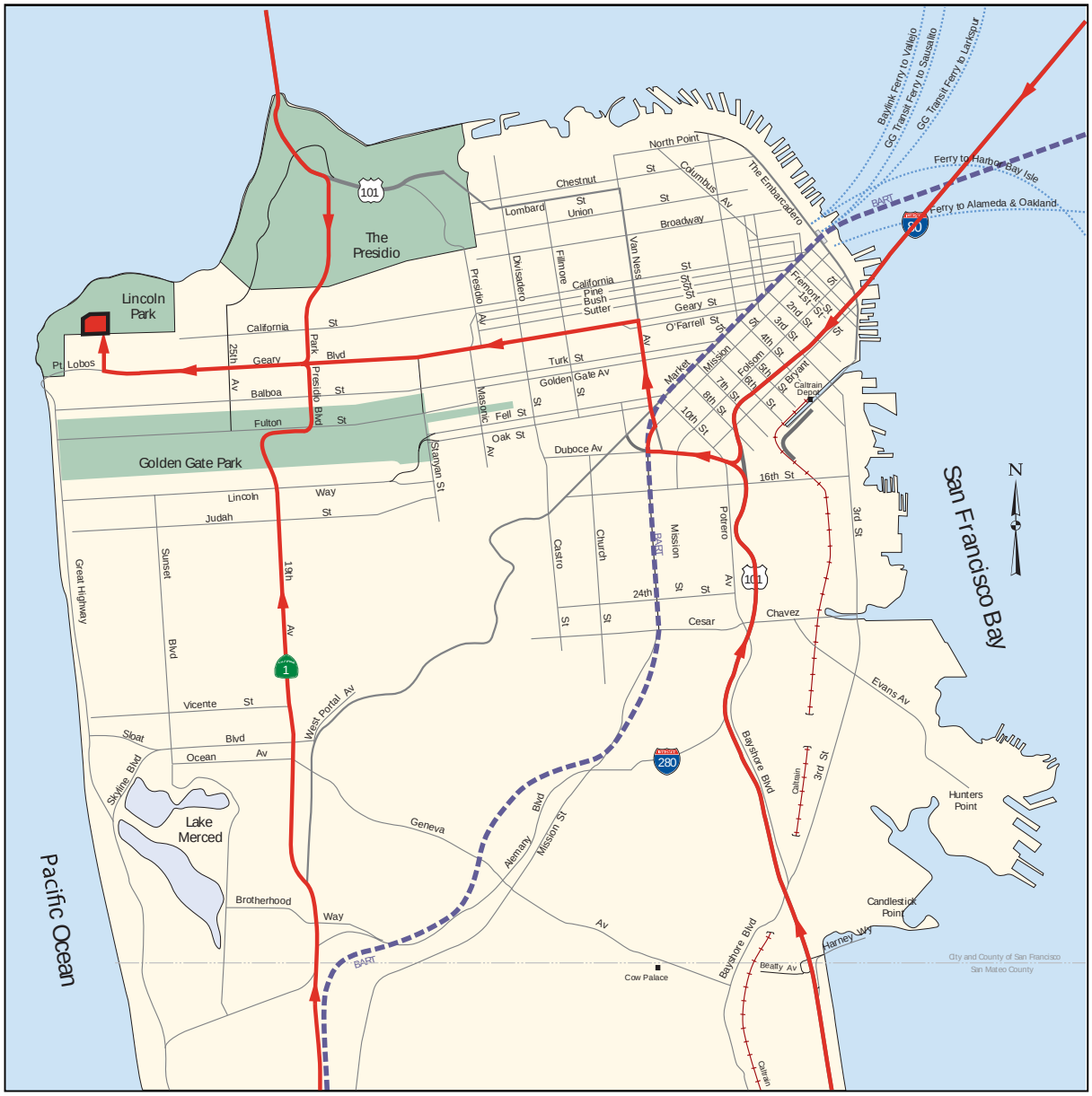
Construction-Period Parking Capacity

To implement some of the subphases identified in the LRDP, portions of the on-Campus parking areas may require temporary conversion for various construction-related activities such as excavation, staging of equipment and materials, and installation of temporary modular structures for a limited time period. These activities would result in a temporary loss of on-site parking capacity. When combined with increased parking demand on the site from construction workers, vendors, and other construction-related traffic, they would generally intensify the parking situation at the Campus.

To alleviate some of the loss in parking capacity during on-Campus construction SFVAMC would provide valet parking at other on-site facilities, such as Building 209 and Building 212. This solution has been effectively implemented for other construction projects. To better accommodate existing parking demand through on-site

capacity, the LRDP proposes to continue providing valet parking until the end of construction of Subphase 1.9 (i.e., through December 2018). This measure would partially offset the temporary loss in parking capacity and reduce spillover effects into the surrounding neighborhood.

Figure 1: Haul Truck Routes



Source: Data compiled by AECOM, 2014.

As described previously, Alternative 1 and Alternative 2 would be equivalent in terms of gross square footage, building locations, and intended building function in the LRDP horizon year (2030), but would have different construction phasing plans, schedules, and temporary modular swing-space programs. **Table 1** and **Table 2** summarize the construction schedules and changes in on-site parking capacity at the Campus for each subphase of the LRDP for Alternative 1 and Alternative 2, respectively.

Table 1: On-Site Parking Capacity by Subphase (Alternative 1)

Phase	Building	Action	Parking Change (spaces)			Construction Schedule	
			Temporary		Permanent		
			Loss	Gain	Net Gain after Completion	Start	Finish
1.1	Building 211: *Emergency Operations Center/Parking Garage*	Construction	(277)	180[1]	200	Jul 2013	Jul 2014
1.2	Trailer 17	Removal				Dec 2013	Jan 2014
	Building 41: *Research*	Construction				Jan 2014	Mar 2015
1.3	Buildings 5 and 7	Retrofit				Mar 2014	May 2015
1.4	Buildings 9 and 10	Retrofit				Mar 2014	May 2015
	Building 22: *Hoptel*	Construction				Mar 2014	May 2015
1.5	Buildings 209 and 211: *Parking Garage Extensions*	Construction	(29)	–	250	Mar 2015	Mar 2016
1.6	Building 203: *C-Wing Extension (Ground-Floor Patient Welcome Center)/Drop-Off Area with Canopy Structure*	Construction				Jun 2015	Aug 2016
1.7	Building 200: *Expansion (Operating Room D-Wing)*	Construction				Jun 2015	Jun 2016
1.8	Building 20	Demolition				Aug 2015	Sep 2015
	Building 24: *Mental Health Clinical Expansion*	Construction				Sep 2015	Oct 2016
1.9	Building 18	Demolition				Sep 2015	Dec 2015
	Building 14	Demolition				Sep 2015	Dec 2015
	Building 21	Demolition				Sep 2015	Dec 2015
	Trailer 23	Removal				Sep 2015	Dec 2015
	Structure 206: *Water Tower*	Installation				Sep 2015	Dec 2015
	Structure 206: *Water Tower*	Removal				Sep 2015	Dec 2015
	Building 40: *Research*	Construction				Dec 2015	Dec 2018
1.10	Building 207: *Expansion (IT Support Space)*	Construction				Nov 2015	Jan 2017
1.11	Trailer 31	Removal				Nov 2015	Dec 2015
	Building 43: *Research and Administration*	Construction				Dec 2015	Feb 2017
1.12	Trailer 36: *New Modular*	Installation				Jun 2016	Sep 2016
1.13	Building 23: *Mental Health Research Expansion*	Construction				Oct 2016	Dec 2017
1.14	Building 203: *Extension (Psychiatric Intensive Care Unit C-Wing)*	Construction				Dec 2016	Jun 2018
1.15	Trailer 24	Removal				Dec 2016	Feb 2017
	Building 208: *Extension (Community Living Center/ National Cardiac Device Surveillance Center)*	Construction				Feb 2017	Aug 2018
1.16	Buildings 1, 6, and 8	Retrofit				Jul 2017	Mar 2019
1.17	Building 12	Demolition	(23)	–	–	Sep 2019	Aug 2020
2.1	Building 213: *Clinical Addition Building*	Construction				Mar 2024	Mar 2026
	Modular Swing Space (multiple locations)[2]		(102)	–	–	Apr 2016	Mar 2019

Sources: VA, 2014; data compiled by AECOM, 2014.

Notes:

IT = information technology

Changes to on-site parking capacity shown only for the associated subphases in which the change first occurs.

[1] Temporary valet parking to be in effect until the end of Subphase 1.9 in December 2018.

[2] The construction schedule cited for swing space represents the full period of time that the parking loss would be in effect, and accounts for installation, (temporary) operation, and removal of the modular structures. Swing space for Alternative 1 would be situated in four different locations as indicated in Figure 3-2 of the LRDP:

- Parking Lot B
- Near Parking Lot K
- At Temporary Structure T-31 (Home-Based Primary Care), near Building 4 (Research/Administration)
- West of the Patient Welcome Center, between Building 200 (Ambulatory Care/Clinical Support) and Building 203 (Inpatient Hospital/Diagnostics/Specialty Care)

Table 2: On-Site Parking Capacity by Subphase (Alternative 2)

Phase	Building	Action	Parking Change (spaces)			Construction Schedule	
			Temporary		Permanent		
			Loss	Gain	Net Gain after Completion	Start	Finish
1.1	Building 211: *Emergency Operations Center/Parking Garage*	Construction	(277)	180[1]	200	Jul 2013	Jul 2014
1.2	Trailer 17	Removal				Dec 2013	Jan 2014
	Building 41: *Research*	Construction				Jan 2014	Mar 2015
1.3	Buildings 5 and 7	Retrofit				Mar 2014	May 2015
1.4	Buildings 9 and 10	Retrofit				Mar 2014	May 2015
	Building 22: *Hoptel*	Construction				Mar 2014	May 2015
1.5	Buildings 209 and 211: *Parking Garage Extensions*	Construction	(29)	–	250	Mar 2015	Mar 2016
1.6	Building 203: *C-Wing Extension (Ground-Floor Patient Welcome Center)/Drop-Off Area with Canopy Structure*	Construction				Jun 2015	Aug 2016
1.7	Building 200: *Expansion (Operating Room D-Wing)*	Construction				Jun 2015	Jun 2016
1.8	Building 20	Demolition				Aug 2015	Sep 2015
	Building 24: *Mental Health Clinical Expansion*	Construction				Sep 2015	Oct 2016
1.9	Building 18	Demolition				Sep 2015	Dec 2015
	Building 14	Demolition				Sep 2015	Dec 2015
	Building 21	Demolition				Sep 2015	Dec 2015
	Trailer 23	Removal				Sep 2015	Dec 2015
	Structure 206: *Water Tower*	Installation				Sep 2015	Dec 2015
	Structure 206: *Water Tower*	Removal				Sep 2015	Dec 2015
	Building 40: *Research*	Construction				Dec 2015	Sep 2018
1.10	Building 207: *Expansion (IT Support Space)*	Construction				Nov 2015	Jan 2017
1.11	Trailer 31	Removal				Nov 2015	Dec 2015
	Building 43: *Research and Administration*	Construction				Dec 2015	Feb 2017
1.12	Trailer 36: *New Modular*	Installation				Jun 2016	Sep 2016
1.13	Building 23: *Mental Health Research Expansion*	Construction				Oct 2016	Dec 2017
1.14	Building 203: *Extension (Psychiatric Intensive Care Unit C-Wing)*	Construction				Dec 2016	Jun 2018
1.15	Trailer 24	Removal				Dec 2016	Feb 2017
	Building 208: *Extension (Community Living Center/ National Cardiac Device Surveillance Center)*	Construction				Feb 2017	Aug 2018
1.16	Building 12	Demolition	(23)	–	–	Nov 2018	Oct 2019
2.1	Building 8	Retrofit				Oct 2020	Dec 2021
2.2	Building 1	Retrofit				Oct 2020	Jun 2022
2.3	Building 6	Retrofit				Jun 2022	Feb 2024
2.4	Building 213: *Clinical Addition Building*	Construction				Mar 2024	Mar 2026
	Modular Swing Space (single location)[2]					Sep 2020	Feb 2024

Sources: VA, 2014; data compiled by AECOM, 2014.

Notes:
IT = information technology
Changes to on-site parking capacity shown only for the associated subphase in which the change first occurs.

1 Temporary valet parking to be in effect until the end of Subphase 1.9 in December 2018.

2 The construction schedule cited for swing space accounts for installation, (temporary) operation, and removal of the modular structures. Swing space for Alternative 2 would be situated at the location of the current Building 12 and future Building 213, as indicated in Figure 3-6 of the LRDP.

Figure 2 and **Figure 3** illustrate the Phase 1 plan and Phase 2 plan, respectively, of Alternative 1. **Figure 4** and **Figure 5** illustrate the Phase 1 plan and Phase 2 plan, respectively, of Alternative 2. Referenced from the LRDP, these figures illustrate LRDP projects on the Campus by building/action type (new construction, expansion, retrofit, modular, and demolition/removal) and indicate the locations of temporary modular swing space.

Construction Traffic Estimation Methodology

Detailed construction plans have not yet been developed for most of the subphases identified in the LRDP. As a result, estimates of traffic during construction of various subphases are currently unavailable. To prepare this construction traffic and parking management plan, and to perform necessary air quality and noise analyses for the LRDP Final EIS, AECOM estimated construction traffic based on the California Emissions Estimator Model (CalEEMod) Version 2013.2.2, the accepted model for modeling construction-related air quality and greenhouse gas emissions in California (CAPCOA 2013). This methodology is discussed in more detail below.

Estimates of trips by both vendors/haul trucks and construction workers were developed separately based on the CalEEMod methodology, combined with some general assumptions:

- *Building envelope (volume):* Estimates of building envelope (volume) were developed by taking the building footprint and multiplying by the estimated building height, based on the number of stories and standard building height estimation factors from the Council on Tall Buildings and Urban Habitat.

- *Haul truck capacity:* Each haul truck was assumed to have a capacity of 20 cubic yards, a standard size.

- *Construction duration:* Estimates were developed on a monthly basis, and construction was assumed to take place Monday through Friday.

Vendor/Haul Truck Trips

Estimates of vendor/haul truck traffic were developed for four unique construction scenarios:

- *Demolition:* Total demolition debris was assumed to be 25 percent of the building envelope, with haul trucks to export debris arriving throughout the demolition phase.

- *Seismic retrofit:* Haul truck activity for seismic retrofit projects was assumed to be equivalent to haul truck activity for demolition (i.e., removing most of the interior of the building). This is a conservative assumption, given some unknown factors related to design and construction activities.

- *Construction:* Haul truck activity for construction projects was calculated according to CalEEMod standard vendor-truck trip rates (0.1069 trip per day per unit for residential uses and 0.1639 trip per day per 1,000 square feet for commercial/retail and office/industrial uses).[2]

[2] Although the proposed hoptel (Building 22) could in some ways be considered a residential land use, the estimates of construction traffic conservatively assumed that construction of the hoptel would generate haul truck activity at trip rates equivalent to construction of commercial/retail or office/industrial uses. Consequently, all projects in the LRDP were assumed to generate haul truck activity at the commercial/retail and office/industrial rate of 0.1639 trip per day per 1,000 square feet.

Figure 2: Alternative 1, Phase 1 Plan

Source: VA, 2014.

Figure 3: Alternative 1, Phase 2 Plan

Source: VA, 2014.

Figure 4: Alternative 2, Phase 1 Plan

Source: VA, 2014.

Figure 5: Alternative 2, Phase 2 Plan

Source: VA, 2014.

- *Removal or installation:* Haul truck activity for removal or installation of trailers or nonbuilding structures such as water towers was assumed to be equivalent to haul truck activity for demolition or construction of permanent buildings. This is a conservative assumption because most trailers would likely be prefabricated units delivered to the site in a mostly finished state. Average trailer height was assumed to be approximately 12 feet.

Additional adjustments to the construction traffic estimates were made to account for major earthwork/grading (cut-and-fill) activities associated with Building 23 (Mental Health Research Expansion), Building 40 (Research), and Building 213 (Clinical Addition Building).

Construction Worker Trips

Estimates of construction traffic generated by workers traveling to and from the site were developed using CalEEMod standard methodologies for each of six different construction phases:

- demolition,
- site preparation,
- grading,
- building construction,
- architectural coating, and
- asphalt paving.

For the demolition, site preparation, grading, and asphalt paving phases, construction worker trips were estimated based on the number of pieces of heavy-duty construction equipment required (excavators, graders, bulldozers, concrete/industrial saws, tractors/loaders/backhoes, scrapers, pavers, cement/mortar mixers, and rollers and other paving equipment). This was estimated for each project according to CalEEMod tables that relate equipment needs to approximate project acreage. A worker-to-equipment ratio of 1.25 was assumed, and each worker was assumed to make two trips per day (one commuting to the site and one returning home).

For the building construction phase, construction worker trips were estimated according to CalEEMod standard construction worker vehicle-trip factors[3]:

- Multifamily residential: 0.72 trip per day per unit;
- Single-family residential: 0.36 trip per day per unit;
- Commercial or retail: 0.32 trip per day per 1,000 square feet; and
- Office or industrial: 0.42 trip per day per 1,000 square feet.

For the architectural coating phase, construction worker trips were assumed to be approximately 20 percent of construction worker trips during the building construction phase, based on CalEEMod recommended guidelines.

In accordance with CalEEMod methodology, the duration of each of the six phases for a given project was estimated according to the approximate total acreage involved.

[3] Although the proposed hoptel (Building 22) could in some ways be considered a residential land use, the estimates of construction traffic assumed that construction of the hoptel would generate construction worker trips at trip rates equivalent to construction of office or industrial uses, consistent with the estimation of haul truck activity. Consequently, all projects in the LRDP were assumed to generate haul truck activity at the office or industrial rate of 0.42 trip per 1,000 square feet.

Construction Traffic Estimates: Alternative 1

Table 3 and **Table 4** summarize the estimated traffic volume generated by LRDP construction activities on the Campus for Phase 1 and Phase 2, respectively, of Alternative 1, according to the methodology described in the preceding subsection.

As shown in **Table 3** and **Table 4**, vendor and haul truck traffic under Alternative 1 would peak at 36 vehicles (72 trips) per day in December 2015 for Phase 1 and April 2024 for Phase 2. Construction worker trips under Alternative 1 would peak at 72 vehicles (144 trips) per day in December 2015. As a result, construction activities under Alternative 1 would generate their maximum traffic volumes in December 2015, with as many as 108 vehicles (216 trips) in one day. Construction traffic in other months would generally be much lower, with most months generating a maximum traffic volume that would not exceed 50 vehicles (100 trips) in one day.

As summarized in **Table 1**, the pending completion of Building 211 (Emergency Operations Center/Parking Garage) in July 2014 would increase parking capacity on the Campus by 200 spaces. The increased parking capacity is intended primarily to accommodate future growth on the Campus and existing spillover demand in the surrounding residential neighborhoods; however, the completion of Building 211 would likely be able to accommodate most of the temporary parking demand generated by construction-related activities.

In addition, it is anticipated that the actual maximum parking demand generated by construction-related activities on any one day during the peak construction-traffic month (December 2015) would be substantially less than 100 vehicles. In particular, although most construction workers would require parking spaces for the entire day, vendor trucks may require parking spaces for only short periods of time to deliver materials or equipment or perform contracted tasks. This may allow for some potential to share parking spaces during the day as turnover occurs. Haul trucks importing or exporting soil or debris would remain at the Campus for only short periods of time, and therefore would not be expected to require dedicated parking spaces.

SFVAMC would continue to provide valet parking until the end of Subphase 1.9 (December 2018), providing an additional 180 spaces of parking capacity even after Building 211 has been completed but before the full LRDP has been implemented. Therefore, there would likely be sufficient on-site parking capacity to accommodate the estimated temporary increase in parking demand that would result from construction-related activities. The subsequent (March 2015) completion of the Building 209 and Building 211 extensions under Subphase 1.5 would further increase on-site parking capacity by 250 spaces, which would likely be sufficient to accommodate the parking demand generated by construction of subsequent subphases of the LRDP.

Recommended Measures

It is recommended that SFVAMC conduct supplementary surveys of parking occupancy several weeks after completion of Building 211 to determine the utilization of the new parking structure and overall occupancy of on-site facilities throughout the day. The survey should also consider on-street parking in the surrounding area to estimate how much spillover demand has been “recaptured” on the site as a result of the increased parking supply. As construction plans for specific subphases of the LRDP are developed, construction contractors should work with SFVAMC to compare its own estimates of construction-related traffic and parking demand to the estimated parking capacity and surveyed occupancy levels, to determine whether temporary measures are required to mitigate expected parking constraints.

Table 3: Construction-Related Traffic Volumes (Alternative 1, Phase 1)

Vehicle-Trip Type	2013											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips							2	2	2	2	2	4
Worker Trips							20	4	4	4	4	4
Total							22	6	6	6	6	8

Vehicle-Trip Type	2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	6	6	8	16	16	14	14	14	14	14	14	14
Worker Trips	26	10	50	66	16	30	10	10	10	10	10	10
Total	32	16	58	82	32	44	24	24	24	24	24	24

Vehicle-Trip Type	2015											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	14	10	20	10	10	14	14	19	33	33	53	72
Worker Trips	12	24	58	92	36	76	44	54	98	82	102	144
Total	26	34	78	102	46	90	58	73	131	115	155	216

Vehicle-Trip Type	2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	44	34	34	34	34	32	30	30	26	42	30	30
Worker Trips	120	102	76	78	92	74	88	70	80	84	70	104
Total	164	136	110	112	126	106	118	100	106	126	100	134

Vehicle-Trip Type	2017											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	26	28	28	28	28	28	28	28	62	62	58	58
Worker Trips	78	80	64	64	64	64	74	90	114	106	116	96
Total	104	108	92	92	92	92	102	118	176	168	174	154

Vehicle-Trip Type	2018											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	58	58	58	56	56	54	54	54	54	34	34	34
Worker Trips	96	96	98	114	116	108	108	88	98	64	64	40
Total	154	154	156	170	172	162	162	142	152	98	98	74

Vehicle-Trip Type	2019											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	34								10	10	10	10
Worker Trips	48	26							10	10	10	10
Total	82	26							20	20	20	20

Vehicle-Trip Type	2020											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	10	10	10	10	10	10	10					
Worker Trips	10	10	10	10	10	10	10					
Total	20	20	20	20	20	20	20					

Source: Data compiled by AECOM, 2014.

Note: Values are shown as one-way trips (e.g., a value of "10" represents five trips to the site and five trips from the site each day).

Table 4: Construction-Related Parking Demand (Alternative 1, Phase 2)

Vehicle-Trip Type	2024											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips			44	72	28	28	28	28	28	28	28	28
Worker Trips			18	82	72	72	72	72	72	72	72	72
Total			62	154	100	100	100	100	100	100	100	100

Vehicle-Trip Type	2025											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	28	28	28	28	28	28	28	28	28	28	28	28
Worker Trips	72	72	72	72	72	72	72	72	72	72	72	72
Total	100	100	100	100	100	100	100	100	100	100	100	100

Vehicle-Trip Type	2026											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	28											
Worker Trips	88	32										
Total	116	32										

Source: Data compiled by AECOM, 2014.
Note: Values are shown as one-way trips (e.g., a value of "10" represents five trips to the site and five trips from the site each day).

Should these coordination efforts indicate that construction activities could result in a major parking deficit on the Campus, SFVAMC could consider expanding the existing valet parking program, currently operating in Building 209 and Building 212, to the new parking structure (Building 211). Based on the estimates provided in the LRDP, Building 211 would provide a total of 461 marked spaces. However, a valet parking program for this structure could provide approximately 140 additional spaces, based on the 30 percent increase in parking efficiency documented in field surveys of parking occupancy in Building 209 conducted as part of the Transportation Impact Study for the LRDP.

An important measure that would improve parking conditions during construction activities would be for SFVAMC to require its general contractors to establish carpool/vanpool programs. Because some construction workers reside outside of San Francisco, a vanpool service could be tailored to meet worker needs by operating as a "commuter shuttle" to major transit facilities, such as the Bay Area Rapid Transit (BART) stations at Civic Center or 16th Street/Mission. To encourage transit usage among construction workers, the contractor could provide free or discounted transit passes. A vanpool service could also be implemented in conjunction with an off-site "park-and-ride" facility, affording construction workers some of the convenience of a private vehicle while reducing some of the construction-related traffic effects in the immediate vicinity of the Campus. To implement such a solution, SFVAMC could purchase property to serve this purpose, or work along with its contractor to negotiate with the relevant property owners and parking operators to lease spaces in an off-site surface lot or parking structure for a fixed period of time. The vanpool service could be contracted out to a third-party service provider, operating on a fixed schedule during the morning and evening commute periods and on an on-call basis during the midday period.

SFVAMC general contractors should also be encouraged to optimize staging-area needs and coordinate vendor arrival schedules to minimize the associated traffic and parking impacts on the Campus community and surrounding neighborhoods. As indicated in **Table 1**, Alternative 1 would include provision of temporary modular swing space in four separate locations on the Campus, including Lot B. Lot B currently provides patient and visitor parking, including most of the Campus's Americans with Disabilities Act (ADA)–compliant

spaces for patients and visitors. To be able to use this parking facility to accommodate temporary modular structures during Campus construction, replacement ADA spaces would have to be provided temporarily elsewhere on the Campus or other measures would have to be implemented to ensure ADA compliance. In particular, spaces in Building 212 could be temporarily restriped for ADA use; or a valet solution could be implemented allowing patients and visitors who require ADA accommodations to drop off and pick up their vehicles at the traffic circle outside the Patient Welcome Center.

Construction Traffic Estimates: Alternative 2

Table 5 and **Table 6** summarize the estimated traffic volumes generated by LRDP construction activities on the Campus for Phase 1 and Phase 2, respectively, of Alternative 2.

Table 5: Construction-Related Parking Demand (Alternative 2, Phase 1)

Vehicle-Trip Type	2013											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips							2	2	2	2	2	4
Worker Trips							20	4	4	4	4	4
Total							22	6	6	6	6	8

Vehicle-Trip Type	2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	6	6	8	16	16	14	14	14	14	14	14	14
Worker Trips	26	10	50	82	32	46	26	26	26	26	26	26
Total	32	16	58	98	48	60	40	40	40	40	40	40

Vehicle-Trip Type	2015											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	14	10	20	10	10	14	14	20	38	38	42	52
Worker Trips	28	40	74	92	36	76	44	54	98	82	102	96
Total	42	50	94	102	46	90	58	74	136	120	144	148

Vehicle-Trip Type	2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	72	34	34	34	34	32	30	30	26	42	30	32
Worker Trips	128	102	76	78	92	74	88	70	80	84	70	104
Total	200	136	110	112	126	106	118	100	106	126	100	136

Vehicle-Trip Type	2017											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	28	28	28	28	28	28	28	28	28	28	24	24
Worker Trips	78	80	64	64	64	64	64	64	64	66	76	56
Total	106	108	92	92	92	92	92	92	92	94	100	80

Vehicle-Trip Type	2018											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	24	24	24	22	22	22					10	10
Worker Trips	56	56	58	74	74	66	44	14			10	10
Total	80	80	83	96	96	88	44	14			20	20

Vehicle-Trip Type	2019											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	10	10	10	10	10	10	10	10	10			
Worker Trips	10	10	10	10	10	10	10	10	10			
Total	20	20	20	20	20	20	20	20	20			

Source: Data compiled by AECOM, 2014.

Note: Values are shown as round trips—one trip in the table represents one trip to the site and one trip from the site each day.

Table 6: Construction-Related Parking Demand (Alternative 2, Phase 2)

Vehicle-Trip Type	2020											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips											6	14
Worker Trips										20	54	44
Total										20	60	58

Vehicle-Trip Type	2021											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	14	14	14	14	14	14	14	14	14	14	8	8
Worker Trips	28	28	28	28	28	28	28	28	28	32	38	16
Total	42	42	42	42	42	42	42	42	42	46	46	24

Vehicle-Trip Type	2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	8	8	8	8				10	10	10	10	10
Worker Trips	16	16	16	20	22	10	26	32	22	22	22	22
Total	24	24	24	28	22	10	26	42	32	32	32	32

Vehicle-Trip Type	2023											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	10	10	10	10	10	10	10	10	10	10	10	
Worker Trips	22	22	22	22	22	22	22	22	22	22	28	24
Total	32	32	32	32	32	32	32	32	32	32	38	24

Vehicle-Trip Type	2024											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips					72	28	28	28	28	28	28	28
Worker Trips	18		14	22	90	72	72	72	72	72	72	72
Total	18		14	22	162	100	100	100	100	100	100	100

Vehicle-Trip Type	2025											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips	28	28	28	28	28	28	28	28	28	28	28	28
Worker Trips	72	72	72	72	72	72	72	72	72	72	72	88
Total	100	100	100	100	100	100	100	100	100	100	100	116

Vehicle-Trip Type	2026											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips												
Worker Trips	32	16										
Total	32	16										

Source: Data compiled by AECOM, 2014.
Note: Values are shown as round trips—one trip in the table represents one trip to the site and one trip from the site each day.

As indicated in **Table 5** and **Table 6**, vendor and haul truck traffic under Alternative 2 would peak at 36 vehicles (72 trips) per day in January 2016 for Phase 1 and May 2024 for Phase 2. Construction worker trips under Alternative 2 would peak at 64 vehicles (128 trips) per day in January 2016. As a result, construction activities under Alternative 2 would generate their maximum traffic volumes in January 2016, with as many as 100 vehicles (200 trips) in one day. Construction traffic in other months would generally be much lower, with most months generating a maximum traffic volume that would not exceed 50 vehicles (100 trips) in one day.

Overall, LRDP construction-related activities on the Campus would generate lower maximum traffic levels under Alternative 2 than under Alternative 1. As a result, parking conditions are expected to be less constrained than under Alternative 1. The overall difference in maximum traffic levels would be relatively small—less than a 10 percent difference in traffic volumes during the peak month of construction traffic.

Recommended Measures

The recommendations identified for Alternative 1, to conduct detailed parking-occupancy surveys after the completion of Building 211 and potentially implement carpool/vanpool programs for construction workers, would also hold for Alternative 2.

Construction-Related Effects on Campus Circulation

It is anticipated that LRDP construction activities would take place primarily Monday through Friday between 7:30 a.m. and 6:00 p.m. Any Saturday work is assumed to occur between 8:00 a.m. and 4:00 p.m. on an as-needed basis, in compliance with the San Francisco Noise Control Ordinance (Article 29 of the Police Code) (City and County of San Francisco 2014) and San Francisco Department of Building Inspection permit conditions.

It is anticipated that no regular travel lanes or Muni bus stops would need to be closed or relocated during the LRDP construction period.

Under Alternative 1, temporary modular swing space would be located at four separate sites, including Lot B on the east side of the Campus. The east side of the Campus serves as the primary access for patients and visitors, and features most of the Campus's accommodations for on-site parking for these users. Circulation in this part of the Campus would likely be affected by a combination of three factors: temporary conversion of Lot B to accommodate modular swing space, curbside parking activities along the east side of Veterans Drive adjacent to Building 8 (Mental Health) and Building 9 (Hoptel), and increased Campus traffic during construction. Any effects of construction-related traffic on Campus circulation could also be amplified if construction activities were to occur simultaneously and/or close to each other.

Recommended Measures

Should construction activities require the closure of sidewalks or other pedestrian facilities within or outside of the Campus, protective measures should be implemented and equipment placed to ensure pedestrian safety. In high-conflict areas (either vehicle/pedestrian or vehicle/vehicle) such as access gates into construction sites, flag workers should be deployed to minimize traffic and pedestrian disruption and ensure the safety of Campus users.

Should it be determined that any travel lanes would require closure during construction, the lane closures should be coordinated with the City to minimize impacts on local traffic. In general, temporary traffic and transportation changes must be coordinated through SFMTA's Interdepartmental Staff Committee on Traffic and Transportation and require a public meeting. As part of this process, the construction management plan may be reviewed by SFMTA's Transportation Advisory Committee to resolve internal differences between different transportation modes. SFVAMC would follow the *Regulations for Working in San Francisco Streets* ("The Blue Book") (SFMTA, 2012) and would reimburse SFMTA for the costs of installation and removal of temporary striping and signage changes required during project construction.

SFVAMC and its construction contractors would need to meet with SFMTA, the San Francisco Fire Department, the San Francisco Planning Department, and other City agencies to determine feasible measures to reduce any construction-related effects, including any potential transit disruption and pedestrian circulation impacts during LRDP construction. To this effect, SFVAMC and its construction contractor(s) should consider implementing the following measures:

- Schedule most construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours.
- Develop on-site detour routes to facilitate traffic movement through construction zones.
- Where feasible, temporarily restripe roadways—such as turn lanes, through lanes, and parking lanes—at affected locations to minimize driver confusion and optimize traffic flow.
- Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures.
- Post signage to encourage drivers to proceed at slower, safer travel speeds through construction zones.
- Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures.

Under Alternative 1, SFVAMC should also prepare and implement measures to minimize effects on circulation for traffic, transit, bicycles, pedestrians, and emergency vehicles in and around Lot B while temporary modular swing space occupies this site. Lot B and the adjacent section of Veterans Drive are currently designed with a one-way circulation pattern: northbound traffic along the east edge of the lot, southbound traffic along the west side of the lot. The presence of modular structures at this location, existing curbside parking activities, and the loss of parking capacity at Lot B could cause a temporary disruption of circulation through this part of the Campus. Potential measures could include the following:

- Enhancing signage and striping to reinforce the current one-way circulation pattern around Lot B
- Discouraging illegal parking, either curbside along the east side of Veterans Drive adjacent to Building 8 and Building 9 or elsewhere in and around Lot B
- Temporarily relocating curbside parking along the east side of Veterans Drive to other parts of the Campus
- Temporarily converting any remaining parking spaces in Lot B from perpendicular parking to parallel parking

Pedestrian crossings at blind spots or in locations with limited visibility for drivers (such as between modular structures) should also be discouraged, or should be properly designed with high-visibility markings and signage that force drivers to slow or stop. Adequate access for ambulances carrying patients to the Campus and emergency vehicles responding to on-Campus emergencies should be preserved at all times. During the construction planning process, SFVAMC and the general contractors should discuss the specific details of temporary measures to address any potential effects on Campus circulation. The magnitude of such effects can be more readily ascertained at that time.

Alternative 2 would include the provision of temporary modular swing space at a single location at the site of the current Building 12 and future Building 213. However, measures similar to those cited above for Alternative 1 should be implemented as needed to minimize the effects of construction-related activities on traffic, transit, bicycle, pedestrian, and emergency vehicle circulation. In particular, measures should be taken to ensure adequate safety and access for pedestrians crossing between Building 12 and surrounding facilities such as Building 200, Building 203, and Building 208. In addition, illegal parking should be discouraged, and existing perpendicular parking may need to be converted to parallel parking or closed temporarily to minimize effects on Campus circulation.

Construction-related activities occurring simultaneously and/or close to each other on the Campus under either Alternative 1 or Alternative 2 could amplify the effects of these activities on overall Campus circulation. For example, the construction of the Building 209 and Building 211 extensions under Subphase 1.5 (March 2015 to March 2016) would partially overlap with the construction of Building 40 under Subphase 1.9 (December 2015 through December 2018). The close proximity of these two sites may affect the constructability of on-Campus haul truck routes. In these cases, SFVAMC should serve as a liaison between the various general contractors for each construction project so that construction activities can be more effectively coordinated to minimize secondary effects on Campus circulation. SFVAMC should collaborate with contractors to secure adequate haul truck access and minimize disruption of access by Campus users, and should consider a variety of potential solutions such as limiting haul truck access to specific Campus access points or Campus roadways. In the case of Building 40 and the Building 209 and Building 211 extensions, for example, haul trucks could be restricted to the Campus's 43rd Avenue entrance, minimizing any impacts on circulation in the Campus's Veteran/visitor zone.

Alternative 3

The preceding discussions focused on Alternative 1 and Alternative 2, which assume that future expansion needs through 2030 for SFVAMC would be met on the Fort Miley Campus. The EIS also analyzes a third action alternative, Alternative 3, in which some SFVAMC expansion needs would be met at a new SFVAMC campus elsewhere in San Francisco. Although a specific site has yet to be determined, the EIS assumes that an expansion site would be identified in the Mission Bay area of San Francisco, either on the remaining undeveloped blocks in the Mission Bay South redevelopment area or at another site in the immediate vicinity. This section discusses construction-related traffic and parking concerns for this third LRDP alternative.

Construction-Related Haul Truck Routes

Several route options would be available for haul trucks traveling to and from an extension campus in Mission Bay. Both I-80 and I-280 are designated as freight traffic routes in the *San Francisco Truck Traffic Routes* map, together with The Embarcadero/King Street, Third Street, and Mariposa Street/17th Street. Fourth Street is designated a major arterial, while Seventh Street and 16th Street are designated as secondary arterials. A specific site for an extension campus has not yet been identified, but any haul trucks importing or exporting soil would be expected to use these roadways to reach the Mission Bay area. The same recommendations identified for Alternative 1 and Alternative 2 in the preceding section would generally also hold for Alternative 3. An adequate monitoring and queue-abatement program and other measures identified for Alternative 1 and Alternative 2 should similarly be implemented for construction of an extension campus at Mission Bay.

Construction-Related Traffic and Parking Demand

Construction of an extension campus in Mission Bay would not be expected to adversely affect parking conditions at the Fort Miley Campus. Such construction could potentially improve conditions because staff members and patients at the Fort Miley Campus would be instead directed to the extension campus, reducing overall parking demand at Fort Miley. Potential issues regarding parking capacity at Mission Bay are discussed below.

Table 7 summarizes the estimated traffic volume generated by construction activities at an extension campus in the Mission Bay area. The data are shown only for Phase 2; under Alternative 3, Phase 1 of the LRDP would involve the Fort Miley Campus, so the estimated traffic volume for Phase 1 would be as described in **Table 3** for Alternative 1 and **Table 5** for Alternative 2.

Table 7: Construction-Related Parking Demand (Alternative 3)

Vehicle-Trip Type	2024											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vendor/Haul Truck Trips								26	26	26	26	26
Worker Trips								80	64	64	64	64
Total								106	90	90	90	90
Vehicle-Trip Type	**2025**											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Vendor/Haul Truck Trips	26	46	46	46	46	46	46	46	46	46	46	20
Worker Trips	64	132	116	116	116	116	116	116	116	116	130	114
Total	90	178	162	162	162	162	162	162	162	162	176	134
Vehicle-Trip Type	**2026**											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Vendor/Haul Truck Trips					34	34	34	34	34	34	34	34
Worker Trips					100	84	84	84	84	84	84	84
Total					134	118	118	118	118	118	118	118
Vehicle-Trip Type	**2027**											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Vendor/Haul Truck Trips	34	60	60	60	60	60	60	60	60	60	26	26
Worker Trips	92	158	148	148	148	148	148	148	148	166	100	112
Total	126	218	208	208	208	208	208	208	208	226	126	138

Source: Data compiled by AECOM, 2014.
Note: Values are shown as round trips—one trip in the table represents one trip to the site and one trip from the site each day.

As shown in **Table 7**, vendor and haul truck traffic at an extension campus in the Mission Bay area would peak at 30 vehicles (60 trips) per day from February through October 2027. Construction worker trips at the Mission Bay Campus would peak at 83 vehicles (166 trips) per day in October 2027. As a result, construction activities at the Mission Bay extension campus would generate their maximum traffic volumes in October 2027, with as many as 113 vehicles (226 trips) in one day. As under Alternative 1 and Alternative 2, only some of these vehicles would require dedicated parking spaces for extended periods of time during the day. Haul trucks would likely not require spaces at all, while vendor trucks could potentially share some spaces through the day as a result of parking turnover.

In addition, it is likely that an extension campus would be situated on one or more blocks in the Mission Bay South redevelopment area or the surrounding area immediately west along Seventh Street or 16th Street. Given

the size of the development blocks and the number of undeveloped parcels remaining, construction staging and parking could likely be accommodated either on the construction site itself or on previously disturbed or partially developed parcels in the immediate vicinity of the site. In addition, several high-capacity parking facilities are already completed in the Mission Bay South area:

- Third Street Garage (1630 Third Street/Mission Bay South Block 23/Assessor's Block 8711, Lot 007): 822 spaces;
- 450 South Street Garage (Mission Bay South Block 27/Assessor's Block 8721, Lot 030): 1,423 spaces; and
- 1670 Owens Street Garage (Mission Bay South Block 41/43-3/Assessor's Block 8709, Lot 022): 820 spaces.

Although these facilities are intended for use primarily by occupants of surrounding buildings and tenants such as the University of California, San Francisco (UCSF) Mission Bay Campus, temporary leases could likely be arranged to accommodate parking for construction workers, depending on proximity to a proposed SFVAMC extension campus. Should parking constraints become an issue, measures similar to those proposed for the Fort Miley Campus could be implemented, including the use of vanpools to nearby Caltrain and BART stations or off-site parking facilities.

Construction-Related Traffic, Transit, and Pedestrian Interruption

The same recommendations identified for Alternative 1 and Alternative 2 in the preceding section would generally also hold for Alternative 3. Pedestrian protection, signage, public outreach, and other measures identified for Alternative 1 and Alternative 2 should similarly be implemented on an as-needed basis for construction of an extension campus at Mission Bay.

Conclusion

As described in the preceding sections, estimates of vendor/haul truck activity and construction worker trips during each subphase of the LRDP indicate that construction activities would generate a maximum traffic volume of approximately 100 vehicles (200 trips) per day during the peak month for construction traffic, but would not exceed 50 vehicles (100 trips) per day in most months. Although some of the proposed LRDP components would result in a temporary loss in on-site parking capacity, this loss would be offset by valet parking programs in the short-term time frame and the permanent net gain in on-site parking spaces in the long-term time frame. Should parking constraints become an issue, a variety of measures are available at the disposal of SFVAMC and its contractors to minimize traffic and parking effects during construction activities, such as using a vanpool service to connect the construction site with transit stations and off-site parking facilities.

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