APPENDIX G
Transportation Impact Study for the UCSF Long Range Development Plan
This page intentionally left blank
AUGUST 2014

UCSF 2014 LONG RANGE DEVELOPMENT PLAN
Transportation Impact Study
Table of Contents

1 INTRODUCTION .............................................................................................................................................. 1
  1.1 Project Sites .................................................................................................................................................................... 1
    1.1.1 Parnassus Heights ............................................................................................................................................ 1
    1.1.2 Mission Bay ......................................................................................................................................................... 2
    1.1.3 Mount Zion ......................................................................................................................................................... 2
    1.1.4 Mission Center ................................................................................................................................................... 2
  1.2 Project Description ....................................................................................................................................................... 5
    1.2.1 Parnassus Heights ............................................................................................................................................ 5
    1.2.2 Mission Bay ...................................................................................................................................................... 10
    1.2.3 Mount Zion ...................................................................................................................................................... 14
    1.2.4 Mission Center ................................................................................................................................................ 16
    1.2.5 UCSF Transportation Demand Management ..................................................................................... 18
    1.2.6 UCSF LRDP Transportation Monitoring ................................................................................................ 18
  1.3 Report Organization ................................................................................................................................................. 19

2 EXISTING CONDITIONS ...............................................................................................................................21
  2.1 Elements of Analysis ................................................................................................................................................. 21
  2.2 UCSF Transportation Demand Management Plan ............................................................................................... 21
    2.2.1 UCSF Shuttle System .................................................................................................................................... 22
  2.3 Parnassus Heights ..................................................................................................................................................... 27
    2.3.1 Roadway Facilities ......................................................................................................................................... 27
    2.3.2 Intersection Operating Conditions ......................................................................................................... 32
    2.3.3 Transit Network .............................................................................................................................................. 38
    2.3.4 Pedestrian Circulation ............................................................................................................................. 47
    2.3.5 Bicycle Circulation ....................................................................................................................................... 50
    2.3.6 Loading Conditions ....................................................................................................................................... 53
    2.3.7 Parking Conditions ........................................................................................................................................ 55
  2.4 Mission Bay .................................................................................................................................................................. 58
    2.4.1 Roadway Facilities ........................................................................................................................................ 58
2.4.2 Intersection Operating Conditions ................................................................. 60
2.4.3 Transit Network ............................................................................................. 66
2.4.4 Pedestrian Circulation .................................................................................. 73
2.4.5 Bicycle Circulation ....................................................................................... 74
2.4.6 Loading Conditions ....................................................................................... 77
2.4.7 Parking Conditions ....................................................................................... 80
2.5 Mount Zion Campus Site .................................................................................. 82
  2.5.1 Roadway Facilities ....................................................................................... 82
  2.5.2 Intersection Operating Conditions .............................................................. 85
  2.5.3 Transit Network .......................................................................................... 89
  2.5.4 Pedestrian Circulation ................................................................................. 94
  2.5.5 Bicycle Circulation ..................................................................................... 95
  2.5.6 Loading Conditions .................................................................................... 97
  2.5.7 Parking Conditions ..................................................................................... 99
2.6 Mission Center .................................................................................................. 102
  2.6.1 Roadway Facilities ..................................................................................... 102
  2.6.2 Intersection Operating Conditions .............................................................. 105
  2.6.3 Transit Network .......................................................................................... 109
  2.6.4 Pedestrian Circulation ................................................................................. 115
  2.6.5 Bicycle Circulation ..................................................................................... 116
  2.6.6 Loading Conditions .................................................................................... 118
  2.6.7 Parking Conditions ..................................................................................... 120

3 TRAVEL DEMAND ANALYSIS ............................................................................. 122
  3.1 Trip Generation ............................................................................................... 123
    3.1.1 Trip Generation Resources ....................................................................... 123
    3.1.2 Population Assumptions and Trip Generation Rates ................................. 124
    3.1.3 Trip Generation Estimates ........................................................................ 127
    3.1.4 Net New External Vehicle Person Trips ..................................................... 128
  3.2 Person Trips for Mission Bay Site in 2015 ......................................................... 130
  3.3 Travel Mode Split .......................................................................................... 131
  3.4 Trip Distribution .............................................................................................. 134
    3.4.1 Parnassus Heights ..................................................................................... 134
3.4.2 Mission Bay .................................................................................................................................................... 137
3.4.3 Mount Zion .................................................................................................................................................... 141
3.4.4 Mission Center .............................................................................................................................................. 143
3.5 Peak Hour Trip Generation .................................................................................................................................. 145
3.6 Peak Hour Trip Assignment .................................................................................................................................. 145
3.6.1 Parnassus Heights ....................................................................................................................................... 146
3.6.2 Mission Bay .................................................................................................................................................... 147
3.6.3 Mount Zion .................................................................................................................................................... 152
3.6.4 Mission Center .............................................................................................................................................. 153
3.7 Loading Demand ................................................................................................................................................ 154
3.7.1 Passenger Loading Demand ................................................................................................................... 157
3.8 Parking Demand .................................................................................................................................................. 157
3.9 Construction Demand ........................................................................................................................................ 161
3.9.1 Parnassus Heights ....................................................................................................................................... 161
3.9.2 Mission Bay .................................................................................................................................................... 162
3.9.3 Mount Zion .................................................................................................................................................... 164
3.9.4 Mission Center .............................................................................................................................................. 165

4 TRANSPORTATION IMPACT ANALYSIS ........................................................................................................... 166
4.1 Significance Criteria ................................................................................................................................................ 166
4.1.1 Traffic ................................................................................................................................................................ 166
4.1.2 Transit ............................................................................................................................................................... 167
4.1.3 Pedestrians and Bicycles ........................................................................................................................... 167
4.1.4 Loading ............................................................................................................................................................ 167
4.1.5 Parking ............................................................................................................................................................. 167
4.1.6 Construction .................................................................................................................................................. 167
4.2 Traffic Impacts .......................................................................................................................................................... 168
4.2.1 Parnassus Heights ....................................................................................................................................... 168
4.2.2 Mission Bay .................................................................................................................................................... 175
4.2.3 Mount Zion .................................................................................................................................................... 185
4.2.4 Mission Center .............................................................................................................................................. 191
4.2.5 Summary of Traffic Impacts ..................................................................................................................... 197
4.3 Transit Impacts .................................................................................................................................................... 197
4.3.1 Parnassus Heights ....................................................................................................................................... 198
4.3.2 Mission Bay .................................................................................................................................................... 203
4.3.3 Mount Zion .................................................................................................................................................... 211
4.3.4 Mission Center .............................................................................................................................................. 215
4.4 Pedestrian Impacts.................................................................................................................................................. 218
4.4.1 Parnassus Heights ....................................................................................................................................... 218
4.4.2 Mission Bay .................................................................................................................................................... 220
4.4.3 Mission Center .............................................................................................................................................. 221
4.5 Bicycle Impacts ......................................................................................................................................................... 223
4.5.1 Parnassus Heights ....................................................................................................................................... 223
4.5.2 Mission Bay .................................................................................................................................................... 223
4.5.3 Mount Zion .................................................................................................................................................... 224
4.5.4 Mission Center .............................................................................................................................................. 225
4.6 Loading Impacts....................................................................................................................................................... 227
4.6.1 Commercial Loading .................................................................................................................................. 227
4.6.2 Passenger Loading/Unloading ............................................................................................................... 228
4.7 Parking Analysis ....................................................................................................................................................... 235
4.7.1 Changes in Parking Supply ...................................................................................................................... 235
4.7.2 Year 2015 Parking Utilization at Mission Bay ................................................................................... 238
4.7.3 Year 2040 Parking Utilization .................................................................................................................. 239
4.7.4 Parking Impacts ............................................................................................................................................ 240
4.8 Construction Impacts ............................................................................................................................................. 241
4.8.1 Parnassus Heights ....................................................................................................................................... 241
4.8.2 Mission Bay .................................................................................................................................................... 245
4.8.3 Mount Zion .................................................................................................................................................... 249
4.8.4 Mission Center .............................................................................................................................................. 251

5 CUMULATIVE CONDITIONS ..................................................................................................................... 253
5.1 Foreseeable Nearby Development Projects and Transportation Network Changes .................... 253
5.1.1 Approach ......................................................................................................................................................... 253
5.1.2 Year 2015 Conditions .................................................................................................................................. 253
5.1.3 Year 2040 Conditions .................................................................................................................................. 254
5.2 Year 2040 Traffic Impacts ..................................................................................................................................... 256
5.2.1 Parnassus Heights .................................................................................................................................257
5.2.2 Mission Bay (Year 2015) ..........................................................................................................................263
5.2.3 Mission Bay (Year 2040) ..........................................................................................................................267
5.2.4 Mount Zion ................................................................................................................................................289
5.2.5 Mission Center ...........................................................................................................................................293
5.3 Year 2040 Transit Impacts ..................................................................................................................................299
  5.3.1 SF Muni .........................................................................................................................................................299
  5.3.2 Regional Transit Service ...............................................................................................................................301
  5.3.3 UCSF Shuttle Service ..................................................................................................................................301
5.4 Year 2040 Pedestrian Impacts ..........................................................................................................................302
5.5 Year 2040 Bicycle Impacts ..................................................................................................................................303
5.6 Year 2040 Loading Impacts .............................................................................................................................304
5.7 Year 2040 Parking Impacts ..................................................................................................................................304
5.8 Year 2040 Construction Impacts .....................................................................................................................305

6 SUMMARY OF TRANSPORTATION MITIGATION AND IMPROVEMENT MEASURES .................. 306

  6.1 Mitigation Measures .........................................................................................................................................306
  6.2 Improvement Measures ....................................................................................................................................308
Appendices

Appendix A: Approved Scope of Work

Appendix B: Roadway Network Classifications (From SF General Plan)

Appendix C: Intersection Level of Service Calculations

Appendix D: Traffic Volume and Intersection Turning Movement Counts

Appendix E: Analysis Assumptions

Appendix F: Travel Demand Calculations
List of Figures

Figure 1-1: UCSF Campus Site Locations ......................................................................................................................... 3
Figure 1-2: Study Campus Sites ........................................................................................................................................ 4
Figure 1-3: Parnassus Heights Existing Site Plan .................................................................................................................. 8
Figure 1-4: Parnassus Heights Proposed Site Plan ............................................................................................................... 9
Figure 1-5: Mission Bay Existing Site Plan .......................................................................................................................... 12
Figure 1-6: Mission Bay Proposed Site Plan ...................................................................................................................... 13
Figure 1-7: Mount Zion Existing and Proposed Site Plan .................................................................................................. 15
Figure 1-8: Mission Center Existing and Proposed Site Plan ............................................................................................ 16
Figure 2-1: Existing UCSF Shuttle Routes – All Campus Sites .......................................................................................... 26
Figure 2-2: Roadway Network and Study Intersections – All Campus Sites .............................................................. 28
Figure 2-3A: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights 34
Figure 2-3B: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights 35
Figure 2-4: Existing Transit Service – Parnassus Heights .................................................................................................... 39
Figure 2-5: Daily Pedestrian Volumes: 2007 and 2013 ....................................................................................................... 48
Figure 2-6: Existing Bicycle Facilities Conditions – Parnassus Heights ........................................................................ 51
Figure 2-7: Existing Parking and Loading Conditions – Parnassus Heights ........................................................................ 54
Figure 2-8A: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ............ 62
Figure 2-8B: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ............ 63
Figure 2-9: Existing Transit Service – Mission Bay .................................................................................................................. 68
Figure 2-10: Muni Line ‘55’ Interim Service Proposal ......................................................................................................... 71
Figure 2-11: Existing Bicycle Facilities – Mission Bay ........................................................................................................... 75
Figure 2-12: Existing Parking and Loading Conditions – Mission Bay .............................................................................. 79
Figure 2-13A: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion ....... 86
Figure 2-13B: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion........ 87
Figure 2-14: Existing Transit Service– Mount Zion................................................................................. 90
Figure 2-15: Existing Bicycle Facilities – Mount Zion ........................................................................... 96
Figure 2-16: Existing Parking and Loading Conditions – Mount Zion ....................................................... 98
Figure 2-17A: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center .106
Figure 2-17B: Existing Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center .107
Figure 2-18: Existing Transit Service – Mission Center ........................................................................... 110
Figure 2-19: Existing Bicycle Facilities – Mission Center ...................................................................... 117
Figure 2-20: Existing Parking and Loading Conditions – Mission Center .............................................. 119
Figure 3-1: 2040 Net New Trip Distribution – Parnassus Heights...............................................................136
Figure 3-2: 2015 Net New Trip Distribution – Mission Bay ........................................................................138
Figure 3-3: 2040 Net New Trip Distribution – Mission Bay .......................................................................140
Figure 3-4: 2040 Net New Trip Distribution – Mount Zion.......................................................................142
Figure 3-5: 2040 Net New Trip Distribution – Mission Center .................................................................144
Figure 4-1A: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights...............................................................................................................169
Figure 4-1B: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights...............................................................................................................170
Figure 4-1C: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights...............................................................................................................171
Figure 4-1D: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights...............................................................................................................172
Figure 4-2A: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ...................................................................................................................177
Figure 4-2B: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ...................................................................................................................178
Figure 4-2C: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ...................................................................................................................179
Figure 4-2D: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ............................................................................................................................................................... 180
Figure 4-3A: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion ............................................................................................................................................................................................... 186
Figure 4-3B: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion ............................................................................................................................................................................................... 187
Figure 4-3C: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion ............................................................................................................................................................................................... 188
Figure 4-3D: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion ............................................................................................................................................................................................... 189
Figure 4-4A: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center ............................................................................................................................................................................................... 192
Figure 4-4B: Existing Plus LRDP AM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center ............................................................................................................................................................................................... 193
Figure 4-4C: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center ............................................................................................................................................................................................... 194
Figure 4-4D: Existing Plus LRDP PM Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center ............................................................................................................................................................................................... 195
Figure 5-1A: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights ............................................................................................................................................................................................... 259
Figure 5-1B: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Parnassus Heights ............................................................................................................................................................................................... 260
Figure 5-2A: Year 2015 Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ............................................................................................................................................................................................... 264
Figure 5-2B: Year 2015 Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ............................................................................................................................................................................................... 265
Figure 5-3A: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ............................................................................................................................................................................................... 269
Figure 5-3B: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Mission Bay ............................................................................................................................................................................................... 270
Figure 5-4A: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion ............................................................................................................................................................................................... 290
Figure 5-4B: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Mount Zion ............................................................................................................................................................................................... 291
Figure 5-5A: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center ............................................................................................................................................................................................... 294
Figure 5-5B: Year 2040 Intersection Lane Configurations, Traffic Control, and Volumes – Mission Center295
# List of Tables

Table 2-1: Existing UCSF TDM Program Elements ................................................................. 22
Table 2-2: UCSF Shuttles to All Campus Sites ........................................................................ 23
Table 2-3: Existing Peak Hour Intersection Level of Service - Parnassus Heights .................. 36
Table 2-4: Local Muni Operations - Parnassus Heights .......................................................... 40
Table 2-5: Peak Hour Muni Ridership - Parnassus Heights .................................................... 41
Table 2-6: Regional Transit Operations - Parnassus Heights .................................................. 45
Table 2-7: UCSF Shuttles - Parnassus Heights ....................................................................... 46
Table 2-8: Passenger and Vehicle Loading Information - Parnassus Heights ......................... 53
Table 2-9: Parnassus Heights Existing On-Street Parking Supply and Occupancy \(^1\) .................. 56
Table 2-10: Parnassus Heights Existing Off-Street Parking Supply and Occupancy \(^1\) ............... 57
Table 2-11: Existing Peak Hour Intersection Level of Service - Mission Bay ......................... 64
Table 2-12: Local Muni Operations - Mission Bay ................................................................. 66
Table 2-13: Peak Hour Muni Ridership - Mission Bay ............................................................ 67
Table 2-14: Regional Transit Operations - Mission Bay .......................................................... 72
Table 2-15: UCSF Shuttles - Mission Bay ............................................................................... 73
Table 2-16: Passenger and Vehicle Loading Information - Mission Bay ............................... 78
Table 2-17: Mission Bay Existing On-Street Parking Supply and Occupancy \(^1\) ....................... 81
Table 2-18: Mission Bay Existing Off-Street Parking Supply and Occupancy \(^1\) ..................... 82
Table 2-19: Existing Peak Hour Intersection Level of Service - Mount Zion ......................... 88
Table 2-20: Local Muni Operations - Mount Zion ................................................................. 91
Table 2-21: Peak Hour Muni Ridership - Mount Zion ............................................................ 92
Table 2-22: Regional Transit Operations - Mount Zion ........................................................ 93
Table 2-23: UCSF Shuttles - Mount Zion .............................................................................. 94
Table 2-24: Passenger and Vehicle Loading Information - Mount Zion ................................................................. 97
Table 2-25: Mount Zion Existing On-Street Parking Supply and Occupancy ............................................................. 100
Table 2-26: Mount Zion Existing Off-Street Parking Supply and Occupancy ............................................................ 101
Table 2-27: Existing Peak Hour Intersection Level of Service - Mission Center ........................................................... 108
Table 2-28: Local Muni Operations - Mission Center .................................................................................................. 111
Table 2-29: Peak Hour MUNI Ridership - Mission Center .......................................................................................... 112
Table 2-30: Regional Transit Operations - Mission Center .......................................................................................... 114
Table 2-31: UCSF Shuttles to Mission Center Campus Site - Mission Center ............................................................ 115
Table 2-32: Passenger and Vehicle Loading Information - Mission Center ............................................................. 118
Table 2-33: Mission Center Existing On-Street Parking Supply and Occupancy ........................................................ 120
Table 2-34: Mission Center Site Existing Off-Street Parking Supply and Occupancy .............................................. 121
Table 3-1: Summary of Growth in Average daily Population by Campus Site ........................................................... 123
Table 3-2: Existing and Future Average Daily Population Estimates on a Typical Weekday by Campus Site and Population Group ........................................................................................................................................ 126
Table 3-3: New Daily Person Trips by Campus Site and Population Group ................................................................... 127
Table 3-4: Existing and Future Daily Internal and External Person Trips .................................................................... 129
Table 3-5: 2012/13 to 2015 Daily Population and Person Trip Growth at the Mission Bay Campus Site by Population Group ................................................................................................................................................... 130
Table 3-6: External Trips Mode of Travel Assumptions ................................................................................................. 132
Table 3-7: New Daily External Trips by Mode of Travel ................................................................................................. 133
Table 3-8: Parnassus Heights Campus Site – 2040 Peak Hour Trip Distribution by Population Group ....................... 135
Table 3-9: Mission Bay Campus Site – 2015 Peak Hour Trip Distribution by Population Group ............................... 137
Table 3-10: Mission Bay Campus Site – 2040 Peak Hour Trip Distribution by Population Group ............................. 139
Table 3-11: Mount Zion Campus Site – 2040 Peak Hour Trip Distribution by Population Group ............................. 141
Table 3-12: Mission Campus Site – 2040 Peak Hour Trip Distribution by Population Group ....................................... 143
Table 3-13: AM and PM Peak Hour % of Daily Travel Assumptions for External trips .................................................. 145
Table 3-14: Parnassus Heights Campus Site – Existing to 2035 New Peak Hour Vehicle Trips

Table 3-15: Parnassus Heights Campus Site – Existing to 2035 New Peak Hour Transit Trips

Table 3-16: Parnassus Heights Campus Site – Existing to 2035 New Peak Hour Walk and Bicycle Trips

Table 3-17: Mission Bay Campus Site – Existing to 2015 New Peak Hour Vehicle Trips

Table 3-18: Mission Bay Campus Site – Existing to 2015 New Peak Hour Transit Trips

Table 3-19: Mission Bay Campus Site – Existing to 2015 New Peak Hour Walk and Bicycle Trips

Table 3-20: Mission Bay Campus Site – Existing to 2040 New Peak Hour Vehicle Trips

Table 3-21: Mission Bay Campus Site – Existing to 2040 New Peak Hour Transit Trips

Table 3-22: Mission Bay Campus Site – Existing to 2040 LRDP Variant New Peak Hour Vehicle Trips

Table 3-23: Mission Bay Campus Site – Existing to 2040 LRDP Variant New Peak Hour Transit Trips

Table 3-24: Mission Bay Campus Site – Existing to 2040 LRDP Variant New Peak Hour Walk and Bicycle Trips

Table 3-25: Mount Zion Campus Site – Existing to 2035 New Peak Hour Vehicle Trips

Table 3-26: Mount Zion Campus Site – Existing to 2035 New Peak Hour Transit Trips

Table 3-27: Mount Zion Campus Site – Existing to 2035 New Peak Hour Walk and Bicycle Trips

Table 3-28: Mission Center Campus Site – Existing to 2035 New Peak Hour Vehicle Trips

Table 3-29: Mission Center Campus Site – Existing to 2035 New Peak Hour Transit Trips

Table 3-30: Mission Center Campus Site – Existing to 2035 New Peak Hour Walk and Bicycle Trips

Table 3-31: Existing and Future Estimated Off-Street Loading Demand (based on SF Guidelines)

Table 3-32: Parnassus Heights – Existing Loading Demand

Table 3-33: Existing and Future Estimated Off-Street Loading Demand

Table 3-34: Existing and Future Estimated Passenger Loading Demand

Table 3-35: Existing and Future Daily Vehicle Parking Estimates on a Typical Weekday by Campus Site and Population Group

Table 3-36: Peak Parking Space Demand Rates by Population Group

Table 3-37: Peak Parking Demand on a Typical Weekday by Campus Site and Population Group
Table 4-20: Estimated Passenger Loading Zone Length ................................................................................................. 233
Table 4-21: Existing and Future UCSF-Owned Parking Supply by Campus Site ....................................................... 237
Table 4-22: Existing and 2015 Off-Street Parking Supply and Occupancy at Mission Bay ....................................... 239
Table 4-23: Existing (20125/13) and Year 2040 (Future 2035/2040) Off-Street Parking Supply and Occupancy at the Four Major Campus Sites ............................................................................................... 240
Table 4-24: Parnassus Heights Proposed Construction Data ........................................................................................ 242
Table 4-25: Mission Bay Proposed Construction Data ..................................................................................................... 245
Table 4-26: Mount Zion Proposed Construction Data ..................................................................................................... 249
Table 4-27: Mission Center Proposed Construction Data ............................................................................................... 251
Table 5-1: Peak Hour Intersection Level of Service Comparison - Parnassus Heights ........................................ 257
Table 5-2: Peak Hour Intersection Level of Service Comparison - Mission Bay ..................................................... 266
Table 5-3: Peak Hour Intersection Level of Service Comparison - Mission Bay ..................................................... 271
Table 5-4: Peak Hour Intersection Level of Service Comparison - Mission Bay ..................................................... 281
Table 5-5: Peak Hour Intersection Level of Service Comparison - Mount Zion ..................................................... 292
Table 5-6: Peak Hour Intersection Level of Service Comparison - Mission Center .................................................... 296


1 INTRODUCTION

The University of California, San Francisco (UCSF) is one of ten campuses in the University of California (UC) system, and is the only UC campus devoted solely to the health sciences. UCSF’s mission is to advance health worldwide through innovative health sciences education, research and patient care. UCSF is a multi-site campus with locations throughout the City and County of San Francisco and some locations beyond the City limits, encompassing approximately 8.04\(^1\) million gross square feet (gsf) in owned and leased buildings. Its major academic and clinical sites are at Parnassus Heights, Mission Bay, Mission Center, and Mount Zion, with a major presence at the City’s San Francisco General Hospital (SFGH) site.

This report examines the existing transportation conditions of the Parnassus Heights, Mission Bay, Mount Zion, and Mission Center campus sites and analyzes the transportation impacts of the changes proposed in the UCSF 2014 Long Range Development Plan (LRDP), which will guide campus development through the LRDP horizon year of 2035. The proposed project at the SFGH campus site is presented separately in a stand-alone transportation impact study specifically for that site. UCSF is currently reviewing its use of the Laurel Heights campus site and no changes are currently proposed as part of the LRDP; therefore, it is not included in this transportation analysis. The LRDP projects a total of 11.56 gsf at the horizon year of 2035, which does not include the Medical Center Phase Two (793,500 gsf) which is assumed to occur after the LRDP horizon year of 2035. For the purposes of both the environmental and transportation impact analysis, it is assumed that the Medical Center Phase Two would be operational by the LRDP horizon year.

If all projects in the LRDP are implemented across all sites, total UCSF owned and leased space across all UCSF sites would be about 12.36 million gsf by 2035.

This transportation impact analysis evaluates the LRDP’s potential impacts on traffic conditions, transit service, bicycle conditions, pedestrian conditions, loading operations, emergency access, construction activities, and parking conditions. This chapter summarizes the project study areas for the four UCSF campus sites included in this study, proposed changes for the four UCSF campus sites, and outlines the report structure. A detailed description of the scope of work is provided in Appendix A.

1.1 PROJECT SITES

Figure 1-1 shows the main locations of UCSF owned and leased sites in San Francisco. The transportation study areas for each campus site included in this study, in descending order of the daily average population, are presented below and shown on Figure 1-2.

1.1.1 Parnassus Heights

The Parnassus Heights campus site, the oldest and largest of the primary UCSF campus sites, straddles Parnassus Avenue, between the Inner Sunset and Cole Valley neighborhoods, extending between Fifth Avenue and Medical Center Way, and north to Irving and Carl Streets between Third and Hillway Avenues. The campus site is comprised of approximately 107 acres of varying elevations and built characteristics,

\(^1\) The 8.04 million gsf total does not include the 1.13 million gsf Phase One Medical Center at Mission Bay that is currently under construction.
due to the campus site being partially built into a hillside and including the Mount Sutro Open Space Preserve.

1.1.2 Mission Bay

The Mission Bay campus site is generally bounded by Mission Bay Boulevard South to the north, Owens Street to the west, Mariposa Street to the south, and Third Street to the east. The campus site is comprised of approximately 56 acres in the rapidly changing Mission Bay neighborhood north of the Potrero Hill and Dogpatch neighborhoods.

1.1.3 Mount Zion

The Mount Zion campus site is comprised of parts of six contiguous city blocks in the Western Addition neighborhood of San Francisco; generally bounded by Bush Street to the north, Scott Street to the east, Post Street to the south, and Broderick Street to the west. The campus site is comprised of approximately 8 acres of similar land use types.

1.1.4 Mission Center

The Mission Center campus site is located in the northeast portion of the Mission District. The campus site of approximately three acres is located on the southern half of the block bounded by 14th Street, Harrison Street, 15th Street, and Folsom Street.
Study Campus Sites

Figure 1-2

- Mount Sutro Open Space Reserve
- Interior Greenbelt (City)
- Twin Peaks Reservoir
- Forest Knolls
- Mount Sutro Open Space Reserve
- Edgewood Ave
- Medical Center Way
- Crestmont Dr
- Behr Ave
- Third Ave
- Fourth Ave
- Fifth Ave
- Sixth Ave
- Parnassus Ave
- Carl St
- Irving St
- Judah St
- Koret Way
- Christopher Dr
- P
- ALDEA HOUSING SURGE WOODS
- Clarendon Ave
- 1500 O"WENs
- GLADSTONE
- INSTITUTES
- Gene Friend Way
- Nelson Rise Cane
- Green Friend Way
- Mission Bay Blvd N
- Mission Bay Blvd S
- NORTH CAMPUS
- Campus Way
- Owens St
- 16th St
- JUINION BAY
- BLVD N
- Mission Bay Blvd N
- Mission Bay Blvd S
- NORTH CAMPUS
- Campus Way
- Owens St
- 16th St
- Mission Bay Blvd N
- Mission Bay Blvd S
- NORTH CAMPUS
- Campus Way
- Owens St
- 16th St
- Mission Bay Blvd N
- Mission Bay Blvd S
- SOUTH CAMPUS
- Mission Bay Blvd N
- Mission Bay Blvd S
- SOUTH CAMPUS
- Mission Bay Blvd N
- Mission Bay Blvd S
- MARIPOSA PARK (CITY)
- MARIPOSA PARK (CITY)
- Mission Bay Blvd N
- Mission Bay Blvd S
- SOUTH CAMPUS
- Mission Bay Blvd N
- Mission Bay Blvd S
- MARIPOSA PARK
- MOUNT SUTRO
- OPEN SPACE RESERVE
- INTERIOR GREENBELT (CITY)
- Open space/park
- Campus site boundary
- Under construction
- Parking

Study Campus Sites
1.2 PROJECT DESCRIPTION

The LRDP planning horizon projects 2.39 million gross square feet (gsf\(^2\)) of new space in addition to the 1.13 million gsf of building space currently under construction in Mission Bay. The following section describes the proposed changes for the four UCSF campus sites included in this study under the LRDP.

1.2.1 Parnassus Heights

Over its 20-year planning horizon, the LRDP proposes additional housing by converting UC Hall and the Millberry Union towers to housing as well as several other projects which would construct new housing; to provide more surface parking by demolishing several buildings; to construct a New Hospital Addition to Long Hospital by demolishing Langley Porter Psychiatric Institute (LPPI) and its support buildings; to renovate and reuse Moffitt Hospital for non-acute care; to reclassify a few existing buildings as support or structured parking; to demolish a few existing buildings and convert part of their footprint to parking; to construct new trails in the Mount Sutro Open Space Reserve (“Reserve”); and to implement the Parnassus Avenue Streetscape Plan.

Figure 1-3 illustrates the existing campus site. Figure 1-4 illustrates the proposed site plan for the Parnassus Heights campus site. As part of the LRDP, UCSF is proposing the following:

- Demolish Laboratory of Radiobiology, Medical Research 4, Koret Vision Research, LPPI and support buildings, Proctor, Surge, Woods, Environmental Health and Safety buildings over the course of the LRDP, totaling approximately 214,600 gsf, and convert the space to including, but not limited to, a New Hospital Addition, housing, office space, etc.

- Construct a New Hospital Addition building on the demolished Langley Porter Psychiatric Institute (LPPI) site, which would contain 140 beds in approximately 308,000 gsf. The addition would be seven-stories high and set back from Parnassus Avenue with a landscaped strip to provide passenger drop-off/pick-up, parking, and loading zones.

- Seismically retrofit, renovate and reuse UC Hall (approximately 148,300 gsf). The seven-story building is located on the west end of the campus site on Parnassus Avenue. The Plan would occur in two phases. The first phase would renovate three floors of UC Hall to faculty offices and convert other floors to residential use. Upon the completion of the New Hospital Addition (see above), the three floors of faculty offices would move into Moffitt Hospital and those vacated floors would also be converted to residential use. The final residential use would total approximately 210 beds and 170 units.

- Convert Millberry Union towers from office to residential use (approximately 83 beds and 83 units). The existing occupants would be relocated into the vacated Moffitt building after the completion of the New Hospital Addition. The towers would return to its original use for student housing.

---

\(^2\) Gross square footage is a UC facilities term denoting the sum of all floor areas, finished and unfinished, on all floors of an enclosed structure. It excludes spaces such as attics without flooring, mezzanines, exterior courts, and balconies.
- Renovate and reuse Moffitt Hospital for non-acute care uses.
- Potentially add limited amounts of new housing or open space on the sites of 735 Parnassus near Fifth and Parnassus avenues and the Proctor site near Fifth Avenue and Kirkham Street, respectively.
- Complete the conversion of the Fifth Avenue houses to faculty housing.
- Seismically retrofit the Faculty Alumni House at 745 Parnassus Avenue to meet seismic standards.

- Transportation improvements that include providing traffic calming and pedestrian safety measures, providing additional off-street contractor parking, and improving the efficiency of existing off-street loading:
  - **Reduce UCSF traffic by enhancing Transportation Demand Management (TDM) programs.** Traffic on streets in and around the campus site is an ongoing issue with neighbors. UCSF has a comprehensive TDM program to minimize commuting by private vehicle and limits parking on the campus site. UCSF intends to make further efforts to reduce commute traffic by enhancing the City CarShare and UCSF’s own carpool programs, expanding bicycle parking and access to showers and lockers, and promoting ridesharing participation.
  - **Implement the Parnassus Avenue Streetscape Plan.** As UCSF renovates the Clinical Sciences and UC Hall buildings, and possibly build new faculty housing near Fifth and Parnassus avenues, UCSF proposes to begin implementing the Parnassus Avenue Streetscape Plan. This plan calls for improvements that make crossing the street safer and more convenient for pedestrians, reorganize and improve transit and UCSF shuttle operations, create more usable outdoor space, and enhance the public realm as called for in the Physical Design Framework. Improvements may include new paving, street furniture, lighting, and street trees, as well as sidewalk and crosswalk widening and better defined campus gateways. The streetscape plan also proposes to modify the existing UCSF shuttle stops from the gateways of the campus site to a central location fronting the campus library in the westbound direction and the Clinical Sciences building in the eastbound direction. The improvements are intended to occur in phases starting on the south side of Parnassus Avenue, at the west end at Fifth Avenue, and moving through the core of the campus site and along the front of the New Hospital Addition, finishing at Medical Center Way.
  - **Reduce congestion on Parnassus Avenue through transportation, parking, and loading improvements.** Another community concern is congestion on Parnassus Avenue where there are six Muni bus stops, two primary and two secondary UCSF shuttle stops, several garage entrances and exits, and six crosswalks. Despite numerous parking and loading spaces on the street, the overall demand for both exceeds the supply, and double parking and trucks parking in the middle of the street are common occurrences. To reduce congestion on Parnassus Avenue, UCSF proposes to develop more off-street loading and parking. UCSF proposes to provide additional off-street contractor parking spaces and increase parking enforcement to reduce competition for street parking. Most of the new parking on Koret Way will be designated for contractors, which generate less traffic throughout the day than patient
and visitor parking. In order to improve loading and delivery operations, UCSF proposes to implement a cross-docking model where vendors deliver goods to Oyster Point and goods are consolidated onto UCSF vehicles for delivery to the campus site, limiting the number of individual deliveries to this and other campus sites. UCSF also proposes to reconfigure the existing Central Receiving area, station a dockmaster, and implement a scheduling system to restrict on-site delivery times and vehicle sizes. These loading and delivery improvements are intended to reduce campus congestion, creating a more safe, attractive, and efficient campus.

- **Reduce delivery impacts on Fifth Avenue and facilitate and fund traffic calming at the Fifth and Kirkham intersection.** Some delivery trucks must pass through the Kirkham Street and Fifth Avenue intersection in order to access the loading docks on Koret Way at the back of the developed portion of the campus site. UCSF has begun working with neighbors and the City to install traffic-calming measures and pedestrian safety improvements at this intersection, and intends to minimize future truck traffic on this street by creating more loading capacity on the east and north sides of the campus site, imposing vendor restrictions, and pursuing centralized receiving off-site.

- **Minimize the impacts of the shuttle system as it grows.** UCSF shuttle system operations would expand as demand grows. Most Parnassus Heights neighbors prefer smaller shuttles on their streets even if they run at greater frequencies, because larger shuttles generate more noise and vibration. UCSF Transportation Services will need to consider further operational adjustments to the shuttle system as other campus sites like Mission Bay grow. Operational adjustments would be implemented by UCSF Transportation Services to address deficiencies in service as and when observed through the monthly auditing process (see Section 1.2.5.)

- **Implementation of Green Connections Plan.** In March 2014, the City and County of San Francisco completed its Green Connections plan. The plan aims to increase access to parks, open spaces, and the waterfront by building a network of ‘green connectors’ – city streets that will be upgraded incrementally over the next 20 years to make it safer and more pleasant to travel to open space by walking, biking, and other forms of active transportation. Two Green Connections routes converge near the UCSF Parnassus Heights campus. These routes link surrounding neighborhoods to the Mount Sutro open space area.
Parnassus Heights Existing Site Plan
Figure 1-4

Parnassus Heights Proposed Site Plan
1.2.2 Mission Bay

The Mission Bay campus site is expected to grow substantially over the course of the LRDP. Currently there are over 3,900 UCSF faculty and staff employed at the site and 900 residents. The current employment and residents are expected to grow to 13,500 faculty and staff and 1,900 residents through the LRDP horizon year. Currently, the Women’s, Cancer, and Children’s hospitals and Mission Hall, totaling 1.13 million gsf is under construction and scheduled for completion in 2015. It is assumed that the 124,500 gsf cancer outpatient building would be constructed around 2020. For the purposes of the EIR and Transportation analysis, the Medical Center Phase Two is assumed to be constructed by 2035, adding 793,500 gsf. Approximately 1.45 million gsf of new space³, north of 16th Street, is proposed under the LRDP. Figure 1-5 illustrates the existing campus site. Figure 1-6 shows the proposed development on each block at the Mission Bay campus site. As part of the LRDP, UCSF is proposing the following:

- Develop Blocks 15, 16, 18A, 23A, and 25A on the campus site, totaling up to 1,544,100 gsf. Development comprised of housing, child care, UCSF police building, research buildings, office buildings, clinics, retail, open space, and a parking structure. The proposed gsf of development per block is estimated below.
  - **Block 15**: 418,200 gsf – Develop Block 15 for housing, open space, and possibly child care and police services. If Child care services are constructed elsewhere, the portion dedicated to Child care will be used for housing. The open space will serve the surrounding housing community and potential Child care outdoor area.
  - **Block 16**: 289,000 – 377,400 gsf – Develop Block 16 with two research buildings or a research building and central utility plant. The research buildings would house offices and clinics. If two research buildings are constructed, open space would be developed in between the buildings as a courtyard. If the alternate utility plant is constructed, a portion of the courtyard may be used for Facilities Services.
  - **Block 18A/B**: 193,000 gsf – Develop a research building containing offices and clinics, parking structure with up to 1,540 parking spaces and includes UCSF shuttle spaces, and sports field.
  - **Block 23A**: 232,200 gsf – Develop a research building containing offices, clinics, retail uses, and potential Child care and police services; and construct an open space courtyard between the existing garage and proposed research building.
  - **Block 25A**: 323,300 gsf – Develop a research building containing offices, clinics, and retail uses.

- Complete Phase 1 of the Medical Center by developing the cancer outpatient building, about 124,500 gsf.

³ Of the 1.54 million gsf of new space, 464,600 gsf is existing remaining entitlement and 991,800 gsf is new entitlement sought under the LRDP.
- Develop Block 14 pending San Francisco Unified School District (SFUSD) decision to continue reservation of the existing block. Site development and environmental review will be further determined upon SFUSD decision.

- Acquire property adjacent to Mission Bay in order to consolidate owned and leased properties.
  - Develop Blocks 33 and 34 (East Campus) with up to 500,000 gsf and 500 parking spaces for research and parking use.

- Transportation Related Projects:
  - Complete the street network including Nelson Rising Lane, between Owens Street to the Sandler Neurosciences Center, and Fifth and Sixth streets, between Nelson Rising Lane and Mission Bay Boulevard South. Complete Fourth Street with the completion of Phase One Medical Center at Mission Bay.
  - Relocate UCSF Shuttle stops to provide more direct access to other campus sites and better serve persons who live and work by new buildings. Adjustments to shuttle stops would be implemented by UCSF Transportation Services to address deficiencies in service as and when observed through the monthly auditing process (see Section 1.2.5).
  - Increase the bicycle and motorcycle parking capacity through UCSF’s TDM program as new buildings are constructed and near open spaces areas. This includes a planned Bay Area Bike Share station on Fourth Street that will be funded by UCSF.

**1.2.2.1 LRDP Variant**

UCSF is considering the development of clinical uses for a portion of the 500,000 gsf on the Block 33 and 34 site. The amount of clinical space that may be developed has not yet been determined, but up to about 250,000 gsf of clinical space could be developed, with the remainder 250,000 gsf as research/office use. Clinical uses are a “secondary use” under the Mission Bay South Plan and would require a finding of consistency with the Plan by the San Francisco Office of Community Investment and Infrastructure. These variants are referred to as the LRDP Variant for the remainder of this report.
Mission Bay Existing Site Plan

- **North Campus**
  - Koret Quad (22)
  - Sandor Neurosciences Center (19A)
  - Rock Hall (19B)
  - Mission Hall (25A)
  - Mission Bay Commons (City)
  - Smith Cardiovascular Research (17A/B)
  - Diller Cancer Research (17C)
  - Gateway Medical Building

- **South Campus**
  - Fourth Street Public Plaza
  - Women's + Cancer Hospitals
  - Children's Hospital
  - Energy Center

- **Future San Francisco Unified School District (14)**
  - Community Center Garage (21A)

- **Parking**

- **Open space/park**

- **Under construction**

- **Campus site boundary**

- **Block number**

**Figure 1-5** Mission Bay Existing Site Plan
Mission Bay Proposed Site Plan

Figure 1-6
1.2.3 Mount Zion

The LRDP proposes to demolish and re-develop three buildings totaling approximately 85,000 gsf, resulting in a net increase of about 172,000 gsf at the Mount Zion campus site. It is expected that with the opening of the Phase One Medical Center at Mission Bay in 2015, inpatient uses in the existing hospital would move from Mount Zion to Mission Bay. The available space from relocating programs to the Mission Bay campus site would be taken by programs relocated from the Parnassus Heights campus site and potentially other campus sites. Figure 1-7 illustrates the existing and proposed development at the Mount Zion campus site. As part of the LRDP, UCSF is proposing to make the following changes:

- Renovate and reuse the existing hospital. UCSF plans to relocate the inpatient facilities to Phase One of the Medical Center at Mission Bay. UCSF would then repurpose the hospital as an ambulatory care center with ambulatory surgery, growth of the cancer program, and expansion of outpatient use and support space. The decommissioned hospital may also accommodate program space and clinics displaced from the three buildings proposed for demolition.

- Demolish the Hellman, Harold Brunn Institute, and the Dialysis Center buildings and construct new medical office and/or research building(s) and additional parking. Occupants and programs in the existing buildings would be relocated to the repurposed hospital or located elsewhere. The proposed construction would take place at the demolished buildings. Additional parking may be constructed in two levels below the new buildings or developed/acquired off-site if constructing below ground is cost-prohibitive.

- Demolish or retrofit the seismically compromised 2255 Post Street building.

- Develop open space on the main block when the new building(s) are constructed.

- Coordinate with the City to improve adjacent streetscape when new building space is developed. Improvements include a wider sidewalk, planting street trees, additional passenger loading spaces, and parallel parking along the west side of Scott Street, and extended landscape along Post Street.
Mount Zion Existing and Proposed Site Plan
1.2.4 Mission Center

The Mission Center campus site is comprised of a single building that contains approximately 850 employees. Error! Not a valid bookmark self-reference. illustrates the existing and proposed development at the Mission Center campus site. The LRDP proposes to construct a new building and parking structure. The new building would be approximately four stories with up to 100,000 gsf. To support this space, a five story, 95,600 gsf garage with up to 294 parking spaces would be built between the existing and new buildings. Development of this new building would occur only if additional program space is determined to be needed in the future, and if and when funding becomes available.
1.2.5 UCSF Transportation Demand Management

UCSF currently manages a robust campus-wide Transportation Demand Management (TDM) program with the goal of reducing single-occupant vehicle (SOV) trips to all campus sites. The details of this program are presented in Section 2.2. UCSF proposes expanded TDM strategies that were developed as part of an internal planning process to identify feasible TDM measures that could reasonably result in a reduction in UCSF-generated SOV trips. In order to accomplish these goals, UCSF would implement some or all of the following in the 2014 LRDP:

- Expand UCSF Vanpool Program (add new vanpools and subsidize costs to attract new riders);
- Develop more robust UCSF Carpool Matching and convert additional parking spaces to carpool only;
- Enhance existing City CarShare pods on campus sites and participate in the city's new Medical Center Rideshare program;
- Increase supply and access to bicycle parking and showers/lockers;
- Enhance shuttle system with Wifi and Next Bus;
- Limit parking for non-faculty tenants in new housing;
- Gradually increase cost of employee parking, over time; and
- Promote flexible work schedules, as possible.

1.2.6 UCSF LRDP Transportation Monitoring

As a matter of course in managing campus operations, UCSF monitors transportation conditions at all campus sites, and, in relation to the proposed 2014 LRDP, would continue to do so in particular at the four UCSF campus sites where development is proposed. As the campus sites develop, UCSF would monitor vehicle traffic conditions, transit operations, shuttle ridership, adequacy of pedestrian and bicycle facilities, and loading and parking conditions within and surrounding the campus sites. This monitoring program would be informed by the annual UCSF Employee Transportation Survey, the existing UCSF shuttle program monitoring, UCSF staff, students, and patients and visitors, campus site observations by Transportation Services staff, and ongoing coordination with SFMTA staff.

The results of the various monitoring efforts would be used to inform when and whether UCSF would implement additional TDM strategies that seek to minimize the number of single occupancy vehicle trips (SOV) generated by the LRDP. The additional TDM strategies target a reduction in SOV trips by encouraging persons to select other modes of transportation, including: walking, bicycling, transit, carshare, carpooling, and/or to travel during non-peak periods. Should the need for additional shuttle service

---

4 UCSF monitors its shuttle ridership demand by conducting monthly audits to capture boarding data, and the data is used to continually adjust shuttle operations to meet peak ridership demand. The monthly audits are conducted for one entire week (five business days) on all routes, throughout the entire day. In addition, UCSF conducts an annual UCSF Transportation Survey that is distributed to all members of our community. The data is used to measure and benchmark the efficacy of the existing TDM programs, and assist in designing new programs.
1.2.5 UCSF Transportation Demand Management

UCSF currently manages a robust campus-wide Transportation Demand Management (TDM) program with the goal of reducing single-occupant vehicle (SOV) trips to all campus sites. The details of this program are presented in Section 2.2. UCSF proposes expanded TDM strategies that were developed as part of an internal planning process to identify feasible TDM measures that could reasonably result in a reduction in UCSF-generated SOV trips. In order to accomplish these goals, UCSF would implement some or all of the following in the 2014 LRDP:

- Expand UCSF Vanpool Program (add new vanpools and subsidize costs to attract new riders);
- Develop more robust UCSF Carpool Matching and convert additional parking spaces to carpool only;
- Enhance existing City CarShare pods on campus sites and participate in the city’s new Medical Center Rideshare program;
- Increase supply and access to bicycle parking and showers/lockers;
- Enhance shuttle system with Wifi and Next Bus;
- Limit parking for non-faculty tenants in new housing;
- Gradually increase cost of employee parking, over time; and
- Promote flexible work schedules, as possible.

1.2.6 UCSF LRDP Transportation Monitoring

As a matter of course in managing campus operations, UCSF monitors transportation conditions at all campus sites, and, in relation to the proposed 2014 LRDP, would continue to do so in particular at the four UCSF campus sites where development is proposed. As the campus sites develop, UCSF would monitor vehicle traffic conditions, transit operations, shuttle ridership, adequacy of pedestrian and bicycle facilities, and loading and parking conditions within and surrounding the campus sites. This monitoring program would be informed by the annual UCSF Employee Transportation Survey, the existing UCSF shuttle program monitoring, UCSF staff, students, and patients and visitors, campus site observations by Transportation Services staff, and ongoing coordination with SFMTA staff.

The results of the various monitoring efforts would be used to inform when and whether UCSF would implement additional TDM strategies that seek to minimize the number of single occupancy vehicle trips (SOV) generated by the LRDP. The additional TDM strategies target a reduction in SOV trips by encouraging persons to select other modes of transportation, including: walking, bicycling, transit, car-share, carpooling, and/or to travel during non-peak periods. Should the need for additional shuttle service

---

4 UCSF monitors its shuttle ridership demand by conducting monthly audits to capture boarding data, and the data is used to continually adjust shuttle operations to meet peak ridership demand. The monthly audits are conducted for one entire week (five business days) on all routes, throughout the entire day. In addition, UCSF conducts an annual UCSF Transportation Survey that is distributed to all members of our community. The data is used to measure and benchmark the efficacy of the existing TDM programs, and assist in designing new programs.
be triggered by increased ridership due to shifts in travel mode or demand generated by the LRDP, UCSF Transportation Services would first review that the additional service would not negatively affect Muni operations. Once implemented, the additional service would be monitored to the same standard as that identified above.

UCSF would also monitor pedestrian and bicycle conditions to ensure increased volumes generated by the LRDP do not cause overcrowding of sidewalks, crosswalks, bicycle routes, or bicycle parking locations within and adjacent to the campus sites. Finally, as the campus sites and surrounding neighborhoods develop in the future, UCSF would continue to monitor parking and loading conditions to ensure they are sufficient to accommodate the LRDP loading and parking demand and do not create potentially hazardous conditions or introduce delays to transit or traffic.

1.3 REPORT ORGANIZATION

The remainder of this report is divided into the following chapters:

Chapter 2 – Existing Conditions describes the operating conditions of the existing transportation network within the vicinity of the Parnassus Heights, Mission Bay, Mount Zion, and Mission Center campus sites. It includes the surrounding roadway network, intersection operating conditions, transit network and service, pedestrian and bicycle conditions, and loading and parking supply and occupancy.

Chapter 3 – Travel Demand Analysis includes the LRDP’s trip generation, trip distribution, mode split, and trip assignment forecasts for private vehicles, as well as taxi, shuttle bus, transit, bicycle, pedestrian, and loading travel demand. The LRDP’s trip generation was developed based on population characteristics information provided by UCSF staff and outlined in Appendix F.

Chapter 4 – Transportation Impact Analysis describes the anticipated operating conditions of the transportation network with the completion of the LRDP and identifies the extent to which LRDP-generated traffic would impact the transportation network. Chapter 4 discusses the transportation network under the following scenario:

Existing Plus LRDP conditions describes the anticipated operating conditions of the transportation network under Existing conditions plus the proposed changes for the four UCSF campus sites included in this study. Operations of the transportation network after the addition of the travel demand from the project are described, including the project’s impacts on study intersections, transit, bicycles, pedestrians, loading, parking, emergency vehicles, and the potential impacts of the project construction on the transportation network.

Chapter 5 – Future Year Conditions describes the anticipated operating conditions of the transportation network with the completion of the LRDP under Interim (Year 2015) and Cumulative (Year 2040) conditions and identifies the extent to which LRDP-generated traffic would impact the transportation network. Chapter 5 discusses the transportation network under the following two scenarios:

Year 2015 conditions describe the anticipated operating conditions of the transportation network once Phase One Medical Center at Mission Bay is operational. Year 2015 conditions were developed for the Mission Bay campus site only.
Year 2040 conditions describes the anticipated operating conditions of the transportation network in Cumulative conditions with traffic associated with the LRDP and other reasonably foreseeable development projects. Future year traffic forecasts with the LRDP were estimated using the San Francisco County Transportation Authority’s travel demand model, SF-CHAMP. The LRDP’s contribution to future traffic growth and transit ridership in the area is described. For the Mission Bay campus site, a qualitative analysis of the Golden State Warriors proposed uses on Blocks 29-32 is included.

Chapter 6 – Transportation Mitigation and Improvement Measures describes the proposed mitigation measures identified to reduce potentially significant transportation impacts created by the LRDP, if applicable. In addition, improvement measures are provided in cases where project impacts are less than significant but measures to improve circulation or project access may be beneficial.
2 EXISTING CONDITIONS

This chapter provides a description of the existing transportation and circulation settings within the vicinity of the Parnassus Heights, Mission Bay, Mount Zion, and Mission Center campus sites. It includes descriptions of the UCSF Transportation Demand Management (TDM) Plan, existing roadway network, intersection operating conditions, transit network and service, pedestrian and bicycle conditions, loading, and parking supply and occupancy.

2.1 ELEMENTS OF ANALYSIS

The study examines Existing conditions related to the following transportation elements:

- UCSF TDM Plan – current and proposed TDM measures including UCSF shuttle service;
- Traffic Conditions – operations along key corridors providing access to and through the study areas;
- Transit Conditions – Muni and regional transit operations into and within the study areas;
- Pedestrian Conditions – qualitative assessment of conditions into and within the study areas;
- Bicycle Conditions – qualitative assessment of conditions into and within the study areas;
- Loading Conditions – passenger and freight operations within the study areas; and
- Parking Conditions – characterization of supply throughout the study areas.

2.2 UCSF TRANSPORTATION DEMAND MANAGEMENT PLAN

There are many different factors that determine how people travel to/from work, including home location, work shifts, access to transit, and travel incentives and disincentives (i.e. how convenient or costly it is to park). A TDM program is a set of policies and programs that include incentives, information, and education to encourage employees to commute to work by modes other than driving alone. The UCSF TDM program includes strategies that emphasize alternative commuting options, such as public transit, private shuttle service, biking, walking, and carpooling. The key elements of the UCSF TDM program are summarized in Table 2-1.
TABLE 2-1: EXISTING UCSF TDM PROGRAM ELEMENTS

<table>
<thead>
<tr>
<th>TDM Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Transportation Survey</td>
<td>Annual employee and student survey to learn more about travel to, from, and within UCSF campus sites</td>
</tr>
<tr>
<td>Bicycle Racks</td>
<td>Total of approximately 970 bike stalls distributed throughout campus sites with capacity exceeding demand, with one exception – Parnassus Heights campus site</td>
</tr>
<tr>
<td>Showers and Lockers</td>
<td>Showers and lockers are provided at various campus sites, which can be used by bicyclists</td>
</tr>
<tr>
<td>Bicycle Permits</td>
<td>Free bicycle permits are provided allowing free access to enclosed bicycle parking facilities; free tire repair kits; bike fix-it stations available at Parnassus and Mission Bay campus sites; discounted SF Bike Coalition membership.</td>
</tr>
<tr>
<td>Shuttle</td>
<td>UCSF shuttle system serving all campus sites</td>
</tr>
<tr>
<td>Priced Permit Parking</td>
<td>UCSF offers over 30 varieties of parking permits to employees and students. The price of a permit varies between $40 and $250 per month. A limited number of permits are issued per year and are distributed based on a prioritization hierarchy</td>
</tr>
<tr>
<td>Priced Visitor Parking</td>
<td>UCSF offers short-term visitor parking. Both hourly and daily rates are available</td>
</tr>
<tr>
<td>City Carshare</td>
<td>UCSF staff and students qualify for personal memberships at a discounted rate. 18 City Carshare vehicles are available at various campus sites.</td>
</tr>
<tr>
<td>Pre-Tax Program</td>
<td>The Pre-Tax program allows employees to reduce their public transit and non-UCSF vanpool costs by about one-third. The program works by allowing participants to deduct up to $125 per month from their paycheck without paying payroll taxes on this income</td>
</tr>
<tr>
<td>Carpool Parking</td>
<td>Preferential parking for UCSF employees with a valid carpool permit</td>
</tr>
<tr>
<td>Zimride</td>
<td>UCSF-specific Zimride (ride sharing) website</td>
</tr>
<tr>
<td>Emergency Ride Home</td>
<td>Employees who need an emergency ride home can be reimbursed up to $50 for a transit, taxi or rental car trip</td>
</tr>
<tr>
<td>Telecommuting Policy</td>
<td>Eligibility to telecommute determined by job position/requirements and Department</td>
</tr>
<tr>
<td>Vanpool Program</td>
<td>The vanpool program requires a minimum of eight participants per vanpool. The driver participates for free and the riders pay about $240 per month per person. Currently, there are 33 vanpools that travel throughout the Bay Area, and as far as Sacramento.</td>
</tr>
</tbody>
</table>

Source: UCSF Transportation Services, 2013

2.2.1 UCSF Shuttle System

The core element of UCSF’s TDM plan is the shuttle service that UCSF operates throughout San Francisco. The shuttle system fleet (currently 60 shuttles) provides service between transit facilities, remote parking lots, the various UCSF campus sites, and UCSF-affiliated hospitals/medical centers within the city. The primary shuttle routes serve the Parnassus Heights, Mission Bay, Mount Zion, Mission Center, SFGH, and Laurel Heights campus sites. Service includes 13 fixed-route lines and two on-demand evening services. Fixed-route shuttle headways are generally between 15 to 25 minutes, and most routes operate between 6:00 AM and 9:00 PM, Monday through Friday. The two on-demand services operate both

UCSF shuttle stop at Parnassus Heights Campus Site
weekday and weekend nights. Riders can request on-demand service within a pre-defined border around the Parnassus Heights and Mission Bay campus sites by calling UCPD dispatch. All shuttle buses are equipped with bike racks. The service is free for UCSF faculty, staff, students, patients, and visitors.

Figure 2-1 illustrates the existing UCSF shuttle routes serving all current campus sites. Table 2-2 summarizes the existing fixed-route UCSF shuttle routes and summarizes the route hours of operations and headways.

<table>
<thead>
<tr>
<th>Route</th>
<th>Campuses Served</th>
<th>Hours of Operation</th>
<th>Headways (minutes)¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>Parnassus-Mt. Zion-Mission Bay-SFGH</td>
<td>5:45 AM – 9:25 PM</td>
<td>15/20</td>
</tr>
<tr>
<td>Blue</td>
<td>Parnassus-SFGH-Mission Bay-Mt. Zion</td>
<td>5:35 AM – 8:47 PM</td>
<td>15/20</td>
</tr>
<tr>
<td>Black</td>
<td>Parnassus-Mt. Zion-Laurel Heights</td>
<td>6:30 AM – 7:50 PM</td>
<td>20</td>
</tr>
<tr>
<td>Tan</td>
<td>Parnassus-Laurel Heights-Mt. Zion</td>
<td>6:50 AM – 7:45 PM</td>
<td>20</td>
</tr>
<tr>
<td>Purple</td>
<td>Parnassus (Library)-3360 Geary-Mt. Zion-3360 Geary</td>
<td>6:15 AM – 6:38 PM</td>
<td>45</td>
</tr>
<tr>
<td>Grey</td>
<td>Parnassus-Mission Bay</td>
<td>6:30 AM – 10:00 PM</td>
<td>20</td>
</tr>
<tr>
<td>Lime</td>
<td>Parnassus-BDC-MCB</td>
<td>6:05 AM – 8:31 PM</td>
<td>15</td>
</tr>
<tr>
<td>Pink</td>
<td>Parnassus E/R-Kezar</td>
<td>5:30 AM – 9:00AM</td>
<td>15</td>
</tr>
<tr>
<td>VA-Parnassus</td>
<td>Parnassus-VAMC</td>
<td>6:35 AM – 7:05 PM</td>
<td>30/60</td>
</tr>
<tr>
<td>Bronze</td>
<td>Aldea-Medical Building 1 (ACC)-Library-Sixth-Dental-Parnassus LPPI</td>
<td>6:45 AM – 6:29 PM</td>
<td>15/20</td>
</tr>
<tr>
<td>Red</td>
<td>Mission Bay-MCB-16th BART</td>
<td>5:55 AM – 7:45 PM</td>
<td>10/15</td>
</tr>
<tr>
<td>Yellow</td>
<td>16th BART-MCB-2300 Harrison-SFGH-2300 Harrison</td>
<td>6:07 AM – 8:23 PM</td>
<td>15</td>
</tr>
</tbody>
</table>

Note: ¹ Multiple values indicate variability in headways during the day.

Source: UCSF Campus Life Services Transportation, Routes & Timetables, 2013-2014

UCSF’s shuttle system is a key strategy in reducing the amount of car traffic to campus sites and thus reducing its greenhouse gas emissions. In 2011, 2.3 million passengers rode shuttles, an increase of one million passengers from 2003. With the opening of the UCSF Medical Center at Mission Bay in 2015, UCSF anticipates a ridership increase of approximately 5-10 percent on the Blue, Gold, and Grey routes, which provide service between the Parnassus Heights and Mission Bay campus sites.

As part of UCSF’s ongoing efforts to provide efficient inter-campus shuttle service, minor adjustments were implemented in August 2012 to six shuttle routes to improve the overall quality and efficiency of shuttle services. The adjustments were intended to enhance the on-time performance and safety of the shuttle system. Further changes made in October 2013 included disallowing standees on the shuttles for safety concerns and an increase in shuttle service during the peak periods. In addition, a Shuttle Operations Study was completed in January 2014 by an outside consultant, which conducted a further review of UCSF’s shuttle operations and routes in order to continue to reduce commute trips and to address neighborhood concerns regarding shuttle effects on neighboring streets.

These changes are in addition to other minor operational changes made periodically to improve operations or out of sensitivity to specific community concerns.
2.2.1.1 Capacity Utilization

The seated capacity of the Blue, Tan, Black, Purple, Green, Pink, Bronze, Yellow, and VA lines is 22 persons per vehicle. For the Lime and Red lines it is 30, and for the Grey line it is 33. The Gold line uses a mixed fleet of 22 and 30-seater vehicles.

The capacity utilization of the shuttle program was identified in the *UCSF Shuttle Operations Study Final Report*\(^5\). The study found that four lines operate above 100 percent capacity during the AM peak period (Grey, Blue, Gold, and Black lines). One line operates above 100 percent capacity in the midday period: the Tan line. Five lines operate above 100 percent capacity during the PM peak period: the Bronze, Tan, Gold, Grey, and Black lines. Of these instances, the highest ridership were found on the Grey and Blue lines in the AM peak period and the Yellow and Tan lines in the PM peak period, where capacity utilization is above 120 percent for one or more hours. Since this study was completed, UCSF Transportation Services has added a policy to restricting shuttle riders from standing on shuttles and subsequently increased shuttle service during peak periods to accommodate lines with greater than 100 capacity utilization.

The study also found that some lines operate below 50 percent capacity during part or all of the day. These include:

- The Lime line during all times but the PM peak;
- The Black, Gold, and Tan lines during the evening;
- The Grey line midday; and
- The Purple line during all times.

2.2.1.2 Stop Locations

UCSF shuttles stop at loading zones located on city streets at the Parnassus Heights, Mission Bay, and Mount Zion campuses. The shuttle stop is internal to the campus for the Mission Center campus. Specific stop locations and the lengths of each stop are listed below:

- **Parnassus Heights;**
  - 530 Parnassus Avenue, north side (adjacent to UCSF Library) – 140 feet
  - 401 Parnassus Avenue, south side (adjacent to Langley Porter Psychiatric Institute) – 125 feet
- **Mission Bay;**
  - Fourth Street south of Gene Friend Way, west side – 150 feet
  - Fourth Street south of Gene Friend Way, east side – 70 feet
- **Mount Zion; and**
  - 2369 Sutter Street, south side – 55 feet
- **Mission Center.**
  - Internal to parking lot – 60 feet

In addition to the above permanent stop locations, UCSF shuttles currently use several stops on a temporary or limited basis. A shuttle stop at 1500 Owens Street on the Mission Bay Campus Site was

---
formed recently and will likely relocate. The stops at Fourth Avenue and the ACC on the Parnassus Heights Campus Site are for drop-off only during limited times of day and for limited routes.

Inset 1 provides a summary of average weekday UCSF shuttle boardings by route. As of 2012, the route with the highest ridership is the Grey route, which provides direct service between the Parnassus Heights and Mission Bay campus sites.

Inset 1. UCSF Shuttle Boardings
Figure 2-1
Existing UCSF Shuttle Routes-
Major Campus Sites

2.3 PARNASSUS HEIGHTS

2.3.1 Roadway Facilities

This section describes the regional and local roadway system for the Parnassus Heights campus site. Approximately 48 percent of those traveling to and from the campus site drive alone, are dropped off, or carpool/vanpool. Roadway classification definitions, according to the Transportation Element of the San Francisco General Plan, are contained in Appendix B. With Golden Gate Park to the north and Mount Sutro to the south, the roadways used to access the Parnassus Heights campus site are primarily via east-west corridors – Parnassus Avenue-Judah Street, Irving Street-Carl Street, Lincoln Avenue, and Kirkham Street. Primary north-south routes to the Parnassus Heights campus site include Stanyan Street, Arguello Boulevard, Seventh Avenue, and Second Avenue through Fifth Avenue. The primary vehicular entrances to parking and loading areas for the campus site are located at the intersections of Second Avenue/Irving Street, Arguello Boulevard/Carl Street-Irving Street, along Parnassus Avenue, and at Fifth Avenue/Kirkham Street. The street network providing access to the Parnassus Heights campus site and the three other UCSF campus sites included in this study are shown in Figure 2-2.
Figure 2-2
Roadway Network and Study Intersections-
All Campus Sites
2.3.1.1 Regional Access

Regional access to the Parnassus Heights campus site is provided by several major freeways, as discussed below.

**Interstate 80 (I-80)** is a six-lane freeway located approximately three miles east of the campus site and connects San Francisco to the East Bay and other points east via the San Francisco-Oakland Bay Bridge. I-80 connects to U.S. 101 east of the campus site.

**U.S. Highway 101 (U.S. 101)** is an eight-lane freeway located approximately two miles east of the Parnassus Heights campus site. U.S. 101 connects San Francisco with the peninsula and the South Bay to the south and with the North Bay to the north via the Golden Gate Bridge. U.S. 101 connects to I-80 east of the campus site. Within the northern part of San Francisco, U.S. 101 operates on surface streets (i.e., Van Ness Avenue and Lombard Street). Van Ness Avenue and Lombard Street are part of the Citywide Pedestrian Network outlined in the Transportation Element of the *San Francisco General Plan*.

**State Highway 1 (19th Avenue)** is located approximately one mile west of the campus site, connecting San Francisco to the North Bay via the Golden Gate Bridge and to the South Bay via a connection to I-280 south of the campus site. Within the study area, 19th Avenue has six lanes, with left turns prohibited at most intersections. Restricted on-street parking is permitted on both sides of the street.

2.3.1.2 Local Access

Local access to the Parnassus Heights campus site is provided by an urban street grid network. Key local roadways through the campus site are discussed in detail below and defined according to roadway classifications identified in the San Francisco General Plan Transportation Element.

**Kirkham Street** is a two-lane east-west Local Street that runs between the Parnassus Heights campus site (at Fourth Avenue and the Dental Clinics) to La Playa Street in the west. East of Fifth Avenue, Kirkham Street becomes Koret Way (a Campus Street) and provides access to the School of Dentistry, Laboratory of Radiology, Medical Research 4, and School of Nursing buildings. On-street parking is provided on both sides of the street in most areas. West of Sixth Avenue, Kirkham Street has Class II bicycle lanes in both directions.

**Parnassus Avenue/Judah Street** is a two to three-lane east-west roadway that extends from Clayton Street to 48th Avenue. The City of San Francisco designates this roadway as Parnassus Avenue east of Fifth Avenue, and Judah Street west of Fifth Avenue. The City classifies this roadway as a Secondary Transit Street east of Ninth Avenue (in the vicinity of the Parnassus Heights campus site) and a Primary Transit Street (Transit-Oriented) west of Ninth Avenue. It has dual trolley wires in both directions for the 6 Parnassus bus route; there are bus stops roughly every 500 feet for both the 6 Parnassus and 43 Masonic bus routes. On-street parking is provided on both sides of the street in most areas. A two-way left turn lane extends from Stanyan Street to the Moffitt-Long Hospital. Access to the Millberry Union Garage is across from the Moffitt/Long Hospital Drop-off/Pick-up area (whose exit is signed as right turn only); two signalized crosswalks facilitate heavy pedestrian volumes across the street in the same location. Parnassus Avenue/Judah Street is also designated as a Class III bicycle route east of Sixth Avenue. Class III bicycle routes employ shared-lane markings (“sharrows”).

**Carl Street/Irving Street** is a two-lane east-west roadway that extends from Clayton Street to 48th Avenue. East of Arguello Boulevard, the City designates the roadway as Carl Street; and as Irving Street to
the west. The City classifies this roadway as a Primary Transit Street (transit-oriented) east of Ninth Avenue. The N Judah light rail line operates along the roadway between Cole Street and Ninth Avenue. On-street parking is provided on both sides of the street in most areas. The street provides exclusive turn pockets for vehicles to enter the UCSF parking garage at the Second Avenue/Irving Street intersection.

**Hugo Street** is an east-west Local Street between Arguello Boulevard and Seventh Avenue. It has one lane in each direction, and on-street parking is provided on both sides of the street. Between Seventh Avenue and Third Avenue, Hugo Street is designated as a Class III bicycle route.

**Lincoln Way/Frederick Street** is a two to four-lane east-west Secondary Transit Street that forms the southern boundary of Golden Gate Park. The City designates this roadway as Frederick Street east of Arguello Boulevard; to the west the City designates the roadway as Lincoln Way. On-street parking is provided on both sides of the street. At Third Avenue, Lincoln Way merges with Kezar Drive and is a main thoroughfare between the Sunset District and downtown. The 71/71L Haight-Noriega uses the entirety of Lincoln Way and Fredrick Street to travel to Stanyan Street, while the 16X Noriega Express and NX Express use Lincoln Way to merge onto Kezar Drive in order to get to the Fell-Oak one-way couplet.

**Kezar Drive** is a two to four-lane east-west Major Arterial Street north of Parnassus Avenue that provides the major connection from the Parnassus Heights campus site to the Fell-Oak Street one-way couplet. Kezar Drive accommodates approximately 160 restricted parking spaces. The 16X Noriega Express and NX Express bus lines use Kezar Drive to travel from Lincoln Way to Oak Street. Kezar Drive also has a Class I bike path facility.

**Stanyan Street** is a north-south Secondary Transit Street from Geary Boulevard to Belgrave Avenue. It forms the eastern boundary of Golden Gate Park (excluding the Panhandle section of the park). In the vicinity of the Parnassus Heights campus site (north of Frederick Street), it is a four-lane roadway; south of Fredrick, it is a two-lane street. On-street parking is provided on both sides of the street in most areas. The 71/71L Haight-Noriega bus line operates along Stanyan Street north of Frederick Street.

**Willard Street** is a two-lane north-south Local Street that runs from Fredrick Street to Woodland Avenue. On-street parking is provided on both sides of the street, with 90-degree parking on the east side of the street between and Carl Street and Parnassus Avenue and the west side of the street between Parnassus Avenue and Belmont Avenue.

**Hillway Avenue** is a two-lane Local Street between Parnassus Avenue and Carl Street. Hillway Avenue is on a steep grade and has 90-degree parking on the east side of the street.

**Arguello Boulevard** is a two-lane north-south Local Street that runs from Kezar Drive to Carl Street. On-street parking is provided on both sides of the street, with parking at 90-degrees between Lincoln Way/Fredrick Street and Carl Street.

**Second Avenue** is a two-lane north-south Local Street that runs from Lincoln Way to Irving Street, with the southern end of the street providing direct access to a large public parking deck on the UCSF campus. On-street parking is provided on both sides of the street.

**Third Avenue** is a two-lane Local Street between Lincoln Way and Parnassus Avenue. Between Irving Street and Parnassus Avenue, the street has 90-degree parking on the east side of the street. On-street parking is provided on both sides of the street in most areas north of Irving Street. Between Hugo Street
and Lincoln Way, Third Avenue is a designated Class III bicycle route. Third Avenue provides eastbound only access at Lincoln Way.

**Fourth Avenue** is a two-lane Local Street between Lincoln Way and Parnassus Avenue. Between Irving Street and Parnassus Avenue, the street has 90-degree parking on the east side of the street. On-street parking is provided on both sides of the street in most areas north of Irving Street. Fourth Avenue is unsignalized and provides eastbound only access at Lincoln Way.

**Fifth Avenue** is a two-lane Local Street between Lincoln Way and its terminus south of Kirkham Street. Between Irving Street and Parnassus Avenue, the street has 90-degree parking on the east side of the street. On-street parking is provided on both sides of the street in most areas north of Irving Street. Fifth Avenue is signalized and provides full access at Lincoln Way.

**Sixth Avenue** is a two-lane Local Street between Lincoln Way and its terminus south of Kirkham Street. On-street parking is provided on both sides of the street in most areas. Sixth Avenue is designated as a bicycle route between Hugo Street and Kirkham Street and has a southbound Class II bicycle lane and northbound sharrows. South of Kirkham Street, Sixth Avenue becomes Locksley Avenue.

**Seventh Avenue** is a north-south Secondary Transit Street, which provides access to Golden Gate Park and becomes Laguna Honda Boulevard to the south of the Parnassus Heights campus site. It has one northbound and two southbound lanes in the vicinity of the campus site. On-street parking is provided on both sides of the street. Seventh Avenue is designated as a Class III bicycle route between Lincoln Way and Judah Street and as a Class II bicycle lane south of Judah Street. The 36 Teresita, 43 Masonic, and 44 O’Shaughnessy bus lines operate on Seventh Avenue south of Lawton Street.

**Eighth Avenue** is a two-lane north-south Local Street between Lincoln Way and its southern terminus at Pacheco Street. On-street parking is provided on both sides of the street. The 66 Quintara bus line operates along Eighth Avenue between Parnassus Avenue and Lawton Street in the northbound direction only.

**Ninth Avenue** is a Secondary Transit Street, which provides access to Golden Gate Park and the Sunset District. It has one northbound and two southbound lanes in the vicinity of the Parnassus Heights campus site. On-street parking is provided on both sides of the street. The N Judah light rail line operates on Ninth Avenue between Irving and Judah Streets. The 43 Masonic and 66 Quintara bus lines operate along Ninth Avenue between Judah Street and Lawton Street while the 44 O’Shaughnessy line runs between Golden Gate Park and Lawton Street.
2.3.1.3 Parnassus Avenue Counts

Traffic volumes on Parnassus Avenue between Fifth Avenue and Medical Center Way were collected for seven consecutive days, 24-hours per day, in 2007. More recent counts in 2013 showed that traffic volumes on Parnassus Avenue have remained mostly unchanged since 2007. The total daily traffic volume on Parnassus Avenue is relatively low by comparison to other two-lane streets in San Francisco. For example Polk Street carries approximately 16,000 vehicles per day compared to approximately 10,000 vehicles per day on Parnassus Avenue. Although Polk Street serves more commercial retail uses, compared to the more institutional and residential uses along Parnassus Avenue, this comparison shows that a two-lane street with frequent transit service is capable of serving much more traffic than currently exists on Parnassus Avenue, and that an oft described “busy feel” on Parnassus is due more to other factors, such as double-parking and high pedestrian volumes, than to heavy traffic volumes.

2.3.2 Intersection Operating Conditions

This report evaluates intersection operating conditions during the weekday AM (7:00AM-9:00AM) and PM (4:00PM-6:00PM) peak periods. Intersections usually form the critical capacity constraints on roadways. Therefore, most transportation analyses examine intersection operations as a measure of overall roadway conditions. The following 23 study intersections were selected for analysis through consultation with UCSF Campus Planning and San Francisco Planning Department staff. These study intersections are shown in Figure 2-2.
1. Oak Street-Fell Street-Kezar Drive/Stanyan Street
2. Lincoln Way/Ninth Avenue
3. Lincoln Way/Seventh Avenue
4. Lincoln Way/Fourth Avenue
5. Kezar Drive/Lincoln Way/Third Avenue
6. Fredrick Street/Stanyan Street
7. Irving Street/Ninth Avenue
8. Irving Street/Seventh Avenue
9. Irving Street/Fourth Avenue
10. Irving Street/Second Avenue
11. Irving Street/Arguello Boulevard
12. Judah Street/Ninth Avenue
13. Judah Street/Seventh Avenue
14. Judah Street/Sixth Avenue
15. Judah Street-Parnassus Avenue/Fifth Avenue
16. Parnassus Avenue/Fourth Avenue
17. Parnassus Avenue/Third Avenue
18. Parnassus Avenue/Hillway Avenue
19. Parnassus Avenue/Hill Point Avenue
20. Parnassus Avenue/Stanyan Street
21. Kirkham Street/Seventh Avenue
22. Kirkham Street/Sixth Avenue
23. Kirkham Street/Fifth Avenue

Figure 2-3A and 2-3B display the existing AM and PM peak hour traffic volumes, lane configurations and traffic controls at each of the 23 study intersections. Intersection turning movement counts at the study intersections were collected in October 2011 and May 2013 on mid-week and non-holiday days when schools were in session. Intersection turning movement count sheets are provided in Appendix D.

The operating characteristics of intersections are evaluated using the concept of Level of Service (“LOS”). LOS is a qualitative description of driver comfort and convenience. Intersection levels of service range from LOS A, which indicates free flow or excellent vehicle flow conditions with short delays, to LOS F, which indicates congested or overloaded vehicle flow conditions with extremely long delays. For UCSF, LOS A through D is considered acceptable, and LOS E and LOS F are considered unsatisfactory service levels. The intersections were evaluated using the 2000 Highway Capacity Manual (HCM) methodology. Tables summarizing the relationship between average delay per vehicle and LOS for signalized and unsignalized intersections according to the 2000 HCM method can be found in Appendix E.
Figure 2-3A

Existing Intersection Lane Configurations, Traffic Control, and Volumes - Parnassus Heights
### Existing Intersection Lane Configurations, Traffic Control, and Volumes - Parnassus Heights

#### Figure 2-3B

<table>
<thead>
<tr>
<th>Intersection</th>
<th>AM (PM)</th>
<th>Peak Hour Traffic Volume</th>
<th>Traffic Signal</th>
<th>Stop Sign</th>
<th>Turn Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Irving St/Second Ave</td>
<td>16 (42)</td>
<td>97 (256) 17 (16)</td>
<td>Irving St</td>
<td>24 (31) 271 (117) 25 (24)</td>
<td>6 (12) 32 (8) 16 (10)</td>
</tr>
<tr>
<td>11. Irving-Carl St/Arguello Blvd</td>
<td>26 (38)</td>
<td>70 (18) 34 (78)</td>
<td>Arguello Blvd</td>
<td>22 (116) 128 (183) 135 (4)</td>
<td>35 (45) 92 (138) 35 (7)</td>
</tr>
<tr>
<td>12. Judah St/Ninth Ave</td>
<td>16 (28)</td>
<td>95 (199) 27 (44)</td>
<td>Ninth Ave</td>
<td>298 (165) 16 (23)</td>
<td>3 (91) 8 (83) 6 (60)</td>
</tr>
<tr>
<td>13. Judah St/Seventh Ave</td>
<td>24 (69)</td>
<td>36 (102) 9 (96)</td>
<td>Seventh Ave</td>
<td>13 (25) 101 (226) 86 (93)</td>
<td>48 (60) 326 (422)</td>
</tr>
<tr>
<td>14. Judah St/Sixth Ave</td>
<td>26 (25)</td>
<td>315 (222) 8 (19)</td>
<td>Sixth Ave</td>
<td>26 (25) 315 (222) 8 (19)</td>
<td>54 (53) 105 (199) 27 (44)</td>
</tr>
<tr>
<td>15. Judah St-Parnassus Ave/Fifth Ave</td>
<td>26 (44)</td>
<td>8 (21) 5 (10)</td>
<td>Fifth Ave</td>
<td>14 (7) 412 (301) 20 (14)</td>
<td>9 (33) 288 (375) 73 (172)</td>
</tr>
<tr>
<td>16. Parnassus Ave/Fourth Ave</td>
<td>52 (134)</td>
<td>37 (45)</td>
<td>Fourth Ave</td>
<td>26 (20) 486 (378)</td>
<td>55 (33) 467 (346)</td>
</tr>
<tr>
<td>17. Parnassus Ave/Third Ave</td>
<td>45 (42) 309 (438)</td>
<td>48 (60) 326 (422)</td>
<td>Third Ave</td>
<td>48 (60) 326 (422)</td>
<td>45 (42) 309 (438)</td>
</tr>
<tr>
<td>19. Parnassus Ave/Hill Point Ave</td>
<td>13 (20) 288 (304) 26 (20)</td>
<td>1 (6) 353 (328) 17 (12)</td>
<td>Hill Point Ave</td>
<td>13 (20) 288 (304) 26 (20)</td>
<td>1 (6) 353 (328) 17 (12)</td>
</tr>
<tr>
<td>20. Parnassus Ave/Stanyan St</td>
<td>143 (101) 19 (199)</td>
<td>18 (25)</td>
<td>Stanyan St</td>
<td>126 (129) 113 (120) 106 (98)</td>
<td>63 (96) 192 (292) 1 (0)</td>
</tr>
<tr>
<td>21. Kirkham St/Seventh Ave</td>
<td>6 (6) 58 (192) 32 (80)</td>
<td>21 (29) 54 (161) 26 (91)</td>
<td>Seventh Ave</td>
<td>21 (29) 54 (161) 26 (91)</td>
<td>6 (6) 58 (192) 32 (80)</td>
</tr>
<tr>
<td>22. Kirkham St/Sixth Ave</td>
<td>48 (99) 96 (177) 8 (11)</td>
<td>28 (34) 36 (107) 1 (0)</td>
<td>Sixth Ave</td>
<td>28 (34) 36 (107) 1 (0)</td>
<td>48 (99) 96 (177) 8 (11)</td>
</tr>
<tr>
<td>23. Kirkham St/Fifth Ave</td>
<td>107 (58) 99 (50) 11 (5)</td>
<td>9 (13)</td>
<td>Fifth Ave</td>
<td>107 (58) 99 (50) 11 (5)</td>
<td>107 (58) 99 (50) 11 (5)</td>
</tr>
</tbody>
</table>
For signalized intersections, this methodology determines the capacity for each lane group approaching the intersection. The LOS is based on average delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average delay and LOS is presented for the intersection. For unsignalized intersections, operations are defined by the average control delay per vehicle (in seconds per vehicle) for each stop-controlled movement or movement that must yield the right-of-way, and the LOS is determined by the worst (highest average delay) approach. Generally, the delay ranges for each LOS are lower than for signalized intersections because drivers expect less delay at unsignalized intersections.

LOS was calculated at each study intersection for the weekday AM and PM peak hours, which represents the periods of the day when the transportation network as a whole experiences the highest traffic demand. As shown in Table 2-3, 21 of the 23 study intersections operate at an acceptable level of service (LOS D or better) during the AM peak hour and 20 study intersections operate at an acceptable level of service during the PM peak hour.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Traffic Control</th>
<th>Peak Hour</th>
<th>Vehicle Delay (seconds)</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Oak Street-Fell Street-Kezar Drive/Stan year Street</td>
<td>Signal</td>
<td>AM</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>58</td>
<td>D</td>
</tr>
<tr>
<td>2. Lincoln Way / Ninth Avenue</td>
<td>Signal</td>
<td>AM</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>65</td>
<td>D</td>
</tr>
<tr>
<td>3. Lincoln Way / Seventh Avenue</td>
<td>Signal</td>
<td>AM</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>39</td>
<td>C</td>
</tr>
<tr>
<td>4. Lincoln Way / Fourth Avenue</td>
<td>SSS</td>
<td>AM</td>
<td>&gt;50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>23</td>
<td>F</td>
</tr>
<tr>
<td>5. Lincoln Way-Kezar Drive / Third Avenue</td>
<td>SSS</td>
<td>AM</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>29</td>
<td>C</td>
</tr>
<tr>
<td>6. Fredrick Street / Stanyan Street</td>
<td>Signal</td>
<td>AM</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>24</td>
<td>C</td>
</tr>
<tr>
<td>7. Irving Street / Ninth Avenue</td>
<td>Signal</td>
<td>AM</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>20</td>
<td>C</td>
</tr>
<tr>
<td>8. Irving Street / Seventh Avenue</td>
<td>Signal</td>
<td>AM</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>25</td>
<td>C</td>
</tr>
<tr>
<td>9. Irving Street / Fourth Avenue</td>
<td>AWS</td>
<td>AM</td>
<td>11 / 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>11 / 12</td>
<td>B / B</td>
</tr>
<tr>
<td>10. Irving Street / Second Avenue</td>
<td>AWS</td>
<td>AM</td>
<td>10 / 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>11 / 12</td>
<td>B / B</td>
</tr>
<tr>
<td>11. Irving Street / Arguello Boulevard</td>
<td>SSS</td>
<td>AM</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>27</td>
<td>B</td>
</tr>
<tr>
<td>12. Judah Street / Ninth Avenue</td>
<td>Signal</td>
<td>AM</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>16</td>
<td>B</td>
</tr>
<tr>
<td>13. Judah Street / Seventh Avenue</td>
<td>Signal</td>
<td>AM</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>25</td>
<td>C</td>
</tr>
<tr>
<td>14. Judah Street / Sixth Avenue</td>
<td>AWS</td>
<td>AM</td>
<td>17 / 18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>17 / 22</td>
<td>C / C</td>
</tr>
<tr>
<td>15. Judah Street-Parnassus Avenue / Fifth Avenue</td>
<td>SSS</td>
<td>AM</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>42</td>
<td>E</td>
</tr>
</tbody>
</table>
TABLE 2-3: EXISTING PEAK HOUR INTERSECTION LEVEL OF SERVICE - PARNASSUS HEIGHTS

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Traffic Control</th>
<th>Peak Hour</th>
<th>Vehicle Delay^2</th>
<th>LOS^3</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Parnassus Avenue / Fourth Avenue</td>
<td>AWS</td>
<td>AM</td>
<td>15 / 18</td>
<td>B / C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>19 / 23</td>
<td>C / C</td>
</tr>
<tr>
<td>17. Parnassus Avenue / Third Avenue</td>
<td>SSS</td>
<td>AM</td>
<td>17</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>20</td>
<td>C</td>
</tr>
<tr>
<td>18. Parnassus Avenue / Hillway Avenue</td>
<td>SSS</td>
<td>AM</td>
<td>13</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>15</td>
<td>C</td>
</tr>
<tr>
<td>19. Parnassus Avenue / Hill Point Avenue</td>
<td>SSS</td>
<td>AM</td>
<td>17</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>16</td>
<td>C</td>
</tr>
<tr>
<td>20. Parnassus Avenue / Stanyan Street</td>
<td>Signal</td>
<td>AM</td>
<td>41</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>29</td>
<td>C</td>
</tr>
<tr>
<td>21. Kirkham Street / Seventh Avenue</td>
<td>Signal</td>
<td>AM</td>
<td>70</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>30</td>
<td>C</td>
</tr>
<tr>
<td>22. Kirkham Street / Sixth Avenue</td>
<td>AWS</td>
<td>AM</td>
<td>13 / 16</td>
<td>B / C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>13 / 14</td>
<td>B / B</td>
</tr>
<tr>
<td>23. Kirkham Street / Fifth Avenue</td>
<td>AWS</td>
<td>AM</td>
<td>&lt;10 / &lt;10</td>
<td>A / A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>&lt;10 / &lt;10</td>
<td>A / A</td>
</tr>
</tbody>
</table>

Notes:
1. AWS = All-way stop controlled; SSS = Side Street stop controlled; Signal = Signal controlled
2. Delay reported as seconds per vehicle. For signalized intersections, a combined weighted average delay for the various movements within the intersection is reported. For SSS intersections, the highest average delay for an approach is reported. For AWS intersection, the combined weighted average delay of the intersection is reported, followed by the highest average delay for an approach.
3. For signalized intersections, LOS based on average intersection delay, based on the methodology in the Highway Capacity Manual, 2000. For unsignalized intersection, LOS is based on the worst approach which is indicated in parentheses.
4. Bold indicates unacceptable operations per UCSF LOS standards


The following intersections operate unacceptably during the AM or PM peak hours:

- Oak Street-Fell Street-Kezar Drive and Stanyan Street (Intersection #1) operates at LOS E during the PM peak hour due to the traffic volumes on north and southbound Stanyan Street.
- Lincoln Way and Ninth Avenue (Intersection #2) operates at LOS E during the PM peak hour due to the conflicting traffic volumes on westbound Lincoln Way and southbound Ninth Avenue.
- Lincoln Way and Fourth Avenue (Intersection #4) operates at LOS F during the AM peak hour due to high conflicting traffic volumes on eastbound Lincoln Way.
- Judah Street-Parnassus Avenue and Fifth Avenue (Intersection #15) operates at LOS E during the PM peak hour due to combination of the traffic volumes on the stop-controlled approaches of Fifth Avenue and the relative lack of gaps in traffic on Judah Street-Parnassus Avenue.
- Kirkham Street and Seventh Avenue (Intersection #21) operates at LOS E during the AM peak hour due to the relatively high conflicting traffic volumes on northbound Seventh Avenue and eastbound Kirkham Street.
2.3.3 Transit Network

The Parnassus Heights campus site is well-served by public transit, both local and regional. Local service is provided by the San Francisco Municipal Railway (Muni) bus and light rail lines, which provide transit service to the campus site and throughout San Francisco and can be used to access regional transit operators. Service to and from the East Bay is provided by Bay Area Rapid Transit (BART), Alameda-Contra Costa Transit (AC Transit) and ferries; service to and from the North Bay is provided by Golden Gate Transit buses and ferries; service to and from the Peninsula and South Bay is provided by SamTrans, BART, and Caltrain. As described in Section 2.2.1, UCSF supplements Muni transit service with its own shuttle system that provides direct connections to UCSF-operated or affiliated facilities throughout San Francisco. In many cases, these shuttles provide a direct transit alternative between two campus sites that would otherwise require a transfer between two or more Muni routes. Approximately 24 percent of those traveling to the Parnassus Heights campus site use public transit, while another 12 percent rely on UCSF shuttles to get to and from the campus site. Figure 2-4 visualizes the local transit routes, including bus and shuttle stops, in the vicinity of the Parnassus Heights campus site.

2.3.3.1 San Francisco Muni

San Francisco Municipal Railway (Muni) provides transit service within the City and County of San Francisco, including bus (both diesel and electric trolley), light rail (Muni Metro), cable car and electric streetcar lines. Muni operates a number of bus and rail lines in the Parnassus Heights campus site. Table 2-4 presents the Muni routes serving the campus site within about a quarter-mile walk. Table 2-5 summarizes existing ridership during the AM and PM peak hours. The route characteristics are current as of December 2013, including service frequencies during the weekday morning and evening peak periods, hours of operations and neighborhoods served, as well as ridership and capacity utilization at each line’s maximum load point (“MLP”). The MLP is the location where the route has its highest number of passengers relative to its capacity. Capacity utilization relates the number of passengers per transit vehicle to the design capacity of the vehicle. The capacity per vehicle includes both seated and standing capacity, where standing capacity is between 30 to 80 percent of seated capacity in addition to seated capacity (depending upon the specific transit vehicle configuration). The capacity of a standard bus is 63 passengers.
Figure 2-4

Existing Transit Service-
Parnassus Heights
### TABLE 2-4: LOCAL MUNI OPERATIONS - PARNASSUS HEIGHTS

<table>
<thead>
<tr>
<th>Route</th>
<th>AM Peak Weekday Headways (7-9AM)</th>
<th>PM Peak Weekday Headways (4-6PM)</th>
<th>Hours of Operation</th>
<th>Neighborhoods Served by Route</th>
<th>Nearest Stop Location</th>
<th>Distance to Campus Site (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 – Parnassus</td>
<td>10</td>
<td>10</td>
<td>6AM – 1:30AM</td>
<td>Financial District, Golden Gate Heights</td>
<td>Several stops on Parnassus between Hillway Avenue and Fifth Avenue</td>
<td>0</td>
</tr>
<tr>
<td>16X – Noriega Express</td>
<td>9</td>
<td>9 – 10</td>
<td>Inbound: 6:30AM – 9AM Outbound: 4PM – 7PM</td>
<td>Financial District, Sunset District</td>
<td>Ninth Avenue and Lincoln Way</td>
<td>2,000</td>
</tr>
<tr>
<td>36 – Teresita</td>
<td>30</td>
<td>30</td>
<td>6AM – 11:30PM</td>
<td>Bernal Heights, Twin Peaks</td>
<td>Warren Drive and Locksley Avenue</td>
<td>1,500</td>
</tr>
<tr>
<td>43 – Masonic</td>
<td>10</td>
<td>12</td>
<td>5AM – 1:30AM</td>
<td>Marina District, The Excelsior</td>
<td>Several stops on Parnassus between Hillway Avenue and Fifth Avenue</td>
<td>0</td>
</tr>
<tr>
<td>44 – O’Shaughnessy</td>
<td>10</td>
<td>9</td>
<td>5AM – 1AM</td>
<td>Bayview/Hunters Point, Richmond District</td>
<td>Lawton Street and Seventh Avenue</td>
<td>1,500</td>
</tr>
<tr>
<td>66 – Quintara</td>
<td>20</td>
<td>20</td>
<td>6AM – 11PM</td>
<td>Sunset District</td>
<td>Lawton Street and Ninth Avenue</td>
<td>1,800</td>
</tr>
<tr>
<td>71/71L – Haight-Noriega/Limited</td>
<td>10</td>
<td>10</td>
<td>6AM – 1AM</td>
<td>Financial District, Haight-Ashbury, Sunset District</td>
<td>Frederick Street and Arguello Boulevard</td>
<td>600</td>
</tr>
<tr>
<td>N – Judah</td>
<td>7</td>
<td>7</td>
<td>3:30AM – 1:30AM</td>
<td>Financial District, Sunset District</td>
<td>Irving Street and Second Avenue</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:**
1. Headway in minutes.

TABLE 2-5: PEAK HOUR MUNI RIDERSHIP - PARNASSUS HEIGHTS

<table>
<thead>
<tr>
<th>Route</th>
<th>AM Peak Ridership at MLP(^1) (Inbound / Outbound)</th>
<th>AM Peak Capacity Utilization at MLP(^1) (Inbound / Outbound)(^2)</th>
<th>PM Peak Ridership at MLP(^1) (Inbound / Outbound)</th>
<th>PM Peak Capacity Utilization at MLP(^1) (Inbound / Outbound)(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 – Parnassus</td>
<td>270</td>
<td>71%</td>
<td>156</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>109</td>
<td>32%</td>
<td>252</td>
<td>67%</td>
</tr>
<tr>
<td>16X – Noriega Express</td>
<td>340</td>
<td>59%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>N/A</td>
<td>253</td>
<td>49%</td>
</tr>
<tr>
<td>36 – Teresita</td>
<td>42</td>
<td>47%</td>
<td>62</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>56%</td>
<td>30</td>
<td>33%</td>
</tr>
<tr>
<td>43 – Masonic</td>
<td>348</td>
<td>92%(^3)</td>
<td>160</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>246</td>
<td>65%</td>
<td>240</td>
<td>76%</td>
</tr>
<tr>
<td>44 – O’Shaughnessy</td>
<td>398</td>
<td>84%(^4)</td>
<td>180</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>222</td>
<td>59%</td>
<td>353</td>
<td>84%(^5)</td>
</tr>
<tr>
<td>66 – Quintara</td>
<td>45</td>
<td>33%</td>
<td>18</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>48</td>
<td>36%</td>
<td>48</td>
<td>36%</td>
</tr>
<tr>
<td>71/71L – Haight-Noriega/Limited</td>
<td>300</td>
<td>79%</td>
<td>258</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>131</td>
<td>38%</td>
<td>324</td>
<td>86%(^6)</td>
</tr>
<tr>
<td>N – Judah</td>
<td>1,792</td>
<td>94%(^7)</td>
<td>880</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>544</td>
<td>29%</td>
<td>1,773</td>
<td>83%(^8)</td>
</tr>
</tbody>
</table>

Notes:
1. Maximum load point, which is the point at which the route has the maximum number of passengers relative to capacity, is identified for those lines operating above or near 85 percent.
2. **Bold** indicates capacity utilization of 85 percent or greater, which is a typical crowding standard used by transit agencies.
3. MLP located at Chestnut Street/Fillmore Street.
4. MLP located at Silver Avenue/Congdon Street.
5. MLP located at Alemany Boulevard/Lyell Street.
6. MLP located at Haight Street/Fillmore Street.
7. MLP located at Duboce Avenue/Church Street.
8. MLP located at Duboce Avenue/Church Street.


2.3.3.1.1 Recent and Proposed Changes to Transit Service

The Transit Effectiveness Project (TEP) serves as both a thorough review of and repositioning of San Francisco’s public transit system, initiated by SFMTA in collaboration with the City Controller’s Office. The TEP is aimed at improving reliability, reducing travel times, providing more frequent service and updating Muni bus routes and rail lines to better match current travel patterns. TEP recommendations include new routes and route realignments, more service on busy routes, and elimination or consolidation of certain routes or route segments with low ridership. The TEP recommendations were unanimously endorsed by the SFMTA Board of Directors in October 2008, for environmental impact review. The initial TEP recommendations were revised based on public feedback on the draft TEP environmental impact report (TEP EIR). The TEP EIR was certified on March 27, 2014, and the SFMTA Board of Directors approved most
of the Service Improvements and portions of the Transit Travel Time Reduction Proposals on March 28, 2014.\(^6\) The TEP projects would be implemented based on funding and resource availability. The TEP Implementation Strategy anticipates that many of the improvements would be implemented sometime between Fiscal Year 2014 and Fiscal Year 2019, subject to funding sources and resource availability.\(^7\) The following changes are proposed by the TEP for routes near the Parnassus Heights campus site.

- **6 Parnassus** - The TEP proposes changes to peak period headways, increasing from 10 minute to 12 minute headways in the AM peak period and from 10 minute to 12 minute headways during the PM peak period.

- **43 Masonic** – The TEP proposes to modify and extend the alignment of the 43 Masonic. The route will extend from Chestnut/Fillmore Streets to Fort Mason (Marina Boulevard/Laguna Street), replacing the existing Route 28 19th Avenue/28L 19th Avenue Limited terminal with new service on Lombard Street between Webster and Laguna Streets, Laguna Street between Lombard and Beach Streets, Beach and Bay Streets between Laguna and Buchanan Streets, and Buchanan Street between Bay and Beach Streets. Service in the Presidio will be modified to serve the Presidio Transit Center via Lincoln Boulevard between Letterman Drive and Graham Street, Graham Street between Lincoln Boulevard and French Court, French Court between Graham and Hallack Streets, and Hallack Street between French Court and Lincoln Boulevard. The TEP also proposes changes to peak period headways, reducing from 10 minute to 8 minute headways in the AM peak period and from 12 minute to 10 minute headways during the PM peak period.

- **44 O’Shaughnessy** – The TEP proposes changes to peak period headways, reducing from 10 minute to 7.5 minute headways in the AM peak period and from 10 minute to 7.5 minute headways during the PM peak period.

- **71/71L Haight-Noriega** – The TEP proposes to replace the 71 Haight Noriega with all-day limited stop service on Haight Street in both directions, similar to 71L service, which currently operates only in the peak period, peak direction. The route would make local stops west of Stanyan Street and on Market Street and would make limited stops between Stanyan and Market streets. The TEP also proposes changes to peak period headways, reducing from 10 minute to 7.5 minute headways in the AM peak period and from 10 minute to 7.5 minute headways during the PM peak period.

- **N Judah** - The TEP proposes changes to peak period headways, reducing from 9 minute to 8 minute headways in the AM peak period and from 9 minute to 8 minute headways during the PM peak period. In addition, the TEP proposes to implement traffic signal priority (TSP) toolkit elements in both the inbound and outbound directions, from the intersection of Carl and Cole streets to the intersection of Judah and La Playa streets. The TEP has a Moderate and Expanded Alternative. The Moderate Alternative would include transit stop changes, pedestrian improvements, and parking and turn restrictions. This alternative would also replace stop signs

---


with traffic signals at seven intersections on Judah Street and one intersection on Irving Street. The Expanded Alternative would include the same transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes as the Moderate Alternative, except that stop signs at five of the intersections along Judah Street would be replaced with traffic calming measures, rather than traffic signals.

2.3.3.2 Regional Transit Service

In addition to Muni operations, regional transit service was considered. The following regional transit services operate within San Francisco and are accessible from the Parnassus Heights campus site via Muni or UCSF shuttles. Table 2-6 presents the regional transit routes serving the transit study area and route characteristics as of November 2013, including service frequencies during the weekday morning and evening peak periods, hours of operations and neighborhoods served.

Golden Gate Transit

The Golden Gate Bridge, Highway, and Transportation District operates Golden Gate Transit (GGT), which provides bus and ferry service between the North Bay (Marin and Sonoma counties) and San Francisco. GGT operates 22 commuter bus routes, nine basic bus routes, and 16 ferry feeder bus routes into San Francisco. Bus routes operate at headways of 15 to 90 minutes depending on time and day of week and bus type. Golden Gate Transit also operates ferry service between the North Bay and San Francisco, connecting Larkspur and Sausalito with the Ferry Building during the morning and evening commute periods. Golden Gate Transit riders would need to transfer to Muni to access the Parnassus Heights campus site.

Alameda-Contra Costa County Transit District (AC Transit)

AC Transit operates bus service in western Alameda and Contra Costa Counties, as well as routes to the City of San Francisco and San Mateo County. AC Transit operates 33 "Transbay" bus routes between the East Bay and the Temporary Transbay Terminal, temporarily located at Howard Street and Beale Street. The Temporary Transbay Terminal is accessible from the Parnassus Heights campus site via Muni. The majority of Transbay service is provided only during commute periods in the peak direction of travel, with headways between buses from 15 to 20 minutes. The peak direction of service is into San Francisco during the AM peak period and out of San Francisco during the PM peak period. All-day service is provided on a few lines, with headways of approximately 30 minutes. AC Transit riders would need to transfer to Muni to access the Parnassus Heights campus site.

San Mateo County Transit District (SamTrans)

SamTrans operates bus and rail service in San Mateo County. A few SamTrans routes also serve the Temporary Transbay Terminal in downtown San Francisco, including Routes 292, 391, and 397. Route 292 makes San Francisco stops along Potrero Avenue and Mission Street throughout the day. AM peak hour headways are between 10 and 15 minutes, and PM peak hour headways are 20 minutes. Routes 391 and 397 run along Mission Street in San Francisco but stop only at the Temporary Transbay Terminal. Route 391 operates only during the peak travel periods with 15 minute headways; Route 397 is a late night service route with headways of one hour. SamTrans riders would need to transfer to Muni to access the Parnassus Heights campus site.
Bay Area Rapid Transit (BART)

BART provides regional commuter rail service between San Francisco and the East Bay (Pittsburg/Bay Point, Richmond, Dublin/Pleasanton and Fremont), as well as between San Francisco and San Mateo County (SFO Airport and Millbrae). Weekday hours of operation are between 4:00 AM and midnight. During the weekday PM peak period, headways are 5 to 15 minutes along each line. Within San Francisco, BART operates underground along Market Street to Civic Center Station where it turns south through the Mission District towards Daly City. The closest BART station to the Parnassus Heights campus site is the Civic Center BART station, which is accessible via Muni.

Caltrain

Caltrain provides passenger rail service on the Peninsula between San Francisco and Downtown San Jose with several stops in San Mateo County and Santa Clara County. Limited service is available south of San Jose. Caltrain service headways during the AM and PM peak periods are 10 to 60 minutes, depending on the type of train. The peak direction of service is southbound during the AM peak period and northbound during the PM peak period. Caltrain service terminates at the San Francisco Station at Fourth and King streets (Fourth/King station). The Fourth/King station is served by local, limited, and express “Baby Bullet” trains which is accessible from the Parnassus Heights campus site via Muni.
### TABLE 2-6: REGIONAL TRANSIT OPERATIONS - PARNASSUS HEIGHTS

<table>
<thead>
<tr>
<th>Route</th>
<th>AM Peak Weekday Headways (7AM-9AM) (^1)</th>
<th>PM Peak Weekday Headways (4PM-6PM) (^1)</th>
<th>Hours of Operation</th>
<th>Areas Served by Route</th>
<th>Nearest Stop Location</th>
<th>Distance to Project Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caltrain Local</td>
<td>-</td>
<td>-</td>
<td>4:30AM-12:01AM (IB) 4:55AM-1:32AM (OB)</td>
<td>San Francisco, San Jose</td>
<td>Fourth and King</td>
<td>3.6 miles</td>
</tr>
<tr>
<td>Caltrain Limited-Stop</td>
<td>10-20</td>
<td>20-60</td>
<td>5:50AM-8:00PM (IB) 6:11AM-8:19PM (OB)</td>
<td>San Francisco, San Jose</td>
<td>Fourth and King</td>
<td>3.6 miles</td>
</tr>
<tr>
<td>Caltrain Baby Bullet</td>
<td>10-40</td>
<td>20-40</td>
<td>5:45AM-7:24PM (IB) 6:57AM-7:39PM (OB)</td>
<td>San Francisco, San Jose</td>
<td>Fourth and King</td>
<td>3.6 miles</td>
</tr>
<tr>
<td>BART</td>
<td>5-15</td>
<td>5-15</td>
<td>4:00AM-12:00AM (IB/OB)</td>
<td>East Bay, San Francisco, San Mateo County</td>
<td>Civic Center</td>
<td>2.7 miles</td>
</tr>
<tr>
<td>AC Transit</td>
<td>15-20</td>
<td>15-20</td>
<td>12:00AM-12:00AM (IB/OB)</td>
<td>East Bay, San Francisco</td>
<td>Beale between Folsom and Howard</td>
<td>3.9 miles</td>
</tr>
<tr>
<td>SamTrans Route 292</td>
<td>10-15</td>
<td>20</td>
<td>3:55AM-2:28AM (IB) 4:30AM-12:00AM (OB)</td>
<td>San Mateo County, SFO, San Francisco</td>
<td>Potrero / 24(^{th})</td>
<td>2.8 miles</td>
</tr>
<tr>
<td>GGT commuter and basic bus routes</td>
<td>15-90</td>
<td>15-90</td>
<td>4:01AM-12:41AM (IB) 5:06AM-2:28AM (OB)</td>
<td>North Bay, San Francisco</td>
<td>Eighth / Folsom</td>
<td>2.7 miles</td>
</tr>
</tbody>
</table>

**Notes:**

1. Headway in minutes.

**Source:** Caltrain, BART, AC Transit, SamTrans, GGT; Prepared by Fehr & Peers, 2013.
2.3.3.3 UCSF Shuttle System

Table 2-7 summarizes the UCSF shuttle routes serving the campus site, which includes most of the shuttle routes provided by UCSF. Shuttles to and from the Parnassus Heights campus site stop at shuttle zones along the north side of Parnassus Avenue, between Third Avenue and the Library, and on the south side of Parnassus Avenue, just west of UC Hall and also east of LPPI (as shown in Figure 2-4). These stops are designated by UCSF Transportation Services and reviewed/approved by SFMTA. UCSF shuttles were not observed to interfere with Muni operations at the Parnassus Heights campus site.

<table>
<thead>
<tr>
<th>Route</th>
<th>Campus Sites Served</th>
<th>Hours of Operation</th>
<th>Headways (minutes)¹</th>
<th>Average Weekday Boardings (2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>Parnassus-Mt. Zion-Mission Bay-SFGH</td>
<td>5:45 AM – 9:25 PM</td>
<td>15/20</td>
<td>924</td>
</tr>
<tr>
<td>Blue</td>
<td>Parnassus-SFGH-Mission Bay-Mt. Zion</td>
<td>5:35 AM – 8:47 PM</td>
<td>15/20</td>
<td>996</td>
</tr>
<tr>
<td>Black</td>
<td>Parnassus-Mt. Zion-Laurel Heights</td>
<td>6:30 AM – 7:50 PM</td>
<td>20</td>
<td>781</td>
</tr>
<tr>
<td>Tan</td>
<td>Parnassus-Laurel Heights-Mt. Zion</td>
<td>6:50 AM – 7:45 PM</td>
<td>20</td>
<td>651</td>
</tr>
<tr>
<td>Purple</td>
<td>Parnassus (Library)-3360 Geary-Mt. Zion-3360 Geary</td>
<td>6:15 AM – 6:38 PM</td>
<td>45</td>
<td>171</td>
</tr>
<tr>
<td>Grey</td>
<td>Parnassus-Mission Bay</td>
<td>6:30 AM – 10:00 PM</td>
<td>20</td>
<td>1,470</td>
</tr>
<tr>
<td>Lime</td>
<td>Parnassus-BDC-MCB</td>
<td>6:05 AM – 8:31 PM</td>
<td>15</td>
<td>732</td>
</tr>
<tr>
<td>Pink</td>
<td>Parnassus E/R-Kezar</td>
<td>5:30 AM – 9:00AM</td>
<td>15</td>
<td>144</td>
</tr>
<tr>
<td>VA-Parnassus</td>
<td>Parnassus-VAMC</td>
<td>6:35 AM – 7:05 PM</td>
<td>30/60</td>
<td>89</td>
</tr>
<tr>
<td>Bronze</td>
<td>Aldea-Medical Building 1 (ACC)-Library-Sixth-Dental-Parnassus LPPI</td>
<td>6:45 AM – 6:29 PM</td>
<td>15/20</td>
<td>787</td>
</tr>
</tbody>
</table>

Notes:
1. Multiple values indicate variability in headways during the day.

2.3.4 Pedestrian Circulation

Walking to and from the Parnassus Heights campus site is a common travel mode option for many UCSF employees and students. Approximately 11 percent of those traveling there walk to and from the campus site.

Pedestrian volumes were collected at each crosswalk in the Parnassus Heights campus site between 7:00 AM and 7:00 PM in both 2007 and 2013, as shown in Figure 2-5. A comparison of these counts showed that pedestrian volumes are essentially unchanged between 2007 and 2013, as evidenced by a total of approximately 25,300 and 26,000 average crossings, respectively. Some slight variations in crossing volumes at individual crosswalks was observed and since there has not been any significant development in the area since 2007, most changes in pedestrian activity would likely be related to typical seasonal or daily fluctuations or attributable to adjustments in the UCSF shuttle system routing. However, counts at the pedestrian crossing in front of the Medical Building 1 (ACC) at Irving Street increased 60 percent between 2007 and 2013. This may be an indication of increased light rail ridership.

During the same time period in which the two Parnassus Avenue signalized crosswalks accommodate approximately 18,500 crossings, the Parnassus Avenue roadway carries approximately 8,500 vehicles. Thus, on average, there are over two times more pedestrians crossing Parnassus Avenue than vehicles traveling along it. The pedestrian activity on Parnassus Avenue in the campus site area (Third Avenue to Hillway) is more than double the pedestrian activity occurring at Judah Street/Fifth Avenue to the west.
Figure 2-5

Daily Pedestrian Volumes: 2007 and 2013
Pedestrian facilities include sidewalks, crosswalks, curb ramps, and pedestrian signals. Within the campus site, sidewalks exist on both sides of the street in most locations, and are generally 12 to 15 feet wide. In some areas on the campus site, sidewalk widths exceed 20 feet. All study intersections provide painted crosswalks and directional curb ramps. High-visibility yellow continental stripe crosswalks exist on Judah Street at the intersections of Sixth and Seventh avenues. Two additional high-visibility continental stripe crosswalks exist on Parnassus Avenue adjacent to the Moffitt/Long Hospital Drop-off/Pick-up area, where there are two signalized pedestrian crosswalks with countdown timers. These signalized crossings accommodate the large number of pedestrians crossing from one side of Parnassus Avenue to the other. Most other crosswalks in the area are standard crosswalks; San Francisco typically only uses the standard crosswalk at signalized intersections, continental crosswalks at high-visibility locations (e.g., near schools), and ladder crosswalks. Inset 3 illustrates sample crosswalk styles.

Inset 3. Crosswalk Styles

Field observations at the campus site indicate that the locations of the two signalized crosswalks across Parnassus Avenue in the campus core area are not aligned with many pedestrians’ desired travel paths. A number of pedestrians exiting the UCSF Medical Center walk around Moffitt Circle and walk directly across Parnassus Avenue into the entrance to the Millberry Union, rather than walk east or west to one of the two signalized crosswalks.
2.3.5 Bicycle Circulation

Despite the hilly topography at the Parnassus Heights campus site, bicycling is a viable and common travel mode. UCSF has identified bicycling as an effective tool in reducing congestion and pollution, promoting good health, and creating a livable environment. Approximately five percent of those traveling to and from the campus site use a bicycle. In addition, approximately three percent of trips made by Parnassus Heights campus site employees and students to off campus, non-UCSF locations throughout the day are made by bike. This is consistent with the bicycling mode share throughout San Francisco. Several bikeways run within campus site vicinity, as shown in Figure 2-6.

Bicycle facilities in San Francisco consist of bicycle paths, separated bicycle lanes, bicycle lanes, and bicycle routes.

Bicycle Paths (Class I) provide a completely separated right-of-way for the exclusive shared use of cyclists and pedestrians. These facilities are off-street and minimize cross-flow traffic, but they can be adjacent to an existing roadway.

Separated Bicycle Lanes (Class II) provide a striped, marked, and signed bicycle lane buffered from vehicle traffic. These facilities are located on roadways and require a minimum of four to five feet of space for exclusive bicycle traffic.

Bicycle Lanes (Class II) provide a striped, marked and signed lane for bicycle travel. These one-way facilities are located on roadways and reserve a minimum of four to five feet of space for exclusive bicycle traffic.

Bicycle Routes (Class III) provide a shared travel lane marked and signed for shared use with motor vehicle traffic. These facilities may or may not be marked with “sharrows” to emphasize that the roadway space is shared.

The following bicycle facilities are located within or near the Parnassus Heights campus site:

**Parnassus Avenue** is part of San Francisco Bike Route 40, an east-west bicycle route extending from Mission Bay to Ocean Beach, via 16th Street, 17th Street, Parnassus Avenue, and Kirkham Avenue. Within the Parnassus Heights campus site, the route is on Parnassus Avenue as a Class III shared-lane.

**Sixth Avenue** is part of a north-south bicycle route from The Presidio to San Francisco State University. In the vicinity of the campus site the route is on Sixth Avenue between Kirkham Street and Hugo Street and on Fifth Avenue between Hugo Street and Golden Gate Park, serving San Francisco Bike Routes 40 and 65. In the southbound direction, there is a Class II painted bike lane on Sixth Avenue, while the northbound direction there is a Class III shared-lane.
Figure 2-6

Existing Bicycle Facilities-
Parnassus Heights
Hugo Street is a short connector route from Seventh Avenue to Third Avenue and along Kezar Drive to the Golden Gate Park Panhandle serving San Francisco Bike Routes 65 and 365. Within the campus site on Hugo Street, it is a Class III bicycle route.

Seventh Avenue is part of San Francisco Bike Route 65, a north-south bicycle route extending from Golden Gate Park to Forest Hill. In the vicinity of the campus site, Seventh Avenue has Class II bicycle lanes in both directions south of Judah Street and sharrows between Judah Street and Golden Gate Park.

The SF Bike Plan does not include any short- or long-term improvements in the vicinity of the campus site.

Bicycle counts were collected along Parnassus Avenue, near Moffitt Circle, and Irving Street, near Second Avenue between 7:00 AM and 7:00 PM on a typical weekday in 2007 and again on Parnassus Avenue in 2013 during the same time period. In 2007, Irving Street/Carl Street, despite the fact that it has no official bicycle route designation, carried approximately four times as many bicycles as Parnassus Avenue, which is a designated bicycle route. In 2007, higher volumes along Irving Street and Carl Street were likely the result of the street being relatively flat compared to Parnassus Avenue or the result of the UCSF bicycle cage being located on the ground level of the Millberry Union Garage, which has an entrance at Second Avenue/Irving Street. In 2013, bicycle counts along Parnassus Avenue had increased four-fold when compared to 2007, paralleling the uptick in bicycle use throughout the city that has been reported by the SFMTA and seen anecdotally on key corridors, such as Market Street.

UCSF provides free, secured bicycle parking inside a bicycle cage in the Millberry Union Garage. There are bike racks at five additional locations throughout the campus: from east to west, they are at the Langley Porter Psychiatric Institute, the Ambulatory Care Center, the Kalmanovitz Library, the Clinical Science Building and the Dental Clinics Building. There are also on-street bicycle racks located along Parnassus Avenue; however, most bicyclists are encouraged (by signs) to park in the designated bicycle parking areas in the campus site buildings. During site visits conducted in 2013, all of the designated bicycle parking areas were parked at near capacity and numerous bikes were found to be parking on the street at parking meters and sign poles, indicating a high demand for bicycle parking facilities. Through the on-going monitoring of bicycle facilities, UCSF has since responded to user feedback about crowded bicycle parking facilities by doubling the capacity of the Millberry Union Garage bicycle cage and installing a new bike fix-it station.
2.3.6 Loading Conditions

The Parnassus Heights campus site has both service vehicle and passenger loading. There are 11 off-street service vehicle loading facilities serving the existing uses on the campus site, and summarized in Table 2-8 and shown in Figure 2-7. Service vehicles may also load on-street on Parnassus Avenue.

Passenger loading takes place in the Moffitt Loop, located on Parnassus Avenue in front of Moffitt Hospital, or in passenger loading zones located along Parnassus Avenue.

<table>
<thead>
<tr>
<th>Building / Location</th>
<th>Loading Areas (Passenger or Vehicle)</th>
<th># Vehicle Loading Spaces and Type</th>
<th># Passenger Loading Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Clinics</td>
<td>Vehicle</td>
<td>1 parcel/truck space</td>
<td>--</td>
</tr>
<tr>
<td>Koret Vision</td>
<td>Vehicle</td>
<td>1 parcel/truck space</td>
<td>--</td>
</tr>
<tr>
<td>Nursing</td>
<td>Vehicle</td>
<td>2 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Irving Dock</td>
<td>Vehicle</td>
<td>2 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Moffitt Loop</td>
<td>Passenger</td>
<td>--</td>
<td>200 feet (10 spaces)</td>
</tr>
<tr>
<td>Millberry Tunnel</td>
<td>Vehicle</td>
<td>2 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Central Receiving Area</td>
<td>Vehicle</td>
<td>3 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Long Hospital</td>
<td>Vehicle</td>
<td>3 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Dolby Regeneration Medicine</td>
<td>Vehicle</td>
<td>1 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>EHS</td>
<td>Vehicle</td>
<td>1 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>LPPI</td>
<td>Vehicle</td>
<td>1 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>On-Street Parnassus Ave</td>
<td>Vehicle /Passenger</td>
<td>250 feet (13 spaces) special truck loading zone (red designation) and 17 spaces general commercial metered (yellow designation)</td>
<td>140 feet (includes 5 valet spaces)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>47 parcel/truck spaces</td>
<td>340 feet</td>
</tr>
</tbody>
</table>

Source: UCSF, 2014

The loading area located on Parnassus Avenue in front of the Medical Building 1 (ACC) serves passenger vehicles, service vehicles, emergency vehicles, and is the drop-off location for valet service. This area in particular can become congested throughout the day, sometimes leading to vehicles blocking a lane of traffic as passenger and service loading occurs. Although all the loading areas shown in Table 2-8 are used regularly for building deliveries, the Central Receiving Area and Long Hospital are typically the busiest locations throughout the day.
Figure 2-7
Existing Parking and Loading Locations-
Parnassus Heights
2.3.7 Parking Conditions

2.3.7.1 On-Street Parking

Parking is available on most streets near the Parnassus Heights campus site. Most streets have parallel parking on both sides; however, due to the steep topography of the area, parking perpendicular to the direction of travel is provided on some streets. In such instances, parking is allowed on one side of the street only.

A variety of parking regulations apply to the on-street parking supply. The majority of the spaces are within the “J” Residential Parking Permit area (generally bounded by Lincoln Way and Haight Street, Clayton Street, Belgrave Avenue and Noriega Street, and 9th and 12th avenues), which restrict on-street parking Mondays through Friday, to a two-hour period between the hours of 8 am and 5 or 6 pm. Other parking spaces have meters and/or allow parking only during the non-peak commute periods.

Table 2-9 summarizes the on-street parking supply from a parking survey conducted in February 2014 for the area generally bounded by 6th Avenue, Lincoln Way, Stanyan Street, and Kirkham Street. Parking occupancies throughout the mid-morning (10 AM to noon), midday (noon to 2 PM), and evening (6 to 8 PM) periods is very similar, about 85 percent on average. The parking demand in this area is primarily associated with the UCSF campus site during the mid-morning and midday periods, and the residential and nearby neighborhood commercial uses during the evening period. These parking occupancies do not consider residents who park in their own driveways, which is typical in this area given the high parking demand.

2.3.7.2 Off-Street Parking

There are several UCSF-managed off-street parking facilities in the vicinity of the Parnassus Heights campus site that provide approximately 2,700 public and permit-only parking spaces. These include:

- Millberry Union / Kalmanovitz Library garage is a seven-level garage located between Judah Street and Irving Street with about a 1,075 vehicle capacity, of which approximately 1,000 spaces are available to the general public and the rest are reserved for UCSF faculty and staff. In addition, staff, faculty, and students may purchase monthly “afternoon” parking permits to park in this garage on weekdays from 2:30 PM to 8:00 AM and anytime on the weekend.

- Medical Building 1 (ACC) garage is located adjacent to the Millberry Union Garage, at the Irving Street/Arguello Boulevard intersection. It provides 1,007 marked parking spaces and can accommodate 330 additional vehicles with implementation of attendant parking. Permit parking is available for faculty, house staff, and senior management.

- Proctor surface lot is located south of Kirkham Street near the intersection of Fifth Avenue and provides 16 spaces available by permit.

- The Westside parking facility is a four-tier surface lot containing 151 parking spaces behind the Dental Clinics Building at Fourth Avenue and Kirkham Street, on the western edge of the campus site. Approximately 81 spaces are reserved for permit parking.

- Beckman surface lot contains 76 parking spaces and is located on Koret Way across from the Beckman Vision Center, 13 of those spaces are available for public parking.
## TABLE 2-9: PARNASSUS HEIGHTS EXISTING ON-STREET PARKING SUPPLY AND OCCUPANCY

<table>
<thead>
<tr>
<th>Street Location</th>
<th>Overall Supply (spaces)</th>
<th>Mid-Morning</th>
<th>Midday</th>
<th>Evening</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North-South Streets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th Av, Lincoln Way to Kirkham St</td>
<td>131</td>
<td>74%</td>
<td>76%</td>
<td>76%</td>
</tr>
<tr>
<td>5th Av, Lincoln Way to Kirkham St</td>
<td>140</td>
<td>71%</td>
<td>79%</td>
<td>76%</td>
</tr>
<tr>
<td>4th Av, Lincoln Way to Judah St</td>
<td>85</td>
<td>89%</td>
<td>88%</td>
<td>89%</td>
</tr>
<tr>
<td>3rd Av, Lincoln Way to Judah St</td>
<td>82</td>
<td>89%</td>
<td>90%</td>
<td>82%</td>
</tr>
<tr>
<td>2nd Av, Lincoln Way to Irving St</td>
<td>41</td>
<td>95%</td>
<td>98%</td>
<td>90%</td>
</tr>
<tr>
<td>Arguello Blvd, Frederick St to Hugo St</td>
<td>61</td>
<td>97%</td>
<td>85%</td>
<td>97%</td>
</tr>
<tr>
<td>Hillway Av, Carl St to Parnassus St</td>
<td>22</td>
<td>95%</td>
<td>95%</td>
<td>77%</td>
</tr>
<tr>
<td>Hill Point Av</td>
<td>18</td>
<td>56%</td>
<td>50%</td>
<td>83%</td>
</tr>
<tr>
<td>Willard St, Frederick St to Parnassus St</td>
<td>59</td>
<td>92%</td>
<td>81%</td>
<td>97%</td>
</tr>
<tr>
<td>Stanyan St, Frederick St to Parnassus St</td>
<td>45</td>
<td>71%</td>
<td>56%</td>
<td>78%</td>
</tr>
<tr>
<td><strong>Total North-South Streets</strong></td>
<td><strong>684</strong></td>
<td><strong>82%</strong></td>
<td><strong>81%</strong></td>
<td><strong>83%</strong></td>
</tr>
<tr>
<td><strong>East-West Streets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lincoln Way, 6th Av to Arguello Blvd</td>
<td>58</td>
<td>67%</td>
<td>74%</td>
<td>74%</td>
</tr>
<tr>
<td>Frederick St, Arguello Blvd to Stanyan St</td>
<td>105</td>
<td>86%</td>
<td>92%</td>
<td>99%</td>
</tr>
<tr>
<td>Hugo St, 6th Av to Arguello Blvd</td>
<td>89</td>
<td>97%</td>
<td>92%</td>
<td>102%</td>
</tr>
<tr>
<td>Irving St, 6th Av to Arguello Blvd</td>
<td>77</td>
<td>92%</td>
<td>97%</td>
<td>91%</td>
</tr>
<tr>
<td>Carl St, Arguello Blvd to Stanyan St</td>
<td>85</td>
<td>95%</td>
<td>91%</td>
<td>104%</td>
</tr>
<tr>
<td>Judah St, 6th Av to 5th Av</td>
<td>14</td>
<td>79%</td>
<td>64%</td>
<td>57%</td>
</tr>
<tr>
<td>Parnassus Av, 5th Av to Stanyan St</td>
<td>83</td>
<td>82%</td>
<td>78%</td>
<td>82%</td>
</tr>
<tr>
<td>Kirkham St, 6th Av to 4th Av</td>
<td>55</td>
<td>95%</td>
<td>93%</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Total East-West Streets</strong></td>
<td><strong>566</strong></td>
<td><strong>88%</strong></td>
<td><strong>88%</strong></td>
<td><strong>87%</strong></td>
</tr>
<tr>
<td><strong>Total All Streets</strong></td>
<td><strong>1,250</strong></td>
<td><strong>85%</strong></td>
<td><strong>84%</strong></td>
<td><strong>85%</strong></td>
</tr>
</tbody>
</table>

Notes:
1. Data collected in February 2014.
2. Values over 100% indicated illegal parking, such as double parked vehicles or vehicles stopped at a fire hydrant.

Source: Adavant Consulting.

- The Environmental Health and Safety Building has a 9-space surface parking lot, off Medical Center Way at the south edge of the campus site, available by permit.
- The Surge and Woods lots form a 158-space surface parking lot located off Medical Center Way above the Parnassus Heights campus site. Parking permits for this location are issued for staff.
- The Langley Porter Psychiatric Institute has a 21-space surface parking lot, off Medical Center Way at the eastern edge of the campus site, available by permit.
- The Emergency Room parking area is accessed off Parnassus Avenue at the southeast end of the campus site and provides 23 parking spaces reserved for ambulances, emergency patients, and for designated radiation and chemotherapy patients.

- Aldea surface parking lots are located within the Aldea San Miguel Housing Area in the southern portion of the campus site and contain 192 parking spaces reserved to UCSF residents.

In addition, the Kezar surface lot is a city-owned parking facility adjacent to Kezar Pavilion on Stanyan Street. UCSF has about 200 spaces reserved for staff and faculty use during the day. UCSF shuttle bus service is provided between the lot and the campus site during normal business hours every 10 to 20 minutes on average.

Table 2-10 summarizes the off-street parking supply and occupancy at the major parking facilities at the Parnassus Heights campus site. Parking surveys were conducted in February 2014 for the weekday mid-morning (10 AM to noon), midday (noon to 2 PM), and evening (6 to 8 PM) periods. As shown in the table, the overall occupancy of the spaces in the surveyed parking facilities is about 88 percent between 10 AM and 2 PM, and about 50 percent between 6 and 8 PM. An occupancy above 90 percent typically represents that the facility is at its effective capacity.

<table>
<thead>
<tr>
<th>Major Parking Facility</th>
<th>Overall Supply (spaces)</th>
<th>Occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mid-Morning</td>
</tr>
<tr>
<td><strong>UCSF Facilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millberry Union Garage</td>
<td>1,075</td>
<td>83%</td>
</tr>
<tr>
<td>Medical Building (ACC) Garage</td>
<td>1,007</td>
<td>90%</td>
</tr>
<tr>
<td>Westside Surface Lot</td>
<td>151</td>
<td>91%</td>
</tr>
<tr>
<td>Surge and Woods Surface Lots</td>
<td>158</td>
<td>79%</td>
</tr>
<tr>
<td><strong>Total UCSF Parking Facilities</strong></td>
<td><strong>2,391</strong></td>
<td><strong>86%</strong></td>
</tr>
<tr>
<td><strong>Other Parking Facilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kezar Surface Lot</td>
<td>306</td>
<td>100%</td>
</tr>
<tr>
<td><strong>All Facilities</strong></td>
<td><strong>2,697</strong></td>
<td><strong>88%</strong></td>
</tr>
</tbody>
</table>

Note:
1. Data collected in February 2014.

Source: Adavant Consulting, UCSF
2.4 MISSION BAY

2.4.1 Roadway Facilities

This section describes the regional and local roadway system for the Mission Bay campus site. Approximately 39 percent of those traveling to and from the campus site drive alone, are dropped off, or carpool/vanpool. The campus site sits within the Mission Bay redevelopment area and is bordered by the South of Market (SoMa) neighborhood to the north, Potrero Hill to the west and the Dogpatch to the south. The primary north-south corridors are Third Street, Fourth Street, and Seventh Street and the primary east-west corridors are 16th Street and Mariposa Street. The street network providing access to the Mission Bay campus site is shown in Figure 2-2.

2.4.1.1 Regional Access

Regional access to the Mission Bay campus site is provided by several major freeways, as discussed below.

**I-280** is a six-lane freeway located adjacent to the Mission Bay campus site to the west and connects San Francisco to the South Bay. I-280 connects to U.S. 101 south of the campus site. Access to I-280 is provided at the on-and off-ramps at Mariposa and 18th streets.

**I-80** is a six-lane freeway located approximately one mile northwest of the campus site and connects San Francisco to the East Bay and other points east via the San Francisco-Oakland Bay Bridge. I-80 connects to U.S. 101 west of the campus site. Access to I-80 is provided via Third and Seventh streets to on- and off-ramps in the SoMa neighborhood.

**U.S. 101** is an eight-lane freeway located approximately one mile west of the campus site. U.S. 101 connects San Francisco with the peninsula and the South Bay to the south and with the North Bay to the north via the Golden Gate Bridge. U.S. 101 connects to I-80 east of the Mission Bay campus site. Access to U.S. 101 is provided via I-280 in the southbound direction and via 16th Street to South Van Ness in the northbound direction.

2.4.1.2 Local Access

Local access to the Mission Bay campus site is provided by an urban street grid network. Key local roadways through the campus site are summarized below and defined according to roadway classifications identified in the San Francisco General Plan Transportation Element.

**Third Street** is a four-lane north-south Primary Transit Important roadway that extends from Market Street to Bayshore Boulevard. Near the Mission Bay campus site, on-street parking is prohibited on both sides of the street. Third Street is designated as a Class III bicycle route with sharrows between King Street and Terry A François Boulevard in the northbound direction only. The T Third Street light rail line operates along Third Street between Channel Street and Bayshore Boulevard along a physically separated median in the roadway.

**Fourth Street** is a two-lane north-south Primary Transit Important roadway that extends from Market Street to 16th Street. On-street parking is provided on both sides of the street. Fourth Street is designated as a Class III bicycle route as it crosses Mission Creek, after which it transitions into Class II bicycle lanes.
between Channel Street and 16th Street. The T Third Street light rail line operates on Fourth Street between King Street and Channel Street.

**Seventh Street** is a two-lane north-south Secondary Arterial roadway that extends from Market Street to 16th Street. On-street parking is provided on both sides of the street between Irwin Street and 16th Street. Seventh Street has Class II bicycle lanes between Brannan and 16th streets.

**16th Street** is a four-lane east-west Secondary Arterial roadway with left turn pockets that extends from Third Street to Castro Street. Within campus site study area, on-street parking is prohibited on both sides of the street. 16th Street has Class II bicycle lanes in both directions between Third Street and Kansas Street.

**Mission Bay Boulevard North and South** are a one-lane one-way east-west couplet Local Street that extends from Terry A François Boulevard to Fourth Street; right-turn only lanes are provided at intersections. It is located at the northern edge of the Mission Bay campus site and will be eventually extended to connect to the Mission Bay Circle in the future, located approximately 1,300 feet to the west, as part of the Mission Bay Redevelopment Plan. On-street parking is provided on the north side of the Mission Bay Boulevard North.

**King Street** is a five to six-lane east-west Primary Transit Important roadway that extends from Second Street to Fifth Street and the I-280 freeway. On-street parking is provided for half of a block between Second and Third streets and Third and Fourth streets in the westbound direction and for a quarter of a block between Fourth and Fifth streets. The N Judah and T Third Street light rail lines operate along the entirety of King Street within a physically separated median in the roadway.

**Berry Street** is a two-lane east-west Local Street that extends from Third Street to Owens Street. Berry Street operates as an eastbound one-way street between Third and Fourth streets. On-street parking is provided primarily in the eastbound direction, though there are some areas that have on-street parking on both sides of the street.

**Channel Street** is a four-lane east-west Local Street that currently extends from west of Fourth Street to Third Street. On-street parking is prohibited on both sides of the street between Third and Fourth streets, and permitted west of Fourth Street. The T Third Street rail line operates on Channel Street between Third and Fourth streets within a physically separated median in the roadway. Channel Street will be extended to the Mission Bay Circle in the future, as part of the Mission Bay Redevelopment Plan.

**Mission Rock Street** is a two-lane east-west Local Street that extends from Terry A François Boulevard to Fourth Street. On-street parking is provided on both sides of the street.

**Mariposa Street** is a four-lane east-west Local Street that extends from Illinois Street to Harrison Street that is located at the southern edge of the Mission Bay campus site. The I-280 on- and off-ramps (southbound and northbound, respectively) are located immediately east of the intersection of Pennsylvania and Mariposa streets. Both sides of the street provide on-street parking. In addition, Mariposa Street is a designated Class III bicycle route with sharrows between Illinois Street and Mississippi Street.

**Owens Street** is currently a two-lane north-south Local Street that extends from 16th Street to the Mission Bay Circle along the western edge of the Mission Bay campus site. On-street parking is prohibited on both
sides of the street. It will be restriped to four lanes each way as part of the Mission Bay Redevelopment Plan.

**Mission Bay Drive** is a four-lane Local Street that extends from the Mission Bay Circle to Seventh Street under the I-280 freeway and across the Caltrain railroad tracks; the eastbound and westbound travel lanes are separated by a landscaped median. On-street parking is prohibited and Class II bicycle lanes are provided on both sides of the street.

**Mississippi Street** is a north-south roadway that runs discontinuously between 16th/Seventh and César Chávez streets. In the vicinity of the Mission Bay campus site, Mississippi Street has one traffic lane each way; it is a City-designated Class II bicycle facility between 16th and Mariposa streets.

### 2.4.1.3 Proposed Local Roadway Changes

The 1998 Mission Bay South Area Plan proposed substantial changes to the roadway infrastructure in the vicinity of the Mission Bay campus site that are to be constructed as the area develops. Of all of these, the following infrastructure improvements are to be implemented by the Mission Bay Development Group (MBDG, the infrastructure master developer), as part of the opening of the Phase One Medical Center at Mission Bay in February 2015:

- Owens Street will be extended from 16th Street to Mariposa Street, to connect with the I-280 on- and off-ramps and to create a new intersection at Mariposa Street. The existing signal at the intersection of Mariposa Street and the I-280 northbound off-ramp will be upgraded to accommodate the new Owens Street approach.
- Mariposa Street will be widened on the north side from Owens Street to Illinois Street by approximately 15 feet, and left turn lanes will be provided at major intersections. The Mariposa Street Bridge over the Caltrain tracks will be restriped to provide two exclusive left turn lanes in the westbound direction for a total of three lanes, and create a new signalized intersection with Owens Street.
- The northbound I-280 off-ramp will be widened to the east to provide an additional lane and better align with Owens Street. Mariposa Street between the I-280 southbound on-ramp and Pennsylvania Avenue will be re-striped to accommodate the lane configurations described above.
- The existing STOP-sign controlled intersection of Mariposa Street and the I-280 southbound on-ramp will be signalized; the new signal will be interconnected with the existing signal at the off-ramp.

### 2.4.2 Intersection Operating Conditions

The following 21 study area intersections were selected for analysis through consultation with UCSF Campus Planning and San Francisco Planning Department staff. These study intersections are shown in Figure 2-2.

- 24. King Street/Third Street
- 25. King Street/Fourth Street
- 35. 16th Street/Fourth Street
- 36. 16th Street/Owens Street
<table>
<thead>
<tr>
<th></th>
<th>Intersection</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Brannan Street/Seventh Street</td>
</tr>
<tr>
<td>27</td>
<td>Channel Street/Third Street</td>
</tr>
<tr>
<td>28</td>
<td>Channel Street/Fourth Street</td>
</tr>
<tr>
<td>29</td>
<td>Mission Rock Street/Third Street</td>
</tr>
<tr>
<td>30</td>
<td>Mission Bay Boulevard North/Third Street</td>
</tr>
<tr>
<td>31</td>
<td>Mission Bay Boulevard South/Third Street</td>
</tr>
<tr>
<td>32</td>
<td>Mission Bay Drive/Owens Street</td>
</tr>
<tr>
<td>33</td>
<td>Mission Bay Drive/Seventh Street</td>
</tr>
<tr>
<td>34</td>
<td>16th Street/Third Street</td>
</tr>
<tr>
<td>37</td>
<td>16th Street/Seventh Street</td>
</tr>
<tr>
<td>38</td>
<td>16th Street/Rhode Island Street</td>
</tr>
<tr>
<td>39</td>
<td>16th Street/Vermont Street</td>
</tr>
<tr>
<td>40</td>
<td>16th Street/Potrero Avenue</td>
</tr>
<tr>
<td>41</td>
<td>Mariposa Street/Third Street</td>
</tr>
<tr>
<td>42</td>
<td>Mariposa Street/Fourth Street</td>
</tr>
<tr>
<td>43</td>
<td>Mariposa Street/I-280 Northbound Ramps</td>
</tr>
<tr>
<td>44</td>
<td>Mariposa Street/I-280 Southbound Ramps</td>
</tr>
</tbody>
</table>

**Figure 2-8A** and **Figure 2-8B** display the existing AM and PM peak hour traffic volumes, lane configurations and traffic controls at each of the 21 study intersections. Intersection turning movement counts at the study intersections were collected in November 2011 and May 2013 on mid-week and non-holiday days when schools were in session. Intersection turning movement count sheets are provided in **Appendix D**.
## Existing Intersection Lane Configurations, Traffic Control, and Volumes - Mission Bay

### Figure 2-8A

#### Traffic Signal
- AM (PM)

#### Turn Lane
- AM (PM)

#### Stop Sign
- AM (PM)

#### Peak Hour Traffic Volume
- AM (PM)

#### Critical Movement

#### Study Intersection

### Tables

<table>
<thead>
<tr>
<th>Intersection</th>
<th>AM (PM)</th>
<th>Critical Movement</th>
<th>Study Intersection</th>
</tr>
</thead>
<tbody>
<tr>
<td>King St/Third St</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>King St/Fourth St</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brannan St/Seventh St</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channel St/Third St</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channel St/Fourth St</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mission Rock St/Third St</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mission Bay Blvd N/Third St</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mission Bay Blvd S/Third St</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mission Bay Dr/Owens St</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Map

The map illustrates the existing intersection lane configurations, traffic control, and volumes for Mission Bay. The map shows various intersections with their respective traffic volumes and critical movements, including AM (peak hour) and PM (peak hour) traffic. The map also highlights the study intersection, traffic signal, and turn lanes at each location.

### Notes

1. The map provides a visual representation of the traffic conditions at various intersections in Mission Bay, including Mission Bay Blvd S, Mission Bay Blvd N, Mission Rock St, and Channel St.
2. The traffic volumes are listed for AM and PM peak hours, with separate indications for traffic signal, stop sign, and peak hour traffic volume.
3. Critical movements are marked with arrows, and the study intersection is highlighted in the map for easy identification.

---

*Figure 2-8A: Existing Intersection Lane Configurations, Traffic Control, and Volumes - Mission Bay*
Existing Intersection Lane Configurations, Traffic Control, and Volumes - Mission Bay
As shown in Table 2-11, 18 of the 21 study intersections operate at an acceptable level of service (LOS D or better) during the AM peak hour and 19 operate at an acceptable level of service during the PM peak hour.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Traffic Control1</th>
<th>Peak Hour</th>
<th>Vehicle Delay2 (seconds)</th>
<th>LOS3</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. King Street / Third Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>46 70</td>
<td></td>
</tr>
<tr>
<td>25. King Street / Fourth Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>43 53</td>
<td></td>
</tr>
<tr>
<td>26. Brannan Street / Seventh Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>14 25</td>
<td></td>
</tr>
<tr>
<td>27. Channel Street / Third Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>40 30</td>
<td></td>
</tr>
<tr>
<td>28. Channel Street / Fourth Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>15 16</td>
<td></td>
</tr>
<tr>
<td>29. Mission Rock Street / Third Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>37 29</td>
<td></td>
</tr>
<tr>
<td>30. Mission Bay Boulevard North / Third Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>17 16</td>
<td></td>
</tr>
<tr>
<td>31. Mission Bay Boulevard South / Third Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>23 20</td>
<td></td>
</tr>
<tr>
<td>32. Mission Bay Drive / Owens Street</td>
<td>Roundabout</td>
<td>AM PM</td>
<td>&lt;10 &lt;10</td>
<td>A</td>
</tr>
<tr>
<td>33. Mission Bay Drive / Seventh Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>20 22</td>
<td>B</td>
</tr>
<tr>
<td>34. 16th Street / Third Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>36 31</td>
<td>D</td>
</tr>
<tr>
<td>35. 16th Street / Fourth Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>26 27</td>
<td>C</td>
</tr>
<tr>
<td>36. 16th Street / Owens Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>32 30</td>
<td>C</td>
</tr>
<tr>
<td>37. 16th Street / Seventh Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>43 44</td>
<td>D</td>
</tr>
<tr>
<td>38. 16th Street / Rhode Island Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>15 13</td>
<td>B</td>
</tr>
<tr>
<td>39. 16th Street / Vermont Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>19 15</td>
<td>B</td>
</tr>
<tr>
<td>40. 16th Street / Potrero Avenue</td>
<td>Signal</td>
<td>AM PM</td>
<td>27 35</td>
<td>C</td>
</tr>
<tr>
<td>41. Mariposa Street / Third Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>52 28</td>
<td>D</td>
</tr>
<tr>
<td>42. Mariposa Street / Fourth Street</td>
<td>Signal</td>
<td>AM PM</td>
<td>&lt;10 11</td>
<td>A</td>
</tr>
<tr>
<td>43. Mariposa Street / I-280 Northbound Ramp</td>
<td>Signal</td>
<td>AM PM</td>
<td>73 31</td>
<td>E</td>
</tr>
</tbody>
</table>
### TABLE 2-11: EXISTING PEAK HOUR INTERSECTION LEVEL OF SERVICE - MISSION BAY

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Traffic Control²</th>
<th>Peak Hour</th>
<th>Vehicle Delay² (seconds)</th>
<th>LOS³</th>
</tr>
</thead>
<tbody>
<tr>
<td>44. Mariposa Street / I-280 Southbound Ramp</td>
<td>SSS</td>
<td>AM</td>
<td>&gt;50</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>&gt;50</td>
<td>F</td>
</tr>
</tbody>
</table>

Notes:
1. AWS = All-way stop controlled; SSS = Side Street stop controlled; Signal = Signal controlled
2. Delay reported as seconds per vehicle. For signalized intersections, a combined weighted average delay for the various movements within the intersection is reported. For SSS intersections, the highest average delay for an approach is reported. For AWS intersection, the combined weighted average delay of the intersection is reported, followed by the highest average delay for an approach.
3. For signalized intersections, LOS based on average intersection delay, based on the methodology in the Highway Capacity Manual, 2000. For an unsignalized intersection, LOS is based on the worst approach which is indicated in parentheses.
4. **Bold** indicates unacceptable operations per UCSF LOS standards


The following intersections operate at LOS E or F during the AM or PM peak hours:

- King Street and Third Street (Intersection #24) operates at LOS E during the PM peak hour due to the high conflicting traffic volumes on the westbound through and eastbound left turning movements on King Street.
- Mariposa Street and the I-280 Northbound Off-Ramp (Intersection #43) operates at LOS E during the AM peak hour due to the volume of traffic exiting I-280 via the off-ramp.
- Mariposa Street and the I-280 Southbound On-ramp (Intersection #44) operates at LOS F during the AM and PM peak hours, respectively, due to the high conflicting volumes on east and westbound Mariposa Street attempting to access I-280 via the Southbound On-ramp.
2.4.3 Transit Network

The Mission Bay campus site is well-served by both local and regional public transit. Local service is provided by Muni bus and light rail lines. Regional service is provided by BART, AC Transit, Golden Gate Transit, SamTrans, and Caltrain. In addition, there are two shuttle systems that provide service to the Mission Bay campus site: the UCSF shuttle system, as discussed in sections 2.2.1 and 2.3.3.3, and two shuttle lines operated by the Mission Bay Transportation Management Association (MBTMA). These shuttles supplement Muni transit service and provide direct connections to UCSF-operated facilities throughout San Francisco and the Powell Street BART station. Approximately 19 percent of those traveling to and from the campus site use public transit, while another approximately 29 percent rely on UCSF shuttles to get to and from the campus site. Figure 2-9 presents the transit routes in the vicinity of the campus site.

2.4.3.1 San Francisco Muni

Table 2-12 presents the Muni routes serving the campus site within an approximately half-mile walk and Table 2-13 presents the peak hour muni ridership for these routes.

<table>
<thead>
<tr>
<th>Route</th>
<th>AM Peak Weekday Headways (7-9AM)</th>
<th>PM Peak Weekday Headways (4-6PM)</th>
<th>Hours of Operation</th>
<th>Neighborhoods Served by Route</th>
<th>Nearest Stop Location</th>
<th>Distance to Campus Site (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T Third Street</td>
<td>9</td>
<td>9</td>
<td>4:00AM – 1:30AM</td>
<td>Financial District, Visitacion Valley</td>
<td>Third Street and Gene Friend Way</td>
<td>0</td>
</tr>
<tr>
<td>10 Townsend</td>
<td>20</td>
<td>20</td>
<td>5:00AM – 8:30PM</td>
<td>Pacific Heights, Potrero Hill</td>
<td>De Haro Street and 16th Street</td>
<td>2,600</td>
</tr>
<tr>
<td>22 Fillmore</td>
<td>9</td>
<td>8</td>
<td>2:00AM – 2:00AM</td>
<td>Marina District, Dogpatch</td>
<td>Connecticut Street and 17th Street</td>
<td>2,000</td>
</tr>
</tbody>
</table>

Notes:
1. Headway in minutes.

## TABLE 2-13: PEAK HOUR MUNI RIDERSHIP - MISSION BAY

<table>
<thead>
<tr>
<th>Route</th>
<th>AM Peak Ridership at MLP(^3) (Inbound / Outbound)</th>
<th>AM Peak Capacity Utilization at MLP(^3) (Inbound / Outbound)(^2)</th>
<th>PM Peak Ridership at MLP(^3) (Inbound / Outbound)</th>
<th>PM Peak Capacity Utilization at MLP(^3) (Inbound / Outbound)(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T Third Street</td>
<td>735 347</td>
<td><strong>88%(^3)</strong> 42%</td>
<td>365 550</td>
<td>44% 77%</td>
</tr>
<tr>
<td>10 Townsend</td>
<td>141 165</td>
<td><strong>75%</strong> <strong>87%(^5)</strong></td>
<td>186 171</td>
<td><strong>98%</strong> <strong>90%(^6)</strong></td>
</tr>
<tr>
<td>22 Fillmore</td>
<td>293 287</td>
<td>70% 68%</td>
<td>323 308</td>
<td>68% 65%</td>
</tr>
</tbody>
</table>

Notes:
1. Maximum load point, which is the point at which the route has the maximum number of passengers relative to capacity, is identified for those lines operating above or near 85 percent.
2. **Bold** indicates capacity utilization of 85 percent or greater, which is a typical crowding standard used by transit agencies.
3. MLP located at The Embarcadero/Brannan Street.
4. MLP located at Pacific Avenue/Powell Street.
5. MLP located at Pacific Avenue/Taylor Street.
6. MLP located at Second Street/Howard Street.

Proposed changes to transit service in the vicinity of the Mission Bay campus site include the currently under-construction Central Subway Project and proposed TEP route changes.

The Central Subway Project is the second phase of the Third Street light rail line (i.e., T Third), which opened in 2007. Construction of the underground segment from Bryant to Clay Street is currently underway, and the Central Subway will extend the T Third line northward from its current terminus at Fourth and King streets to a surface station south of Bryant Street and go underground at a portal under I-80. From there it will continue north to stations at Moscone Center, Union Square, where it will provide passenger connections to the Powell Street Station and BART—and in Chinatown, where the line will terminate at Stockton and Clay streets. Construction of the Central Subway is scheduled to be completed in 2017, and revenue service is scheduled for 2019. This project would improve transit service between the Mission Bay campus site and Downtown.

The following changes are proposed by the TEP for routes in the vicinity of the Mission Bay campus site.

- **T Third Street** – The TEP proposes reducing peak period headways from 9 to 8 minutes.
- **10 Townsend** – The TEP proposes to rename the 10 Townsend the 10 Sansome. Service would be rerouted off of Townsend down Fourth Street. From Fourth Street the route would extend through Mission Bay to new proposed street segments on Seventh Street between Mission Bay Boulevard and Irwin Street, on Irwin Street between Seventh and 16th streets, on 16th Street between Irwin and Connecticut streets, and on Connecticut Street between 16th and 17th streets. Peak period headways would be reduced from 20 to 6 minutes. Midday headways would be reduced from 20 to 12 minutes.
- **22 Fillmore** – The TEP proposes rerouting the 22 Fillmore to continue along 16th Street, creating new connections to Mission Bay from the Mission neighborhood. The proposed route change would add transit to 16th Street between Kansas Street and Third Street and Third Street between 16th Street and Mission Bay Boulevard North. The TEP also proposes to change the AM peak period headway, reducing from 9 minute to 6 minute headways.

Additionally, the SFMTA has proposed two transit enhancement treatment visions for 16th Street, of which one or a combination of the two will be selected by the SFMTA Board prior to implementation. The treatments are referred to as the Moderate and Expanded Alternatives in the TEP EIR. The Moderate Alternative proposes a number of physical changes to the portion of the rerouted 22 Fillmore in the vicinity of the Mission Bay campus site including, but not limited to, new transit stops, relocated transit stops, and transit bulbs (approximately 45 feet in length), as well as new traffic signals at Connecticut and Missouri streets. The Expanded Alternative includes the features listed for the Moderate Alternative as well as the conversion of a lane of mixed-flow lane of traffic to a transit-only lane along 16th Street in both directions both within and in the vicinity of the campus site as well as the prohibition of left turns at Bryant, Potrero (westbound only), Utah, San Bruno, Kansas, Rhode Island, De Haro, Carolina, Wisconsin, Arkansas, Connecticut, and Missouri streets. Both alternatives would reduce peak period headways; AM would be reduced from 9 to 6 minutes, PM peak headways would be reduced from 8 to 5.5 minutes, and
midday headways would be reduced from 10 to 7.5 minutes. The stated purpose of both alternatives is to make the 22 Fillmore more frequent, reliable, and effective along 16th Street.

Prior to the extension of the 22 Fillmore into Mission Bay via either the Moderate or Expanded Alternative, which both require the extension of overhead wire, the SFMTA proposes to implement a temporary motor coach service to coincide with the opening of the Phase One Medical Center at Mission Bay between the campus site and the 16th Street BART Station until the 22 Fillmore can be extended into Mission Bay. The preliminary name for this interim service is the Muni line ‘55 16th Street’ which is shown in Figure 2-10. The route would follow 16th Street between Mission Street to Third Street and Third Street from 16th Street to Mission Bay Boulevard North. The preliminarily proposed locations for new bus stops for this service in the vicinity of the campus site are on 16th Street at Fourth Street (both directions) and on Third Street just south of Mission Bay Boulevard South (southbound direction). The operating hours and service frequencies of the proposal have not yet been made public at the time of publication of this document.

2.4.3.2 Regional Transit Service

Table 2-14 presents the regional transit routes serving the Mission Bay campus site and route characteristics as of December 2013, including service frequencies during the weekday morning and evening peak periods, hours of operations and neighborhoods served.

Golden Gate Transit, AC Transit, SamTrans, and BART riders would transfer to Muni to access the Mission Bay campus site. The Caltrain station closest to the Mission Bay campus site is located at Fourth and King streets, which is six blocks (approximately 2/3 mile) from the campus site. Caltrain service headways during the AM and PM peak periods are between 10 and 20 minutes for the peak direction, depending on the type of train (e.g., local, limited, or express “Baby Bullet”). The peak direction of service is southbound in the AM peak period and northbound in the PM peak period. Headways in the non-peak direction are typically once per hour. In addition, the 22nd Street station is located directly underneath I-280 four blocks (approximately 3/4 mile) from the campus site and is served by local, limited, and “Baby Bullet” trains.

Caltrain is proposing to implement a Modernization Program that will electrify the railway to provide upgraded performance and allow more efficient operations and a higher capacity. The Program is scheduled to be complete by 2019. Currently Caltrain crosses 16th Street at grade at the intersection of 16th Street/Seventh Street/Mississippi streets. There are currently 10 trains per hour during peak periods and the Modernization Program will allow the number of trains to increase to 12 trains per hour. Additionally, Caltrain is anticipating a “blended system” which will see California High Speed Rail trains running alongside Caltrain on the same tracks. The blended system may require a grade separation at 16th/Seventh/Mississippi streets. Electrification of Caltrain (and the associated improved travel times and frequencies) as well as the introduction of High Speed Rail may improve regional transit access to the Mission Bay campus site.
Figure 2-10

Muni Line ‘55’ Interim Service Proposal
# TABLE 2-14: REGIONAL TRANSIT OPERATIONS - MISSION BAY

<table>
<thead>
<tr>
<th>Route</th>
<th>AM Peak Weekday Headways (7AM-9AM)</th>
<th>PM Peak Weekday Headways (4PM-6PM)</th>
<th>Hours of Operation</th>
<th>Areas Served by Route</th>
<th>Nearest Stop Location</th>
<th>Distance to Campus Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caltrain Local</td>
<td>-</td>
<td>-</td>
<td>4:30AM-12:01AM (IB), 4:55AM-1:32AM (OB)</td>
<td>San Francisco, San Jose</td>
<td>Fourth / King</td>
<td>0.6 miles</td>
</tr>
<tr>
<td>Caltrain Limited-Stop</td>
<td>10-20</td>
<td>20-60</td>
<td>5:50AM-8:00PM (IB), 6:11AM-8:19PM (OB)</td>
<td>San Francisco, San Jose</td>
<td>Fourth / King</td>
<td>0.6 miles</td>
</tr>
<tr>
<td>Caltrain Baby Bullet</td>
<td>10-40</td>
<td>20-40</td>
<td>5:45AM-7:24PM (IB), 6:57AM-7:39PM (OB)</td>
<td>San Francisco, San Jose</td>
<td>Fourth / King</td>
<td>0.6 miles</td>
</tr>
<tr>
<td>BART</td>
<td>5-15</td>
<td>5-15</td>
<td>4:00AM-12:00AM (IB/OB)</td>
<td>East Bay, San Francisco, San Mateo County</td>
<td>16th / Mission</td>
<td>1.5 miles</td>
</tr>
<tr>
<td>AC Transit</td>
<td>15-20</td>
<td>15-20</td>
<td>12:00AM-12:00AM(IB/OB)</td>
<td>East Bay, San Francisco</td>
<td>Beale between Folsom / Howard</td>
<td>1.5 miles</td>
</tr>
<tr>
<td>SamTrans Route 292</td>
<td>10-15</td>
<td>20</td>
<td>3:55AM-2:28AM (IB), 4:30AM-12:00AM (OB)</td>
<td>San Mateo County, SFO, San Francisco</td>
<td>Potrero / 24th</td>
<td>1.3 miles</td>
</tr>
<tr>
<td>GGT commuter and basic bus routes</td>
<td>15-90</td>
<td>15-90</td>
<td>4:01AM-12:41AM (IB), 5:06AM-2:28AM (OB)</td>
<td>North Bay, San Francisco</td>
<td>Seventh / Folsom</td>
<td>1.1 miles</td>
</tr>
</tbody>
</table>

Notes:
1. Headway in minutes.

Source: Caltrain, BART, AC Transit, SamTrans, GGT; Prepared by Fehr & Peers, 2013.

### 2.4.3.3 UCSF Shuttle System

Table 2-15 summarizes the UCSF shuttle routes serving the campus site. Shuttles to and from the Mission Bay campus site stop at shuttle zones along Fourth Street in front of the Koret Quad and in front of the parking lot located near Campus Way, as shown on Figure 2-9. These stops are designated by UCSF Transportation Services and reviewed/approved by SFMTA. UCSF shuttles were not observed to interfere with Muni operations at the Mission Bay campus site.
<table>
<thead>
<tr>
<th>Route</th>
<th>Campuses Served</th>
<th>Hours of Operation</th>
<th>Headways (minutes)¹</th>
<th>Average Weekday Boardings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>Parnassus-Mt. Zion-Mission Bay-SFGH</td>
<td>5:45 AM – 9:25 PM</td>
<td>15/20</td>
<td>924</td>
</tr>
<tr>
<td>Blue</td>
<td>Parnassus-SFGH-Mission Bay-Mt. Zion</td>
<td>5:35 AM – 8:47 PM</td>
<td>15/20</td>
<td>996</td>
</tr>
<tr>
<td>Grey</td>
<td>Parnassus-Mission Bay</td>
<td>6:30 AM – 10:00 PM</td>
<td>20</td>
<td>1,470</td>
</tr>
<tr>
<td>Red</td>
<td>Mission Bay-MCB-16th BART</td>
<td>5:55 AM – 7:45 PM</td>
<td>10/15</td>
<td>808</td>
</tr>
<tr>
<td>Green</td>
<td>Mission Bay-China Basin-654 Minnesota</td>
<td>6:25 AM – 6:40 PM</td>
<td>15</td>
<td>499</td>
</tr>
</tbody>
</table>

Notes:
1. Multiple values indicate variability in headways during the day.


### 2.4.3.4 Mission Bay Transportation Management Association

The Mission Bay Transportation Management Association (MBTMA), formed several years ago in conformance with mitigation measures identified in the Mission Bay Plan SEIR, provides two shuttle bus route services (east and west) between Mission Bay and the Powell Street BART Station and the Fourth/King Caltrain Station; they are free of charge and open to all employees, residents, and visitors to the Mission Bay Area and the China Basin building at 185 Berry Street. The west route serves Seventh and Owens streets, while the east route serves Fourth Street and Mission Bay Boulevard; both operate at 15-minute intervals from 7:00 to 10:00 AM and 3:45 to 8:15 PM.

### 2.4.4 Pedestrian Circulation

Approximately six percent of those traveling to and from the campus site walk.

Due to the developing nature of the Mission Bay neighborhood, pedestrian volumes are currently relatively low surrounding the campus site. Pedestrian activity is generally higher towards the center of the campus site along Fourth Street and the many pedestrian alleyways and plazas such as Gene Friend Way and Campus Way. Pedestrian counts indicate that approximately 240 pedestrians cross at Fourth Street and Campus Way during the AM and PM peak hours. Pedestrian activity is also higher around transit hubs such as the UCSF shuttle stop on Fourth Street south of Gene Friend Way and the T Third Street light rail stops on Third Street at Gene Friend Way.

Within the campus site area, sidewalks generally exist on both sides of the street in most locations, and are generally 12 to 15 feet wide. There are sidewalks gaps along roadway frontages of the campus site that are currently under construction including the south site of 16th Street between Seventh and Third streets and the west side of Third Street between 16th and Mariposa streets. These sidewalk gaps will be closed upon completion of construction of the adjacent buildings. All intersections surrounding the...
campus site include standard painted crosswalks and directional curb ramps. Pedestrian median refuges are provided along Fourth Street to slow traffic and reduce the pedestrian exposure time while crossing the street. Pedestrian signals with count down timers are provided at all signalized intersections. In addition, to the on-street pedestrian facilities, there are numerous public pedestrian alleyways and plazas that reduce the size of the city blocks for pedestrians. This provides a fine-grained pedestrian oriented network and reduces pedestrian walking distances throughout the campus site.

2.4.5 Bicycle Circulation

The topography within and around the Mission Bay campus site is flat, which facilitates easy bicycle travel. Approximately seven percent of those traveling to and from the campus site bike. This is approximately three times greater than the bicycling mode share throughout San Francisco. Several bikeways run within the vicinity of the campus site, as shown in Figure 2-11.

The following bicycle facilities are located within or near the Mission Bay campus site:

**King Street** is part of San Francisco Bike Route Five and is a short east-west bike route that travels in front of AT&T Park between Second and Third streets with Class II bicycle lanes. The bike lane ends mid-way between Second and Third streets and turns into a Class III facility with sharrow markings. The route ends at Third Street.

**16th Street** is part of San Francisco Bike Route 40 and is an east-west bike route that extends from Terry A Francois Boulevard to Kansas Street. Between Third Street and Kansas Street, 16th Street has Class II bicycle lanes in both directions. Between Terry A Francois Boulevard and Third Street, 16th Street is currently designated as a Class III bicycle facility, and will be upgraded to a Class II facility as a part of the Mission Bay South Infrastructure Plan.
Figure 2-11
Existing Bicycle Facilities - Mission Bay
Mariposa Street is part of San Francisco Bike Routes 7 and 23 and is an east-west bike route that extends from Illinois Street to Mississippi Street as a Class III bicycle facility with sharrow markings. At its eastern terminus, Mariposa Street connects to the Class II bicycle lanes on Terry A Francois Boulevard, while on its western terminus it connects to the Class II bicycle lanes that continue north on Mississippi Street.

Third Street is part of San Francisco Bike Route 5 and is a short north-south bike route that extends from King Street to Terry A Francois Boulevard and is designated as a Class III bicycle facility with sharrows. At its southern terminus, Third Street connects to the Class II bicycle lanes on Terry A Francois Boulevard.

Fourth Street is a north-south bike route that extends from Berry Street to 16th Street. Fourth Street is designated as a Class III bicycle facility as it crosses Mission Creek until Channel Street, south of which it has Class II bicycle lanes. The Fourth Street bike lanes provide the primary bicycle access through the Mission Bay campus site.

Seventh Street is part of San Francisco Bike Route 23 and is a north-south bike route that extends from Brannan Street to 16th Street with Class II bicycle lanes.

Mississippi Street is part of San Francisco Bike Route 23 and is a north-south bike route that extends from 16th Street to Mariposa Street with Class II bicycle lanes.

Mission Bay Drive is an east-west bike route that extends from the Mission Bay Circle to Seventh Street. It is designated as a Class II bicycle facility that provides bicycle access across the Caltrain tracks into the Mission Bay campus site. The San Francisco Bike Plan (June 2009) ("Bike Plan") includes a planned bikeway near/along Mission Creek between Fourth Street and Harrison Street, which is listed as a long-term project in the Bike Plan.

Bicycle counts indicate the most popular bicycling route through the campus site is Fourth Street, where between 40 and 50 bicyclists were observed during the AM and PM peak hours. Campus Way is also a popular connection into the campus site from 16th Street with 10-20 bicyclists observed crossing Owens Street at Campus Way during the AM and PM peak hours.

Bicycle racks are provided throughout the Mission Bay Campus Site in front of campus buildings, on-street, and within the Community Center garage on Owens Street. Popular bicycle parking locations such as the gym were observed to be nearly fully occupied during a site visit in February 2014. In an effort to increase bike parking here at the Mission Bay Campus Site to meet the growing demand, while also taking into account the feedback received from bicyclists, UCSF has since redesigned and expanded the bike parking throughout the campus site. This included new racks that double the amount of bike parking available in each area of installation, while providing equal access to all bicycle frame shapes and sizes.
2.4.6 Loading Conditions

The Mission Bay campus site has both service vehicle and passenger loading. There are six off-street service vehicle loading facilities serving the existing uses on the campus site, and summarized in Table 2-16 and shown in Figure 2-12. Passenger and service vehicles may also load on-street at marked zones on Fourth Street, Nelson Rising Lane, Mission Bay Boulevard South, and adjacent to the Gladstone Institutes building.

Based on 2010 monthly security data, the Helen Diller Cancer Research building receives approximately 100 deliveries each month, resulting in approximately three to four deliveries per day. The four loading spaces are sufficient for existing operations. On occasion, the Rutter Center requires deliveries of materials for special events, but on average this is no more than one additional truck delivery per day of the event, which is accommodated in the existing loading spaces. Daily deliveries are typical for the Café and laundry services for the recreation center, resulting in a minimum of three deliveries per day. The two loading spaces are sufficient for existing operations.

The loading area at Genentech Hall, receives approximately 20 deliveries each day for Genentech Hall and the adjacent Byers Hall. The six parcel spaces are comprised of four dock spaces and two small delivery van spaces. Based on the existing delivery operations, the six spaces are sufficient for current operations.

In general, existing loading areas provide a sufficient amount of space for passenger and vehicle loading based on feedback from UCSF Facilities Services. No delivery vehicles were observed double parking or using other facilities. Some passenger loading vehicles used empty metered parking spots for pick-up and/or drop-off because of proximity to destination.

Future loading areas may be provided at the Research CUP/EH&S Building. The Third Street Garage may include some loading spaces which are currently used for permit parking and UCPD emergency supplies. Mission Hall is not anticipated to include an off-street loading area. UCSF Facility Services assume Campus Lane, an adjacent private street, will be marked with loading areas similar to the on-street loading zones on Nelson Rising Lane.
TABLE 2-16: PASSENGER AND VEHICLE LOADING INFORMATION - MISSION BAY

<table>
<thead>
<tr>
<th>Building / Location</th>
<th>Loading Areas (Passenger or Vehicle)</th>
<th># Vehicle Loading Spaces and Type</th>
<th># Passenger Loading Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith Cardiovascular Research</td>
<td>Vehicle</td>
<td>4 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Helen Diller Cancer Research</td>
<td>Vehicle</td>
<td>4 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Sandler Neurosciences Center</td>
<td>Vehicle</td>
<td>2 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Mission Bay Housing</td>
<td>Vehicle (Compactors Only)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Rutter Center</td>
<td>Vehicle</td>
<td>2 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>Genentech Hall</td>
<td>Vehicle</td>
<td>6 parcel/truck spaces</td>
<td>--</td>
</tr>
<tr>
<td>On-Street Fourth Street</td>
<td>Vehicle/Passenger</td>
<td>75 feet (3 spaces)</td>
<td>100 feet (4 spaces)</td>
</tr>
<tr>
<td>On-Street Nelson Rising Lane</td>
<td>Vehicle/Passenger</td>
<td>260 feet (10 spaces)</td>
<td>220 feet (10 spaces)</td>
</tr>
<tr>
<td>On-Street Mission Bay Boulevard South</td>
<td>Passenger</td>
<td>--</td>
<td>80 feet (4 spaces)</td>
</tr>
<tr>
<td>On-Street Adjacent to Gladstone Institutes building</td>
<td>Vehicle</td>
<td>100 feet (4 spaces)</td>
<td>--</td>
</tr>
</tbody>
</table>

Notes:
1. Vehicle loading used for compactors, loading area prohibits passenger and delivery vehicles.

Source: UCSF, 2013
Figure 2-12

Existing Parking and Loading Locations-
Mission Bay
2.4.7 Parking Conditions

2.4.7.1 On-Street Parking

Most on-street parking provided in the vicinity of the Mission Bay campus site is regulated with a combination of two-hour, four-hour and unlimited time meters; exceptions include portions of Terry François Boulevard, Mission Bay Boulevard North and South, 16th Street, and Mariposa Street. Parking limits are generally in effect between 9 AM and 6 PM, with longer hours (until 10 PM). Parking is prohibited on 16th Street, west of Third Street; in addition, portions of Mariposa and Illinois Streets have baseball game-day-only tow-away parking prohibitions.

Mission Bay experiences a high parking utilization on most streets, including those with lower time limits. The streets which are surrounded by finished construction and occupied buildings have low parking availability, especially on weekday days. On other streets where parking demand is managed by two-hour time limits, too few of the parking spaces are used, which is an inefficient use of the existing parking supply. SFMTA through its SFPark program is implementing changes to the parking rates and time limits in the Mission Bay and Dogpatch neighborhoods to better manage and operate the existing on-street parking supply.

Table 2-17 summarizes the on-street parking supply and occupancy from parking surveys conducted along 16th Street, Mission Bay Boulevard, Fourth Street, Mission Rock Street, China Basin Street and Terry A. François Boulevard, in August 2011 and September 2013 on weekday mid-morning (9 to 11 AM), midday (1:30 to 3 PM) and late evening (6:30 to 8 PM) periods, including during an evening baseball game at AT&T Park. Overall street parking occupancy during the mid-morning is 48 percent and 89 percent during the midday period, while the late evening period occupancy is 61 percent during a baseball game, and 24 percent on a no-event day. Although, as expected, the street parking occupancy in the late evening is higher when a game takes place at AT&T Park, it is not as high as during the midday, which represents the peak parking demand period.
TABLE 2-17: MISSION BAY EXISTING ON-STREET PARKING SUPPLY AND OCCUPANCY

<table>
<thead>
<tr>
<th>Street Location</th>
<th>Overall Supply (spaces)</th>
<th>Occupancy</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mid-Morning²</td>
<td>Midday</td>
<td>Late Evening</td>
<td>Late Evening with SF Giants Game</td>
</tr>
<tr>
<td>T. François Blvd, from MB Blvd to 16th St</td>
<td>144</td>
<td>55%</td>
<td>88%</td>
<td>16%</td>
<td>40%</td>
</tr>
<tr>
<td>Fourth St, bet. Mission Rock St &amp; 16th St</td>
<td>71</td>
<td>30%</td>
<td>89%</td>
<td>8%</td>
<td>77%</td>
</tr>
<tr>
<td>Mission Rock St, from Third St to Fourth St</td>
<td>25</td>
<td>49%</td>
<td>84%</td>
<td>20%</td>
<td>72%</td>
</tr>
<tr>
<td>China Basin St, from Third St to Fourth St</td>
<td>57</td>
<td>22%</td>
<td>88%</td>
<td>32%</td>
<td>53%</td>
</tr>
<tr>
<td>MB Blvd, from T. François Blvd to Fourth St</td>
<td>73</td>
<td>53%</td>
<td>92%</td>
<td>47%</td>
<td>84%</td>
</tr>
<tr>
<td>16th St, east of Third St</td>
<td>40</td>
<td>90%</td>
<td>90%</td>
<td>35%</td>
<td>68%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>410</strong></td>
<td><strong>48%</strong></td>
<td><strong>89%</strong></td>
<td><strong>24%</strong></td>
<td><strong>61%</strong></td>
</tr>
</tbody>
</table>

Notes:
1. Data collected in September 2013, except as noted.
2. Data collected by SFMTA in August 2011.

Source: Adavant Consulting, Fehr & Peers, SFMTA

2.4.7.2 Off-Street Parking

The Mission Bay campus site currently has almost 1,600 parking spaces located in the 1630 Third Street Garage, the Community Center Garage (1675 Owens Street), and in three surface parking lots. They all offer a combination of public, patient, and UCSF-only permitted parking spaces. Additional off-street public parking is available nearby at the 1670 Owens Street Garage (about 800 spaces) and at the 450 South Street Garage (approximately 1,400 spaces), both owned by Alexandria Real Estate, Inc.

Table 2-18 summarizes the off-street parking supply and occupancy from parking surveys conducted in March and September 2013 on weekday morning (6:30 to 8:30 AM), midday (11:30 AM to 1:30 PM), and evening (3:30 to 5:30 PM) periods. Parking occupancy was also collected at two of the parking facilities during the late evening (6:30 to 8 PM) during an evening baseball game at AT&T Park.
TABLE 2-18: MISSION BAY EXISTING OFF-STREET PARKING SUPPLY AND OCCUPANCY

<table>
<thead>
<tr>
<th>Parking Facility</th>
<th>Overall Supply (spaces)</th>
<th>Morning</th>
<th>Midday</th>
<th>Evening</th>
<th>Late Evening with SF Giants Game</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UCSF Facilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1630 Third Street Garage</td>
<td>732</td>
<td>43%</td>
<td>92%</td>
<td>68%</td>
<td>76%</td>
</tr>
<tr>
<td>Community Center (1675 Owens St) Garage</td>
<td>593</td>
<td>30%</td>
<td>78%</td>
<td>66%</td>
<td>--</td>
</tr>
<tr>
<td>Surface Parking Lots</td>
<td>254</td>
<td>55%</td>
<td>81%</td>
<td>65%</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total UCSF Facilities</strong></td>
<td>1,579</td>
<td>40%</td>
<td>85%</td>
<td>67%</td>
<td>76%</td>
</tr>
<tr>
<td><strong>Other Parking Facilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 South Street Garage</td>
<td>1,400</td>
<td>4%</td>
<td>77%</td>
<td>26%</td>
<td>18%</td>
</tr>
<tr>
<td>1670 Owens Street Garage</td>
<td>800</td>
<td>6%</td>
<td>22%</td>
<td>17%</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total Other Parking Facilities</strong></td>
<td>2,200</td>
<td>5%</td>
<td>57%</td>
<td>23%</td>
<td>18%</td>
</tr>
<tr>
<td><strong>All Facilities</strong></td>
<td>3,779</td>
<td>19%</td>
<td>69%</td>
<td>41%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Notes:
1. Data collected in March and September 2013.
2. Includes the west side of Block 23, the Orthopedic Institute west of Owens St, and the Child Care Center. Mostly reserved to UCSF faculty, staff and patients.

Overall off-street parking occupancy during the morning period is 19 percent and 69 percent during the midday period, while the overall occupancy in the evening is 41 percent. The overall parking occupancy at the UCSF parking facilities is substantially higher than at the other garages, reaching 85 percent at midday, the peak parking demand period. An occupancy above 90 percent, such as at the Third Street garage, typically represents that the facility has reached its effective capacity. Similar to the street parking occupancy conditions described in the previous section, the off-street parking occupancy in the late evening when a game takes place at AT&T Park is not as high as during the midday period.

2.5 MOUNT ZION CAMPUS SITE

2.5.1 Roadway Facilities

The Mount Zion campus site is located at the crossroads of San Francisco between the more modestly-scaled neighborhoods of the Richmond District to the west and more downtown-scaled areas to the east. As such, the roadways serving the campus site are primarily east-west corridors – Geary Boulevard, Pine Street, and Bush Street. Primary north-south access to the campus site is provided via Divisadero Street. The primary vehicular entrances to parking and loading areas for the campus site are located along Sutter Street and Post Street between Broderick Street and Divisadero Street, along Geary Boulevard between Divisadero Street and Scott Street, and along Scott Street between Geary Boulevard and Post.
Street. Approximately 60 percent of those traveling to and from the campus site drive alone, are dropped off, or carpool/vanpool. The street network providing access to the Mount Zion campus site is shown in Figure 2-2.

2.5.1.1 Regional Access

Regional access to the Mount Zion campus site is provided by several major regional freeways, as discussed below.

**I-80** is a six-lane freeway located approximately two miles southeast of the campus site and connects San Francisco to the East Bay and other points east via the San Francisco-Oakland Bay Bridge. I-80 connects to U.S. 101 east of the Mount Zion campus site.

**U.S. 101** is an eight-lane freeway located approximately one mile east of the Mount Zion campus site. U.S. 101 connects San Francisco with the peninsula and the South Bay to the south and with the North Bay to the north via the Golden Gate Bridge. U.S. 101 connects to I-80 east of the campus site. Within the northern part of San Francisco, U.S. 101 operates on surface streets (i.e., Van Ness Avenue and Lombard Street). Van Ness Avenue and Lombard Street are part of the Citywide Pedestrian Network outlined in the Transportation Element of the *San Francisco General Plan* and are located one mile east and one mile north of the campus site, respectively.

2.5.1.2 Local Access

Local access to the Mount Zion campus site is provided by an urban street grid network. Key local roadways through the campus site are discussed in detail below and defined according to roadway classifications identified in the San Francisco General Plan Transportation Element.

**Geary Boulevard** is a six-lane east-west arterial that extends from Gough Street to 48th Avenue. The City classifies this arterial as a Major Arterial, a Neighborhood Commercial Street, and a Primary Transit Important Street. From Steiner Street to Baker Street (within the campus area) the roadway has a center median with foliage. On-street parking is provided on both sides of the street within the vicinity of the campus site. The 38 Geary, 38L Geary Limited, and Golden Gate Transit bus lines operate in both directions along Geary Boulevard, while the NX Judah Express operates only in the westbound direction during weekday peaks.

**Pine Street** is a three-lane, one-way westbound roadway that extends from Market Street to Presidio Avenue. The City classifies this roadway as a Major Arterial. It is also designated as part of the Neighborhood Pedestrian Street network between Scott Street and Divisadero Street. Pine Street is the westbound component of the Pine/Bush Street one-way couplet. On-street parking is provided on both sides of the street. The 1AX California A Express, 31AX Balboa A Express, 31BX Balboa B Express, 38AX Geary A Express, and 38BX Geary B Express bus lines utilize Pine Street to travel from Market Street to northwestern San Francisco neighborhoods.

**Bush Street** is a three-lane, one-way eastbound roadway that extends from Davis Street to Presidio Avenue. The City classifies this roadway as a Major Arterial. It is also designated as part of the Neighborhood Pedestrian Street network between Scott Street and Divisadero Street. Bush Street is the eastbound component of the Pine/Bush Street one-way couplet. On-street parking is provided on both sides of the street. The 1AX California A Express, 31AX Balboa A Express, 31BX Balboa B Express, 38AX
Geary A Express, 38BX Geary B Express, and NX Judah Express bus lines utilize Bush Street to travel from northwestern San Francisco neighborhoods to Market Street.

**Divisadero Street** is a four-lane north-south roadway that extends from Marina Boulevard to 14th Street. The City classifies this roadway as a Major Arterial between Pine Street and Lombard Street, a Secondary Arterial between Castro Street and California Street, and a Secondary Transit and Neighborhood Commercial Street between Haight Street and California Street. On-street parking is provided on both sides of the street. The 24 Divisadero bus line operates in both directions along Divisadero Street between Jackson Street and Waller Street, providing transit service between Pacific Heights and Bayview.

**Sutter Street** is a two-lane east-west roadway that travels from Market Street to Presidio Avenue. The City classifies this roadway as a Transit Conflict and a Secondary Transit Preferential Street. It is also designated as part of the Neighborhood Pedestrian Street network between Scott Street and Divisadero Street. On-street parking is provided on both sides of the street. The 2 Clement bus line operates in both directions along Sutter Street within the campus site, but only travels westbound on Sutter Street between Laguna Street and Market Street.

**Post Street** is a two-lane east-west Local Street that extends from Market Street to Presidio Avenue. On-street parking is provided on both sides of the street. The City classifies this roadway as a Secondary Transit Preferential Street. It is also designated as part of the Neighborhood Pedestrian Street network between Piece Street and Divisadero Street. Post Street is part of Bike Route 16 and has Class II bicycle lanes in both directions between Presidio Avenue and Steiner Street, west of which turns into a Class III bicycle route.

**Pierce Street** is a two-lane north-south Local Street that extends from Clay Street to Post Street. On-street parking is provided on both sides of the street.

**Scott Street** is a two-lane north-south Local Street that extends from Marina Boulevard to Duboce Avenue. On-street parking is provided on both sides of the street, with 45-degree parking on the southbound side of Scott Street between Sutter Street and Post Street.

**Broderick Street** is a two-lane north-south Local Street that extends from Marina Boulevard to Waller Street. On-street parking is provided on both sides of the street, with parking at 90-degrees between Sutter Street and Post Street. Broderick Street is designated as a Class III bicycle route between Clay Street and Post Street.
2.5.2 Intersection Operating Conditions

The following 16 campus site area intersections were selected for analysis through consultation with UCSF Campus Planning and San Francisco Planning Department staff. These study intersections are shown in Figure 2-2.

45. Pine Street/Divisadero Street
46. Bush Street/Broderick Street
47. Bush Street/Divisadero Street
48. Bush Street/Scott Street
49. Bush Street/Pierce Street
50. Sutter Street/Broderick Street
51. Sutter Street/Divisadero Street
52. Sutter Street/Scott Street
53. Sutter Street/Pierce Street
54. Post Street/Broderick Street
55. Post Street/Divisadero Street
56. Post Street/Scott Street
57. Post Street/Pierce Street
58. Geary Boulevard/Broderick Street
59. Geary Boulevard/Divisadero Street
60. Geary Boulevard/Scott Street

Figure 2-13A and Figure 2-13B display the existing AM and PM peak hour traffic volumes, lane configurations and traffic controls at each of the 16 study intersections. Intersection turning movement counts at the study intersections were collected in May 2013 on mid-week and non-holiday days when schools were in session. Intersection turning movement count sheets are provided in Appendix D.
Figure 2-13A

Existing Intersection Lane Configurations, Traffic Control, and Volumes—Mount Zion

Traffic Signal  →  Turn Lane  AM (PM)  Critical Movement
Stop Sign  AM (PM)  Peak Hour Traffic Volume  Study Intersection
Existing Intersection Lane Configurations, Traffic Control, and Volumes
Mount Zion
As shown in Table 2-19, all of the study intersections operate at an acceptable level of service (LOS D or better) during both the AM and PM peak hours.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Traffic Control</th>
<th>Peak Hour</th>
<th>Vehicle Delay2 (seconds)</th>
<th>LOS3</th>
</tr>
</thead>
<tbody>
<tr>
<td>45. Pine Street / Divisadero Street</td>
<td>Signal</td>
<td>AM</td>
<td>14</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>32</td>
<td>C</td>
</tr>
<tr>
<td>46. Bush Street / Broderick Street</td>
<td>Signal</td>
<td>AM</td>
<td>17</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>11</td>
<td>B</td>
</tr>
<tr>
<td>47. Bush Street / Divisadero Street</td>
<td>Signal</td>
<td>AM</td>
<td>48</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>18</td>
<td>B</td>
</tr>
<tr>
<td>48. Bush Street / Scott Street</td>
<td>Signal</td>
<td>AM</td>
<td>30</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>17</td>
<td>B</td>
</tr>
<tr>
<td>49. Bush Street / Pierce Street</td>
<td>Signal</td>
<td>AM</td>
<td>30</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>15</td>
<td>B</td>
</tr>
<tr>
<td>50. Sutter Street / Broderick Street</td>
<td>AWS</td>
<td>AM</td>
<td>&lt;10 / &lt;10</td>
<td>A / A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>&lt;10 / &lt;10</td>
<td>A / A</td>
</tr>
<tr>
<td>51. Sutter Street / Divisadero Street</td>
<td>Signal</td>
<td>AM</td>
<td>12</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>12</td>
<td>B</td>
</tr>
<tr>
<td>52. Sutter Street / Scott Street</td>
<td>AWS</td>
<td>AM</td>
<td>10 / 11</td>
<td>B / B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>11 / 12</td>
<td>B / B</td>
</tr>
<tr>
<td>53. Sutter Street / Pierce Street</td>
<td>AWS</td>
<td>AM</td>
<td>&lt;10 / &lt;10</td>
<td>A / A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>&lt;10 / &lt;10</td>
<td>A / A</td>
</tr>
<tr>
<td>54. Post Street / Broderick Street</td>
<td>Signal</td>
<td>AM</td>
<td>14</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>12</td>
<td>B</td>
</tr>
<tr>
<td>55. Post Street / Divisadero Street</td>
<td>Signal</td>
<td>AM</td>
<td>17</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>14</td>
<td>B</td>
</tr>
<tr>
<td>56. Post Street / Scott Street</td>
<td>Signal</td>
<td>AM</td>
<td>17</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>15</td>
<td>B</td>
</tr>
<tr>
<td>57. Post Street / Pierce Street</td>
<td>SSS</td>
<td>AM</td>
<td>12</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>11</td>
<td>B</td>
</tr>
<tr>
<td>58. Geary Boulevard / Broderick Street</td>
<td>SSS</td>
<td>AM</td>
<td>15</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>17</td>
<td>B</td>
</tr>
<tr>
<td>59. Geary Boulevard / Divisadero Street</td>
<td>Signal</td>
<td>AM</td>
<td>34</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>30</td>
<td>C</td>
</tr>
<tr>
<td>60. Geary Boulevard / Scott Street</td>
<td>Signal</td>
<td>AM</td>
<td>21</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>20</td>
<td>B</td>
</tr>
</tbody>
</table>

Notes:
1. AWS = All-way stop controlled; SSS = Side Street stop controlled; Signal = Signal controlled
2. Delay reported as seconds per vehicle. For signalized intersections, a combined weighted average delay for the various movements within the intersection is reported. For SSS intersections, the highest average delay for an approach is reported. For AWS intersection, the combined weighted average delay of the intersection is reported, followed by the highest average delay for an approach.
3. For signalized intersections, LOS based on average intersection delay, based on the methodology in the Highway Capacity Manual, 2000. For an unsignalized intersection, LOS is based on the worst approach which is indicated in parentheses.
4. Bold indicates unacceptable operations per UCSF LOS standards