3.12 Traffic and Circulation

Environmental Setting

PHYSICAL SETTING

The following section presents a description of various transportation system components within Daly City.

Roadway Network

Regional Access

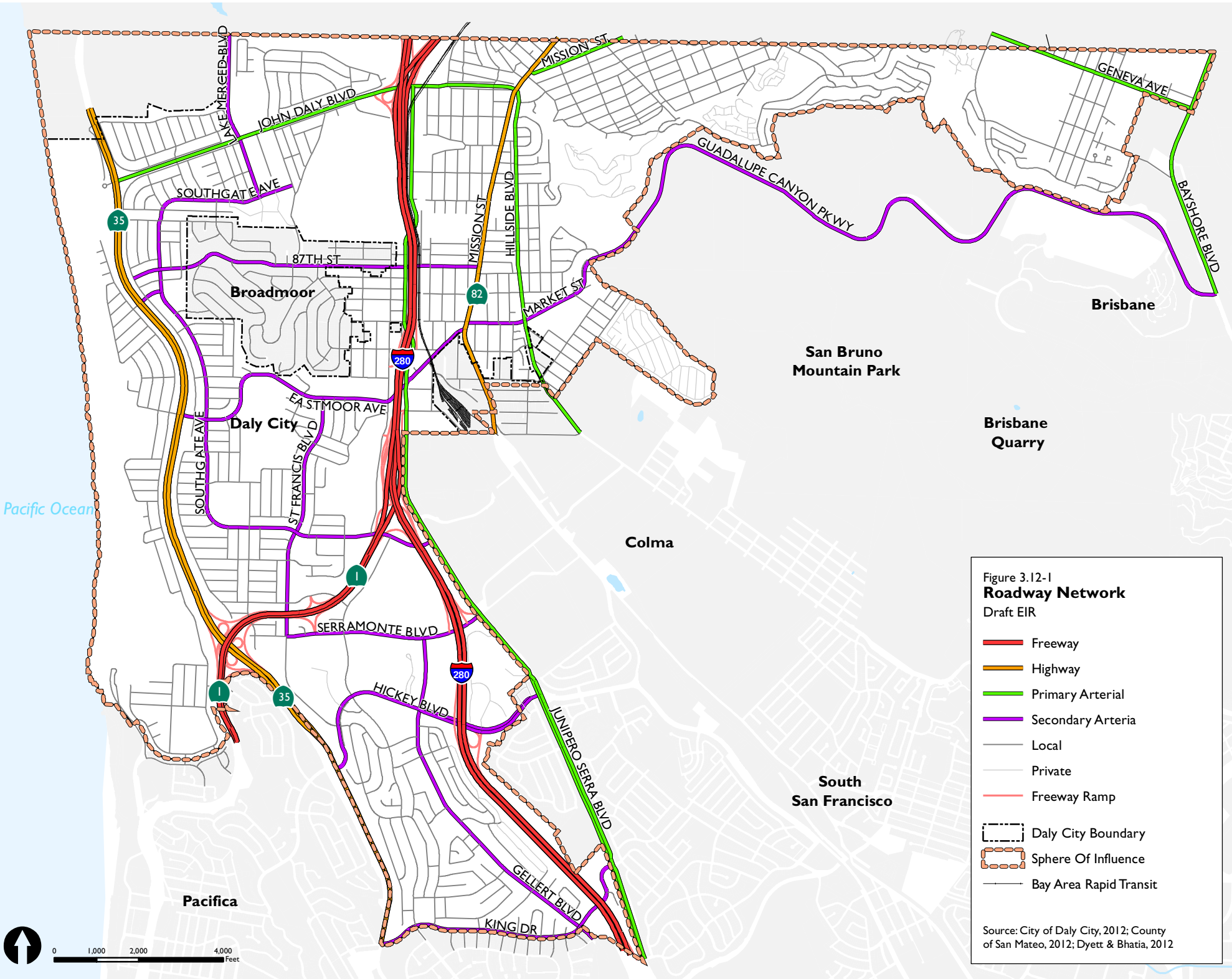
Interstate 280 (I-280), State Route 1 (SR-1), Skyline Boulevard (SR-35) and Mission Street (SR-82) all serve Daly City. I-280 provides regional access between San Jose and San Francisco. SR-1 is a state freeway primarily providing north-south access along the coastline of California. Skyline Boulevard is a state highway that runs along the coastline between San Francisco and San Mateo Counties; SR-35 connects to SR-1 in Daly City. Mission Street is a state highway that provides access to cities along the San Francisco peninsula.

Local Access

Within the Daly City city limits, the local roadway network consists of the following roadway types:

- **Arterials** are designed to carry heavy traffic volumes at lower speeds than highways. Most arterials incorporate medians to control cross traffic, and provide separate turn lanes and signals controls at major intersection. Examples of four-lane arterials are Geneva Avenue, Mission Street, John Daly Boulevard, and Serramonte Boulevard. Examples of two-lane arterials are Eastmoor Avenue and Southgate Avenue.
- **Collector streets** are designed to channel traffic from local streets into the arterial street system and to handle short trips within neighborhoods. Examples of collector streets include Crocker Avenue and South Mayfair Avenue.
- **Local streets** provide access from larger roadways to destinations within a residential or business district.

Figure 3.12-1 shows the existing roadway network in Daly City.


LAKE MERCED BLVD
JOHN DALY BLVD
MISSION ST
GENEVA AVE
SOUTHGATE AVE
35
87TH ST
Broadmoor
MISSION ST
HILLSIDE BLVD
GUADALUPE CANYON PKWY
BAYSHORE BLVD
82
MARKET ST
Brisbane
San Bruno
Mountain Park
280
EASTMOOR AVE
Daly City
SOUTHGATE AVE
ST FRANCIS BLVD
Brisbane
Quarry
Pacific Ocean
Colma
1
SERRAMONTE BLVD
280
1
35
HICKEY BLVD
JUNIPERO SERRA BLVD
South
San Francisco
GELLERT BLVD
KING DR
Pacifica
0
1,000
2,000
4,000
Feet
Figure 3.12-1
Roadway Network
Draft EIR
Freeway
Highway
Primary Arterial
Secondary Arteria
Local
Private
Freeway Ramp
Daly City Boundary
Sphere Of Influence
Bay Area Rapid Transit
Source: City of Daly City, 2012; County of San Mateo, 2012; Dyett & Bhatia, 2012

Intersection Operations

Intersection Level of Service

Level of Service (LOS) is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or at an intersection during a specific time interval. It ranges from LOS A (very little delay) to LOS F (long delays and congestion). Table 3.12-1 provides a definition for each LOS category.

TABLE 3.12-1: LEVEL OF SERVICE DEFINITION

Level of Service	*Description*
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream. At signalized intersections, turning movements are easily made and all queues clear in a single signal cycle.
B	Stable traffic. Traffic flows smoothly with few delays. An occasional approach phase is fully utilized. Drivers begin to feel somewhat restricted within platoons of vehicles.
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays. Major approach phases fully utilized. Backups may develop behind turning vehicles.
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours. Queues may develop but dissipate rapidly, without excessive delays.
E	Unstable flow with operating conditions at or near capacity level. Long delays and vehicle queuing.
F	Forced or breakdown flow that causes reduced capacity. Traffic demand exceeds the capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.

Source: Transportation Research Board/National Research Council, Highway Capacity Manual, 2000; Kittelson & Associates, Inc., 2012.

Signalized Intersections

Signalized intersection LOS is measured as the average control delay in seconds per vehicle. Control delay is the portion of the total delay experienced by drivers at intersections that is attributable to traffic signal operation. It includes the delay for decelerating to a stop at a signal, moving slowly in a queue of vehicles, stopped delay, and acceleration after the signal turns green. Table 3.12-2 summarizes the relationship between the LOS rating and control delay for signalized intersections. To evaluate signalized intersections, the operations method of the Highway Capacity Manual (HCM), Transportation Research Board, National Research Council, 2000 was utilized.

Unsignalized Intersections

Unsignalized intersection level of service evaluation also utilized the HCM 2000 operations methodology. This methodology determines the LOS based on delay. Similar to signalized intersections, the measure of effectiveness of an unsignalized intersection is measured in average control delay; however, the delay is reported for the worst-case approach of the intersection. The LOS criteria for unsignalized intersections are summarized in Table 3.12-2.

TABLE 3.12-2: DEFINITION OF LEVEL OF SERVICE FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS

Level of Service	*Signalized Intersection Control Delay (seconds/vehicle)*	*Unsignalized Intersection Control Delay (seconds/vehicle)*
A	≤ 10	0-10
B	> 10-20	> 10-14
C	> 20-35	> 15-25
D	> 25-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Source: Transportation Research Board/ National Research Council, Highway Capacity Manual, 2000.

Existing Intersection Operations

Intersection turning movement counts were collected on a typical weekday between 7:00-9:00 AM and 4:00-6:00 PM at all study intersections. (See Figure 3.12-2.) The traffic counts were conducted in 2008. The existing intersection geometry and traffic control is illustrated Appendix C. The existing conditions traffic volumes are also shown in Appendix C.

Table 3.12-3 summarizes the 2008 existing intersection LOS for the AM and PM peak hours. For the AM peak hour, all of the study intersections are currently operating at LOS D or better, achieving the proposed General Plan's LOS standard of LOS D. For the PM peak hour, all of the study intersections are currently operating at LOS D or better except for two intersections: John Daly Blvd/Junipero Serra Blvd is operating at LOS E, and Hickey Blvd/Skyline Blvd is operating at LOS F.

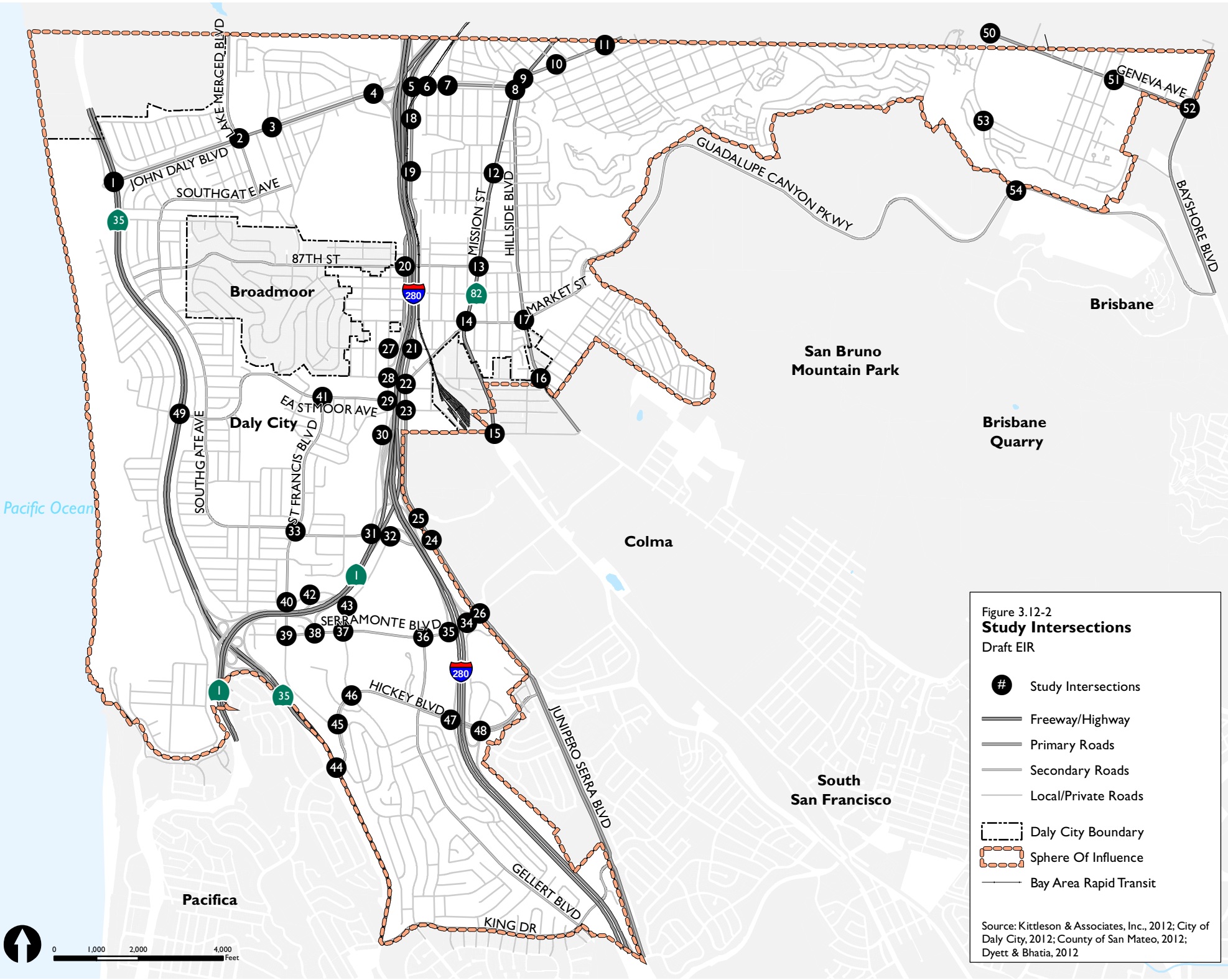

LAKE MERCED BLVD
JOHN DALY BLVD
SOUTHGATE AVE
87TH ST
Broadmoor
MISSION ST
HILLSIDE BLVD
GUADALUPE CANYON PKWY
GENEVA AVE
BAYSHORE BLVD
MARKET ST
Brisbane
San Bruno Mountain Park
Brisbane Quarry
EASTMOOR AVE
Daly City
SOUTHGATE AVE
ST FRANCIS BLVD
Pacific Ocean
Colma
SERRAMONTE BLVD
HICKEY BLVD
JUNIPERO SERRA BLVD
GELLERT BLVD
KING DR
Pacifica
South San Francisco
280
1
35
82
0
1,000
2,000
4,000
Feet
Figure 3.12-2
Study Intersections
Draft EIR
Study Intersections
Freeway/Highway
Primary Roads
Secondary Roads
Local/Private Roads
Daly City Boundary
Sphere Of Influence
Bay Area Rapid Transit
Source: Kittleson & Associates, Inc., 2012; City of Daly City, 2012; County of San Mateo, 2012; Dyett & Bhatia, 2012

TABLE 3.12-3: INTERSECTION LEVEL OF SERVICE – EXISTING (AM AND PM PEAK HOURS)

	Intersection	*Existing Traffic Control*	Jurisdiction	*Existing*			
				AM Peak		*PM Peak*	
				LOS[1]	*Average Delay*	*LOS*[1]	*Average Delay*
1	John Daly Blvd/Skyline Blvd	Signalized	Caltrans	B	14.4	B	16.2
2	John Daly Blvd/Lake Merced Blvd	Signalized	Daly City	C	33.6	D	40.5
3	John Daly Blvd/Park Plaza Dr	Signalized	Daly City	C	31.2	C	29.9
4	John Daly Blvd/I-280 SB On-Ramp	Signalized	Caltrans	B	10.4	A	5.3
5	John Daly Blvd/Junipero Serra Blvd	Signalized	Caltrans	C	24.5	**E**	**59.3**
6	John Daly Blvd/BART Exit	Signalized	Daly City	A	3.7	A	4.0
7	John Daly Blvd/DeLong St	Signalized	Daly City	C	30.2	C	29.8
8	John Daly Blvd/Mission St/Hillside Blvd	Signalized	Caltrans	C	33.1	D	37.6
9	Mission St/Hillcrest Dr	Signalized	Caltrans	A	0.7	A	1.4
10	Mission St/Crocker Ave/Flournoy St	Signalized	Daly City	C	23.3	C	23.4
11	Mission St/Templeton Ave	Stop	Daly City	A	8.5	A	9.5
12	Mission St/Westlake Ave	Signalized	Caltrans	B	10.8	B	11.6
13	Mission St/School St	Signalized	Caltrans	C	21.1	C	22.9
14	Mission St/E Market St/San Pedro Rd	Signalized	Caltrans	D	43.0	D	42.0
15	El Camion Real/F St	Signalized	Caltrans	B	10.5	B	10.9
16	Hillside Blvd/A St/Chester St	Stop	Unincorporated San Mateo Co	B	10.3	B	11.0
17	Hillside Blvd/E Market St	Signalized	Daly City	C	28.8	C	27.9
18	Junipero Serra Blvd/North Garage	Signalized	Daly City	A	0.6	A	2.9
19	Junipero Serra Blvd/Westlake Ave	Signalized	Daly City	A	9.4	B	10.9
20	Junipero Serra Blvd/School St/87th St	Signalized	Daly City	C	27.1	C	30.2
21	Junipero Serra Blvd/Washington St	Signalized	Daly City	C	27.9	C	33.8
22	Junipero Serra Blvd/San Pedro Rd	Signalized	Daly City	C	30.2	C	30.2
23	Junipero Serra Blvd/D St	Signalized	Caltrans	B	13.3	B	15.8
24	Junipero Serra Blvd/Southgate Ave	Signalized	Colma	C	20.5	C	21.8

TABLE 3.12-3: INTERSECTION LEVEL OF SERVICE – EXISTING (AM AND PM PEAK HOURS)

Intersection		*Existing Traffic Control*	Jurisdiction	*Existing*			
				AM Peak		*PM Peak*	
				LOS[1]	*Average Delay*	*LOS*[1]	*Average Delay*
25	Junipero Serra Blvd/Colma Blvd	Signalized	Colma	B	17.2	C	25.1
26	Junipero Serra Blvd/Serramonte Blvd	Signalized	Caltrans	C	23.9	C	26.2
27	Sullivan Ave/Washington St	Signalized	Daly City	B	16.1	B	17.5
28	Sullivan Ave/Pierce St	Signalized	Caltrans	B	13.6	B	15.7
29	Sullivan Ave/San Pedro Rd/Eastmoor Ave	Signalized	Daly City	C	31.0	C	25.6
30	Sullivan Ave/I-280 SB On-Ramp	Signalized	Daly City	B	11.1	B	14.8
31	Sullivan Ave/Southgate Ave	Signalized	Daly City	B	16.0	B	17.5
32	Southgate Ave/Callan Blvd	Stop	Daly City	B	12.3	B	14.7
33	Southgate Ave/St Francis Blvd	Signalized	Daly City	B	13.2	B	12.8
34	Serramonte Blvd/I-280 NB On-Ramp	Signalized	Caltrans	A	3. 3	A	4.8
35	Serramonte Blvd/I-280 SB Off-Ramp	Signalized	Caltrans	A	8.0	A	8.7
36	Serramonte Blvd/Gellert Blvd	Signalized	Daly City	C	31.1	D	35.5
37	Serramonte Blvd/Callan Blvd	Stop	Daly City	C	20.3	D	33.8
38	Serramonte Blvd/SR-1 On/Off-Ramp	Stop	Caltrans	D	25.1	B	13.3
39	Serramonte Blvd/St Francis Blvd	Stop	Daly City	B	14.7	B	10.4
40	St Francis Blvd/Clarinada Ave	Stop	Daly City	B	13.4	C	19.4
41	St Francis Blvd/Eastmoor Ave	Stop	Daly City	C	16.6	C	17.0
42	Clarinada Ave/SR-1 On/Off-Ramp	Stop	Caltrans	C	12.7	D	22.8
43	Clarinada Ave/Callan Blvd	Stop	Daly City	A	9.3	A	11.0
44	Hickey Blvd/Skyline Blvd	Signalized	Caltrans	C	25.4	**F**	**95.6**
45	Hickey Blvd/St. Francis Blvd	Stop	Daly City	C	15.9	C	21.0
46	Hickey Blvd/Callan Blvd	Signalized	Daly City	C	22.1	C	24.6
47	Hickey Blvd/I-280 SB On/Off-Ramp	Signalized	Caltrans	A	6.8	B	11.8
48	Hickey Blvd/I-280 NB On/Off-Ramp	Signalized	Caltrans	B	18.1	C	24.5

TABLE 3.12-3: INTERSECTION LEVEL OF SERVICE – EXISTING (AM AND PM PEAK HOURS)

Intersection		*Existing Traffic Control*	Jurisdiction	*Existing*			
				AM Peak		*PM Peak*	
				LOS[1]	*Average Delay*	*LOS*[1]	*Average Delay*
49	Skyline Blvd/Westmoor Ave	Signalized	Caltrans	C	21.5	C	21.7
50	Geneva Ave/Carter St	Signalized	City of San Francisco	B	13.1	B	12.3
51	Geneva Ave/Schwerin St	Signalized	Daly City	B	15.5	B	18.5
52	Geneva Ave/Bayshore Blvd	Signalized	Daly City	C	21.3	C	20.7
53	Carter St/Martin St	Signalized	Daly City	A	5.7	A	4.4
54	Guadalupe Canyon Parkway/Carter St	Signalized	Partially in Brisbane	B	14.7	C	20.4

1 For Stop-Controlled intersections, LOS/Delay reported for worst case approach.

Bold = Exceeds proposed General Plan LOS Standard of D.

Source: Kittelson & Associates, Inc., August 2012

Freeway Operations

Performance measures such as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience are used to describe freeway operation conditions. These measures are related to the density of traffic and volume to capacity ratio and LOS is a quality measure describing operating conditions within the stream of traffic during the peak hours. The 2000 HCM defines six LOS grades for each type of facility. LOS is designated from A to F, with LOS A representing the best operating conditions and LOS F the worst. For this study, the LOS for a basic freeway segment is based on the volume to capacity ratio, assuming that one freeway travel lane has a capacity of 2,200 vehicles per hour. Table 3.12-4 describes the relationship between freeway LOS, density, and volume to capacity.

TABLE 3.12-4: FREEWAY LEVEL OF SERVICE

Freeway LOS	*Density Range (pc/mi/ln)*	*Volume to Capacity Ratio*
A	0-11	0.30
B	> 11-18	0.50
C	> 18-26	0.71
D	> 26-35	0.89
E	> 35-45	1.00
F	> 45	> 1.00

Source: Transportation Research Board/National Research Council, Highway Capacity Manual, 2000.

Table 3.12-5 shows the existing I-280, US 101, SR-1, and SR-35 freeway segment levels of service for the AM and PM peak hours. All segments operate at LOS D or better except for I-280 NB between City Limits and Hickey Road, where it is operating at LOS E during the PM peak hour.

TABLE 3.12-5: FREEWAY LEVEL OF SERVICE – EXISTING (AM AND PM PEAK HOURS)

				Existing					
				AM Peak			*PM Peak*		
Freeway Segment	*Cap per lane*	*# lanes*	*Total Cap*	*Vol (veh/hr)*	*V/C*	*LOS*	*Vol (veh/hr)*	*V/C*	*LOS*
I-280 NB City Limits to Hickey	2,200	4	8,800	6,095	0.693	C	**8,044**	**0.914**	**E**
I-280 NB Hickey to Serramonte	2,200	4	8,800	5,951	0.676	C	7,546	0.858	D
I-280 NB Serramonte to SR-1	2,200	5	11,000	6,757	0.614	C	9,215	0.838	D
I-280 NB SR1 to Washington	2,200	6	13,200	8,159	0.618	C	7,974	0.604	C
I-280 NB Washington to Junipero Serra	2,200	7	15,400	9,323	0.605	C	9,197	0.597	C
I-280 NB Junipero Serra to John Daly	2,200	6	13,200	8,373	0.634	C	8,075	0.612	C
I-280 NB John Daly to Co Line	2,200	4	8,800	3,978	0.452	B	6,094	0.693	C
I-280 SB Co Line to John Daly	2,200	4	8,800	6,017	0.684	C	6,529	0.742	D
I-280 SB John Daly to Eastmoor	2,200	6	13,200	7,514	0.569	C	8,329	0.631	C
I-280 SB Eastmoor to SR-1	2,200	6	13,200	6,628	0.502	C	7,115	0.539	C
I-280 SB SR-1 to Serramonte	2,200	5	11,000	8,124	0.739	D	7,682	0.698	C
I-280 SB Serramonte to Hickey	2,200	4	8,800	7,324	0.832	D	6,339	0.720	D
I-280 SB Hickey to City Limits	2,200	4	8,800	7,557	0.859	D	6,227	0.708	C
US 101 NB Oyster Point	2,200	4	8,800	7,349	0.835	D	7,150	0.813	D
US 101 SB Oyster Point	2,200	4	8,800	6,485	0.737	D	6,412	0.729	D
SR-1 NB City Limits to SR-35	2,200	2	4,400	2,532	0.575	C	1,377	0.313	B

TABLE 3.12-5: FREEWAY LEVEL OF SERVICE – EXISTING (AM AND PM PEAK HOURS)

				Existing					
				AM Peak			*PM Peak*		
Freeway Segment	*Cap per lane*	*# lanes*	*Total Cap*	*Vol (veh/hr)*	*V/C*	*LOS*	*Vol (veh/hr)*	*V/C*	*LOS*
SR-1 NB SR-35 to Serramonte	2,200	4	8,800	3,729	0.424	B	1,958	0.223	A
SR-1 NB Serramonte to SB I-280 Off Ramp	2,200	4	8,800	4,027	0.458	B	2,057	0.234	A
SR-1 NB SB I-280 Off Ramp to NB I-280	2,200	3	6,600	3,059	0.463	B	1,487	0.225	A
SR-1 SB SB I-280 to Clarinada	2,200	4	8,800	1,680	0.191	A	3,867	0.439	B
SR-1 SB Clarinada to SR-35	2,200	4	8,800	1,470	0.167	A	3,515	0.399	B
SR-1 SB SR-35 to City Limits	2,200	2	4,400	823	0.187	A	2,012	0.457	B
SR-35 NB City Limits to SR-1	2,200	2	4,400	1,552	0.353	B	949	0.216	A
SR-35 NB SR-1 to end of Fwy	2,200	2	4,400	1,206	0.274	A	1,583	0.360	B
SR-35 SB n/o SR-1	2,200	2	4,400	1,289	0.293	A	1,338	0.304	B
SR-35 SB SR-1 to City Limits	2,200	2	4,400	1,085	0.247	A	1,626	0.370	B

Bold = Exceeds San Mateo County CMP LOS Standard

Source: Kittelson & Associates, Inc., August 2012

Transit Service

Public transportation is provided by Bay Area Rapid Transit (BART), San Mateo County Transit District (SamTrans), and San Francisco Municipal Railway (MUNI). BART connects the San Francisco Peninsula with Oakland, Berkeley, Fremont, Walnut Creek, Dublin/Pleasanton and other East Bay cities via above- and below-ground heavy rail. The Daly City BART station is located on John Daly Boulevard, just east of Junipero Serra Boulevard. BART has a total of five lines, of which four lines provide service to the Daly City station. The intermodal bus hub is also located at the Daly City BART station. The Colma BART station is located at D Street, east of I-280 in the unincorporated area of Colma, adjacent to Daly City. SamTrans operates eleven bus routes that travel through Daly City and several of the routes also serve neighboring cities. MUNI operates three bus

routes that provide service between San Francisco and the Daly City BART station. Figure 3.12-3 shows the transit network within Daly City.

Existing Bicycle Network

The bicycle network in Daly City is limited and disconnected at present. Figure 3.12-4 shows the existing bicycle network within Daly City. Bikeway classifications are identified as follows:

- Class I Off-Street Path – The existing Class I paths in Daly City are combined bicycle/pedestrian paths that provide a completely separated right of way for the exclusive use of bicycles and pedestrians with cross-flow minimized.
- Class II On-Street Bicycle Lane–Class II bikeways are adjacent to but separated from motor vehicle and/or pedestrian traffic. While the cyclist has a separate lane, it may be preempted by turning or parking vehicles. This type of bikeway can be added to existing streets by narrowing travel lanes to provide a path separated by a low berm, painted markings or by removing curb parking. One way lanes should be at least four feet wide.
- Class III Bicycle Route – Class III bikeways are shared bikeways where the cyclist occupies the same right-of-way with either motor vehicles or pedestrians. Signs and/or pavement markings are used to designate that the street or path also is to be used by cyclists.

Existing bicycle facilities in Daly City consist of the following:

- Class I off-street path on Lake Merced Boulevard
- Class I off-street path along south side of John Daly Boulevard west of I-280 to just east of Skyline Highway
- Class III on Skyline Highway
- Class II bicycle lane on segments of Southgate Avenue, Callan Boulevard, Gellert Boulevard, King Drive and Serramonte Boulevard
- Class III bicycle routes throughout the City

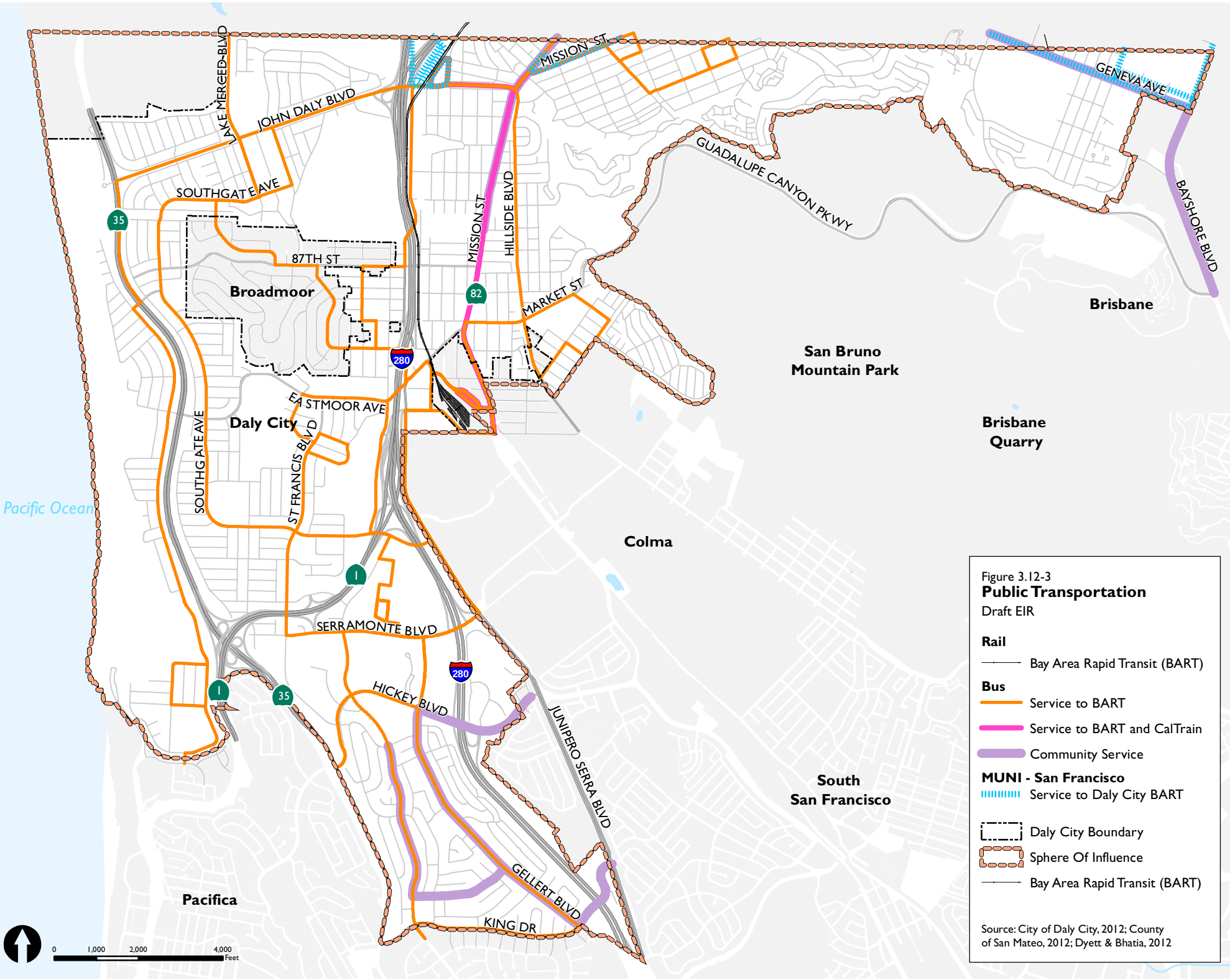


Figure 3.12-3
Public Transportation
Draft EIR

Rail
- Bay Area Rapid Transit (BART)

Bus
- Service to BART
- Service to BART and CalTrain
- Community Service

MUNI - San Francisco
- Service to Daly City BART

- Daly City Boundary
- Sphere Of Influence
- Bay Area Rapid Transit (BART)

Source: City of Daly City, 2012; County of San Mateo, 2012; Dyett & Bhatia, 2012