

3.4 Automobile Traffic

3.4.1 | Regulatory Setting

Several policies and plans guide automobile transportation on and around the Geary corridor.

3.4.1.1 | THE SAN FRANCISCO GENERAL PLAN

The San Francisco *General Plan* (*General Plan*) is discussed in Section 3.3.1.1. Relevant policies in the General Plan relating to automobile traffic include:

- **Transit First Policy:** Geary (both Boulevard and Street) is identified as a Transit Preferential Street in the City's Transit First Policy, along with O'Farrell Street between Market Street and Gough Street. The Transit Preferential Street program includes measures to improve public transit vehicle speeds and to minimize the effects of traffic on transit operations.
- **Policy 1.3:** Give priority to public transit and other alternatives to the private automobile as the means of meeting San Francisco's transportation needs, particularly those of commuters.
- **Policy 14.1:** Reduce road congestion on arterials through the implementation of traffic control strategies, such as traffic signal synchronization (consistent with posted speed limits) and turn controls, which improve vehicular flow without impeding movement for pedestrians and bicyclists.
- **Policy 14.4:** Reduce congestion by encouraging alternatives to the single occupant auto through the reservation of right-of-way and enhancement of other facilities dedicated to multiple modes of transportation.

GENERAL PLAN

General Plan Policy 1.3 supports giving priority to public transit and other alternatives to the automobile to meet San Francisco's transportation needs. However, the General Plan also supports strategies to reduce traffic congestion on major thoroughfares through traffic signal timing and turn restrictions

3.4.1.2 | SAN FRANCISCO CONGESTION MANAGEMENT PROGRAM (2013)

The San Francisco County Transportation Authority (SFCTA) has served as the congestion management agency (CMA) for San Francisco County since 1990. In this capacity, SFCTA's responsibilities include but are not limited to:

- Developing and adopting the biennial Congestion Management Program (CMP).
- Monitoring City agencies' compliance with CMP requirements.
- Reviewing the programming of all transportation funds for San Francisco.
- Providing input into the Regional Transportation Plan (RTP).
- Developing and updating the long-range transportation plan for San Francisco.

SFCTA last updated the CMP in 2015. The purpose of the CMP update is four-fold: 1) comply with California state law by adopting a biennial CMP and submitting it to the Metropolitan Transportation Commission (MTC) for a conformance finding to ensure the City's eligibility for state fuel tax revenues; 2) monitor the performance of San Francisco's transportation system and guide San Francisco agencies involved in congestion management; 3) outline the congestion management work program for fiscal years 2015/2016 and 2016/2017; and 4) set forth policies and technical tools to implement the CMP work program.

The original 1989 CMP legislation required CMAs to monitor congestion on a designated CMP roadway network and to identify as deficient any network segments that fall below the adopted level of service (LOS) standard (segments already below the threshold in 1991 are exempt). However, in 2002 local jurisdictions were granted the authority to designate infill opportunity zones (IOZs) in areas meeting certain requirements. Within a designated IOZ, the CMA is not required to maintain traffic conditions to the adopted automobile LOS standard. The San Francisco IOZ, adopted in 2009, covers most of the City, including the entirety of the Geary corridor.

In the 2015 CMP, the Geary corridor is highlighted as a key corridor for enhancing transit service and reliability to ensure that transit is a viable option to the automobile. Along with the Van Ness Avenue Bus Rapid Transit (BRT) Project, the proposed project is a key element of the City's Transit Priority Network. The project was also identified in the Countywide Transportation Plan and the Proposition K Expenditure Plan, as well as confirmed as a priority in San Francisco Municipal Transportation Agency's (SFMTA) Transit Effectiveness Project (TEP) and became a part of the SFMTA Muni Rapid Network when the Rapid Network was introduced in 2015.

3.4.1.3 | METROPOLITAN TRANSPORTATION COMMISSION (MTC)

The majority of federal, state, and local financing available for transportation projects is allocated at the regional level by MTC, the transportation planning, coordinating, and financing agency for the nine-county Bay Area. The current RTP, which is combined with the region's Sustainable Communities Strategy, is known as *Plan Bay Area 2040* and was adopted by MTC in 2017. *Plan Bay Area 2040* specifies a detailed set of investments and strategies throughout the region from 2017 through 2040 to maintain, manage, and improve the surface transportation system. *Plan Bay Area 2040* specifies how anticipated federal, state, and local transportation funds will be spent in the Bay Area through the year 2040.

3.4.1.4 | BAY AREA AIR QUALITY MANAGEMENT DISTRICT (BAAQMD)

On-road motor vehicles are the largest source of air pollution and greenhouse gases in the Bay Area. The Bay Area Air Quality Management District (BAAQMD) is the regional agency with the authority to develop and enforce regulations for the control of air pollution throughout the Bay Area. The Clean Air Plan is BAAQMD's plan for reducing the emissions of air pollutants and greenhouse gases. BAAQMD has also published California Environmental Quality Act (CEQA) guidelines for evaluating the potential for projects to result in air quality impacts related to traffic congestion and vehicle miles traveled (VMT).

3.4.1.5 | CALTRANS

Caltrans, or the California Department of Transportation, is responsible for managing all freeways and designated State Highways in California. On these facilities, Caltrans seeks to manage traffic congestion while accommodating other travel modes. Caltrans facilities within the Geary corridor include Van Ness Avenue (US 101) and Park Presidio Boulevard (Highway 1). Caltrans typically requires that traffic congestion on its facilities not be degraded to unacceptable levels due to local plans and projects.

3.4.2 | Affected Environment

Please refer to Section 3.2.1.3, which describes the study area roadway network in detail.

3.4.2.1 | EXISTING LEFT-TURN LOCATIONS

There are a total of 40 left-turn locations (with both permitted and protected left-turn signal phasing) on Geary Boulevard from 25th Avenue to Gough Street. Protected left-turn signal phasing – signals with left-turn arrows – grants the right-of-way to vehicular traffic; permissive phasing (e.g., green circular light requiring yielding to conflicting traffic and pedestrian movements) does not. For more detail on existing and proposed left-turn locations, see Chapter 2 (Descriptions of Project Alternatives), and Figures 2-9, 2-13, 2-17, and 2-20.

Left Turn Changes

Between 2013 and 2015, after preparation of the traffic study for the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), SFMTA changed existing left-turn conditions at Third and Seventh avenues as follows.

- At Geary and Third Avenue, the eastbound left-turn lane from Geary onto northbound Third Avenue was removed.
- At Geary and Seventh Avenue, the westbound left-turn lane from Geary onto southbound Seventh Avenue was removed.

As part of the traffic analysis in this Final EIS, SFCTA evaluated the potential for these changes to affect 2020 and 2035 traffic impacts for the No Build Alternative and build alternatives as reported in the Draft EIS/EIR, including the Hybrid Alternative/LPA. SFCTA found that neither of these changes to existing left turns would affect project impact conclusions from the Draft EIS/EIR for the reasons set forth below.¹

Third Avenue

In the Draft EIS/EIR, all build alternatives retained the (then) existing eastbound left turn at Third Avenue. The Hybrid Alternative also called for removal of the existing eastbound left turn at Fourth Avenue. However, the left turn at Third Avenue was removed after traffic analysis for the Draft EIS/EIR had been completed. Thus, at Third Avenue, the build alternatives would now reopen (rather than retain) the eastbound left turn.

¹ Tischler, Dan. Senior Transportation Planner, SFCTA. Personal communication. May 3, 2017.

As part of the traffic study conducted for the Draft EIS/EIR, SFCTA used p.m. peak-hour traffic counts conducted in 2010, which recorded 18 left turns at Third Avenue and 20 left turns at Fourth Avenue (which also has an eastbound left-turn lane). In April 2015, prior to the release of the Draft EIS/EIR, SFCTA conducted additional traffic counts to assure the continued validity of the 2010 count data. The 2015 traffic count showed that overall p.m. peak-hour eastbound and westbound traffic volumes were 16 percent lower in this area than in 2010.

These observations indicate:

- As measured in 2010, eastbound left-turn demand was about the same at both Third Avenue and Fourth Avenue (about 20 vehicles in the p.m. peak hour),
- Combined eastbound left-turn demand at the two intersections (less than 40 vehicles in 2010) can be met by a single left-turn location, and
- Traffic volumes in the area did not increase from 2010 to 2015, and left-turn demand is stable at this location

Based on the foregoing, the closure of the eastbound left turn at Geary and Third Avenue would not alter any traffic impact conclusions for build or No Build conditions from what was reported in the Draft EIS/EIR, as each of the build or No Build alternatives would include at least one east-bound left-turn lane, at either Third or Fourth Avenue. No further analysis is thus necessary.

Seventh Avenue

In the Draft EIS/EIR, Alternatives 3-Consolidated and the Hybrid Alternative proposed to remove the westbound left turn at Seventh Avenue; however, this left turn has since been removed. The removal of a left turn could affect traffic levels by shifting left-turn demand to one or more nearby remaining left-turn locations. At this location, any relocation of left-turn demand has already occurred because of the left-turn closure. Accordingly, the removal of this left turn would not change any of the impact conclusions for build or No Build conditions from what was reported in the Draft EIS/EIR. No additional analysis is therefore necessary.

3.4.2.2 | ROADWAY TRAFFIC VOLUMES

Traffic volumes on the Geary corridor are generally higher than those on many other corridors in San Francisco. Overall, the number of Geary corridor travel lanes and its wide right-of-way accommodate existing traffic demand. However, traffic can become congested during peak periods in the vicinity of a few high-volume intersections, including Masonic Avenue, Park Presidio Boulevard, Fillmore Street, Franklin Street, and Van Ness Avenue.

The intersection of Geary Boulevard and Masonic Avenue features complexities, including a long underpass, service roads for local traffic to make turns, and a mix of automobile, bus, pedestrian and bicycle flows at the surface. This intersection also tends to get crowded from cars accessing the driveway of a grocery store off of Masonic Avenue. At Fillmore Street, Geary Boulevard traffic demands are high and through travel lanes operate in a two-block long underpass, with side service roads for local traffic to make turns. Double-parking can also cause traffic delay along the corridor and is common near land uses that generate short-duration trips in areas with little available parking (e.g. post offices, banks, and convenience retail) or when

longer delivery vehicles park in diagonal parking spaces. At Geary Boulevard and Park Presidio Boulevard, a travel lane reduction occurs in the westbound direction, limiting roadway capacity. A lane reduction also occurs at O’Farrell and Franklin in the eastbound direction.

Seventy-two-hour traffic counts over the course of three consecutive weekdays were collected at 10 locations along Geary Boulevard (west of Van Ness Avenue). The purpose of the three-day traffic counts was to determine periods of typical peak traffic. Based on these results, the p.m. peak period was chosen as the analysis time period as it represents the period when the maximum use of the transportation system occurs. It is also consistent with the approach suggested in the San Francisco Planning Department’s *Transportation Impact Analysis Guidelines*, the document that guides CEQA analysis in the City of San Francisco.

Table 3.4-1 displays weekday average daily traffic (ADT) and p.m. peak-hour volumes on Geary Boulevard in both directions. The p.m. peak hour typically occurs between 5 and 6 p.m. About 7 to 8 percent of average daily volumes travel during the p.m. peak hour along the corridor. Traffic volumes are generally higher in the eastern area of the Geary corridor. Daily traffic volumes increase closer to 20,000 in each direction at some locations, including Geary Boulevard between Baker Street and Lyon Street, and at Webster Street.

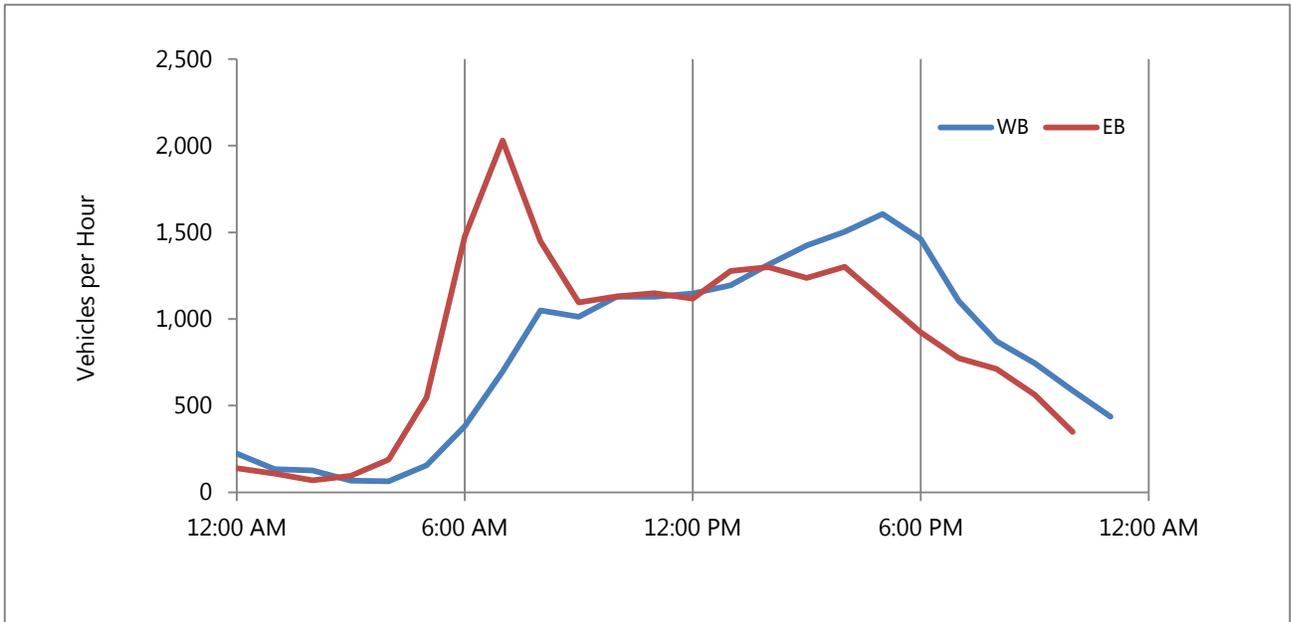
Table 3.4-1 Average Daily Weekday Traffic and P.M. Peak-Hour Volumes

LOCATION ON GEARY CORRIDOR	ADT (WB/EB)	P.M. PEAK HOUR (WB/EB)
32nd Avenue	8,900 / 8,960	770 / 650
25th Avenue	9,490 / 11,720	860 / 800
Park Presidio Boulevard	14,710 / 17,040	1,260 / 1,130
Arguello Boulevard	17,530 / 17,390	1,240 / 1,580
Geary between Wood Street/Collins Street	17,940 / 15,010	1,530 / 1,000
Geary between Baker Street/Lyon Street	22,410 / 20,820	1,920 / 1,350
Divisadero Street	19,780 / 20,580	1,640 / 1,340
Webster Street	20,000 / 20,910	1,700 / 1,330
Gough Street	16,960 / 15,990	1,250 / 1,050

Source: SF-CHAMP

Figure 3.4-1 displays typical weekday automobile demand patterns across a 24-hour period at the intersection of Divisadero Street and Geary Boulevard. Volumes peak in the a.m. at around 8 a.m. and then drop to a stable mid-afternoon rate. Volumes begin to climb again in the late afternoon through about 6 p.m. The a.m. and p.m. peak hours carry about the same number of vehicles in both directions; however, p.m. peak conditions occur over a longer time frame than the a.m. peak, which is more compressed in duration. This is consistent with overall travel characteristics in San Francisco, and as a result, the p.m. peak-hour conditions are the focus of the transportation and traffic analysis.

Figure 3.4-1 Existing Weekday Geary Boulevard Traffic Volumes at Divisadero Street



Source: Fehr & Peers, 2009

SFCTA initially collected traffic counts in the Geary corridor between 2010 and 2012. The first comprehensive traffic count collection effort took place in 2010. The team later conducted additional traffic counts on the Geary corridor in 2012. The traffic analysis in this document is based on the traffic counts collected between 2010 and 2012, which were determined to be similar throughout the corridor.

To confirm that traffic conditions had not changed significantly since 2012, the project team conducted an additional round of traffic counts in May 2015. These counts were conducted at locations where previous traffic counts had been done in 2010 and/or 2012. Late afternoon/early evening (p.m.) peak-hour traffic volumes observed in May 2015 were determined to range from 5 to 25 percent lower than in the most recent previous count (2010 or 2012). Across all comparable intersections, 2015 p.m. peak-hour traffic counts averaged about 12 percent lower than in 2010 and 2012.

The observed reduction in traffic volume on the Geary corridor in 2015 suggests that the Draft EIS/EIR document may have overstated the severity of traffic congestion on Geary Boulevard in existing year (2015) and future year conditions. In preparing this Final EIS, SFCTA and SFMTA consulted the most recent available data (from 2016). The 2016 data also show that traffic volumes in the Geary corridor are similar to or lower than the counts used in the Draft EIS/EIR.²

3.4.2.3 | TRAFFIC VOLUMES ON STREETS PARALLEL TO THE GEARY CORRIDOR

Average daily traffic (ADT) volumes along Geary Boulevard were reviewed for five to 10 block segments of each street parallel to Geary Boulevard between 25th Avenue and Webster Street. California Street experiences a range of about 10,000 to 15,000 ADT in this area. Clement Street’s ADT ranges from 6,000 to 17,000 ADT.

² Tischler, Dan. Senior Transportation Planner, SFCTA. Personal communication. March 8, 2017.

Anza Street experiences a range of about 7,000 to 8,000 ADT between 25th Avenue and Masonic Avenue. Balboa Street/Turk Street ADT ranges between 3,000 and 12,000 vehicles. From where Turk transitions to Golden Gate Avenue until Scott Street, Golden Gate Avenue experiences about 12,000 ADT. Overall, Clement Street and California Street carry more traffic than the streets immediately to the south of Geary Boulevard. Each of these streets have ample capacity to serve the current traffic demands.

3.4.2.4 | VEHICULAR TRAFFIC TRAVEL TIMES

The speed limit on Geary is 25 miles per hour throughout the corridor, with the exception of Collins to Gough streets, where the speed limit is 35 miles per hour in both directions (where the roadway serves as an expressway). Table 3.4-2 displays average vehicular travel times and variations, in minutes, for the Geary corridor during the p.m. peak period hour between Polk Street and 25th Avenue. Both vehicular and travel time summaries were developed using the existing conditions VISSIM microsimulation model, and do not represent observations. As such, the results represent conditions in which traffic demand is consistent over the course of the peak hour. Overall, westbound travel on the Geary corridor between 25th Avenue and Polk Street currently takes slightly more time than eastbound travel (about 16 and 14 minutes, respectively). Travel times vary by segment, but are more consistently closer to two to three minutes heading eastbound on the Geary corridor.

Table 3.4-2 P.M. Peak-Period Vehicle Travel Times

SEGMENT ALONG GEARY BOULEVARD	TRAVEL TIME (MINUTES)
WESTBOUND	
Polk Street to Laguna Street	1:40
Laguna Street to Broderick Street	3:30
Broderick Street to Stanyan	4:20
Stanyan Street to Park Presidio Boulevard	3:50
Park Presidio Boulevard to 25th Avenue	2:50
Total (Polk Street to 25th Avenue)	16:10
EASTBOUND	
25th Avenue to Park Presidio Boulevard	2:55
Park Presidio Boulevard to Stanyan Street	3:50
Stanyan Street to Broderick Street	2:10
Broderick Street to Laguna Street	2:25
Laguna Street to Polk Street	2:35
Total (25th Avenue to Polk Street)	13:55

Note: Standard deviation of travel time is presented for individual segments only.

Source: Fehr & Peers, 2014

3.4.2.5 | P.M. PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS)

Detail on existing LOS and delay during the p.m. peak hour at all on-corridor and off-corridor study intersections can be found in Appendix D-4. LOS is used to describe how efficiently an intersection operates for private vehicle traffic. Intersection LOS designations range from “A,” which indicates negligible delays with free flow speed (i.e., less than 10 seconds per vehicle for signalized intersections and unsignalized approaches) to “F,” which indicates delays with queuing that may block upstream intersections (i.e., greater than 80 seconds per

vehicle for signalized intersections and greater than 50 seconds for unsignalized approaches). Table 3.4-3 summarizes LOS thresholds for signalized intersections.

Table 3.4-3 Signalized Intersection Level of Service Thresholds

LOS	AVERAGE CONTROL DELAY (SECONDS PER VEHICLE)	DESCRIPTION
A	< 10	Operations with very low delay occurring with favorable progression and/or short signal cycle lengths.
B	10-20	Operations with low delay occurring with good progression and/or short signal cycle lengths.
C	20-35	Operations with average delays resulting from fair traffic progression and/or longer signal cycle lengths.
D	35-55	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicle stops and signal cycle failures are noticeable.
E	55-80	Operations with high delay values indicating poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences. This is oftentimes considered to be the limit of acceptable delay.
F	> 80	Operation with delays unacceptable to most drivers occurring due to over saturated or above capacity conditions, poor progression, and/or very long signal cycle lengths.

Source: Highway Capacity Manual, Transportation Research Board, 2000

LOS has been a performance metric used by the City to evaluate intersection operations for automobiles. However, pursuant to changes in CEQA and a resolution adopted by the San Francisco Planning Commission after publication of the Draft EIS/EIR (Resolution 19579), automobile delay as measured by LOS is no longer considered a significant impact on the environment. Senate Bill 743 established a process to change the analysis of transportation impacts under CEQA to include alternative performance metrics. Based on the draft alternative methods of transportation analysis currently proposed by the Governor’s Office of Planning and Research, and consistent with the evaluation of other recent projects in San Francisco, the Draft EIS/EIR included information on LOS as well as other automobile performance metrics, including project-related changes to travel times, reliability, and VMT. This Final EIS retains the LOS-based analysis and resultant impact conclusions, and also reports on other travel metrics consistent with local regulatory changes.

Figure 3.4-2 illustrates the locations and conditions of study intersections (on- and off-corridor) and associated p.m. peak-hour (5 to 6 p.m.) LOS. The vast majority of Geary corridor intersections currently operate at LOS C or better. However, the unsignalized intersection of Presidio Avenue and Geary Boulevard currently operates at LOS E.

Most study intersections outside of the section of Geary Boulevard between Van Ness Avenue and 25th Avenue operate at LOS C or better. Five intersections operate at LOS D: Anza Street and Park Presidio Boulevard, Fulton Street and Park Presidio Boulevard, Pine Street and Franklin Street, Geary Boulevard and Polk Street, and O’Farrell Street and Hyde Street. The intersection of Fulton Street and Stanyan Street currently operates at LOS E during the p.m. peak hour.

There are about 90 intersections along the entire Geary corridor from Market Street to 48th Avenue, of these, 78 were selected as study intersections. The 22 intersections that were not selected are either minor unsignalized intersections with low side street traffic volumes, intersections located directly adjacent to other

selected intersections along the Geary corridor that have similar operating characteristics, or intersections that would not experience major changes in travel patterns as a result of the project. Among the 78 selected intersections are those with unique geometry, those more prone to peak-hour congestion, those maintained by other jurisdictions (e.g., Caltrans), or those that intersect a street with a Muni Rapid line.

3.4.2.6 | REGIONAL AND CITY VEHICLE MILES TRAVELED

Many factors affect travel behavior. These factors include development density, diversity of land uses, design of the transportation network, access to regional destinations, distance to high-quality transit, development scale, demographics, and transportation demand management. Typically, low-density development at great distance from other land uses, located in areas with poor access to non-private vehicular modes of travel, generate more automobile travel compared with development located in urban areas, where a higher density, mix of land uses, and travel options other than private vehicles are available.³

Given these travel behavior factors, San Francisco has a lower VMT ratio than the nine-county San Francisco Bay Area region. In addition, some areas of the City have lower VMT ratios than other areas of the City. These areas of the City can be expressed geographically through transportation analysis zones. Transportation analysis zones are used in transportation planning models for transportation analysis and other planning purposes. The zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas like the Hunters Point Shipyard.

For example, for households, the regional average daily household VMT per capita is 17.2. The City's average daily household VMT per capita is 8.4.

³ Adapted from Ganson, C; Governor's Office of Planning and Research, "Updating Transportation Metrics." June 2015.

Figure 3.4-2 Existing LOS at Core Area and Off-Corridor Study Intersections



3.4.3 | Methodology: Traffic Evaluation

Traffic operations were analyzed for three project years: existing conditions (2012); the anticipated project opening year (2020); and the project horizon year (2035). Analysis was conducted for the No Build Alternative, as well as for all build alternatives, each existing, opening year (baseline), and horizon year conditions.

Traffic volumes used in the existing conditions analysis were based on field counts. Future traffic volumes were in turn developed using several analysis tools. These tools included travel forecasting and assignment models such as San Francisco Chained Activity Modeling Process (SF-CHAMP) and dynamic traffic assignment (DTA), as well as traffic and transit operations models such as VISSIM and Synchro. All models and analysis tools are described in more detail in Appendices D-1 and D-2. The modeling tools used to analyze build alternatives vary depending on the section of the Geary corridor analyzed. VISSIM, DTA, and Synchro were mainly used in the Geary corridor west of Van Ness Avenue. Synchro was mainly used east of Van Ness Avenue. To derive future year turning movement traffic volumes, SF-CHAMP outputs were used to create growth factors that were applied to existing conditions volumes (Appendix D-3). Because it is outside the core subarea, no modeling was conducted in the portion of the Geary corridor south of Market Street.

The forecasts in ABAG *Projections 2009* for year 2015 in the study area reflect conditions that are expected to occur more closely to the project's opening year. Forecasts were provided for year 2015, which had assumed a more robust land use growth trajectory than has actually occurred, including construction of the California Pacific Medical Center (CPMC) Cathedral Hill campus by 2015 (but now scheduled to be completed by 2020). Signal timing and phasing data were provided by SFCTA. For future scenarios, these data were optimized using the Synchro model. For this Final EIS, *Projections 2009* were assessed in comparison to more recent projections (see Appendix D2-2 for details); this assessment concluded that the 2009 projections still provide a reasonable estimate of expected growth for "worst-case" environmental impact analysis, and thus remain reasonable projections for the purposes of this Final EIS. Traffic counts conducted since the publication of the Draft EIS/EIR also show that traffic levels have not increased.

Traffic conditions were analyzed at 49 on-corridor intersections and 29 off-corridor intersections. As previously mentioned, the p.m. peak period was chosen as the analysis time period as it represents the period when the maximum use of the transportation system occurs. It is also consistent with the approach suggested in the San Francisco Planning Department's *Transportation Impact Analysis Guidelines*.

SFCTA uses SF-CHAMP to estimate VMT by private automobiles and taxis for different land use types. Travel behavior in SF-CHAMP is calibrated based on observed behavior from the California Household Travel Survey (CHTS) 2010-2012, Census data regarding automobile ownership rates and county-to-county worker flows, and observed vehicle counts and transit boardings. (The CHTS is conducted every 10 years by Caltrans, therefore, these data remain the most recent available data input into SF-CHAMP.) The 2016 data collected to re-validate the

model results also show that traffic volumes in the Geary corridor are similar to or lower than the counts used in the Draft EIS/EIR.⁴

The SF-CHAMP model was used to estimate vehicle miles traveled from private automobiles and taxis, the latter of which is a type of for-hire vehicle, like transportation network companies (or TNCs), such as Uber and Lyft. The observed data used to calibrate SF-CHAMP is from the years with the latest data available, 2010-2012. Since that time, the prevalence of for-hire vehicles has increased in San Francisco, mostly due to growth in the number of vehicle trips taken by TNCs. SF-CHAMP estimates the probability of driving based on auto ownership, household income, and other variables.

To the extent that people previously would have traveled in another personal or for-hire vehicle (i.e., taxi), but now travel using a TNC service, use of transportation network companies would be accounted for in previous household travel surveys and thus would be accounted for in the vehicle miles traveled estimates from SF-CHAMP. Any travel using TNC services that exceeds the SF-CHAMP estimates, when combined with other personal, commercial, and for-hire vehicle use, has not resulted in a substantial net increase in vehicle volumes in the corridor as evidenced by the 2016 traffic counts referenced above, which showed that traffic volumes in the Geary corridor were similar to or lower than the counts used in the Draft EIS/EIR. In addition, as described in Section 3.2.1.4, recent Census data show that while taxi and TNC commute mode share increased between 2012 and 2015, it remained below 1 percent in 2015. The same data indicated that the most significant trend between 2012 and 2015 was a shift from driving, or being driven, toward transit, walking, and biking.

3.4.3.1 | ROADWAY NETWORK CHANGES

The primary assumptions accounted for in the modeling process for the build alternatives are summarized below. The modeling used for the build alternatives in 2020 and 2035 accounts for changes in roadway geometry and circulation patterns that would be implemented to accommodate project-related improvements in the Geary corridor. For more detailed information on these changes, please see Chapter 2 (Descriptions of Project Alternatives). The following briefly identifies the changes in roadway operations accounted for in the future models.

- **Reduction in Number of Mixed Travel Lanes:** West of Van Ness Avenue, the number of mixed travel lanes would be reduced due to the reconfiguration of the roadway space to improve traffic safety and/or accommodate bus-only lanes in both westbound and eastbound direction for Alternative 2 (side-running) and down the center median for center-running alternatives.
- **Left-turn Prohibitions:** Due to the reconfiguration of the roadway, including the median, for all build alternatives motorists would experience a reduction in left-turn opportunities along Geary Boulevard. Please see Chapter 2 (Descriptions of Project Alternatives), for specific locations of left-turn removals in the Geary corridor.

⁴ Tischler, Dan. Senior Transportation Planner, SFCTA. Personal communication. March 8, 2017.

- **Additional Signalized Intersections and Pedestrian Crossings:** A list of new signalized pedestrian crossings and crosswalks under all build alternatives can be found in Table 3.5-5.

For more detailed information on roadway network changes assumed as part of future forecasts and for a detailed discussion of the VISSIM and Synchro traffic analysis model development process, please see Appendices D-1 through D-3.

3.4.3.2 | EVALUATION METRICS

This section summarizes the metrics used to measure the performance of each alternative in future year conditions. These metrics were chosen based on the nature of the proposed project and the aforementioned guidance and regulations set forth by the Governor’s Office of Planning and Research and the San Francisco Planning Department.

- **Auto Travel Time:** In addition to bus travel times reported in Section 3.3, automobile travel times are also presented for the core section of the Geary corridor.
- **Intersection Delay/LOS:** Signalized intersection operations are evaluated based on average vehicular delay (seconds per vehicle). Unsignalized intersections are analyzed using LOS based on the approach with the highest delay. Using Highway Capacity Manual (2010) methodology, the LOS is calculated based on the average of the total vehicular delay per approach weighted by the number of vehicles at each approach.
- **Systemwide Multimodal Delay:** Delay at intersections and along streets affects travelers in all modes. In addition to total vehicle delay, system-wide delay is measured and reported for other travel modes, including bicycles and pedestrians. Transit system-wide delay is also reported in Section 3.3 above.
- **VMT/Vehicle Hours Traveled (VHT):** In addition to local traffic evaluation metrics, the project’s contribution to regional VMT and VHT is also reported.

3.4.4 | Environmental Consequences

This section describes how the roadway system in the Geary corridor would operate under the future year scenarios for each alternative. Traffic demand was estimated for the years 2020 and 2035. The No Build Alternative and the four build alternatives are analyzed for both.

As set forth in Section 3.4.4.1, the modifications to the Hybrid Alternative/LPA since publication of the Draft EIS/EIR do not change the conclusions regarding traffic impacts in the Draft EIS/EIR.

Future traffic volumes were estimated using a multi-step process consisting of the SF-CHAMP travel demand forecasting model and the San Francisco northwest Quadrant DTA model. This section provides several measures of aggregate traffic demand for each of the analysis scenarios. The changes projected to occur in the horizon years would mostly be due to changes in signalization at certain intersections as well as the introduction of new transit service on the Geary corridor.

3.4.4.1 | HYBRID ALTERNATIVE/LPA MODIFICATIONS: SUMMARY OF POTENTIAL ADDITIVE EFFECTS SINCE PUBLICATION OF THE DRAFT EIS/EIR

This section presents analysis of whether the six modifications to the Hybrid Alternative/LPA, as discussed in Section 2.2.7.6, could result in any new or more severe effects to automobile traffic conditions during construction or operation than what was previously disclosed in the Draft EIS/EIR.

The Hybrid Alternative/LPA now includes the following six minor modifications added since the publication of the Draft EIS/EIR:

- 1) Retention of the Webster Street pedestrian bridge;
- 2) Removal of proposed BRT stops between Spruce and Cook streets (existing stops would remain and provide local and express services);
- 3) Addition of more pedestrian crossing and safety improvements;
- 4) Addition of BRT stops at Laguna Street;
- 5) Retention of existing local and express stops at Collins Street; and
- 6) Relocation of the westbound center- to side-running bus lane transition to the block between 27th and 28th avenues.

As documented below, the Hybrid Alternative/LPA as modified would not result in any new or more severe effects to automobile traffic conditions relative to what was disclosed in the Draft EIS/EIR and set forth below in Sections 3.4.4.2 to 3.4.4.11.

SFMTA conducted supplemental transportation analyses of the modifications, documented in separate memoranda,^{5,6,7} the results of which are discussed below.

Retention of the Webster Street Pedestrian Bridge

Construction: The proposed modification would eliminate demolition and excavation activities at this location. This would result in a reduced number of traffic disruptions in the immediate area. Therefore, this modification would not result in any new or more severe traffic impacts during construction.

⁵ San Francisco Municipal Transportation Agency. *Geary Boulevard Bus Rapid Transit: Pedestrian Bulbout Parking Effects Analysis*. November 15, 2016. This memorandum is available for review at the San Francisco County Transportation Authority, 1455 Market Street, 22nd Floor, San Francisco, CA 94103.

⁶ San Francisco Municipal Transportation Agency. *Geary Corridor Bus Rapid Transit Project – Possible Modifications to Staff Recommended Alternative Bus Stops at Laguna and Collins Streets – Supplemental Transportation Analysis Technical Memorandum*. January 4, 2017. This memorandum is available for review at the San Francisco County Transportation Authority, 1455 Market Street, 22nd Floor, San Francisco, CA 94103.

⁷ San Francisco Municipal Transportation Agency. *Geary Boulevard Bus Rapid Transit: 27th Avenue Transition – Transportation Analysis Technical Memorandum*. April 18, 2017. This memorandum is available for review at the San Francisco County Transportation Authority, 1455 Market Street, 22nd Floor, San Francisco, CA 94103.

Operation: The retained pedestrian bridge and staggered crosswalk at Webster Street would require a minor signal timing change; however, this change would not result in a change in LOS at any nearby intersections relative to what was described in the Draft EIS/EIR. This modification would not reduce travel lane capacities. Therefore, this modification would not result in any new or more severe traffic impacts during operation.

Removal of Proposed BRT Stops between Spruce and Cook Streets

Construction: Given that a new BRT stop would not be built between Spruce and Cook streets, construction (and associated traffic disruptions) would be reduced in this area. Therefore, this modification would not result in any new or more severe traffic impacts during construction.

Operation: Retention of the existing bus stops between Spruce and Cook streets would not involve any changes to traffic signal timing, nor would it change travel lane capacities. As such, this modification could not have any effect on any of the automobile traffic effects as previously disclosed in the Draft EIS/EIR. Therefore, this modification would not result in any new or more severe traffic impacts during operation.

Addition of More Pedestrian Crossing and Safety Improvements

Construction: All pedestrian improvements would be construction within existing transportation right of way. Construction-period disruptions would be short in duration and similar to that which would occur for other previously proposed pedestrian improvements throughout the corridor. Therefore, this modification would not result in any new or more severe traffic impacts during construction.

Operation: Addition of more pedestrian enhancements throughout the corridor would not involve any changes to traffic signal timing, nor would it reduce travel lane capacities. As such, this modification could not have any effect on any of the automobile traffic effects as previously disclosed in the Draft EIS/EIR. Therefore, this modification would not result in any new or more severe impacts during operation.

Addition of BRT Stops at Laguna Street

Construction: Construction-period traffic disruptions would be short in duration and similar to that which would occur for other previously proposed BRT stops throughout the corridor. Therefore, this modification would not result in any new or more severe traffic impacts during construction.

Operation: Addition of BRT stops at Laguna Street would not involve any changes to traffic signal timing, nor would it reduce travel lane capacities. The existing curbside bus stops would be relocated to new transit islands that would separate right-turning vehicles from the bus lane. This would shift the locations of the eastbound and westbound right-turn lanes immediately adjacent to the curb, though this would not substantially affect vehicle travel times. As such, this modification could not have any effect on any of the automobile traffic effects as previously disclosed in the Draft EIS/EIR. Therefore, this modification would not result in any new or more severe traffic impacts during operation.

Retention of Existing Local and Express Stops at Collins Street

Construction: Given that existing bus stops would no longer be removed at Collins Street, construction (and associated traffic disruptions) would be reduced in this area. Therefore, this modification would not result in any new or more severe traffic impacts during construction.

Operation: Retention of the existing bus stops at Collins Street would not involve any changes to traffic signal timing, nor would it reduce travel lane capacities. As such, this modification could not have any effect on any of the automobile traffic effects as previously disclosed in the Draft EIS/EIR. Therefore, this modification would not result in any new or more severe traffic impacts during operation.

Relocation of the Westbound Center- to Side-Running Bus Lane Transition

Construction: Relocation of the westbound bus lane transition at 27th Avenue would not alter the total level of construction activities but would simply shift about half of it one block to the west. Therefore, this modification would not result in any new or more severe traffic impacts during construction.

Operation: In the revised design at the 27th Avenue bus lane transition, the westbound transit signal queue jump would be located at 27th Avenue, rather than 26th Avenue as proposed in the Draft EIS/EIR. Both intersections have very similar traffic characteristics. Any associated delay for automobiles traveling in the westbound direction would occur at 27th Avenue rather than at 26th Avenue. As both the eastbound and westbound queue jumps would now be consolidated into one intersection (i.e., at 27th Avenue), signal coordination through the area would be slightly more efficient, though the change would be negligible because the entire queue jump phase is only a few seconds. Therefore, this modification would not result in any new or more severe traffic impacts during operation.

3.4.4.2 | FUTURE TRAFFIC VOLUME FORECASTS (P.M. PEAK HOUR) BY YEAR BY ALTERNATIVE

2020 No Build Alternative

Geary corridor traffic volumes vary by year, alternative, and section of the Geary corridor. By 2020 under the No Build alternative, westbound p.m. peak-hour traffic volumes east of Divisadero Street are projected to increase by up to 35 percent relative to existing conditions, while volumes to the west of Divisadero Street are expected to decline by as much as 29 percent. The anticipated increase in traffic volumes east of Divisadero Street would be related to planned intensification of land use in and around San Francisco's downtown areas. The CPMC Cathedral Hill development near Geary Boulevard and Van Ness Avenue would contribute to the increase in traffic. At the western end of the Geary corridor, traffic levels are projected to moderately decline. Factors that could contribute to declining traffic volumes may include the addition of new traffic signals on Geary Boulevard and land use shifts in the Presidio and in the North Bay. New traffic signals would add an incremental amount of delay to traffic on Geary Boulevard. For trips where Geary Boulevard and an alternate route have the same travel time, drivers may become more likely to use the alternate route. As employment opportunities in the Presidio and the North Bay increase, traffic patterns for some commuters could shift away from western Geary Boulevard to north-south oriented streets providing access to the Presidio and Golden Gate Bridge.

2020 No Build Alternative eastbound p.m. peak-hour traffic is projected to fall relative to existing conditions. The greatest declines, up to 32 percent, are expected to occur between Webster Street and Park Presidio. Traffic reductions are anticipated to be less pronounced to the west of Park Presidio and in the vicinity of Van Ness Avenue. Two potential contributors for the reduction in eastbound traffic by 2020 include the opening of Presidio Parkway and improved westbound signal progression throughout the Geary corridor. Presidio Parkway added an additional eastbound lane in the p.m. peak period and may attract some drivers that would otherwise have used the Geary corridor to access San Francisco's northeastern neighborhoods. Improved signal progression would help to smooth traffic flow in the westbound direction, where p.m. peak-hour traffic demand is highest, but could increase eastbound travel time for the smaller number of vehicles traveling in the counter-peak direction. Some drivers may find that eastbound travel is faster on alternate routes and switch routes from Geary Boulevard.

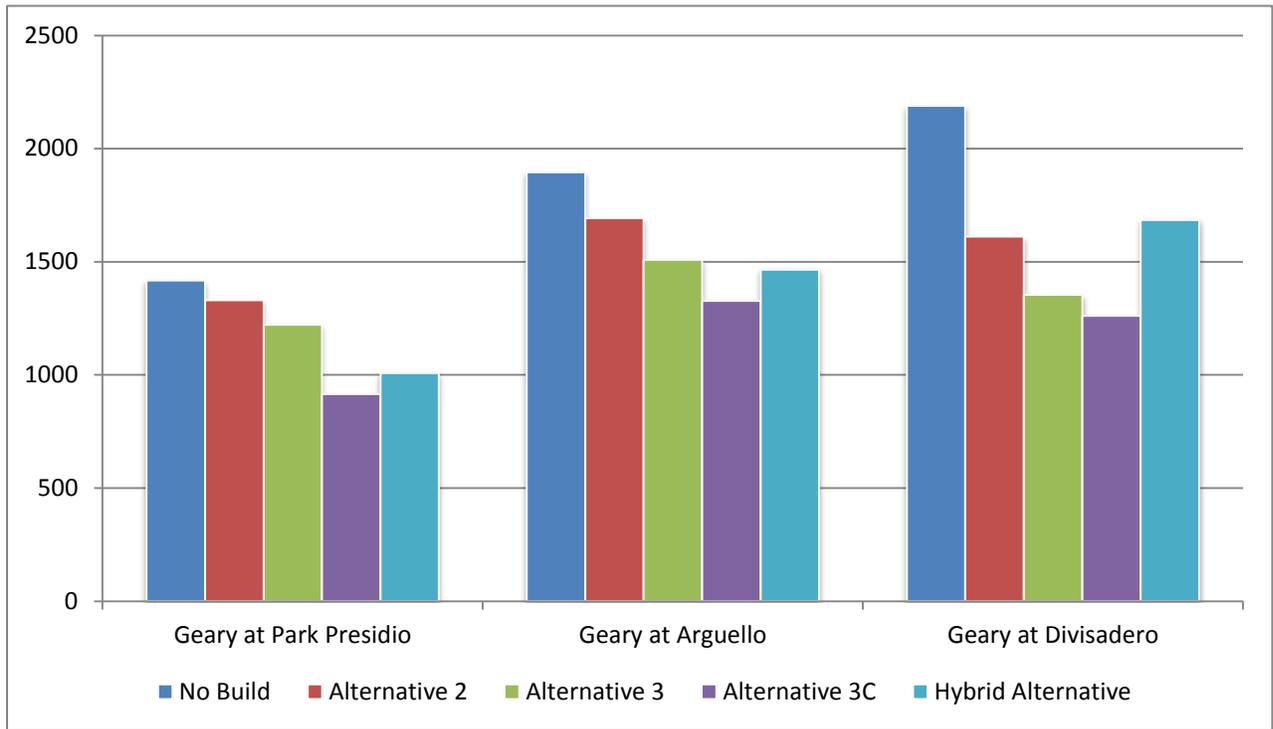
2020 Build Alternatives

By 2020, all the build alternatives are projected to have less p.m. peak-hour traffic on Geary Boulevard than in the 2020 No Build Alternative. The reduction in traffic in the build alternatives is primarily due to the reduction in traffic capacity caused by the removal of mixed flow travel lanes, but also due to improved transit service. As Geary corridor transit service improves, some drivers will switch travel mode from driving to transit for travel on the Geary corridor.

The amount that traffic on Geary Boulevard will change from the No Build Alternative differs by build alternative, location, and direction. Of the build alternatives, Alternative 2 would cause the smallest change in traffic along the Geary corridor and Alternative 3-Consolidated would cause the greatest change in traffic volumes. Under Alternative 2, average p.m. peak-hour traffic on Geary Boulevard between Polk Street and 25th Avenue would decline by about 19 percent in the westbound direction and 12 percent in the eastbound direction relative to the No Build Alternative. Under Alternative 3-Consolidated, average p.m. peak-hour traffic on Geary Boulevard between Polk Street and 25th Avenue would decline by about 36 percent in the westbound direction and 39 percent in the eastbound direction relative to the No Build Alternative. Alternative 3 and the Hybrid Alternative/LPA would have impacts on Geary corridor traffic that fall between those of Alternatives 2 and 3-Consolidated. The elimination of the Fillmore Street underpass and the removal of three out of the four existing mixed traffic tunnel lanes at the Masonic tunnel complex would decrease traffic capacity under Alternatives 3 and 3-Consolidated by more than under Alternative 2 and the Hybrid Alternative/LPA. Consequently, traffic volumes under Alternative 3 and 3-Consolidated are expected to be lower than under Alternative 2 and the Hybrid Alternative/LPA.

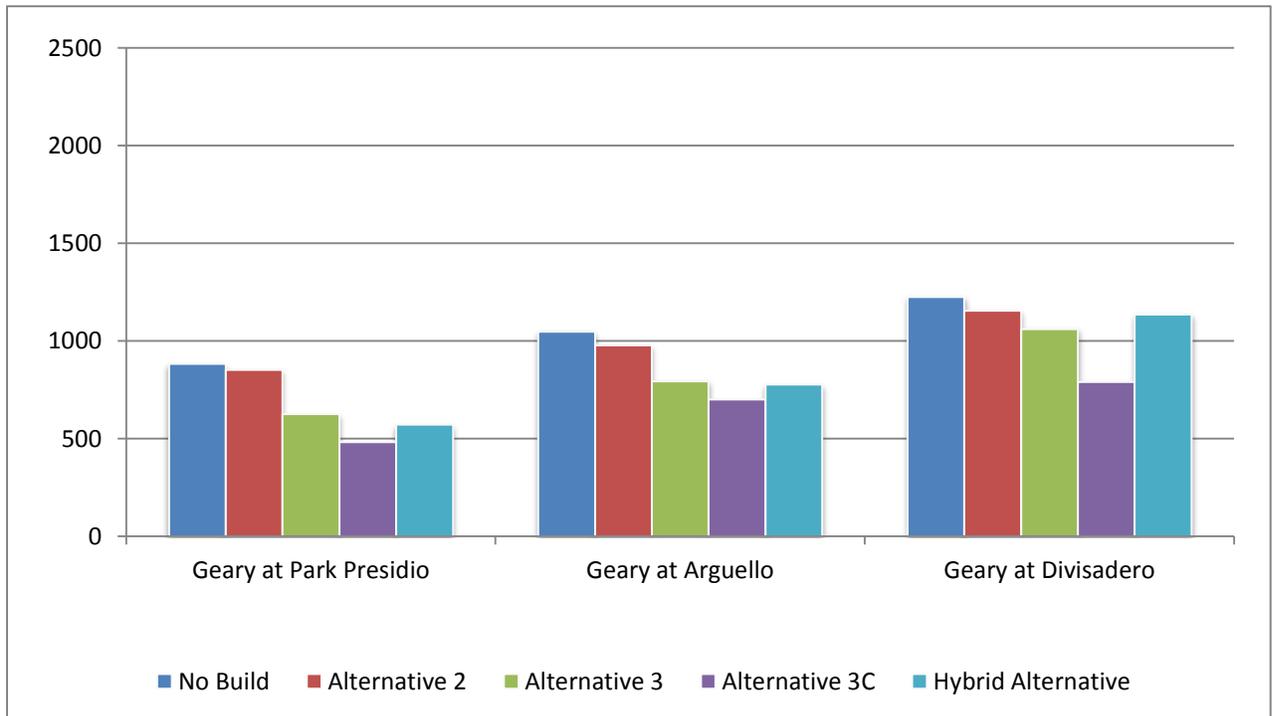
Figures 3.4-3 and 3.4-4 present p.m. peak-hour traffic volumes at important Geary corridor intersections for each of the alternatives. Table 3.4-4 presents key Geary corridor traffic volume metrics highlighting differences between each build alternative and the No Build Alternative. Traffic diversions are discussed later in this section.

Figure 3.4-3 Geary Boulevard 2020 Westbound P.M. Peak-Hour Traffic at Key Intersections (Vehicles per Hour)



Source: DTA model forecast, SFCTA, 2014

Figure 3.4-4 Geary Boulevard 2020 Eastbound P.M. Peak-Hour Traffic at Key Intersections (Vehicles per Hour)



Source: DTA model forecast, SFCTA, 2014

Table 3.4-4 P.M. Peak-Hour Geary Corridor Traffic Volume Differences Between 2020 Build Alternatives and the 2020 No Build Alternative

METRIC		ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
WESTBOUND (VAN NESS TO 25TH AVE)					
Avg. Traffic Change	#	-320	-480	-600	-410
	%	-19%	-29%	-36%	-25%
Westbound Maximum Traffic Change	#	-850	-1020	-1020	-840
	%	-39%	-44%	-48%	-42%
EASTBOUND (VAN NESS TO 25TH AVE)					
Avg. Traffic Change	#	-130	-280	-420	-280
	%	-12%	-26%	-39%	-26%
Maximum Traffic Change	#	-400	-540	-780	-520
	%	-33%	-46%	-55%	-45%

Note: Average traffic change is the average changes for all blocks between Van Ness and 25th avenues. Not all blocks have the same length and these calculations are not weighted by distance.

Source: Fehr & Peers, 2014

2035 No Build Alternative

Between 2020 and 2035, No Build Alternative p.m. peak-hour traffic volumes are projected to increase throughout the Geary corridor. Traffic is expected to grow the most east of Divisadero Street where p.m. peak-hour traffic volume would increase by up to 22 percent in the westbound direction and by up to 45 percent in the eastbound direction. Throughout the Geary corridor (between Van Ness and 25th avenues), 2035 p.m. peak-hour traffic volume is projected to be about 5 percent higher in the westbound direction and 25 percent higher in the eastbound direction. Westbound traffic volume is anticipated to be greater than 2,000 vehicles per hour between Gough Street and the Masonic tunnel complex, greater than 1,500 vehicles per hour from there to Park Presidio, and less than 1,000 vehicles per hour west of Park Presidio. Eastbound traffic volumes are expected to be less than 1,000 vehicles per hour to the west of Park Presidio, between 1,000 and 1,500 vehicles per hour between Park Presidio and Arguello Boulevard, and between 1,500 and 2,000 vehicles per hour between Arguello Boulevard and Gough Street.

2035 Build Alternatives

The 2035 build alternatives are forecast to carry lower volumes of traffic on the Geary corridor than the 2035 No Build Alternative. Less traffic capacity on the Geary corridor and higher quality transit service are the primary reasons 2035 traffic would decrease.

In 2035 the relative impacts of the four build alternatives on Geary corridor traffic volumes would be similar to 2020 conditions. Alternative 2 would cause the smallest reduction in Geary corridor traffic and Alternative 3-Consolidated would cause the greatest reduction in Geary corridor traffic volumes when compared with the No Build Alternative. The magnitude of traffic volume differences between the No Build Alternative and the build alternatives is greater in 2035 than in 2020. Under Alternative 2, 2035 average p.m. peak-hour traffic on Geary Boulevard between Polk Street and 25th Avenue would decline by about 17 percent in the westbound

direction and 24 percent in the eastbound direction relative to the No Build Alternative. Under Alternative 3-Consolidated, average p.m. peak-hour traffic on Geary Boulevard between Polk Street and 25th Avenue would decline by about 35 percent in the westbound direction and 53 percent in the eastbound direction relative to the No Build Alternative.

Traffic volume reductions for individual locations throughout the Geary corridor relative to the No Build Alternative are projected to range between zero and 44 percent for Alternative 2 and the Hybrid Alternative/LPA. Under Alternatives 3 and 3-Consolidated, p.m. peak-hour traffic on the Geary corridor could fall by 10 percent to 50 percent in the westbound direction, and by 34 percent to 64 percent in the eastbound direction. Under all build alternatives traffic volume reductions on the Geary corridor would be greatest to the east of Divisadero Street and lowest in on the blocks to the west of Arguello Boulevard.

Figures 3.4-5 and 3.4-6 present p.m. peak-hour traffic volumes at important Geary corridor intersections for each of the alternatives. Table 3.4-5 presents key Geary corridor traffic volume metrics highlighting differences between each build alternative and the No Build Alternative.

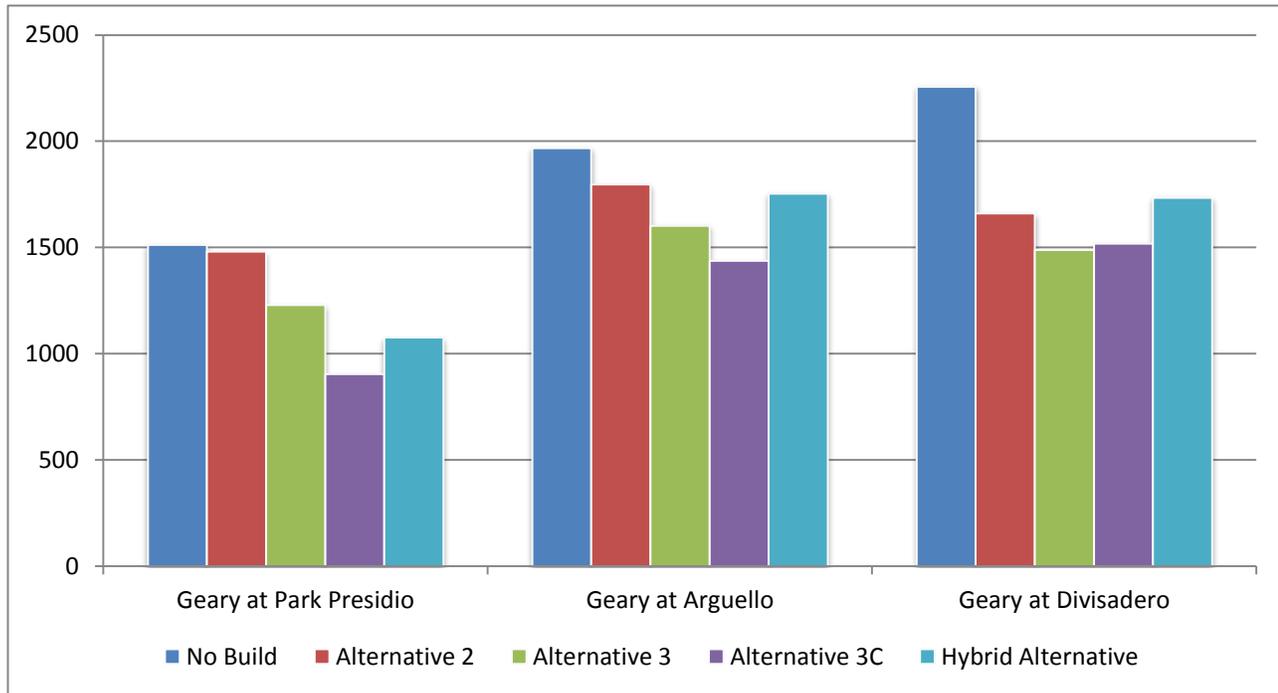
Table 3.4-5 P.M. Peak-Hour Geary Corridor Traffic Volume Differences Between 2035 Build Alternatives and the 2035 No Build Alternative

METRIC		ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
WESTBOUND (VAN NESS TO 25TH AVE)					
Avg. Traffic Change	#	-310	-490	-620	-380
	%	-17%	-28%	-35%	-22%
Westbound Maximum Traffic Change	#	-940	-1,200	-1,170	-950
	%	-40%	-50%	-49%	-40%
EASTBOUND (VAN NESS TO 25TH AVE)					
Avg. Traffic Change	#	-320	-700	-700	-380
	%	-24%	-52%	-53%	-28%
Maximum Traffic Change	#	-810	-1,250	-1,140	-810
	%	-44%	-62%	-64%	-44%

Note: Average traffic change is the average changes for all blocks between Van Ness and 25th avenues. Not all blocks have the same length and these calculations are not weighted by distance.

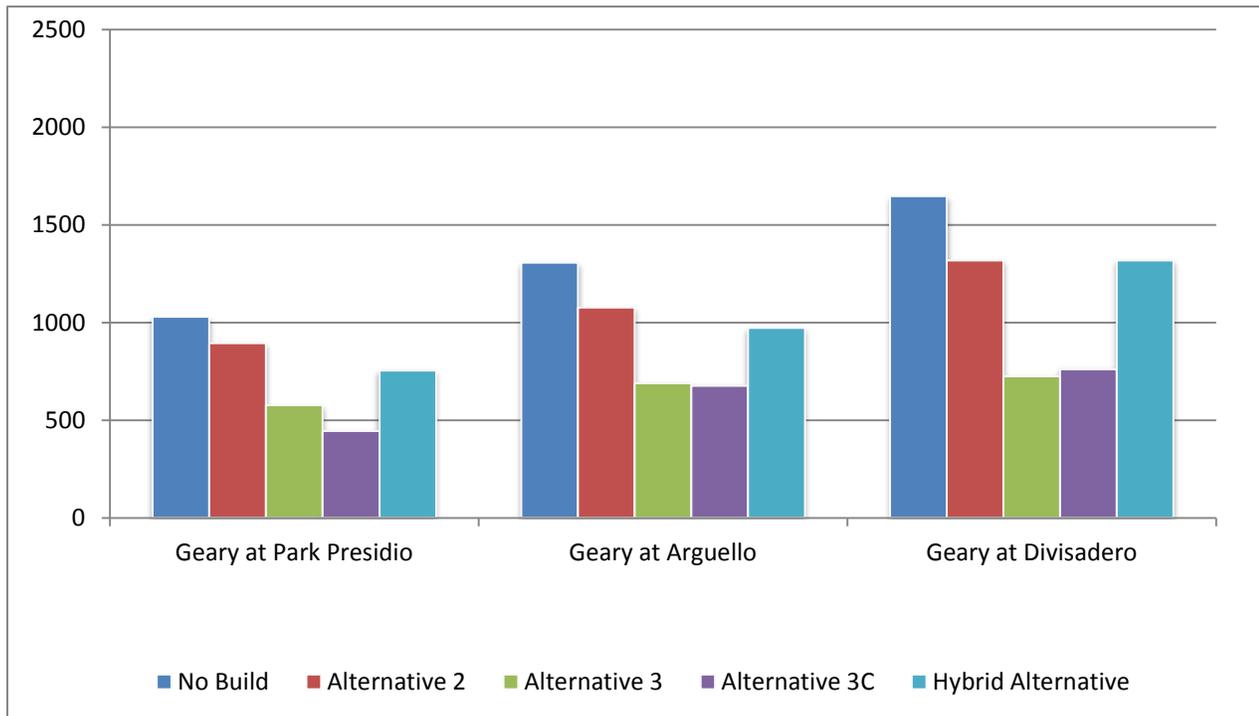
Source: Fehr & Peers, 2014

Figure 3.4-5 Geary Boulevard 2035 Westbound P.M. Peak-Hour Traffic at Key Intersections (Vehicles per Hour)



Source: DTA model forecast, SFCTA, 2014

Figure 3.4-6 Geary Boulevard 2035 Eastbound P.M. Peak-Hour Traffic at Key Intersections (Vehicles per Hour)



Source: DTA model forecast, SFCTA, 2014

3.4.4.3 | LEFT-TURN REDUCTIONS BY YEAR BY ALTERNATIVE

Due to the reconfiguration of the Geary corridor that would occur as a result of the project for all build alternatives, motorists would experience a reduction in left-turn opportunities along the Geary corridor. Under existing conditions, there are a total of 40 left-turn locations (both permitted and protected) on Geary Boulevard from 25th Avenue to Gough Street (a full list of left-turn locations for all future No Build and build alternatives can be found in Chapter 2 (Descriptions of Project Alternatives), and breakdown of the number of protected and permissive left turns is included in Section 3.5; see Table 3.5-6). See also Section 3.2.2.2.1 for information on changes to existing left-turn locations since the traffic analysis that was conducted for the Draft EIS/EIR. Table 3.4-6 displays the total number of left-turn locations between Gough Street and 25th Avenue, by alternative. These changes are assumed in both 2020 and 2035 scenarios.

The left-turn locations that would remain generally represent a consolidation of two left turns that are currently located in close succession or in close proximity to another left-turn lane. For example, left turns are currently permitted at both 11th and 12th avenues at Geary Boulevard. Under Alternatives 3, 3-Consolidated, and the Hybrid Alternative/LPA, the eastbound left turn at 12th would be removed due to the close proximity to the eastbound left turn at 11th Avenue, where existing left turns would remain. This consolidation pattern provides motorists alternative turn locations in close proximity.

Peak-hour traffic demand for left-turn locations is projected to decrease under all future build alternatives compared with No Build Alternative conditions. For example, left-turn volumes are expected to decrease by 44 percent under Alternative 3-Consolidated relative to 2020 No Build conditions. The decrease in demand is likely attributable to anticipated traffic reductions under all build alternatives, but may also be related to the reduction in left-turn opportunities and the diversion of traffic to surrounding roadways.

Left-turn volume is projected to decrease by 24 percent under the Hybrid Alternative/LPA relative to 2020 No Build Alternative conditions. Part of the reduction in left-turn demand under the build alternatives can be explained by the overall decrease in traffic demand in these alternatives. With less traffic traveling along the Geary corridor, there will be fewer cars that need to make left-turn movements. Also, trips that will be most inconvenienced by left-turn prohibitions are more likely to divert to alternate routes. Trips on the Geary corridor that are not affected by left-turn restrictions are more likely to stay on Geary Boulevard under the build alternatives.

Traffic assignment modeling of left-turn traffic demand shows that the reduction in left-turn locations would not cause motorists to make multiple right-turns to complete a left turn; instead, they would likely make a left turn at a turn lane in close proximity to the removed turn lane, or divert entirely to a parallel east-west route. Most of the left-turn pocket removals would be just upstream or downstream of a left-turn pocket that would remain. Overall, the future reduction in left-turn locations would not be expected to adversely affect traffic circulation on the Geary corridor.

Table 3.4-6 Left-Turn Locations on Geary Corridor, by Alternative

	NO BUILD	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE /LPA
Total number of left-turn locations	40	36	20	21	28

Total left-turn locations in eastbound and westbound directions between 25th Avenue and Gough Street on Geary Boulevard. Excludes existing left-turn locations east of Gough Street that would be maintained under all build alternatives.

Source: Fehr & Peers, 2014

3.4.4.4 | VEHICLE DIVERSIONS

Vehicle diversions are changes in private vehicle travel routes. If traffic volumes decrease on one street and increase on another street as a result of the project, the shift in traffic volume is considered diverted traffic.

All of the build alternatives would convert one mixed-flow travel lane in each direction between Van Ness and 14th Avenues and between 28th and 34th Avenues into a bus-only lane in each direction of travel on the Geary corridor. Between Gough and Scott streets, the “expressway” portion of Geary Boulevard would be reduced by two mixed-flow travel lanes in each direction. The change would improve transit operating conditions on Geary Boulevard, but would decrease private vehicle traffic capacity along the Geary corridor. The reduction in the number of mixed-flow travel lanes would be partially offset by providing buses with dedicated travel lanes, allowing each of the remaining mixed-flow lanes to accommodate more traffic in the spaces currently occupied by buses. Some of the current demand for private vehicle travel on Geary Boulevard would shift modes to transit under the build alternatives; however, there would also be some diversion of traffic from Geary Boulevard to alternate travel routes.

Depending on the location along the Geary corridor, at least 12 percent and at most 39 percent of private vehicle trips that would use the Geary corridor under the 2020 No Build Alternative would shift to other options under the build alternatives. The build alternatives would result in a 17 to 53 percent reduction in private vehicle trips on the Geary corridor relative to the No Build Alternative. Travelers making these trips would change their behavior in one of the following ways:

- Switch to transit, biking, or walking.
- Switch route by continuing to travel in the study area but on a parallel street instead.
- Switch route by shifting to travel outside of the study area but on a parallel street instead.
- Change trip destination.
- Change time of day of their trip and potentially choose to make trips outside of the peak travel hours.
- Not make a trip.

Most of the private vehicle trips diverted from the Geary corridor would either change modes or shift to an alternate route within the study area.

Change in Circulation Patterns within the Study Area

Traffic diversions away from the Geary corridor under the build alternatives would result due to multiple reasons. One reason for diversions is that Geary Boulevard would have fewer travel lanes for mixed traffic. Rather than travel through a portion of the corridor while experiencing some peak-hour traffic congestion, some travelers would choose to use alternate routes. Another cause of diversion is that under the build alternatives there would be fewer opportunities for drivers to execute left turns from Geary Boulevard, resulting in some increase in traffic on parallel streets. The reduction in left-turn opportunities would be most pronounced in the center-running segments of the applicable alternatives (Alternatives 3, 3-Consolidated, and the Hybrid Alternative/LPA).

Traffic diversions from the Geary corridor to parallel streets in the study area are reported in aggregate for north-south “screenlines” in the study area. The changes in traffic on all parallel streets – other than Geary Boulevard – between Fulton Street in the south and the Presidio or Pacific Street to the north are combined to calculate total diversions of traffic from Geary Boulevard. Since the amount of traffic diversion from Geary Boulevard differs by location along the corridor, traffic diversions from Geary Boulevard are reported for five representative screenline locations throughout the corridor. These screenlines include:

- 30th Avenue
- Park Presidio Boulevard
- Arguello Boulevard
- Masonic Avenue
- Divisadero Street
- Webster Street

To illustrate the meaning of a screenline, the 30th Avenue screenline includes traffic traveling across 30th Avenue on the following parallel streets: Fulton, Cabrillo, Balboa, Anza, Clement, California, and Lake streets as they cross 30th Avenue. Any change in the total traffic along all of these streets (as they cross 30th Avenue) in a build alternative is considered to be traffic diverted from Geary Boulevard. Table 3.4-7, below, shows the amount of traffic diverted from Geary Boulevard for each 2020 build alternative.

Table 3.4-7 Diversions from Geary Boulevard to Parallel Roadways, Total Difference in Volume on All Parallel Streets vs. No-Build Alternative, 2020 P.M. Peak Hour

WESTBOUND				
STREET	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
30th Ave	<+100	+100	+200	<+100
Park Presidio	+200	+200	+400	+300
Arguello	+200	+300	+500	+400
Masonic	<+100	+200	+400	+200
Divisadero	<+100	+100	+400	+300
Webster	+400	+300	+700	+600
EASTBOUND				
STREET	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
30th Ave	<+100	+300	+200	+200
Park Presidio	<+100	+300	+300	+300
Arguello	+100	+200	+300	+400
Masonic	+300	+400	+500	+400
Divisadero	<+100	<+100	+300	<+100
Webster	<+100	<+100	+400	+300

Source: SFCTA, 2014

Under the build alternatives, year 2020 p.m. peak-hour traffic diversions from Geary Boulevard to parallel streets within the Geary corridor are expected to range from 100 to 700 vehicles per direction. The maximum diversions would occur under Alternative 3-Consolidated. Overall, peak-hour traffic diversions from the Geary corridor are higher in the eastern end of the study area and lower in the western portion. Unlike the rest of the Geary corridor, several blocks of Geary Boulevard between Gough Street and Scott Street currently have four lanes of traffic in each direction. Other areas of the corridor generally have two or three travel lanes in each direction. The four-travel-lane segment of Geary features some of the highest peak-period traffic volumes in the Geary corridor. This area is also forecasted to experience more land development and a greater increase in traffic demand in 2020 and 2035 than other segments of the corridor. Under the build alternatives, the reduction of travel lanes from four to two in each direction would reduce Geary Boulevard capacity. To avoid congested conditions on Geary Boulevard, many of the drivers that would use this segment would shift to alternate routes. The higher traffic volumes and greater reduction of capacity at the eastern end of the corridor would make this effect more pronounced in this area than in other segments of the Geary corridor.

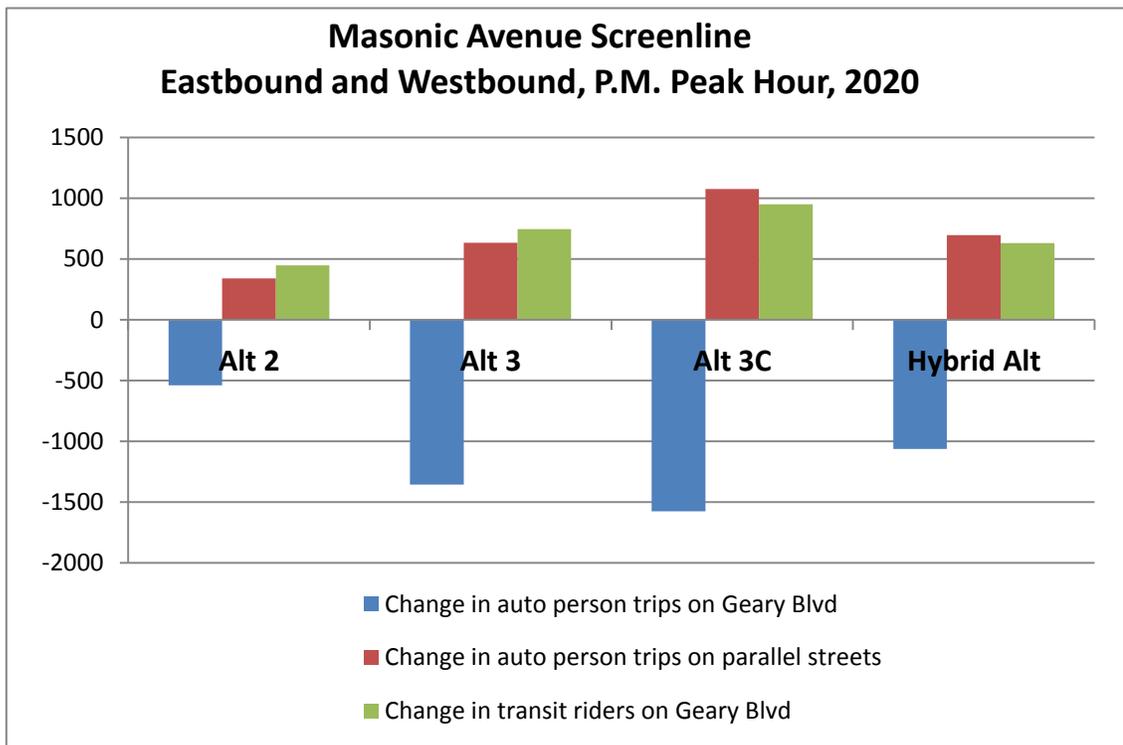
Traffic diversions from Geary Boulevard are likely to be lower at other off-peak times of the day when there is less demand for travel on Geary Boulevard. During off-peak times, traffic capacity on Geary Boulevard for all of the build alternatives should be adequate to serve demand.

Traffic diversions from Geary Boulevard are not concentrated on any particular street. Instead they are spread out across all of the parallel streets within the Geary corridor. Higher capacity streets with the ability to carry more vehicles, such as California and Fulton Streets, would carry relatively greater shares of the diverted

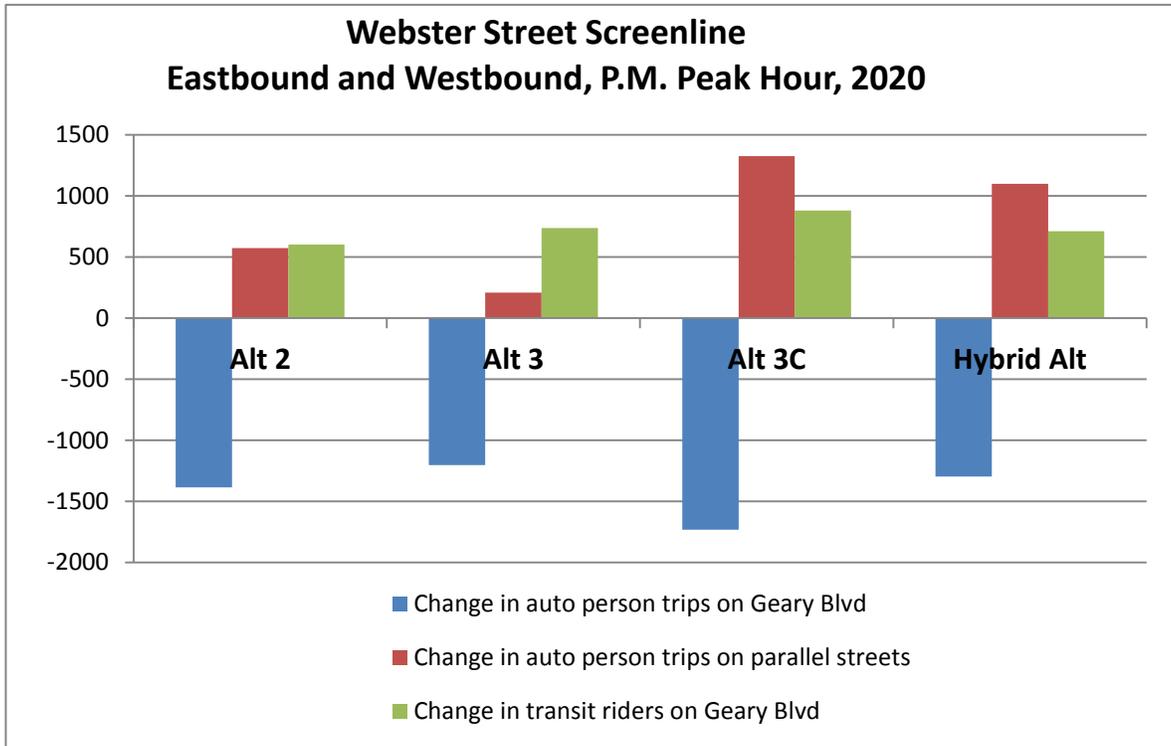
traffic. Smaller side streets would carry relatively smaller amounts of diverted traffic. The number of additional private vehicles along these parallel streets would vary greatly throughout the corridor. For California and Fulton Streets the increased traffic due to diversions from Geary Boulevard would range from less than 10 to 200 vehicles per hour for 2020 during the p.m. peak hour. At most a parallel street would experience an additional three to four vehicles per minute during the p.m. peak hour.

Figure 3.4-7 shows how traffic reductions on Geary Boulevard relate to both increases in traffic on parallel streets and increases in transit ridership on the Geary corridor for three select screenlines in the study area – Park Presidio, Masonic Avenue, and Webster Street. To compare traffic with transit riders using a consistent metric, traffic changes are measured in terms of auto person trips, not vehicles. Since each auto contains one or more occupants the amount of auto person trips is generally greater than the number of auto vehicles. In most 2020 scenarios, and at most locations, the reduction of auto person trips on Geary Boulevard is less than the sum of the increase in transit riders on the Geary corridor and the increase in auto person trips on nearby parallel streets.

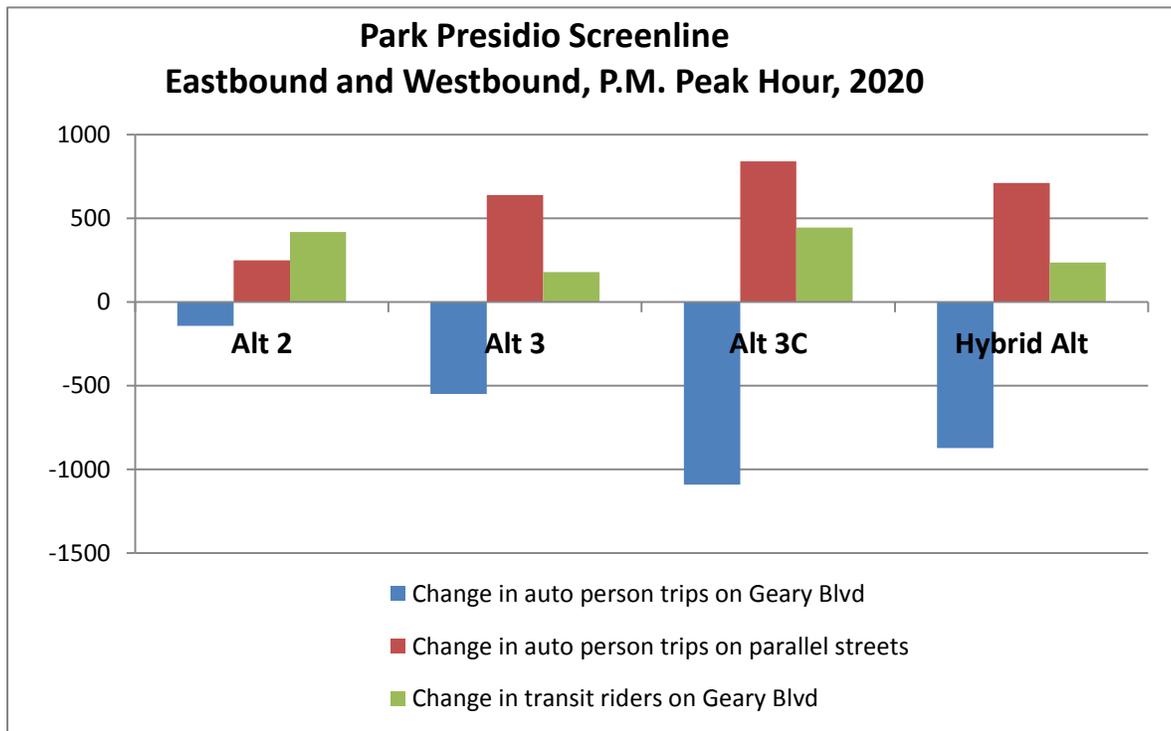
Figure 3.4-7 Change in Passenger Trips in the Study Area Between the Build Alternatives and the No Build Alternative



Source: DTA model forecast, SFCTA, 2014



Source: DTA model forecast, SFCTA, 2014



Source: DTA model forecast, SFCTA, 2014

The 2035 forecasts show higher p.m. peak-hour traffic diversions ranging from 100 up to 1,200 (in the case of Alternative 3 westbound at Webster Street). Changes in diversions from 2020 to 2035 are more pronounced at the eastern screenlines of Masonic, Divisadero, and Webster than at 30th Avenue, Park Presidio, and Arguello. In 2035, diversions from Geary Boulevard are greatest under Alternatives 3 and 3-Consolidated. At the Webster and Divisadero screenlines, more than half of p.m. peak-hour traffic diverted from Geary Boulevard travels in the westbound direction. At the 30th Avenue and Park Presidio screenlines the majority of diverted traffic is traveling in the eastbound direction. Table 3.4-8, below, shows the amount of traffic diverted from Geary Boulevard for each 2035 build alternative.

Table 3.4-8 Diversions from Geary Boulevard to Parallel Roadways, Total Difference in Volume on All Parallel Streets vs. No-Build, 2035 P.M. Peak Hour

SCREENLINE STREET	WESTBOUND			
	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
30th Ave	+100	+200	+200	+100
Park Presidio	+100	+300	+500	+300
Arguello	+300	+600	+600	+400
Masonic	+300	+700	+700	+200
Divisadero	+500	+800	+700	+400
Webster	+1,100	+1,200	+1,000	+600
SCREENLINE STREET	EASTBOUND			
	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
30th Ave	+100	+300	+400	+300
Park Presidio	+100	+400	+400	+400
Arguello	+200	+500	+400	+400
Masonic	+400	+900	+800	+500
Divisadero	+300	+800	+700	+300
Webster	+600	+1,000	+900	+700

Source: SFCTA, 2014

Figures 3.4-8 and 3.4-9 show p.m. peak-hour traffic diverted from Geary Boulevard as a percentage of traffic on the destination streets that receive diverted traffic under the build alternatives. Both figures compare diverted traffic percentages for 2020 and for 2035. These figures show how diverted traffic increases throughout the Geary corridor between 2020 and 2035, but also that diverted traffic increases more at the Masonic, Divisadero, and Webster screenlines than at the 30th Avenue, Park Presidio Boulevard, and Arguello Boulevard screenlines.

Figure 3.4-8 P.M. Peak-Hour Traffic Diversions (Vehicles) from Geary Boulevard (Both Directions) to Adjacent Streets as Percent of Traffic on Recipient Streets - Average for 30th Ave, Park Presidio, and Arguello Screenlines

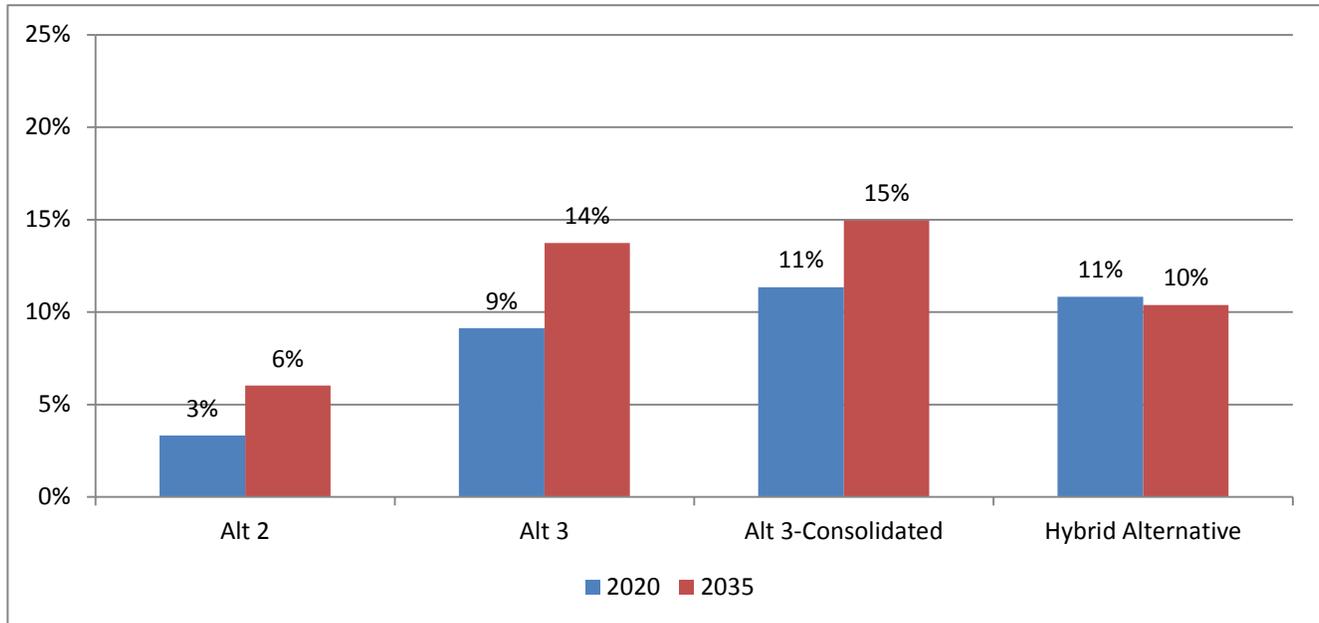


Figure 3.4-9 P.M. Peak-Hour Traffic Diversions (Vehicles) from Geary Boulevard (Both Directions) to Adjacent Streets as Percent of Traffic on Recipient Streets - Average for Masonic, Divisadero, and Webster Screenlines

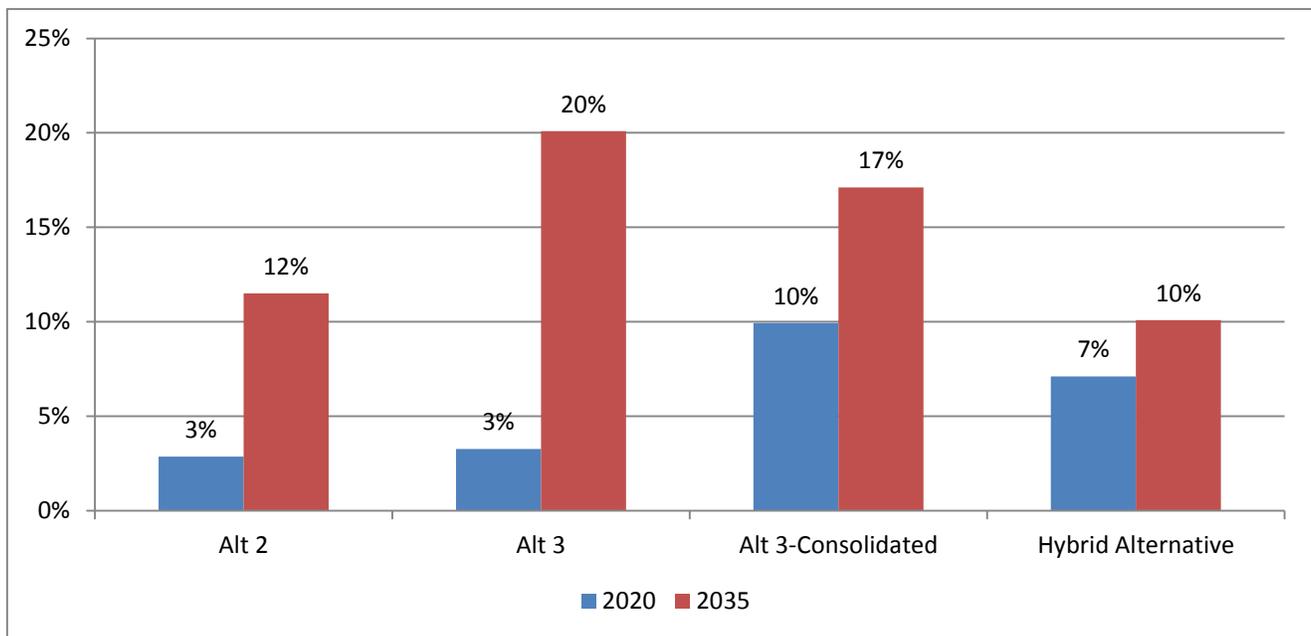
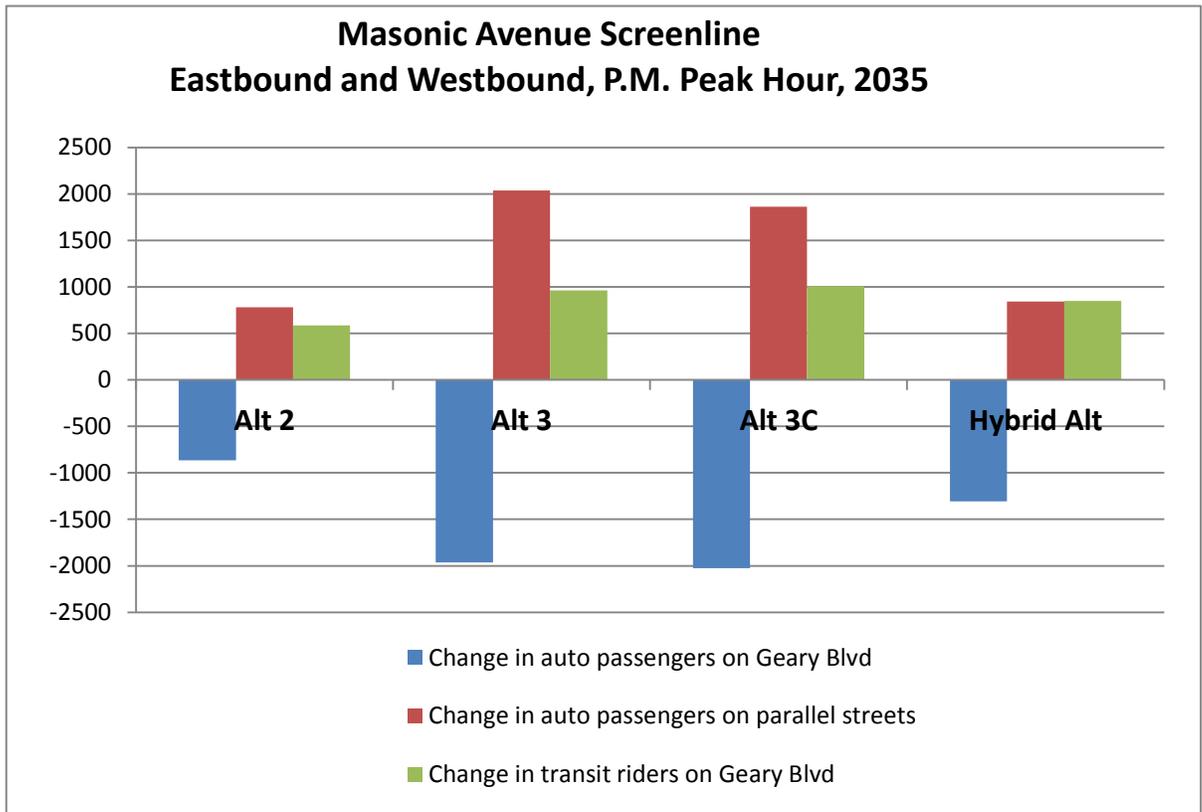
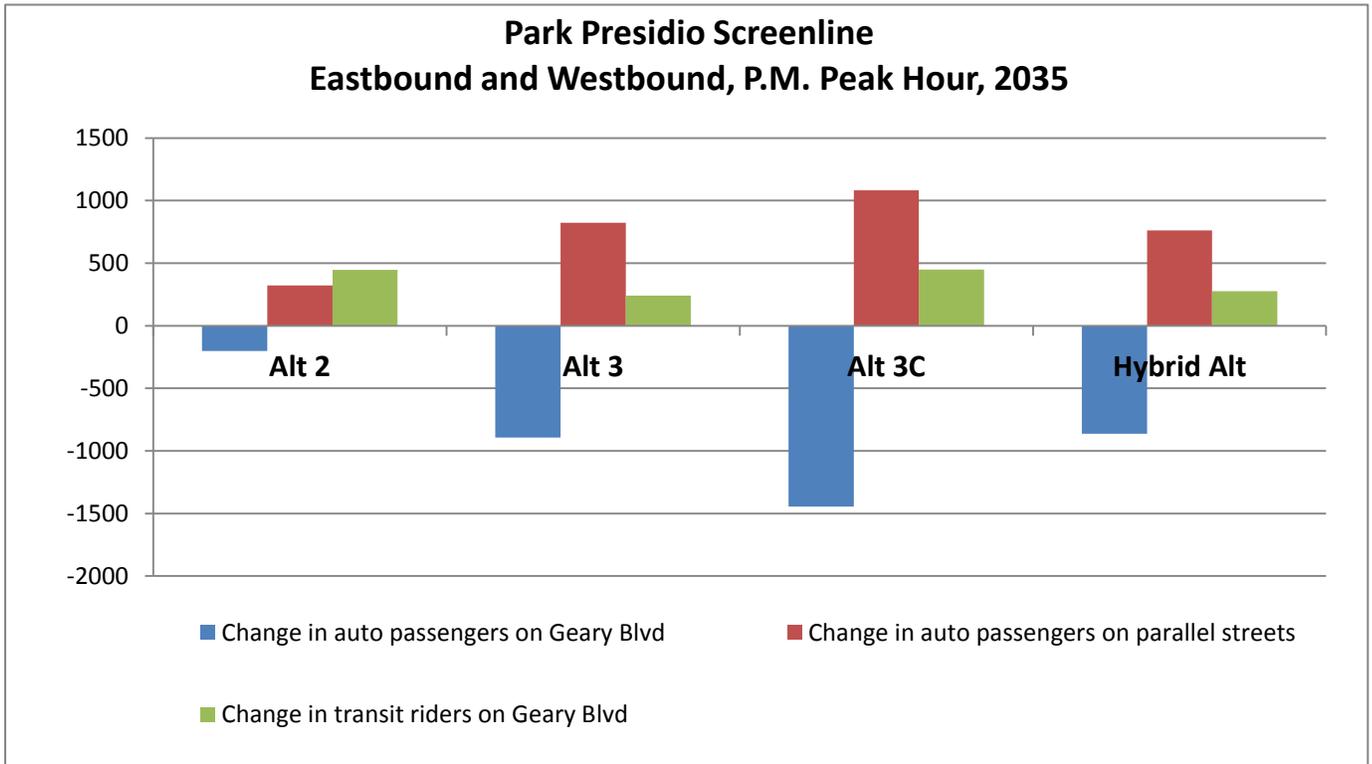
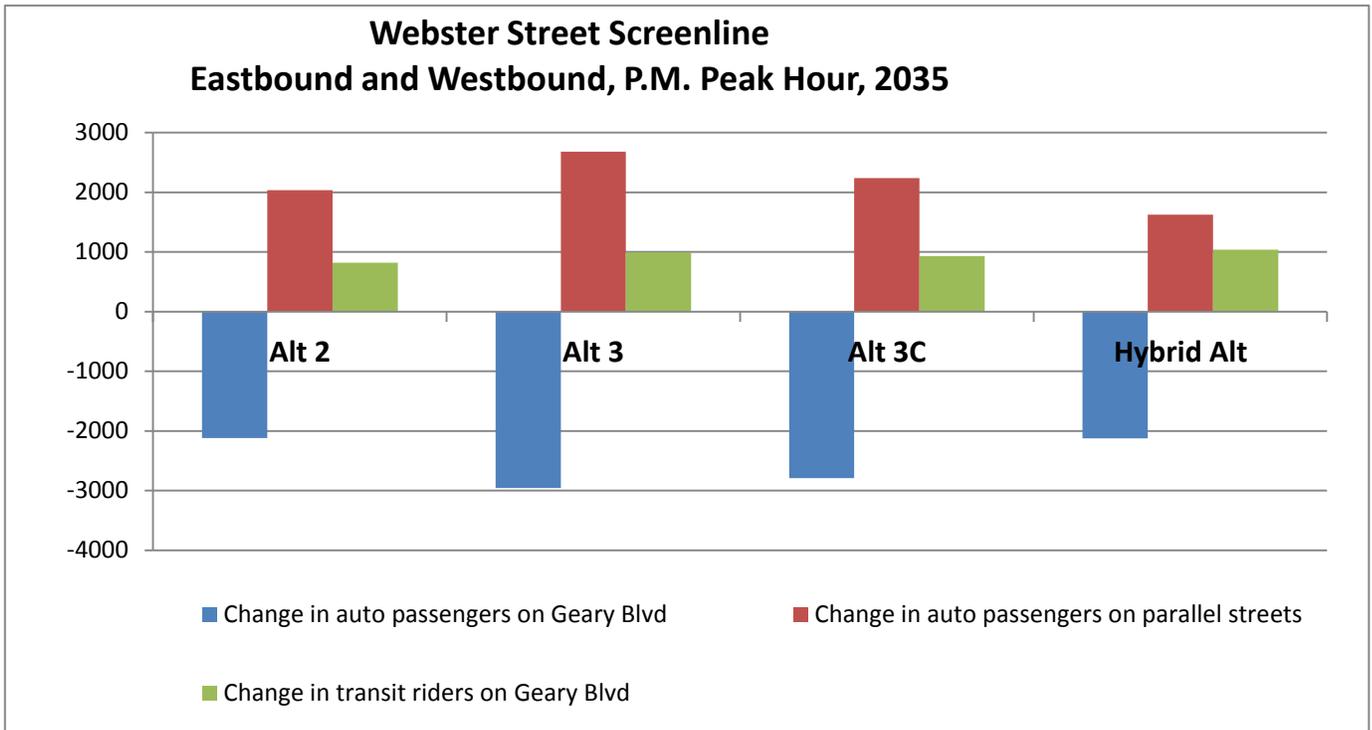


Figure 3.4-10 shows how 2035 traffic reductions on Geary Boulevard compare to increases in traffic on parallel streets and increases in transit ridership on the Geary corridor for three select screenlines in the study area – Park Presidio Boulevard, Masonic Avenue, and Webster Street. To facilitate consistent measurement between auto travel and transit travel, traffic changes are measured in terms of auto person trips. In most 2035 scenarios and at most locations the reduction of auto person trips on Geary Boulevard is less than the sum of the increase in transit riders on the Geary corridor and the increase in auto person trips on nearby parallel streets.

Figure 3.4-10 Change in Passenger Trips in the Study Area Between the Build Alternatives and the No Build Alternative





3.4.4.5 | CHANGE IN CIRCULATION PATTERNS OUTSIDE OF THE STUDY AREA

Under the build alternatives, some vehicle trips would divert from Geary Boulevard to alternate routes that are outside of the study area. For example, some east-west oriented trips may divert from Geary Boulevard to Fell and Oak streets, an arterial roadway couplet that is located south of the study area. Other trips may divert from Geary Boulevard to Lombard Street for access to and from the Presidio and the Golden Gate Bridge. The scale of these diversions to routes outside of the study area would be minor and are unlikely to affect traffic operations on the potential destination roadways.

3.4.4.6 | EFFECTS ON TAXI AND SHUTTLE OPERATIONS

The build alternatives would not affect taxi or shuttle operations beyond the effects of the project on private vehicle traffic. Through roadway signing and marking, as well as enforcement, taxis and shuttles would not be permitted to use the dedicated center-running bus-only lanes along the Geary corridor. In locations where buses would operate next to the curb, parking would be prohibited; however, loading zones for taxis and shuttles would be provided at upstream or downstream curb space. Please refer to Section 3.6, Parking and Loading Conditions.

3.4.4.7 | EFFECTS ON TRUCK TURNING MOVEMENTS AND DIVERSIONS

Under the build alternatives, some private vehicle traffic would divert from Geary Boulevard to alternate routes. Noticeable truck diversions to alternate streets are not expected under the build alternatives. Many of the streets that run perpendicular to Geary Boulevard are narrow residential side streets that are not intended to accommodate large trucks. In some cases, planned pedestrian improvements such as curb extensions related to the build alternatives may increase the difficulty of truck turns. Geary Boulevard is classified as a “Throughway” in San Francisco’s adopted *Better Streets Plan*, indicating the need for its design to allow the turning movements of a single-unit, 30-foot truck to occur fully within the lane of travel, and to accommodate those of a 40-foot-wheelbase trailer truck within the overall travelway. The build alternatives, including pedestrian bulb-outs at some locations, would change the configuration of some of the intersections along the Geary corridor. SFCTA conducted a truck turning analysis to confirm that the proposed designs of the build alternatives would provide for these movements, as well as those of a standard San Francisco fire truck apparatus. The results indicated that, even in the most constrained situation where pedestrian bulb-outs are proposed at an intersection with a center-running bus lane and new dual medians, the proposed designs for all build alternatives provide sufficient space for the movements of the vehicle types described above.

Under the build alternatives, some private vehicle traffic would divert from Geary Boulevard to alternative routes. However, the build alternatives are not expected to result in noticeable truck diversions to other streets. Currently, heavy vehicles comprise 3.6 percent of the traffic on Geary, including trucks currently serving the businesses on Geary. Because of the local truck destinations on Geary itself, and because Geary will remain the primary route in the area for trucks, these heavy vehicles are not expected to divert from Geary in the future.

3.4.4.8 | FUTURE VEHICLE MILES TRAVELED AND VEHICLE HOURS TRAVELED FORECASTS

A performance measure used to quantify the amount of vehicle travel is VMT. VMT measures the amount of miles that vehicles travel over the roadway network and is highly correlated to greenhouse gas emissions related to transportation. VMT measurement has one primary limitation: it cannot be easily directly observed or measured. It is calculated based on the number of vehicles multiplied by the distance traveled by each vehicle. VMT is a measurement of total miles traveled by all vehicles in a roadway network. National trends in VMT have been shifting recently. After 50 years of steady growth, total national VMT per capita leveled off in 2004 and declined by 8 percent between 2004 and 2013 (Polzin, 2013; Bureau of Transportation Statistics, 2015).

Daily weekday VMT in San Francisco is expected to increase by 4.3 percent from existing conditions under the 2020 No Build Alternative. Relative to VMT in the 2020 No Build Alternative, the build alternatives are projected to result in a decrease in VMT by about 0.1 to 0.4 percent (see Table 3.4-9). Of the build alternatives, Alternative 2 would have the smallest impact on VMT and Alternative 3-Consolidated would have the greatest. These numbers indicate that the project could enhance transit service levels without causing major disruptions to vehicular traffic patterns in San Francisco.

Table 3.4-9 Daily Weekday San Francisco VMT and VHT, 2020

METRIC	ALTERNATIVE				
	NO BUILD ALTERNATIVE	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
SF VMT	9.22 million	9.21 million	9.20 million	9.19 million	9.20 million
SF VHT	444,000	444,000	443,500	443,100	443,200

Source: SFCTA, 2014

As shown in Table 3.4-10, the build alternatives would have a measureable impact on San Francisco VMT, VHT, and miles traveled per resident in 2035. All build alternatives would decrease VMT and VHT relative to the No Build Alternative in 2035: Alternatives 2 and 3 would decrease VMT by about 0.2 percent, and Alternative 3-Consolidated and the Hybrid Alternative/LPA would decrease VMT by about 0.4 percent.

Table 3.4-10 Daily Weekday San Francisco VMT and VHT, 2035

METRIC	ALTERNATIVE				
	NO BUILD ALTERNATIVE	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE/LPA
SF VMT	11.16 million	11.14 million	11.13 million	11.12 million	11.12 million
SF VHT	644,100	641,500	641,500	640,700	635,100

Source: SFCTA, 2014

3.4.4.9 | AUTOMOBILE TRAVEL TIMES AND RELIABILITY

This section presents vehicular travel times for the No Build and build alternatives in the project's opening year of 2020. Table 3.4-11 shows estimated average automobile travel times in the p.m. peak hour for the No Build Alternative and the change in travel time for the build alternatives when compared with the No Build Alternative in 2020.

Table 3.4-12 shows estimated average travel time variation in the p.m. peak hour for the No Build and build alternatives in 2020. Estimated average travel time variation in the p.m. peak hour for the No Build and build alternatives in 2035 are displayed in Table 3.4-13. Figures 3.4-11 and 3.4-12 present this information graphically.

There are several factors that are responsible for variation in automobile travel times when compared by alternative, including, but not necessarily limited to the following factors:

- The amount of forecasted automobile traffic relative to the traffic-carrying capacity of the roadway segment;
- The distance between and level of coordination of the traffic signals;
- Whether the left-turn opportunities are controlled by traffic signals and whether the left-turn signal phases are permissive, permissive/protected, and/or protected; and
- Whether there are variations in the number of travel lanes within the segment i.e. lane additions or lane reductions.

3.4.4.9.1 2020 TRAVEL TIMES AND RELIABILITY

No Build Alternative (2020)

Total automobile travel times in the eastbound and westbound directions between Polk Street and 25th Avenue are both forecast to be about 24 minutes. Total westbound travel times would increase by seven minutes under No Build conditions as compared with existing conditions. Total eastbound travel times are projected to increase by 11 minutes under the No Build Alternative as compared with existing conditions (about a 74 percent increase). In the eastbound direction, all of the segments are relatively comparable regarding variations in travel time. In the westbound direction, the segments from Broderick Street to Stanyan Street and from Stanyan Street to Presidio Avenue are forecast to vary in travel time by about twice as much as the other segments.

Alternative 2 (2020)

Compared with the No Build Alternative, average automobile travel times are projected to decrease by about four minutes in the eastbound direction and one minute in the westbound direction. This equates to a 17 percent decrease in travel times in the eastbound direction and 6 percent decrease in the westbound direction. In the eastbound direction, all of the segments are relatively comparable regarding variations in travel time. In the westbound direction, the segment from Broderick Street to Stanyan Street is forecast to vary in travel time by about three to four times more than the other segments.

Alternative 3 (2020)

Compared with No Build conditions, average automobile travel times are expected to decrease by about three minutes in the eastbound direction and would increase by about one minute in the westbound direction. This equates to an 11 percent decrease in travel times in the eastbound direction and 4 percent increase in the westbound direction. In the eastbound direction, the segments from Stanyan Street to Broderick Street and from Laguna Street to Polk Street are forecast to vary in travel time by about twice as much as the other segments. In the westbound direction, the segments from Laguna Street to Broderick Street and Broderick Street to Stanyan Street are forecast to vary in travel time by about twice as much as other segments.

Alternative 3-Consolidated (2020)

Compared with the No Build Alternative, average automobile travel times are projected to decrease by about four minutes in the eastbound direction and three and a half minutes in the westbound direction. This equates to a 16 percent decrease in travel times in the eastbound direction and 15 percent decrease in the westbound direction. In the eastbound direction, all of the segments are relatively comparable regarding variations in travel time. In the westbound direction, the segment from Broderick Street to Stanyan Street is forecast to vary in travel time by about two to three times more than the other segments.

Hybrid Alternative/LPA (2020)

Compared with the No Build Alternative, average automobile travel times would decrease by about two and a half minutes in the eastbound direction and increase by about two minutes in the westbound direction. This equates to a 10 percent decrease in travel times in the eastbound direction and 7 percent increase in the westbound direction. In the eastbound direction, the segment from Laguna Street to Polk Street is forecast to vary in travel time by about twice as much than the other segments. In the westbound direction, the segment from Broderick Street to Stanyan Street is forecast to vary in travel time by about three to four times more than the other segments.

Table 3.4-11 Average Automobile Travel Times, Total Difference by Alternative vs. No-Build, P.M. Peak Hour (2020)

SEGMENT ALONG GEARY BOULEVARD	NO BUILD	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE /LPA
WESTBOUND					
Polk Street to Laguna Street	2:20	+1:00	+0:40	0:00	+1:10
Laguna Street to Broderick Street	5:10	-1:30	-0:30	-2:20	-1:40
Broderick Street to Stanyan Street	6:10	+1:10	+1:50	-0:40	+2:30
Stanyan Street to Park Presidio	5:30	0:00	+0:20	+0:50	+1:00
Park Presidio Boulevard to 25th	4:10	-2:00	-1:30	-1:20	-1:10
Total (Polk Street to 25th Avenue)	23:30	-1:20	+1:00	-3:30	+1:40
EASTBOUND					
25th Avenue to Park Presidio Boulevard	5:10	-1:20	-1:20	-1:20	-1:10
Park Presidio Boulevard to Stanyan Street	6:40	-1:20	-0:50	-1:10	-1:00
Stanyan Street to Broderick Street	3:40	+0:40	+1:00	+0:30	+0:30
Broderick Street to Laguna Street	4:10	-0:50	-0:30	-0:40	-0:50
Laguna Street to Polk Street	4:30	-1:20	-0:50	-1:20	+0:10
Total (25th Avenue to Polk Street)	24:10	-4:10	-2:40	-3:50	-2:20

Travel time expressed in minutes and seconds for the section of Geary Boulevard between Polk Street and 25th Avenue. Travel time totals may not exactly match the sum of all segments, as segment results are rounded to the nearest ten second increments.

Source: Fehr & Peers, 2014

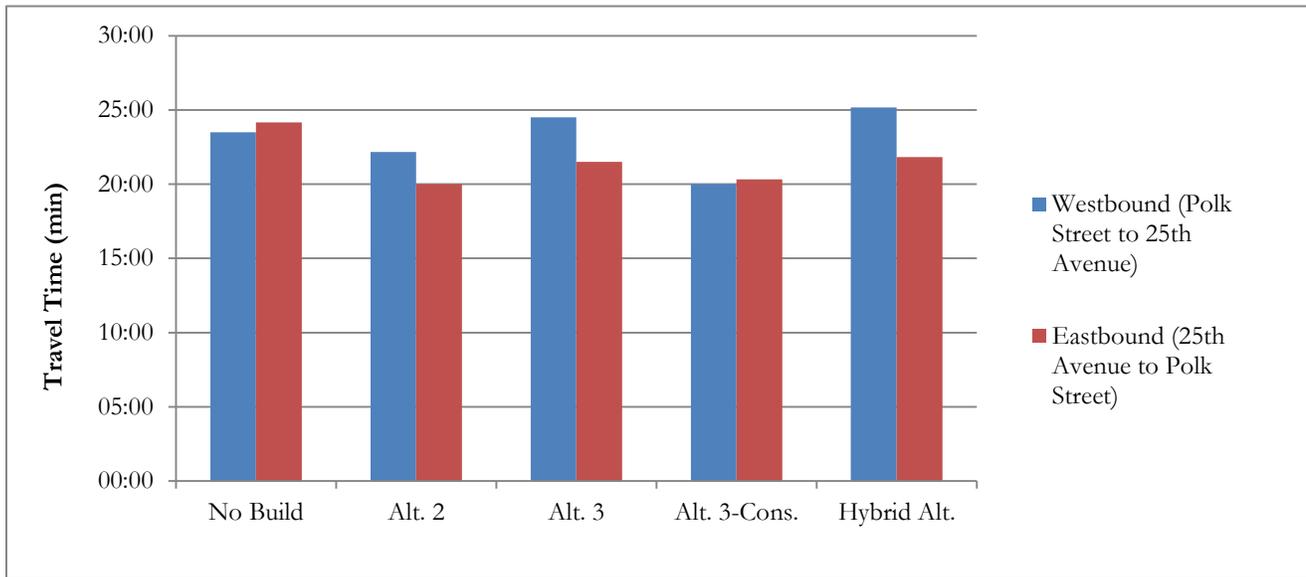
Table 3.4-12 Average Automobile Travel Time Variations, Total Difference by Alternative vs. No-Build, P.M. Peak Hour (2020)

SEGMENT ALONG GEARY BOULEVARD	NO BUILD	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE /LPA
WESTBOUND					
Polk Street to Laguna Street	0:40	+0:10	+0:10	0:00	+0:10
Laguna Street to Broderick Street	1:30	-0:30	+0:50	-0:50	-0:20
Broderick Street to Stanyan Street	1:50	+1:30	+1:00	+0:40	+1:50
Stanyan Street to Park Presidio	0:50	0:00	+0:10	+0:20	+0:10
Park Presidio Boulevard to 25th	0:50	-0:10	-0:10	0:00	0:00
EASTBOUND					
25th Avenue to Park Presidio Boulevard	0:40	-0:10	-0:10	0:00	0:00
Park Presidio Boulevard to Stanyan Street	1:10	-0:30	-0:30	-0:20	-0:20
Stanyan Street to Broderick Street	0:50	0:00	0:20	0:00	+0:10
Broderick Street to Laguna Street	0:40	0:00	+0:10	0:00	0:00
Laguna Street to Polk Street	1:00	0:00	+0:10	-0:10	+0:30

Travel time expressed in minutes and seconds for the section of Geary Boulevard between Polk Street and 25th Avenue.

Source: Fehr & Peers, 2014

Figure 3.4-11 Average Automobile Travel Times, P.M. Peak Hour (2020)



Source: Fehr & Peers, 2014

3.4.4.9.2 2035 VEHICULAR TRAVEL TIMES AND RELIABILITY

This section presents automobile travel times for the No Build and build alternatives in the project horizon year of 2035. Average automobile travel times in the p.m. peak hour for the No Build and each build alternatives in 2035 are displayed in Table 3.4-13. Figure 3.4-12 presents this information graphically. The build alternatives would generally result in decreased automobile travel times along the Geary corridor relative to the No Build Alternative, with the few exceptions noted below. Westbound travel times are projected to be somewhat higher than eastbound travel times, corresponding to the peak travel direction during the p.m. peak hour.

No Build Alternative (2035)

Total travel times in the eastbound and westbound directions between Polk Street and 25th Avenue are forecast to be about 30 and 33 minutes, a 25 and 40 percent increase over 2020 with the No Build Alternative, respectively. In the eastbound direction, the segments from Park Presidio Boulevard to Stanyan Street and from Broderick Street to Laguna Street are forecast to vary in travel time the most out of all the segments. In the westbound direction, the segments from Laguna Street to Broderick Street and from Broderick Street to Stanyan Street are forecast to have the greatest variation in travel time among the segments.

Alternative 2 (2035)

Compared with the No Build Alternative, average automobile travel times would decrease by about nine minutes in the eastbound direction and four minutes in the westbound direction. This equates to a 30 percent decrease in travel times in the eastbound direction and 12 percent decrease in the westbound direction. In the eastbound direction, the segments from Stanyan Street to Broderick Street and from Laguna Street to Polk Street are forecast to have the greatest variation in travel times. In the westbound direction, the segments from Laguna Street to Broderick Street and from Broderick Street to Stanyan Street are forecast to vary in travel time by about three to four times more than the other segments.

Alternative 3

Compared with the No Build Alternative, average automobile travel times would decrease by about ten minutes in the eastbound direction and remain about the same in the westbound direction. This equates to a 34 percent decrease in travel times in the eastbound direction and a less than one percent increase in the westbound direction. In the eastbound direction, the segments from 25th Avenue to Park Presidio Boulevard, from Park Presidio Boulevard to Stanyan Street, and from Stanyan Street to Broderick Street are forecast to vary in travel time by about two to three times as much as the other segments. In the westbound direction, the segment from Broderick Street to Stanyan Street is forecast to vary in travel time by about three to four times as much than the other segments.

Alternative 3-Consolidated

Compared with the No Build Alternative, average automobile travel times would decrease by about nine minutes in the eastbound direction and eight and a half minutes in the westbound direction. This equates to a 29 percent decrease in travel times in the eastbound direction and 26 percent decrease in the westbound direction. In the eastbound direction, the segments from Park Presidio Boulevard to Stanyan Street and from Stanyan Street to Broderick Street are forecast to vary in travel time by about two to three times as much as the other segments. In the westbound direction all segments are forecast to vary in travel time by a comparable amount.

Hybrid Alternative/LPA

Compared with the No Build Alternative, average automobile travel times would decrease by about six minutes in the eastbound direction and about one minute in the westbound direction. This equates to a 20 percent decrease in travel times in the eastbound direction and 4 percent decrease in the westbound direction. In the eastbound direction, the segments from Park Presidio Boulevard to Stanyan Street and from Stanyan Street to Broderick Street are forecast to vary in travel time by the most of the segments. In the westbound direction, the segment from Park Presidio Boulevard to 25th Avenue is forecast have the greatest variation in travel time among the segments.

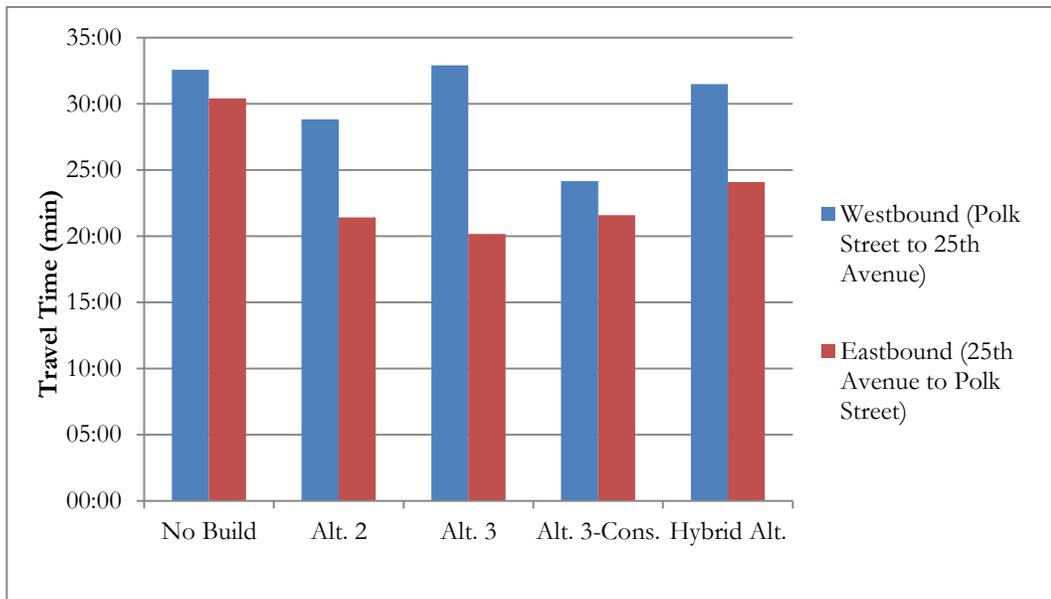
Table 3.4-13 Average Automobile Travel Times, Total Difference by Alternative vs. No-Build, P.M. Peak Hour (2035)

SEGMENT ALONG GEARY BOULEVARD	NO BUILD	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-C	HYBRID ALTERNATIVE /LPA
WESTBOUND					
Polk Street to Laguna Street	4:10	-0:30	+1:50	-1:50	-0:30
Laguna Street to Broderick Street	8:10	-1:40	+3:30	-3:40	-3:30
Broderick Street to Stanyan Street	9:50	+1:10	-2:30	-1:40	+3:40
Stanyan Street to Park Presidio Boulevard	6:20	-0:40	-1:00	+0:10	+0:30
Park Presidio Boulevard to 25 th	4:20	-2:00	+1:30	-1:30	-1:10
Total (Polk Street to 25th Avenue)	32:40	-3:50	+0:20	-8:30	-1:10
EASTBOUND					
25 th Avenue to Park Presidio Boulevard	5:30	-1:40	-1:40	-1:30	-1:30
Park Presidio Boulevard to Stanyan Street	9:00	-3:20	-3:20	-3:10	-2:50
Stanyan Street to Broderick Street	4:20	+0:20	+0:10	0:00	+0:20
Broderick Street to Laguna Street	6:10	-2:50	-3:00	-2:40	-1:50
Laguna Street to Polk Street	5:30	-1:30	-2:10	-1:20	0:00
Total (25th Avenue to Polk Street)	30:30	-9:00	-10:20	-8:50	-6:20

Travel time expressed in minutes and seconds for the section of Geary Boulevard between Polk Street and 25th Avenue. Travel time totals may not exactly match the sum of all segments, as segment results are rounded to the nearest ten second increments.

Source: Fehr & Peers, 2014

Figure 3.4-12 Average Vehicular Travel Times, P.M. Peak Hour (2035)



Source: Fehr & Peers, 2014

3.4.4.10 | AUTOMOBILE DELAY - LEVEL OF SERVICE AT KEY INTERSECTIONS (2020)

This subsection reports projected traffic conditions in the opening year (2020) for the No Build Alternative and the build alternatives. Opening year (2020) traffic volume, assumptions used in traffic projects, future roadway performance, and a summary of the project impacts are presented. Figures 3.4-13 through 3.4-17 show 2020 LOS at study intersections for the No Build and build alternatives.

This subsection and the following (3.4.4.11) identify those intersections where the project would result in an adverse effect and intersections that operate at LOS E or F both with and without the project, but which are not adversely affected by the project. For purposes of the automobile delay and LOS analysis, the determination of whether the No Build Alternative or one of the build alternatives would result in an adverse effect under the National Environmental Policy Act (NEPA) was similar to the determination of whether an alternative would result in a significant impact under CEQA.

To see additional discussion of intersections that operate at LOS E or F under either the No Build Alternative or one of the build alternatives, as well as tables of all results in terms of LOS for all intersections included as part of the traffic modeling analysis, please refer to Appendix D-4.

An adverse effect would occur under one of the following circumstances:

1. Project-related changes would cause deterioration in the LOS at a signalized intersection from LOS D or better to LOS E or LOS F, or from LOS E to LOS F.
2. Project-related changes would cause the LOS at the worst approach of an unsignalized intersection to deteriorate from LOS D or better to LOS E or LOS F and Caltrans signal warrants would be met, or causes Caltrans signal warrants to be met when the worst approach is already at LOS E or LOS F.

For an intersection that operates at LOS E or LOS F under existing or in the No Build Alternative, there may be an adverse effect depending upon the magnitude of the project's contribution to the worsening of delay. In addition, a project would have an adverse effect if it would cause major traffic hazards, or would contribute considerably to the cumulative traffic increases that would cause the deterioration in LOS to unacceptable levels (i.e., to LOS E or LOS F).

Table 3.4-3 in Section 3.4.2.5 summarizes LOS thresholds for signalized intersections. LOS D occurs when motorists experience average intersection delays of between 35 and 55 seconds; LOS E means motorists are experiencing from 55 to 80 seconds, while LOS F, which indicates over-saturated conditions, occurs when motorists experience over 80 seconds of delay at an intersection.

Figure 3.4-13 2020 No Build Alternative LOS at Core Area and Off-Corridor Study Intersections

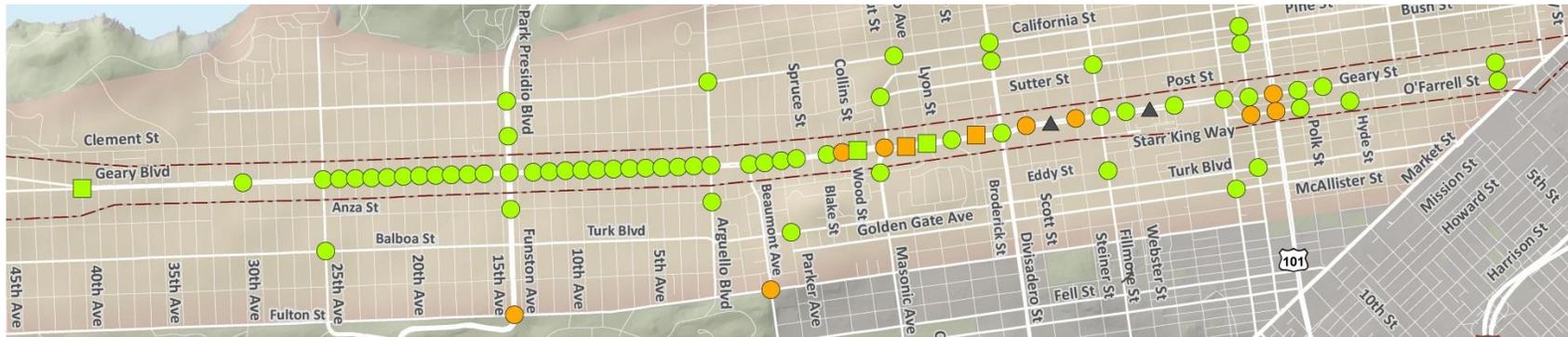
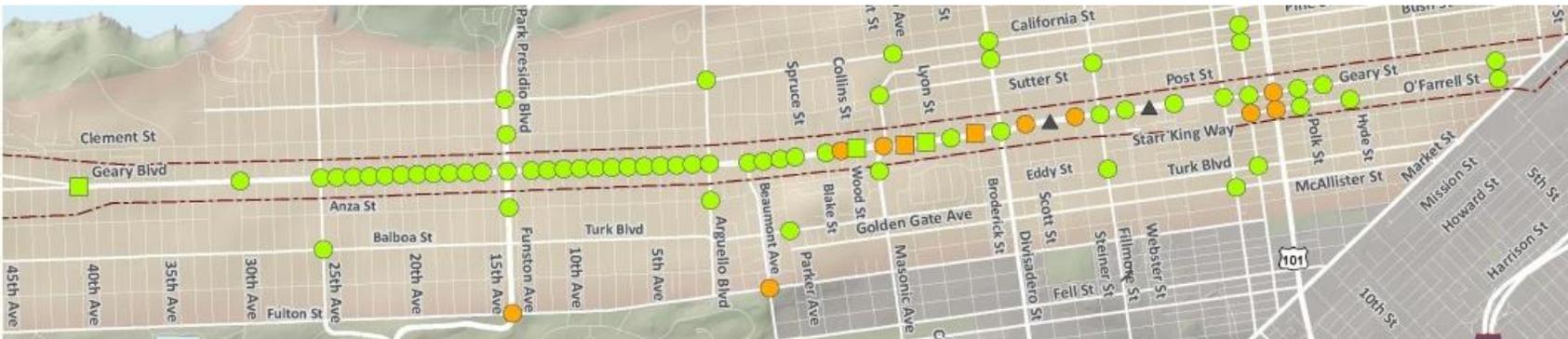


Figure 3.4-14 2020 Alternative 2 LOS at Core Area and Off-Corridor Study Intersections



- LOS A-D; Unsignalized
- LOS A-D; Signalized
- LOS E-F; Unsignalized
- LOS E-F; Signalized
- ▲ Future Study Intersection

- Geary Corridor
- Geary Transportation Study Area



Figure 3.4-15 2020 Alternative 3 LOS at Core Area and Off-Corridor Study Intersections

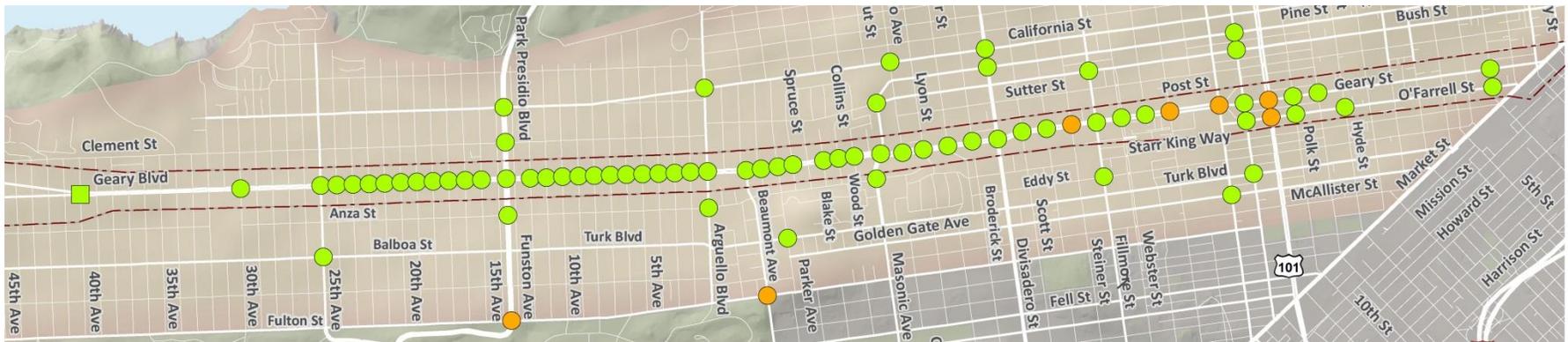


Figure 3.4-16 2020 Alternative 3-Consolidated LOS at Core Area and Off-Corridor Study Intersections

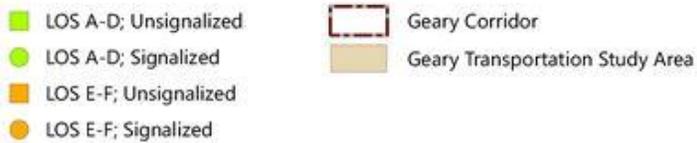


Figure 3.4-17 2020 Hybrid Alternative/LPA LOS at Core Area and Off-Corridor Study Intersections



No Build Alternative (2020)

The No Build Alternative would result in adverse effects at 10 study intersections in 2020; eight on-corridor intersections and two off-corridor intersections:

- **Collins Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS A
 - » **Projected 2020 No Build Alternative Conditions:** LOS F
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volumes and subsequent delays on the westbound approach. Additionally, downstream vehicular queues would extend from the Blake Street and Geary Boulevard intersection where there would be substantially higher westbound left-turn demand.

- **Masonic Avenue and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS C
 - » **Projected 2020 No Build Alternative Conditions:** LOS E
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volumes and subsequent delays on the northbound and southbound approaches at this intersection.

- **Broderick Street and Geary Boulevard (unsignalized)**
 - » **Existing Conditions:** LOS A
 - » **Projected 2020 No Build Alternative Conditions:** LOS E
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volumes and subsequent delays on the southbound movement at this intersection.

- **Scott Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS B
 - » **Projected 2020 No Build Alternative Conditions:** LOS F
 - » **Reason for adverse effect:** The No Build Alternative would result in increased traffic volumes and subsequent delays on the westbound approach. Additionally, downstream vehicular queue backups resulting from the lane reductions prior to Divisadero Street would contribute to some additional delay at this intersection.

- **Steiner Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS B
 - » **Projected 2020 No Build Alternative Conditions:** LOS E
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volumes and subsequent delays on the northbound, westbound, and southbound left-turn movements. Additionally, downstream vehicular queue backups resulting from the lane reductions prior to Divisadero Street would contribute to some additional delay at this intersection.

- **Franklin Street and O’Farrell Street (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2020 No Build Alternative Conditions:** LOS F
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volumes and subsequent delays on the northbound through movement at this intersection.

- **Van Ness Avenue and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2020 No Build Alternative Conditions:** LOS E
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volume and subsequent delays on the southbound and westbound movements. In addition, the construction of BRT service on Van Ness Avenue would result in the conversion of one southbound and northbound mixed-flow lane to a dedicated bus lane.

- **Van Ness Avenue and O’Farrell Street (signalized)**
 - » **Existing Conditions:** LOS C
 - » **Projected 2020 No Build Alternative Conditions:** LOS E
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volume and subsequent delays on all approaches, most notably the eastbound movement at this intersection.

- **Fulton Street and Park Presidio Boulevard (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2020 No Build Alternative Conditions:** LOS E
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volumes and subsequent delays on the eastbound through and southbound through movements at this intersection.

- **Fulton Street and Stanyan Street (signalized)**
 - » **Existing Conditions:** LOS E
 - » **Projected 2020 No Build Alternative Conditions:** LOS F
 - » **Reason for adverse effect:** The No Build Alternative would result in increased volumes and subsequent delays on three approaches: northbound and southbound through, and eastbound right-turn at this intersection.

Alternative 2 (2020)

Alternative 2 would cause adverse effects at two study intersections in 2020; one on-corridor intersection and one off-corridor intersection:

- **Gough Street and Geary Boulevard (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS C
 - » **2020 Alternative 2 Conditions:** LOS E
 - » **Reason for adverse effect:** Alternative 2 would reduce the number of east and westbound through lanes from three to two,

which would lessen the throughput at this intersection and increase traffic delays in the east and westbound directions, as well as the average intersection delay.

- **Fulton Street and Stanyan Street (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS F
 - » **2020 Alternative 2 Conditions:** LOS F
 - » **Reason for adverse effect:** The intersection would continue to operate at the same LOS with Alternative 2. Alternative 2 would not increase the overall intersection LOS to a significant degree, although it would contribute to the worsening of delay via an increase in traffic volumes to the southbound critical movement.

Additionally, the following four intersections would continue to operate at LOS E or F during the p.m. peak hour under Alternative 2, but would not be adversely affected by the project because the net addition of traffic as a result of Alternative 2 would not be substantial:

- Wood Street and Geary Boulevard
- Van Ness Avenue and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Fulton Street and Park Presidio Boulevard

Alternative 3 (2020)

Alternative 3 would cause adverse effects at three study intersections in 2020; two on-corridor intersection and one off-corridor intersection:

- **Laguna Street and Geary Boulevard (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS C
 - » **2020 Alternative 3 Conditions:** LOS E
 - » **Reason for adverse effect:** Alternative 3 would reduce the number of east and westbound through lanes from four to two, which would lessen the throughput at this intersection and increase traffic delays in most directions, as well as the average intersection delay.
- **Gough Street and Geary Boulevard (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS C
 - » **2020 Alternative 3 Conditions:** LOS E
 - » **Reason for adverse effect:** Alternative 3 would reduce the number of east and westbound through lanes from four to two, which would lessen the throughput at this intersection and increase traffic delays in most directions, as well as the average intersection delay. This reduction in capacity would be coupled with a growth in peak-hour traffic demand on most movements.
- **Fulton Street and Stanyan Street (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS F
 - » **2020 Alternative 3 Conditions:** LOS F

- » **Reason for adverse effect:** The intersection would continue to operate at the same LOS with Alternative 3. Alternative 3 would not increase the overall intersection LOS to a significant degree, although it would contribute to the worsening of delay via an increase in traffic volumes to the southbound critical movement that would be considered significant.

Additionally the following four intersections would continue to operate at LOS E or F during the p.m. peak hour under Alternative 3, but would not be adversely affected by the project because the net addition of traffic as a result of Alternative 3 would not be substantial:

- Steiner Street and Geary Boulevard
- Van Ness Avenue and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Fulton Street and Park Presidio Boulevard

Alternative 3-Consolidated (2020)

Alternative 3-Consolidated would cause adverse effects at two study intersections in 2020; one on-corridor intersection and one off-corridor intersection:

- **Gough Street and Geary Boulevard (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS C
 - » **2020 Alternative 3-Consolidated Conditions:** LOS F
 - » **Reason for adverse effect:** Alternative 3-Consolidated would reduce the number of east and westbound through lanes from four to two, which would lessen the throughput at this intersection and increase traffic delays in most directions, as well as the average intersection delay. This reduction in capacity would be coupled with a growth in peak-hour traffic demand on most movements.
- **Fulton Street and Stanyan Street (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS E
 - » **2020 Alternative 3-Consolidated Conditions:** LOS F
 - » **Reason for adverse effect:** The intersection would continue to operate at the same LOS with Alternative 3-Consolidated. Alternative 3-Consolidated would not increase the overall intersection LOS to a significant degree, although it would contribute to the worsening of delay via an increase in traffic volumes to the eastbound critical movement that would be considered significant.

Additionally the following three intersections would continue to operate at LOS E or F during the p.m. peak hour under Alternative 3-Consolidated, but would not be adversely affected by the project because the net addition of traffic as a result of Alternative 3-Consolidated would not be substantial:

- Van Ness Avenue and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Fulton Street and Park Presidio Boulevard

Hybrid Alternative/LPA (2020)

The Hybrid Alternative/LPA would cause adverse effects at four study intersections in 2020; three on-corridor intersections and one off-corridor intersection:

- **Laguna Street and Geary Street (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS C
 - » **2020 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for adverse effect:** The Hybrid Alternative/LPA would reduce the number of east and westbound through lanes from four to two, which would lessen the throughput at this intersection and increase traffic delays in most directions, as well as the average intersection delay.
- **Gough Street and Geary Boulevard (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS C
 - » **2020 Hybrid Alternative/LPA Conditions:** LOS F
 - » **Reason for adverse effect:** The Hybrid Alternative/LPA would reduce the number of east and westbound through lanes from four to two, which would lessen the throughput at this intersection and increase traffic delays in most directions, as well as the average intersection delay. This reduction in capacity would be coupled with a growth in peak-hour traffic demand on most movements.
- **Van Ness Avenue and Geary Street (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS E
 - » **2020 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for adverse effect:** The intersection would continue to operate at the same LOS with the Hybrid Alternative/LPA, although the average intersection delay would increase by 10 seconds. This overall increase in delay is primarily attributable to an increase in delay in the westbound direction. The Hybrid Alternative/LPA would not increase the overall intersection LOS to a significant degree, although it would contribute substantially to the worsening of delay via an increase in traffic volumes to the northbound critical movement that would be considered significant.
- **Fulton Street and Stanyan Street (signalized)**
 - » **2020 No Build Alternative Conditions:** LOS F
 - » **2020 Hybrid Alternative/LPA Conditions:** LOS F
 - » **Reason for adverse effect:** The intersection would continue to operate at the same LOS with the Hybrid Alternative/LPA. The Hybrid Alternative/LPA would not increase the overall

intersection LOS to a significant degree, although it would contribute substantially to the worsening of delay via an increase in traffic volumes to the eastbound critical movement.

Additionally the following three intersections would continue to operate at LOS E or F during the p.m. peak hour under the Hybrid Alternative/LPA, but would not be adversely affected by the project because the net addition of traffic as a result of the Hybrid Alternative/LPA would not be substantial:

- Wood Street and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Fulton Street and Park Presidio Boulevard

3.4.4.11 | AUTOMOBILE DELAY - LONG-TERM HORIZON YEAR (CUMULATIVE) TRAFFIC CONDITIONS (2035)

This section discusses intersection operations at locations where the LOS is projected to be E or F under 2035 conditions. Detailed information on 2035 LOS and delay during the p.m. peak hour at on-corridor and off-corridor study intersections can be found in Appendix D-3 and D-4. Figures 3.4-18 through 3.4-22 show 2035 LOS at study intersections for the No Build and build alternatives.

Figure 3.4-18 2035 No Build Alternative LOS at Core Area and Off-Corridor Study Intersections



Figure 3.4-19 2035 Alternative 2 LOS at Core Area and Off-Corridor Study Intersections



- LOS A-D; Unsignalized
 - LOS A-D; Signalized
 - LOS E-F; Unsignalized
 - LOS E-F; Signalized
 - ▲ Future Study Intersection
- Geary Corridor
 - Geary Transportation Study Area



Figure 3.4-20 2035 Alternative 3 LOS at Core Area and Off-Corridor Study Intersections

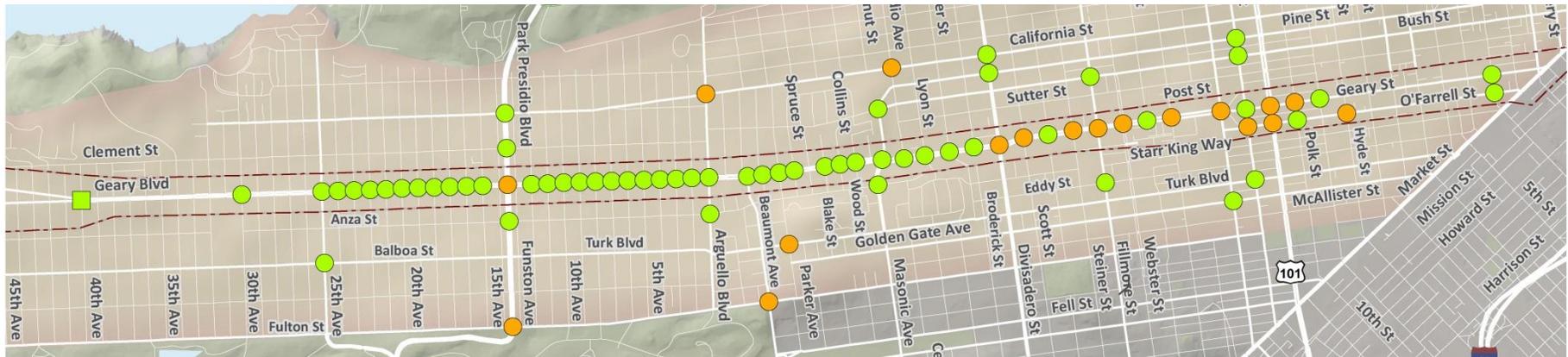


Figure 3.4-21 2035 Alternative 3-Consolidated LOS at Core Area and Off-Corridor Study Intersections



- LOS A-D; Unsignalized
- LOS A-D; Signalized
- LOS E-F; Unsignalized
- LOS E-F; Signalized

- Geary Corridor
- Geary Transportation Study Area



Figure 3.4-22 2035 Hybrid Alternative/LPA LOS at Core Area and Off-Corridor Study Intersections



No Build Alternative (2035)

The No Build Alternative would cause adverse effects at 21 study intersections in 2035; 17 on-corridor intersections and 4 off-corridor intersections:

- **Collins Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS A
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The effect of the No Build Alternative under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.

- **Lyon Street and Geary Boulevard (unsignalized)**
 - » **Existing Conditions:** LOS A
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on the westbound through movement.

- **Masonic Avenue and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS C
 - » **Projected 2035 No Build Alternative Conditions:** LOS D
 - » **Reason for effect:** The effect of the No Build Alternative under 2020 Conditions would be considered an adverse effect (worsening from LOS C to LOS E). Although modeling shows this intersection improving to LOS D by 2035, the worsened LOS anticipated in 2020 would still be considered an adverse effect for 2035 Conditions (worsening from LOS C to D).

- **Park Presidio Boulevard and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS C
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on the southbound through movement and downstream vehicular queuing in the westbound direction at 15th Avenue.

- **Second Avenue and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS A
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased traffic volumes on the southbound left-turn movement. Downstream queues at Arguello Boulevard would also contribute to delay at this intersection.

- **Broderick Street and Geary Boulevard (unsignalized)**
 - » **Existing Conditions:** LOS A
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volume and subsequent delays on the southbound approach. Westbound traffic would be impeded by downstream queues at Baker Street, which occasionally prevents motorists on the southbound approach from entering the intersection during the peak hour.

- **Divisadero Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS B
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on the northbound through and southbound through movements, which would subsequently cause delays on all approaches at this intersection.

- **Scott Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS B
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volumes on the northbound and westbound through movements; coupled with the decreased capacity along Geary Boulevard to the west at Divisadero Street would subsequently increase the average delay for the intersection.

- **Steiner Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS B
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in substantial increases in volumes, and subsequent delays on the northbound, westbound, and southbound left-turn movements. Additionally, downstream vehicular queue backups resulting from the lane reductions prior to Divisadero Street would contribute to some additional delay at this intersection.

- **Webster Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS B
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on all approaches, most notably the eastbound and westbound movements.

- **Laguna Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS B
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on all approaches, most notably the eastbound and westbound movements.

- **Gough Street and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS C
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on all approaches, most notably the eastbound and westbound movements.

- **Franklin Street and O’Farrell Street (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2035 No Build Alternative Conditions:** LOS D
 - » **Reason for adverse effect:** The effect of the No Build Alternative under 2020 Conditions would be considered an adverse effect (worsening from LOS D to LOS E). Although modeling shows this intersection returning to LOS D by 2035, the worsened LOS anticipated in 2020 would be considered an adverse effect for 2035 Conditions.

- **Van Ness Avenue and Geary Boulevard (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on the southbound and westbound movements. In addition, the construction of BRT service on Van Ness Avenue would result in the conversion of one southbound and northbound mixed-flow lane to a dedicated bus lane.

- **Van Ness Avenue & O’Farrell Street (signalized)**
 - » **Existing Conditions:** LOS C
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on all approaches, most notably the southbound and eastbound movements.

- **Geary Street and Polk Street (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on the northbound through movement at this intersection.

- **O’Farrell Street and Hyde Street (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and associated delays on the southbound through movement.

- **Anza Street and Park Presidio Boulevard (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on the southbound through and westbound left-turn movements
- **Fulton Street and Park Presidio Boulevard (signalized)**
 - » **Existing Conditions:** LOS D
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for adverse effect:** The effect of the No Build Alternative under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.
- **Fulton Street and Stanyan Street (signalized)**
 - » **Existing Conditions:** LOS E
 - » **Projected 2035 No Build Alternative Conditions:** LOS F
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on three approaches: northbound and southbound through, and eastbound right-turn.
- **Bush Street and Franklin Street (signalized)**
 - » **Existing Conditions:** LOS C
 - » **Projected 2035 No Build Alternative Conditions:** LOS E
 - » **Reason for effect:** The No Build Alternative would result in increased volumes and subsequent delays on the northbound through movement at this intersection.

Alternative 2 (2035)

Alternative 2 would cause adverse effects at five study intersections in 2035; four on-corridor intersections and one off-corridor intersection:

- **Divisadero Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS E
 - » **2035 Alternative 2 Conditions:** LOS F
 - » **Reason for effect:** Alternative 2 would reduce the number of east and westbound through lanes from three to two, which would lessen the throughput at this intersection and increase traffic delays in the east and westbound directions, as well as the average intersection delay.
- **Laguna Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 2 Conditions:** LOS F
 - » **Reason for effect:** The intersection would continue to operate at the same delay and LOS with Alternative 2. Alternative 2 would not increase the overall intersection LOS to a significant degree, although it would contribute to the worsening of delay via an increase in traffic volumes to the northbound critical movement that would be considered significant.

- **Gough Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 2 Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 2 under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.
- **Van Ness Avenue and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 2 Conditions:** LOS E
 - » **Reason for effect:** The intersection LOS would improve under Alternative 2 conditions. This overall decrease in delay is primarily attributable to an increase in delay in the west and southbound directions. Alternative 2 would not increase the overall intersection LOS to a significant degree, although it would contribute substantially to the worsening of delay via an increase in traffic volumes to the southbound critical movement.
- **Fulton Street and Stanyan Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 2 Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 2 under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.

Additionally the following 10 intersections would continue to operate at LOS E or F during the p.m. peak hour under Alternative 2, but would not be adversely affected by the project because the net addition of traffic as a result of Alternative 2 would not be substantial:

- Wood Street and Geary Boulevard
- Scott Street and Geary Boulevard
- Pierce Street and Geary Boulevard
- Steiner Street and Geary Boulevard
- Webster Street and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Anza Street and Park Presidio Boulevard
- Fulton Street and Park Presidio Boulevard
- Polk Street and Geary Street
- O'Farrell Street and Hyde Street

Alternative 3 (2035)

Alternative 3 would cause adverse effects at nine study intersections in 2035; four on-corridor intersections and five off-corridor intersections:

- **Fillmore Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS C
 - » **2035 Alternative 3 Conditions:** LOS E
 - » **Reason for effect:** Alternative 3 would result in all traffic being brought to grade, increasing delay in the east- and westbound approaches since both directions would now be subject to a traffic signal, as well as the average intersection delay.

- **Laguna Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 3 Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 3 under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.

- **Gough Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 3 Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 3 under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.

- **Franklin Street and O'Farrell Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Alternative 3 Conditions:** LOS F
 - » **Reason for effect:** The intersection LOS would degrade under Alternative 3 conditions. This overall increase in delay is primarily attributable to an increase in delay in the northbound direction.

- **California Street and Arguello Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Alternative 3 Conditions:** LOS E
 - » **Reason for effect:** Alternative 3 would result in increased volumes and subsequent delays on the westbound through, eastbound through, and northbound left-turn movements.

- **Turk Street and Parker Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS C
 - » **2035 Alternative 3 Conditions:** LOS E
 - » **Reason for effect:** Alternative 3 would result in increased volumes and subsequent delays on the northbound through, eastbound through, and southbound through movements.

- **California Street and Presidio Avenue (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Alternative 3 Conditions:** LOS E
 - » **Reason for effect:** Alternative 3 would result in increased volumes and subsequent delays on the eastbound through, westbound through, and southbound through movements.

- **Fulton Street and Stanyan Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 3 Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 3 under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.

- **Fulton Street and Park Presidio Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 3 Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 3 under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.

Additionally, the following nine intersections would continue to operate at LOS E or F during the p.m. peak hour under Alternative 3, but would not be adversely affected by the project because the net addition of traffic as a result of Alternative 3 would not be substantial:

- Park Presidio Boulevard and Geary Boulevard
- Divisadero Street and Geary Boulevard
- Scott Street and Geary Boulevard
- Steiner Street and Geary Boulevard
- Webster Street and Geary Boulevard
- Van Ness Avenue and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Polk Street and Geary Street
- O'Farrell Street and Hyde Street

Alternative 3-Consolidated (2035)

Alternative 3-Consolidated would cause adverse effects at nine study intersections in 2035; three on-corridor intersections and six off-corridor intersections:

- **Baker Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Alternative 3-Consolidated Conditions:** LOS E
 - » **Reason for effect:** Alternative 3-Consolidated would reduce the number of east and westbound through lanes from three to two, which would lessen the throughput at this intersection and increase traffic delays in the westbound direction, as well as the average intersection delay.
- **Gough Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 3-Consolidated Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 3-Consolidated under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.
- **Franklin Street and O'Farrell Street (signalized).**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Alternative 3 Conditions:** LOS F
 - » **Reason for effect:** The intersection LOS would degrade under Alternative 3-Consolidated conditions. This overall decrease in delay is primarily attributable to an increase in delay in the northbound direction.

- **Clement Street and Park Presidio Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Alternative 3-Consolidated Conditions:** LOS E
 - » **Reason for effect:** The intersection LOS would degrade under Alternative 3-Consolidated conditions. This overall increase in delay is primarily attributable to increased volumes and subsequent delays on the eastbound and westbound through movements.

- **Turk Street and Parker Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS C
 - » **2035 Alternative 3-Consolidated Conditions:** LOS E
 - » **Reason for effect:** The intersection LOS would degrade under Alternative 3-Consolidated conditions. This overall increase in delay is primarily attributable to increased volumes and subsequent delays on the eastbound and southbound through movements.

- **California Street and Presidio Avenue (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Alternative 3 Conditions:** LOS E
 - » **Reason for effect:** The intersection LOS would degrade under Alternative 3-Consolidated conditions. This overall increase in delay is primarily attributable to increased volumes and subsequent delays on the westbound and northbound through movements.

- **Fulton Street and Stanyan Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Alternative 3-Consolidated Conditions:** LOS F
 - » **Reason for effect:** The effect of Alternative 3-Consolidated under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.

- **Anza Street and Park Presidio Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS E
 - » **2035 Alternative 3-Consolidated Conditions:** LOS E
 - » **Reason for effect:** The intersection would continue to operate at the same LOS with Alternative 3-Consolidated. Alternative 3-Consolidated would not increase the overall intersection LOS to a significant degree, although it would contribute to the worsening of delay via an increase in traffic volumes to the westbound critical movement that would be considered significant.

- **Geary Street and Polk Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS E
 - » **2035 Alternative 3-Consolidated Conditions:** LOS E
 - » **Reason for effect:** The intersection would continue to operate at the same LOS with Alternative 3-Consolidated, although the

average intersection delay would increase by nine seconds. This overall increase in delay is primarily attributable to an increase in delay in the southbound direction. Alternative 3-Consolidated would not increase the overall intersection LOS to a significant degree, although it would contribute to the worsening of delay via an increase in traffic volumes to the southbound critical movement that would be considered significant.

Additionally, the following five intersections would continue to operate at LOS E or F during the p.m. peak hour under Alternative 3-Consolidated, but would not be adversely affected by the project because the net addition of traffic as a result of Alternative 3-Consolidated would not be substantial:

- Webster Street and Geary Boulevard
- Van Ness Avenue and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Fulton Street and Park Presidio Boulevard
- O'Farrell Street and Hyde Street

Hybrid Alternative/LPA (2035)

The Hybrid Alternative/LPA would cause adverse effects at eight study intersections in 2035; four on-corridor intersections and four off-corridor intersections:

- **Parker Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for effect:** The intersection LOS would degrade under Hybrid Alternative/LPA conditions. This overall decrease in delay is primarily attributable to an increase in delay in the north- and southbound directions.
- **Laguna Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for effect:** This intersection would degrade from LOS C in 2020 No Build to LOS E under 2020 Hybrid Alternative/LPA conditions. No Build LOS is anticipated to worsen to LOS F by 2035. Although 2035 conditions under the Hybrid Alternative/LPA would be better than No Build (LOS E versus LOS F), the effect of the Hybrid Alternative/LPA under 2020 Conditions would still be considered an adverse effect under 2035 Conditions.
- **Gough Street and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS F
 - » **Reason for effect:** This intersection would degrade from LOS C in 2020 No Build to LOS F under 2020 Hybrid Alternative/LPA conditions. No Build LOS is anticipated to worsen to LOS F by 2035. Although 2035 conditions under the Hybrid Alternative/LPA would be the same as No Build (both at LOS F), the effect of the Hybrid Alternative/LPA under 2020

Conditions would still be considered an adverse effect under 2035 Conditions.

- **Van Ness Avenue and Geary Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for effect:** The Hybrid Alternative/LPA intersection would result in substantial delay at this intersection in 2020 (although LOS would remain unchanged at LOS E). The effect of the Hybrid Alternative/LPA under 2020 Conditions would be considered an adverse effect. While No Build LOS is anticipated to worsen to LOS F by 2035 (and the Hybrid Alternative/LPA would result in LOS E), the 2020 effect would also result in 2035 conditions being considered as an adverse effect.
- **California Street and Arguello Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for effect:** The intersection LOS would degrade under Hybrid Alternative/LPA conditions. This overall decrease in delay is primarily attributable to an increase in delay in the east- and westbound directions.
- **California Street and Presidio Avenue (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS D
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for effect:** The intersection LOS would degrade under Hybrid Alternative/LPA conditions. This overall increase in delay is primarily attributable to increased volumes and subsequent delays on the eastbound and westbound through movements.
- **Fulton Street and Stanyan Street (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS F
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS F
 - » **Reason for effect:** The effect of the Hybrid Alternative/LPA under 2020 Conditions would be considered an adverse effect. This would also be considered an adverse effect under 2035 Conditions.
- **Anza Street and Park Presidio Boulevard (signalized)**
 - » **2035 No Build Alternative Conditions:** LOS E
 - » **2035 Hybrid Alternative/LPA Conditions:** LOS E
 - » **Reason for effect:** The intersection would continue to operate at the same LOS with the Hybrid Alternative/LPA. The Hybrid Alternative/LPA would not increase the overall intersection LOS to a significant degree, although it would contribute to the worsening of delay via an increase in traffic volumes to the westbound critical movement that would be considered significant.

Additionally, the following 11 intersections would continue to operate at LOS E or F during the p.m. peak hour under the Hybrid Alternative/LPA, but would not be adversely affected by the project because the net addition of traffic as a result of the Hybrid Alternative/LPA would not be substantial:

- Wood Street and Geary Boulevard
- Lyon Street and Geary Boulevard
- Divisadero Street and Geary Boulevard
- Scott Street and Geary Boulevard
- Steiner Street and Geary Boulevard
- Webster Street and Geary Boulevard
- Van Ness Avenue and O'Farrell Street
- Fulton Street and Park Presidio Boulevard
- Bush Street and Franklin Street
- Polk Street and Hyde Street
- O'Farrell Street and Hyde Street

3.4.4.12 | NEPA CONCLUSION OF EFFECTS ON AUTOMOBILE TRAFFIC

Traffic operations under any of the build alternatives would not severely inhibit circulation for automobiles in the Geary corridor in 2020 or 2035. Although levels of peak-hour traffic congestion would increase at some intersections by varying degrees depending on build alternative, the Geary corridor cannot be widened to accommodate higher automobile volumes without resulting in adverse effects. Additionally, overall corridor travel times for automobile traffic would not substantially change under any of the build alternatives relative to the No Build Alternative.

Increased traffic delay at some intersections would not adversely affect multimodal travel on the Geary corridor (as discussed in Section 3.3.4). Because traffic operations are evaluated during worst-case p.m. peak-hour conditions and because non-peak-hour traffic operations would be substantially better, the project's build alternatives would not create severely congested roadway operations throughout the day.

Each build alternative would incorporate features that would help avoid or minimize traffic congestion. These features include: optimized signal timing, signal priority for transit vehicles on the Geary corridor (benefitting east-west traffic movements), reduced left-turn movements along the Geary corridor, and the addition of new right-turn pockets at key locations. With these features, the overall travel times for automobile traffic along the corridor would not substantially change under the build alternatives relative to the No Build Alternative.

As a result, with the features included that would help minimize the negative effects of increased traffic congestion along the corridor, the build alternatives would enhance neighborhood livability and community vitality by maintaining a balanced roadway that travelers on all modes can use to access business, residences, and other points of interest in the Geary corridor.

3.4.4.13 | COMPARATIVE EFFECTS OF ALTERNATIVES

As demonstrated in the preceding subsections, over the long term (2035 conditions) Alternative 2 would adversely affect LOS at the fewest number of study

intersections (five), followed by the Hybrid Alternative/LPA (eight). Alternatives 3 and 3-Consolidated would both have adverse LOS effects at nine study intersections. The No Build Alternative would adversely affect LOS at more intersections than any of the build alternatives (21).

3.4.5 | Avoidance, Minimization and Mitigation Measures

Under the No Build Alternative, there would be adverse effects at 10 study intersections in 2020 and 21 study intersections in 2035:

- Collins Street and Geary Boulevard (2020, 2035)
- Lyon Street and Geary Boulevard (2035)
- Masonic Avenue and Geary Boulevard (2020, 2035)
- Park Presidio Boulevard and Geary Boulevard (2035)
- Second Avenue and Geary Boulevard (2035)
- Broderick Street and Geary Boulevard (2020, 2035)
- Divisadero Street and Geary Boulevard (2035)
- Scott Street and Geary Boulevard (2020, 2035)
- Steiner Street and Geary Boulevard (2020, 2035)
- Webster Street and Geary Boulevard (2035)
- Laguna Street and Geary Boulevard (2035)
- Gough Street and Geary Boulevard (2035)
- Franklin Street and O'Farrell Street (2020, 2035)
- Van Ness Avenue and Geary Boulevard (2020, 2035)
- Van Ness Avenue and O'Farrell Street (2020, 2035)
- Geary Street and Polk Street (2035)
- O'Farrell Street and Hyde Street (2035)
- Anza Street and Park Presidio Boulevard (2035)
- Fulton Street and Park Presidio Boulevard (2020, 2035)
- Fulton Street and Stanyan Street (2020, 2035)
- Bush Street and Franklin Street (2035)

Alternative 2 would result in adverse effects at two study intersections in 2020 and five study intersections in 2035:

- Divisadero Street and Geary Boulevard (2035)
- Laguna Street and Geary Boulevard (2035)
- Gough Street and Geary Boulevard (2020, 2035)
- Van Ness Avenue and Geary Boulevard (2035)
- Fulton Street and Stanyan Street (2020, 2035)

Alternative 3 would result in adverse effects at three study intersections in 2020 and nine study intersections in 2035:

- Fillmore Street and Geary Boulevard (2035)
- Laguna Street and Geary Boulevard (2020, 2035)
- Gough Street and Geary Boulevard (2020, 2035)
- Franklin Street and O'Farrell Street (2035)
- California Street and Arguello Boulevard (2035)
- Turk Street and Parker Street (2035)
- California Street and Presidio Avenue (2035)

- Fulton Street and Stanyan Street (2020, 2035)
- Fulton Street and Park Presidio Boulevard (2035)

Alternative 3-Consolidated would result in adverse effects at two study intersections in 2020 and nine study intersections in 2035:

- Baker Street and Geary Boulevard (2035)
- Gough Street and Geary Boulevard (2020, 2035)
- Franklin Street and O'Farrell Street (2035)
- Clement Street and Park Presidio Boulevard (2035)
- Turk Street and Parker Street (2035)
- California Street and Presidio Avenue (2035)
- Fulton Street and Stanyan Street (2020, 2035)
- Anza Street and Park Presidio Boulevard (2035)
- Geary Street and Polk Street (2035)

The Hybrid Alternative/LPA would result in adverse effects at four study intersections in 2020 and eight study intersections in 2035. As noted above, the Hybrid Alternative/LPA would improve 2035 LOS relative to the No Build Alternative at the Laguna and Van Ness intersections with Geary. However, given that the Hybrid Alternative/LPA would adversely affect these two intersections in 2020, these effects would still be considered as adverse for 2035.

- Parker Street and Geary Boulevard (2035)
- Laguna Street and Geary Boulevard (2020, 2035)
- Gough Street and Geary Boulevard (2020, 2035)
- Van Ness Avenue and Geary Boulevard (2020, 2035)
- California Street and Arguello Boulevard (2035)
- California Street and Presidio Avenue (2035)
- Fulton Street and Stanyan Street (2020, 2035)
- Anza Street and Park Presidio Boulevard (2035)

For all build alternatives, minimization measures and standard practices would be employed to reduce the need for mitigation measures. However, adverse effects were identified at the intersections listed above. At all intersections along Geary Boulevard, typical measures that could reduce automobile delay would include intersection widening, removal of parking lanes, addition of travel lanes or other strategies that increase intersection/vehicular capacity. Measures were identified and evaluated for each of the build alternatives under 2020 conditions. These are discussed below. Additional information on avoidance, minimization, and mitigation measures is included in Appendix D-4.

- **All Intersections on Geary Boulevard:** Along Geary Boulevard, providing additional travel lanes or otherwise increasing vehicular capacity would require removal of the proposed bus lanes, narrowing sidewalks and/or demolition of adjacent buildings due to the limited right-of-way. As a result, adverse effects could not be avoided.
- **Fulton Street and Park Presidio Boulevard:** At this intersection, providing additional travel lanes or otherwise increasing vehicular capacity would require narrowing sidewalks and/or demolition of adjacent buildings due to the limited right-of-way. As a result, adverse effects could not be avoided.
- **Fulton Street and Stanyan Street:** At this intersection, providing additional travel lanes or otherwise increasing vehicular capacity would require narrowing sidewalks and/or demolition of adjacent buildings due to the limited right-of-way. As a result, adverse effects could not be avoided.

Additionally, for build alternatives in 2035, the following intersection measures were identified and evaluated. These measures are discussed below:

- **All Intersections on Geary Boulevard:** Along Geary Boulevard, providing additional travel lanes or otherwise increasing vehicular capacity would require removal of the proposed bus lanes, narrowing sidewalks and/or demolition of adjacent buildings due to the limited right-of-way. As a result, adverse effects could not be avoided.
- **Clement Street and Park Presidio Boulevard:** At this intersection, providing an eastbound or westbound right turn pocket by removing three parking spaces from eastbound Clement Street or six spaces from westbound Clement Street travel lanes would avoid adverse effects.
- **California Street and Arguello Boulevard:** At this intersection, restricting eastbound, or eastbound and westbound left turns during peak hours would avoid adverse effects, but would also require those vehicles that need to travel in the north- or southbound direction to turn left either prior to the California/Arguello intersection, or by making a series of right turns. This would divert traffic onto smaller residential streets, which may not have sufficient capacity and would not be consistent with policies discouraging vehicle through-travel of smaller residential streets.
- **Turk Street and Parker Avenue:** At this intersection, restricting eastbound, or eastbound and westbound left turns during peak hours would avoid adverse effects.

- **California Street and Presidio Avenue:** At this intersection, increasing signal cycle lengths and optimizing the timing of each signal phase would avoid adverse effects to vehicular traffic, but would adversely impact pedestrian wait times, transit travel times, and traffic throughput at the intersection and at adjacent intersections and is therefore not considered feasible.
- **Fulton Street and Park Presidio Boulevard:** At this intersection, providing additional travel lanes or otherwise increasing vehicular capacity at these intersections would require narrowing sidewalks and/or demolition of adjacent buildings due to the limited right-of-way. As a result, adverse effects could not be avoided.
- **Fulton Street and Stanyan Street:** At this intersection, providing additional travel lanes or otherwise increasing vehicular capacity at these intersections would require narrowing sidewalks and/or demolition of adjacent buildings due to the limited right-of-way. As a result, adverse effects could not be avoided.
- **Anza Street and Park Presidio Boulevard:** At this intersection, providing additional eastbound and westbound travel lanes would be possible by reconfiguring the eastbound and westbound approaches, but would require removal of parking, reduction of sidewalk widths, and/or adding right-turn pockets directly adjacent to sidewalks. These side-effects render the potential mitigation treatments infeasible.

Providing additional travel lanes or otherwise increasing vehicular capacity at these intersections is not feasible because it would require narrowing sidewalks to deficient widths and/or demolition of adjacent buildings. Signal timing adjustments may improve intersection operations, but major timing changes would be infeasible due to traffic, transit, or pedestrian signal timing requirements. Other measures to increase capacity, such as the use of tow-away zones or other parking prohibitions to add through lanes or turn pockets, would worsen pedestrian conditions by eliminating the buffer between pedestrians and moving traffic that on-street parking provides. This would increase exposure of pedestrians at intersections that would not support project goals for pedestrian comfort and safety.

Therefore, because no feasible measures exist to reduce project impacts at the above-identified locations, traffic effects at these intersections under the associated build alternative would remain adverse.

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