

Park Presidio Lombard Temporary HOV Lanes

Final Evaluation Report

February 11, 2025



SFMTA



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Executive Summary

This report summarizes findings from the San Francisco Municipal Transportation Agency's (SFMTA) evaluation of its Park Presidio Lombard Temporary HOV Lanes Project, a pilot project conducted in collaboration with the California Department of Transportation (Caltrans). Data were collected over a two-year period beginning in the third quarter of 2022, following implementation of high-occupancy vehicle (HOV) lanes in both corridors. The report also includes findings from a community survey.

In general, the evaluation found that the project achieved its primary goals, including improving transit speed and reliability by protecting buses and other HOVs from increasing traffic volumes as well as increased total person throughput and overall mobility.

Findings for all evaluation measures may be summarized as follows:

Transit Travel Times

Transit travel times improved between the third quarter of 2019 and the second quarter of 2024, notably so on Lombard.

Transit Reliability

Variability of transit travel times has improved significantly since 2019, by as much as 51 percent depending on the corridor and direction of travel.

Transit Ridership

Transit ridership has recovered from the pandemic faster on Muni Route 28 19th Avenue, the primary route serving the HOV lane corridors, than elsewhere in the city.

Total Person Movement

Total person movement has increased in both corridors. This is due in part to increased vehicular volumes, but the share of total person throughput in HOV-eligible vehicles and average vehicle occupancy have both mostly increased (due in part to increased transit service). Vehicle volumes in the HOV lanes have also declined even as volumes in the other lanes have increased.

HOV Lane Compliance

HOV lane compliance is difficult to observe, as many SOVs are legally allowed in the lanes for reasons including right turns and access to curbside parking and driveways. However, numbers of SOVs in the right-hand/HOV lanes declined following implementation of the HOV lanes.

Traffic Speeds

In both corridors, average speeds in the right lanes have improved or remained roughly the same since they were converted to HOV lanes, even as average speeds in the remaining lanes have declined somewhat (at least in part as a result of higher overall traffic volumes).

Traffic Diversion

Changes to traffic volumes on alternate routes to Park Presidio and Lombard have varied widely, with some locations increasing and others decreasing.

Collisions

While collision rates on Park Presidio generally did not change following implementation of HOV lanes, rates on Lombard have increased compared to pre-pandemic conditions. However, this increase began in early 2021, before HOV lanes were implemented. Analysis of whether some collisions may have been associated with the HOV lanes found a total of nine such collisions over 2 1/2 years on Lombard. However, five of these collisions occurred when HOV lane restrictions were not in effect, and the analysis was based on a conservative methodology, so the actual number of collisions attributable to HOV lanes is likely lower.

Introduction

The Park Presidio Lombard Temporary HOV Lanes Project is an SFMTA pilot project to determine whether HOV lanes should be implemented on segments of Veterans Boulevard, Park Presidio Boulevard, Park Presidio Bypass, Lombard Street and Richardson Avenue in San Francisco.

As Veterans, Park Presidio and Park Presidio Bypass are part of State Route 1 (SR 1), and the project segment of Lombard and Richardson are part of U.S. Highway 101 (US 101), the project is a partnership between the SFMTA, which manages city streets, and Caltrans, which manages state and federal highways.

Pilot HOV lanes were implemented in the Lombard/Richardson corridor (between approximately Franklin and Francisco streets) in September 2021, and the Veterans/Park Presidio/Park Presidio Bypass corridor¹ (between just north of Lake Street and Crossover Drive) in April and May 2022. In both corridors, the outermost travel lanes are designated HOV-2, meaning that vehicles must have two or more occupants², and HOV restrictions are in effect between 5 a.m. and 8 p.m. on weekdays.



The analysis and recommendations in this Final Evaluation Report are primarily based on pre-project data collection conducted just prior to implementation in both corridors (where pre-project data from other periods was used, it is noted) and two years of post-

¹ In the remainder of this document, the project segment on Veterans Boulevard, Park Presidio Boulevard, and Park Presidio Bypass is referred to simply as "Park Presidio", and the segment on Lombard Street and Richardson Avenue is referred to simply as "Lombard."

² Other vehicles are allowed in the lanes to turn right or access curbside parking or driveways. Other vehicles are also allowed in HOV lanes per the California Vehicle Code (e.g., motorcycles and vehicles with clean air vehicle decals).

project data collection conducted quarterly (every three months) or every other quarter between the third quarter of 2022 and the second quarter of 2024³.

This report will be shared with the public and submitted to the SFMTA Board of Directors and Caltrans for review. Both agencies would have to approve leaving the HOV lanes in place. Prior to approval of this, additional discussions regarding potential design revisions, environmental review and community engagement would also be required. The pilot is currently authorized to continue through June 30, 2025.

³ Some of the traffic data analyzed in this document were collected by SFMTA staff, and some by a consultant hired by the SFMTA. SFMTA pre-project data collection occurred in September 2021 on Lombard and February 2022 on Park Presidio, while consultant pre-project data collection occurred in August 2021 on Lombard and in November and December 2021 and February 2022 on Park Presidio. SFMTA staff conducted observations every other quarter, while the consultant conducted observations quarterly.

Evaluation

Evaluation Methodology

The evaluation measures in this document address multimodal mobility, transit performance, safety, HOV lane operations, and traffic conditions, including neighborhood impacts. They were identified based on their relevance to project goals, including increased overall mobility and reduced transit delay. The evaluation framework was developed by the SFMTA in consultation with Caltrans, with input from community members.

Measures include:

- Transit travel times
 - Median travel times
- Transit reliability
 - Travel time variability
- Transit ridership
 - Post-pandemic recovery
- Total person movement
 - Total person throughput
 - Share of total person throughput in HOV-eligible vehicles
 - Average vehicle occupancy
 - Vehicle volumes in HOV and non-HOV lanes
- HOV lane compliance
 - Percentages of single-occupant vehicles (SOVs) in HOV lanes
- Traffic speeds
 - Average speeds by lane
- Traffic diversion
 - Vehicle volumes on alternate routes
- Collisions
 - Total collisions
 - Collision Rates Adjusted for Vehicle Miles Traveled
 - Numbers of fatal and severe injury collisions
 - Numbers of collisions involving pedestrians and bicyclists
 - Collisions potentially associated with HOV lanes

In the Evaluation Findings section that follows, post-project conditions are compared to pre-project conditions, and post-project trends are addressed where relevant. Effects of post-COVID-19 pandemic recovery trends are also noted.

As previously noted, data were collected both pre-project, just prior to implementation in both corridors, and post-project, for two years quarterly or every other quarter depending on the measure.

Data were collected during “typical” conditions, mid-week (on a Tuesday, Wednesday or Thursday) and during normal weather (i.e. not during severe storms). Data were not collected on holidays or when other events such as school holidays might have resulted in atypical conditions.

Summary methodologies for each measure can be found in the relevant section. More detailed methodologies can be found in an appendix to this document.

This document also includes summary findings from a community survey conducted midway through the evaluation period. Additional findings can be found in an appendix.

Evaluation Findings

Transit Travel Times

Summary: *Transit travel times improved between the third quarter of 2019 and the second quarter of 2024, notably so on Lombard.*

The HOV Lanes project was conceived as part of the SFMTA's Temporary Emergency Transit Lanes program ([SFMTA.com/TempLanes](https://www.sfmta.com/TempLanes)), the primary goal of which was to reduce delays in the busiest transit corridors during the city's recovery from the pandemic. On the central segment of Lombard, where two Muni lines, nine Golden Gate Transit routes and Presidio Go shuttles currently operate, there are up to 27 buses per hour in the peak direction⁴. This amounts to a total capacity of well over 1,000 passengers.

For this measure, analysis was conducted of travel times on Muni Route 28 19th Avenue, which operates in both corridors⁵. Due to pandemic-related service changes, Route 28 did not operate on Lombard for much of 2020 and 2021. For this reason, the pre-project period used for analysis in both corridors was the third quarter of 2019⁶. Analysis was conducted of travel times between designated timepoints during the weekday AM peak, mid-day, and PM peak periods.

Median Travel Times

As Figures 1 through 4 on the following pages show, transit travel times improved between the third quarter of 2019 and the second quarter of 2024, notably so on Lombard. In that corridor, median travel times improved by approximately 19 percent westbound, and six percent eastbound. It should be noted that piloting HOV lanes on Route 28 was just one part of a larger strategy, detailed in the following pages, to improve service on Route 28, including addition of "transit bulbs" at stops on Lombard Street allowing buses to stop in traffic, and avoid delays while waiting to merge back into it.

⁴ This figure includes public transit only. Private buses, including commuter shuttles and tour buses, also operate in the HOV lanes.

⁵ Route 28R 19th Avenue Rapid also operates on part of Park Presidio, and Route 43 Masonic operates on part of Lombard.

⁶ Note that the Lombard Street Vision Zero Project, which added bulb-outs at bus stops allowing operators to avoid merging, was under construction at this time.

Figure 1: Median transit travel times on Park Presidio northbound between California and Fulton Streets (in minutes, on Route 28)

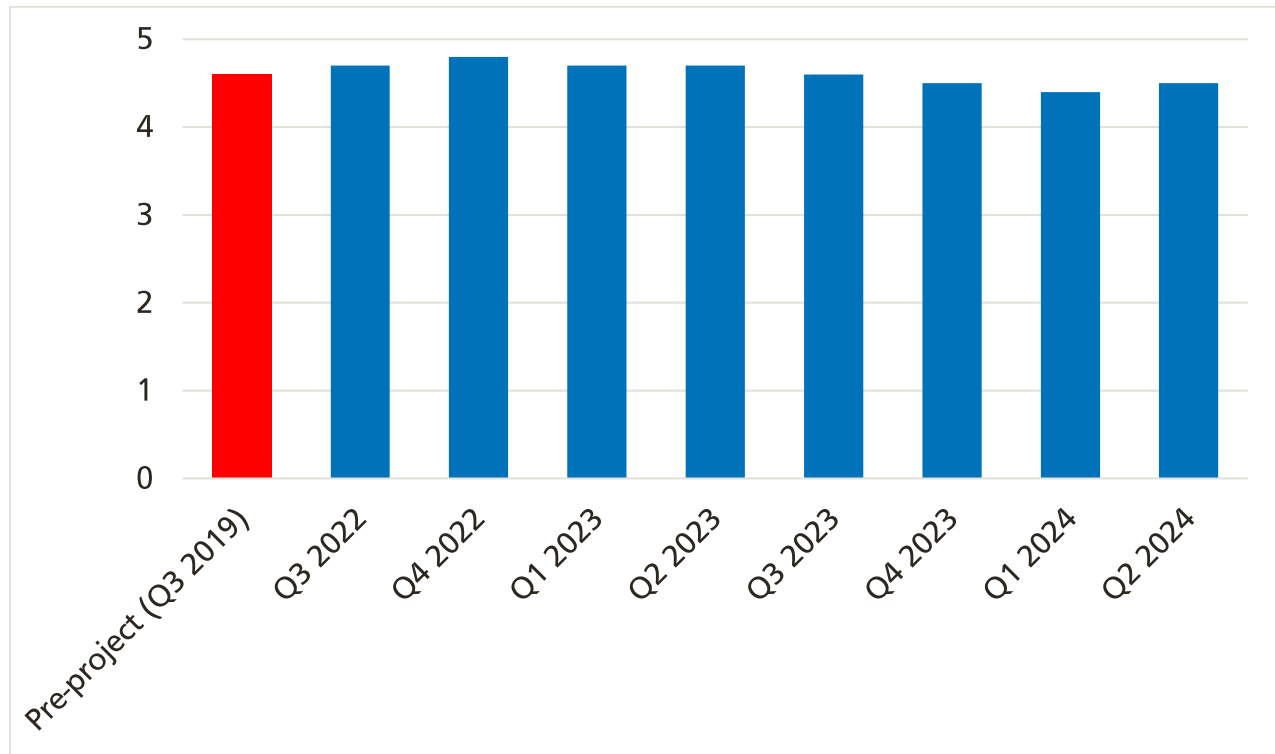


Figure 2: Median transit travel times on Park Presidio southbound between California and Fulton Streets (in minutes, on Route 28)

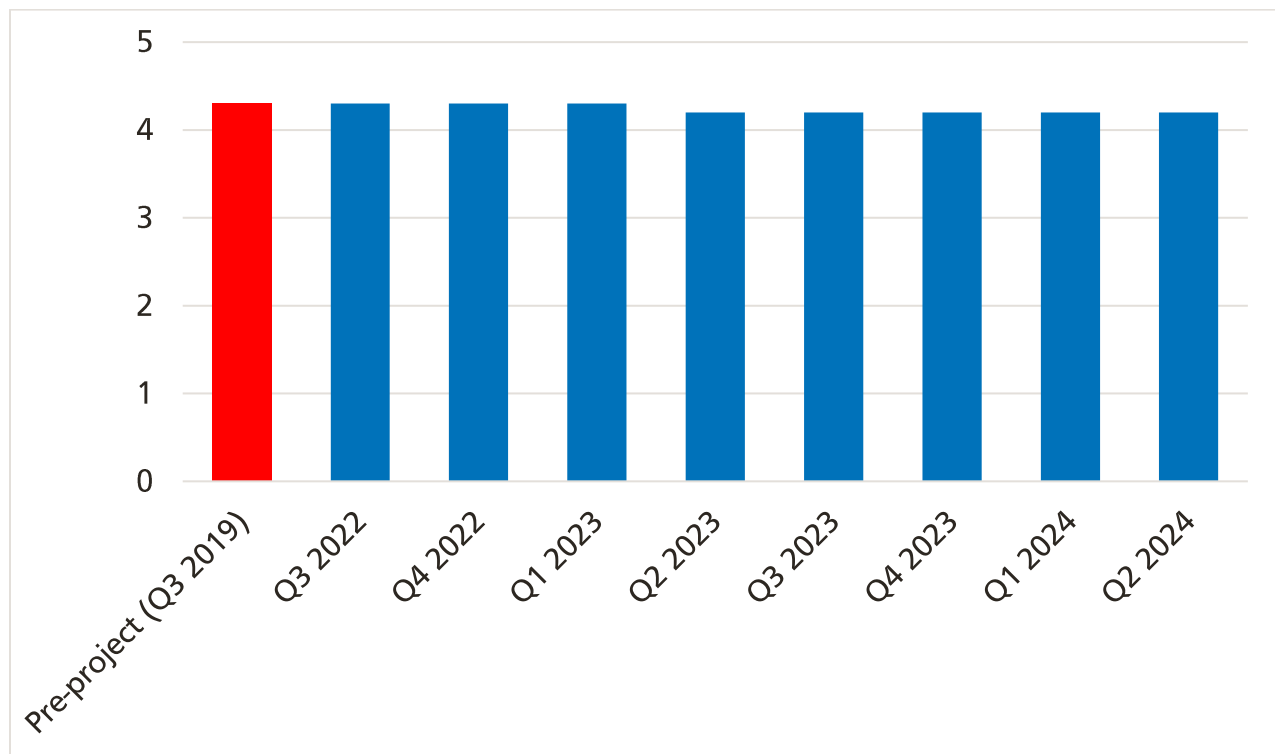


Figure 3: Median transit travel times on Richardson and Lombard eastbound between Francisco and Gough Streets (in minutes, on Route 28)

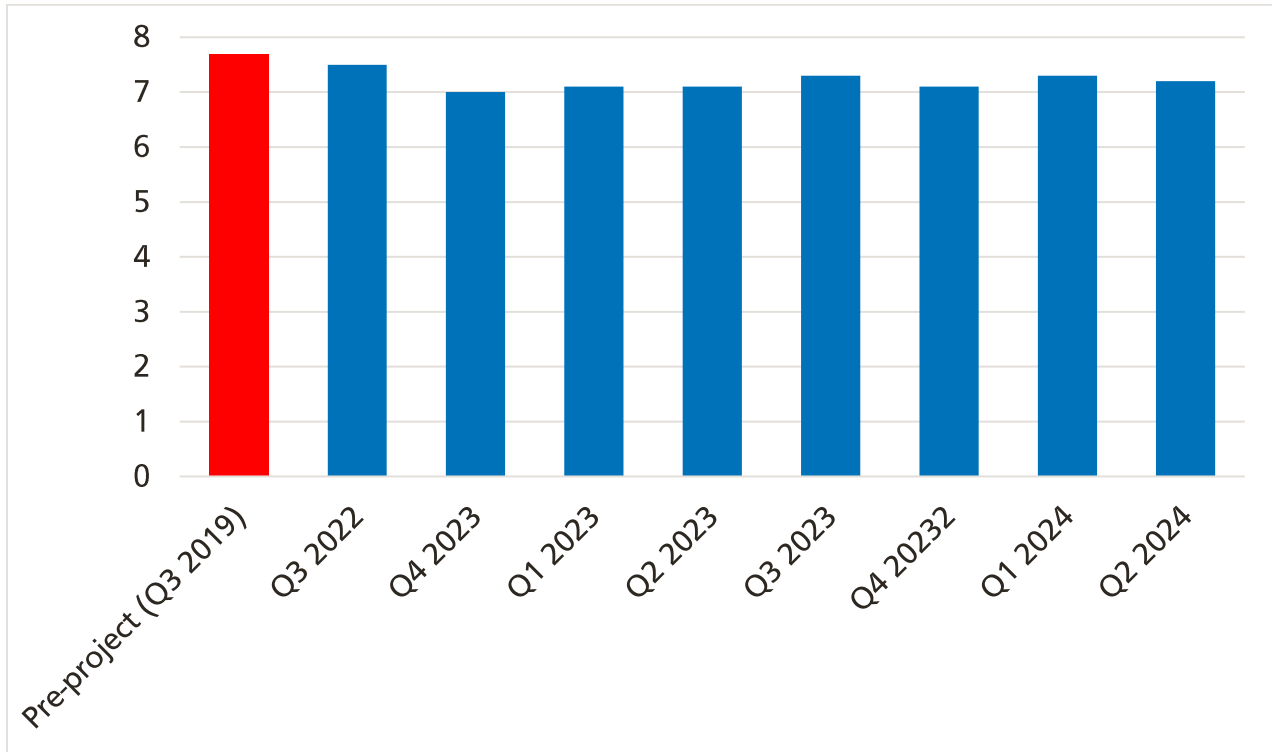
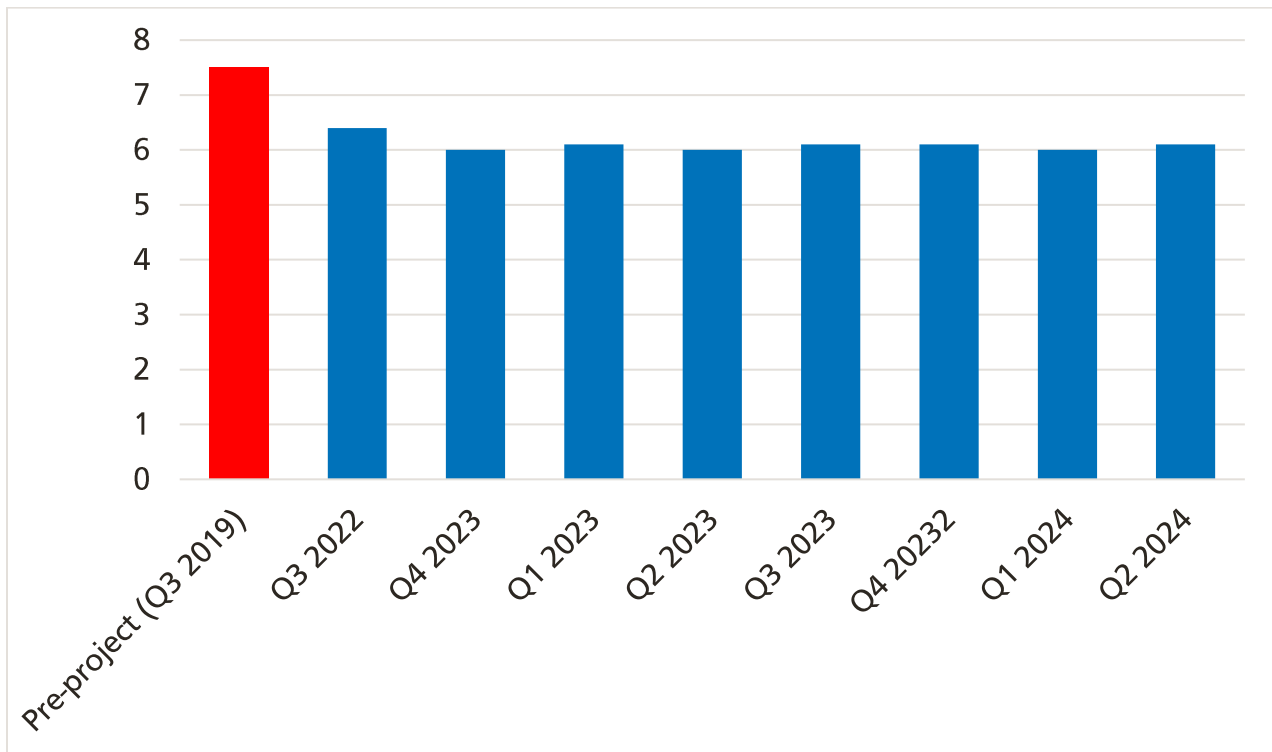


Figure 4: Median transit travel times on Richardson and Lombard westbound between Francisco and Gough Streets (in minutes, on Route 28)



Transit Reliability

Summary: *Variability of transit travel times has improved significantly since 2019, by as much as 51 percent depending on the corridor and direction of travel.*

In addition to median travel times, variability of travel times and resulting variability of wait times between arrivals is another key indicator of the quality of transit service. More variable travel times lead to worse reliability, which is a top concern for riders. As with median travel times, post-project data was compared to third quarter 2019 data for Route 28 during the weekday AM peak, mid-day, and PM peak periods, and variability was defined as the difference between median and 90th percentile travel times.

Travel Time Variability

While transit travel times generally improved only moderately between the third quarter of 2019 and the second quarter of 2024, variability and reliability of travel times improved substantially in three of four cases. As Figures 5 through 8 on the following pages show, the difference between median and 90th percentile travel times was reduced (improved) by 51 percent southbound/westbound on both Park Presidio and Lombard and 46 percent northbound on Park Presidio, as well as 11 percent eastbound on Lombard.

Additional analysis found that headway adherence – a measure of whether transit vehicles are departing stops at roughly the same intervals as scheduled – was 83 percent on Route 28 and 86 percent on Route 28R (which operates on part of Park Presidio) during the day on weekdays, when HOV lane restrictions are in effect, during the first and second quarters of 2024. This indicates generally very reliable service. This strong headway adherence performance is likely the result of a series of improvements the SFMTA has made to these routes over the past 5 years, including:

- Installing the pilot HOV lanes
- Adding transit bulbs at stops on 19th Avenue and Lombard allowing buses to stop in traffic, and avoid delays while waiting to merge back into it
- Consolidating some closely spaced stops on 19th Avenue
- A shift in how the SFMTA manages service, moving from a fixed and often unrealistic schedule to managing to a targeted headway (e.g. every 10 minutes)
- Implementing transit signal priority throughout the routes

The HOV lanes pilot was one part of this comprehensive strategy to improve service on the 28 and 28R, two of San Francisco's busiest transit routes.

Figure 5: Difference between 50th and 90th percentile transit travel times on Park Presidio northbound between California and Fulton Streets (in seconds, on Route 28)

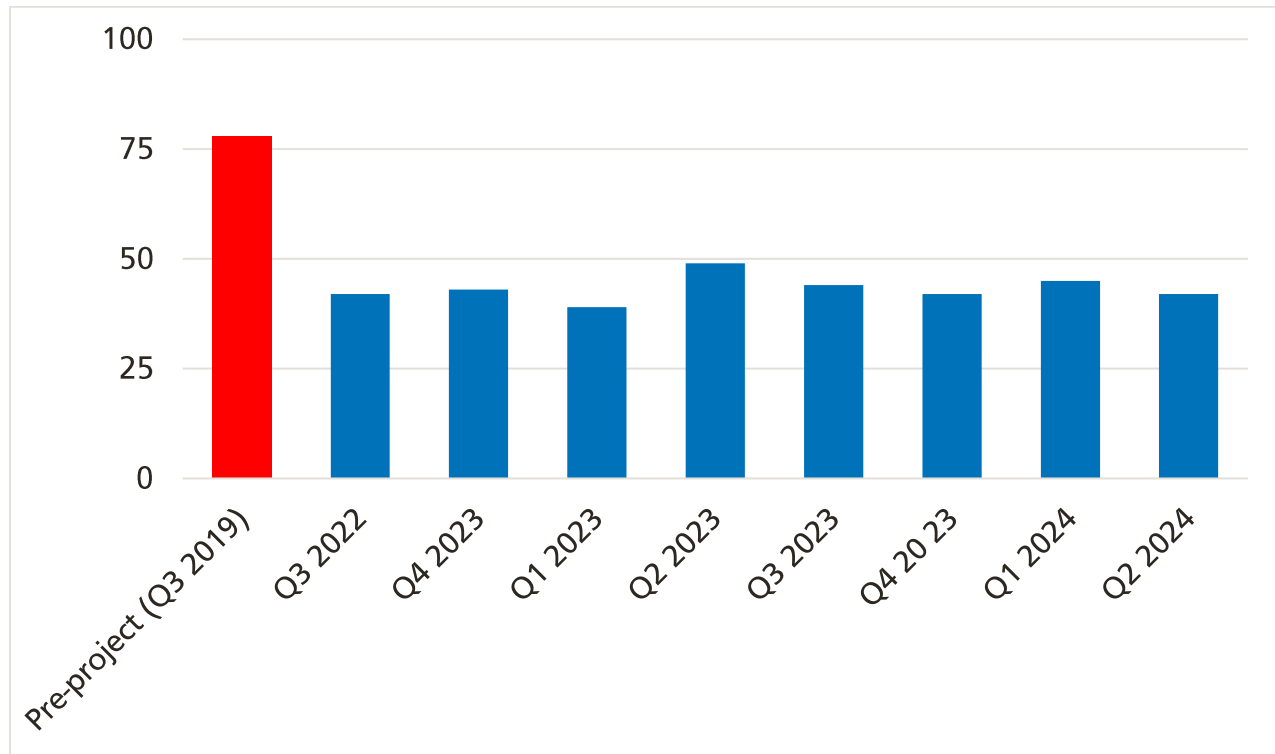


Figure 6: Difference between 50th and 90th percentile transit travel times on Park Presidio southbound between California and Fulton Streets (in seconds, on Route 28)

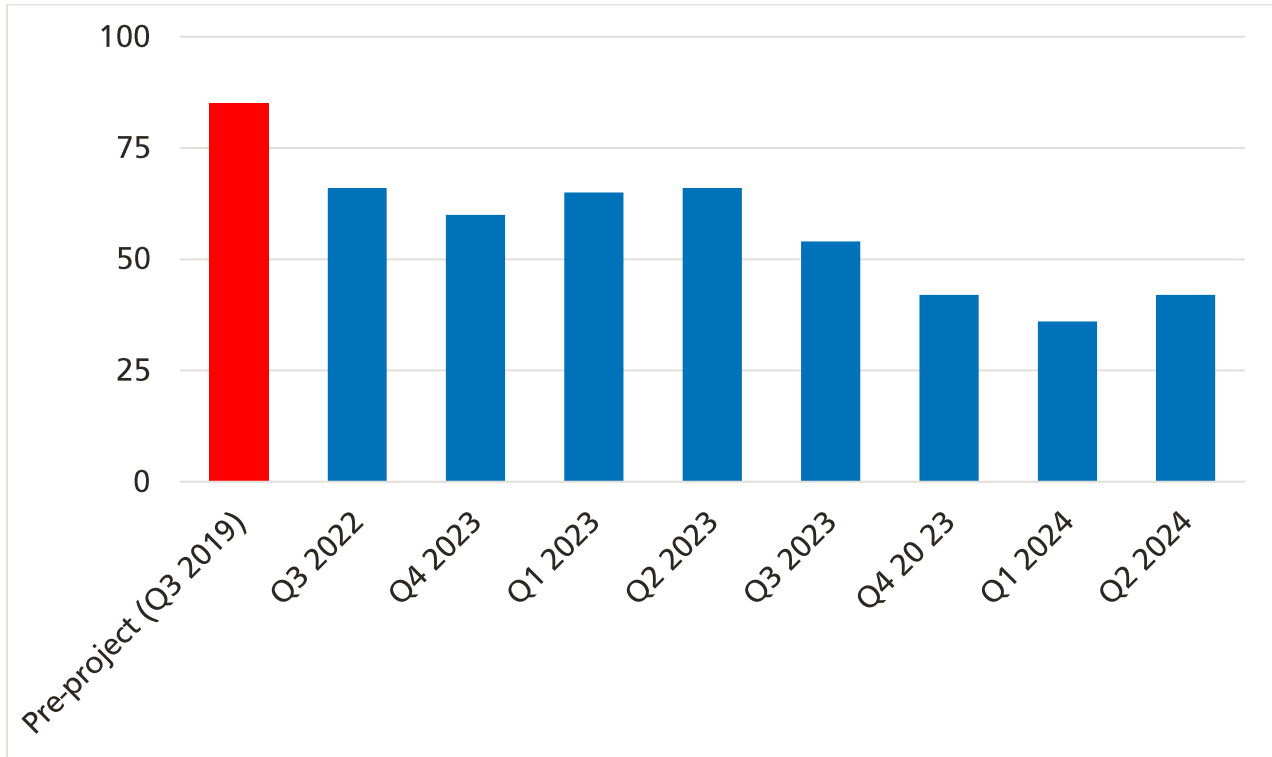


Figure 7: Difference between 50th and 90th percentile travel times on Richardson and Lombard eastbound between Francisco and Gough Streets (in seconds, on Route 28)

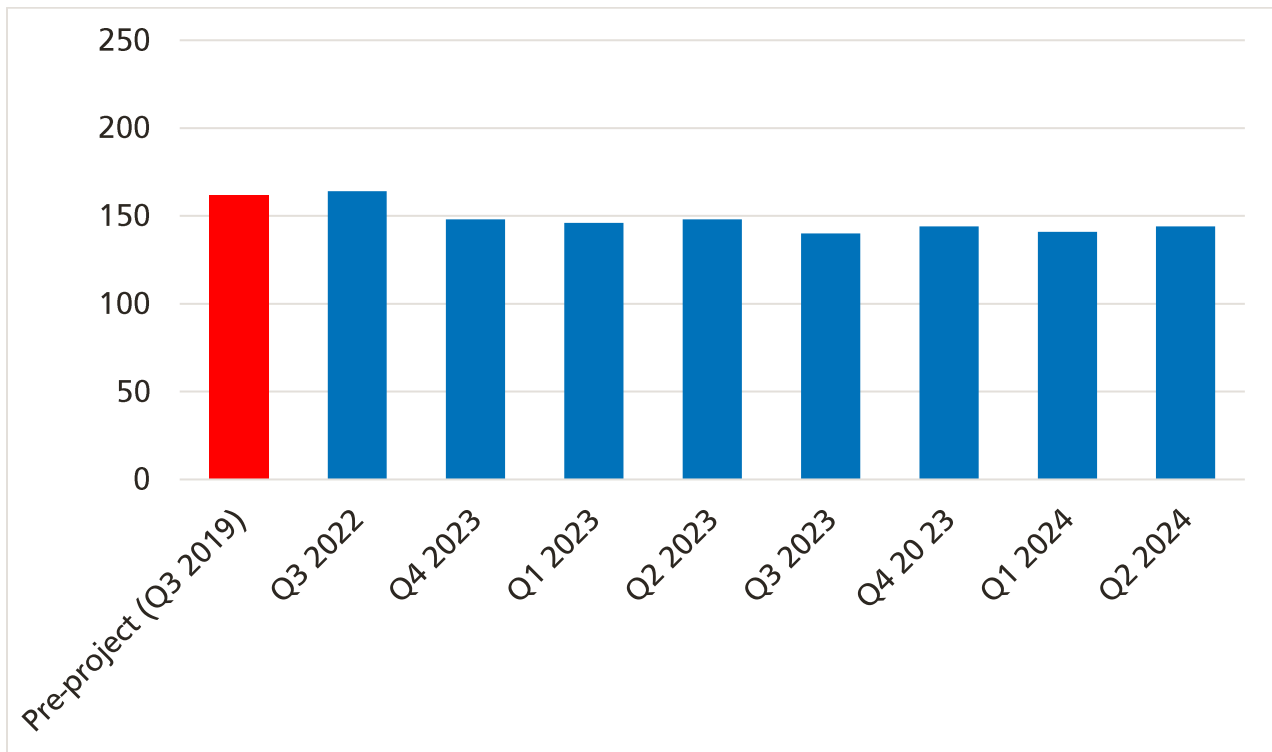
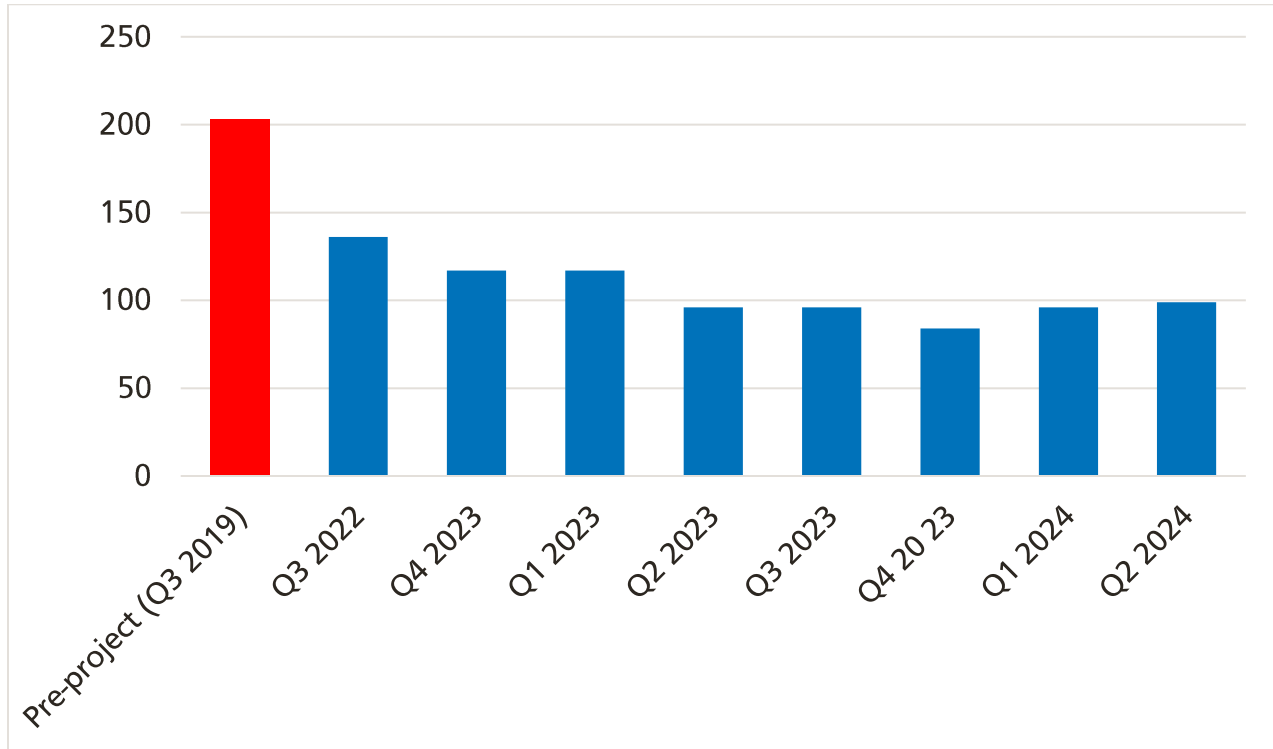


Figure 8: Difference between 50th and 90th percentile travel times on Richardson and Lombard westbound between Francisco and Gough Streets (in seconds, on Route 28)



Transit Ridership

Summary: *Transit ridership has recovered from the pandemic faster on routes serving the HOV lane corridors than elsewhere in the city.*

The best measure of transit quality is demand (although it is subject to a variety of factors). As with travel times and reliability, analysis for this measure focused on Route 28, which operates in both corridors. However, because ridership trends are seasonal in nature, data for June 2024 – the most recent month available at the time of writing – were compared to data from June 2019. The measure used was average weekday boardings.

Post-Pandemic Recovery

In San Francisco and elsewhere, transit ridership has of course not yet returned to pre-pandemic levels. However, weekday ridership on Route 28 has recovered more strongly than on other Muni lines: 84 percent, compared to 74 percent systemwide. It should also be noted that Route 28 service levels have also not yet returned to their pre-pandemic state: The route currently operates every 12 minutes on weekdays, vs. every 10 minutes pre-pandemic. Productivity as expressed in terms of boardings per revenue service hour, then, is now similar to pre-pandemic levels.

Total Person Movement

Summary: *Total person movement has increased in both corridors. This is due in part to increased vehicular volumes, but the share of total person throughput in HOV-eligible vehicles and average vehicle occupancy have both mostly increased (due in part to increased transit service). Vehicle volumes in the HOV lanes have also declined even as volumes in the other lanes have increased.*

In addition to protecting buses and HOVs from increasing traffic, another primary goal of the project was to increase the total person throughput of Park Presidio and Lombard without increasing vehicular capacity. HOV lanes can help achieve this goal by encouraging or enabling higher average occupancy per vehicle. This can maintain or increase mobility while simultaneously reducing the environmental impact of each trip, as measured by per-capita vehicle miles traveled (VMT).

Data on both vehicle volumes and types (including HOVs and buses) were collected by lane and time period (one hour each in the AM peak, mid-day, and PM peak) over the course of a single mid-week day, at a single centrally located screenline within each corridor (Lombard and Fillmore Street, and Park Presidio and Geary Boulevard)⁷.

⁷ On Lombard, only limited data were collected pre-project. Data were collected over 30-minute rather than 60-minute periods, and buses were not counted separately from other HOVs. To estimate pre-project person throughput and average vehicle occupancy, the number of buses observed in the first post-project survey was used, adjusted to account for changes to public transit schedules. Given that the number of private buses was likely lower in the pre-project period, this method likely overstates pre-project person throughput and average vehicle occupancy, and thus understates project benefits.

Total Person Throughput

As shown in Figures 9 through 12 on the following pages, total person throughput increased in both corridors between the pre-and post-project periods. The increase was especially notable in the three quarters preceding the final quarter of evaluation for this measure, the first quarter of 2024: As of the third quarter of 2023, throughput had increased by 18 percent on Park Presidio, and by 17 percent on Lombard since the pre-project period. In the first quarter of 2024, throughput decreased notably on Lombard, although less so on Park Presidio.

Increases in person throughput were most pronounced in peak periods, when more buses are scheduled to operate: On Lombard, much of the peak-period increase can be attributed to an increase in the number of public transit vehicles operating in the corridor, including Muni and Golden Gate Transit buses as well as Presidio GO shuttles. In Fall 2021, the peak number of public buses scheduled to operate per hour, in the peak direction, was approximately 17; by Spring 2024, this number had increased to 27. While this accounts for much of the increase in total person movement on Lombard, it should also be noted that one of the project's primary goals was to make transit operations more efficient, make transit a more attractive travel option, and allow transit service to be increased more cost-effectively – a virtuous cycle.

Figure 9: Estimated total person throughput (per hour, per direction), peak and mid-day on Park Presidio at Geary

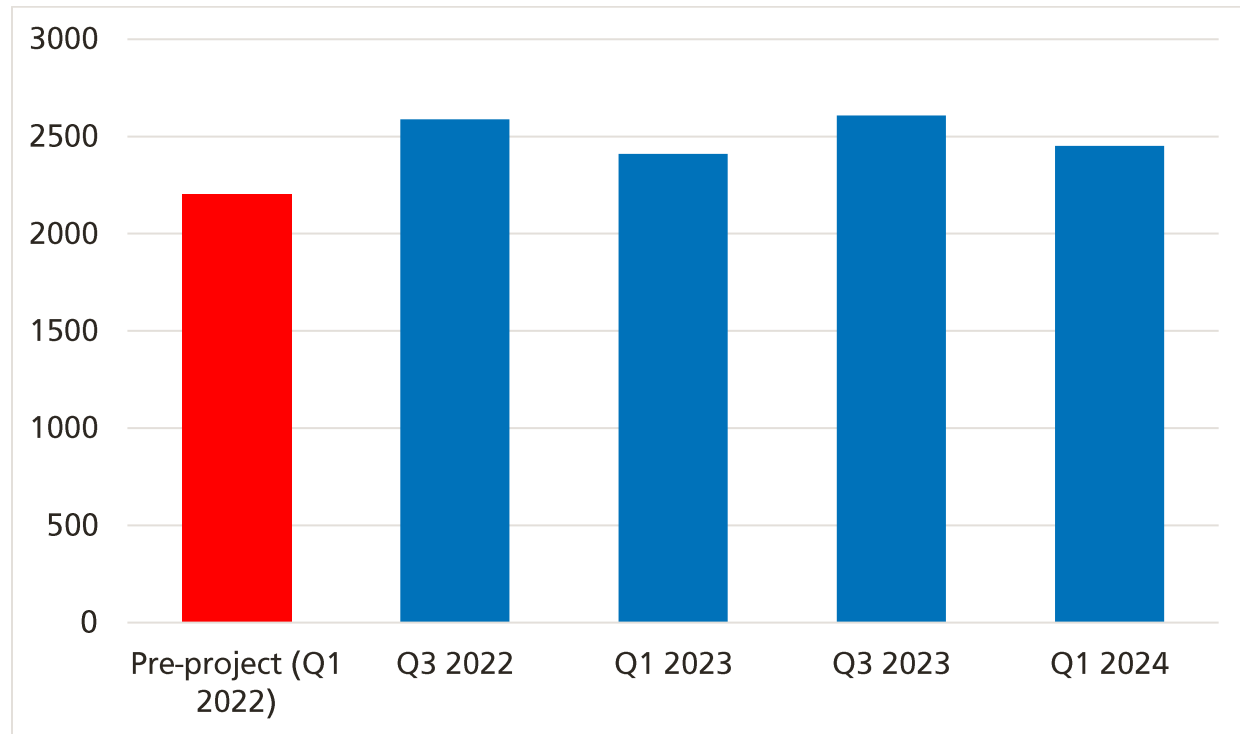


Figure 10: Estimated total person throughput (per hour, per direction), peak and mid-day on Lombard at Fillmore

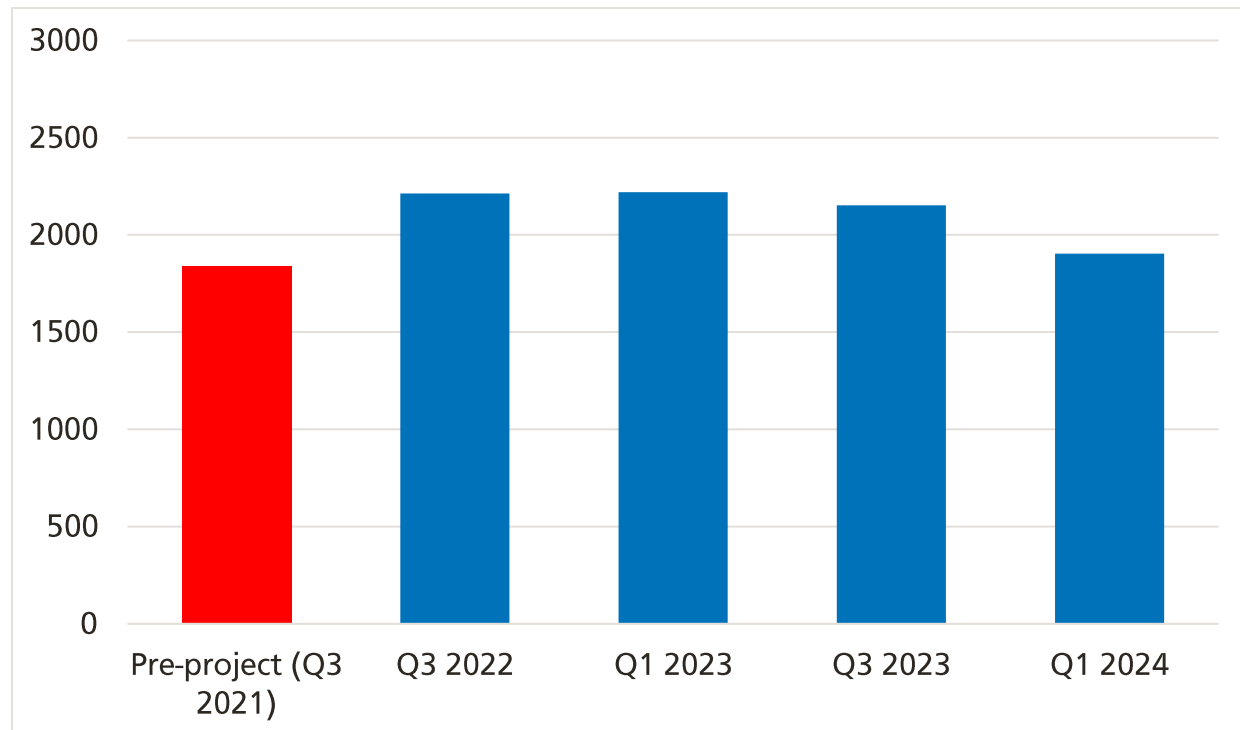


Figure 11: Estimated total person throughput (per hour, per direction), peak only on Park Presidio at Geary

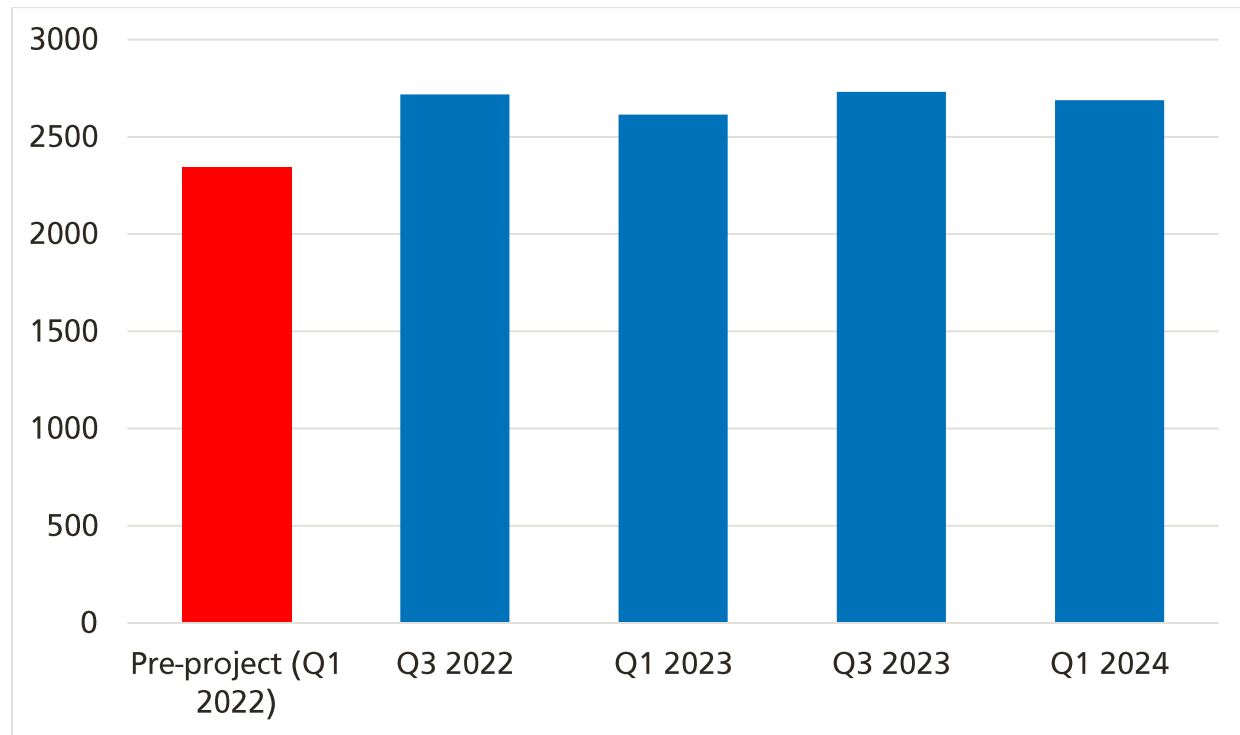
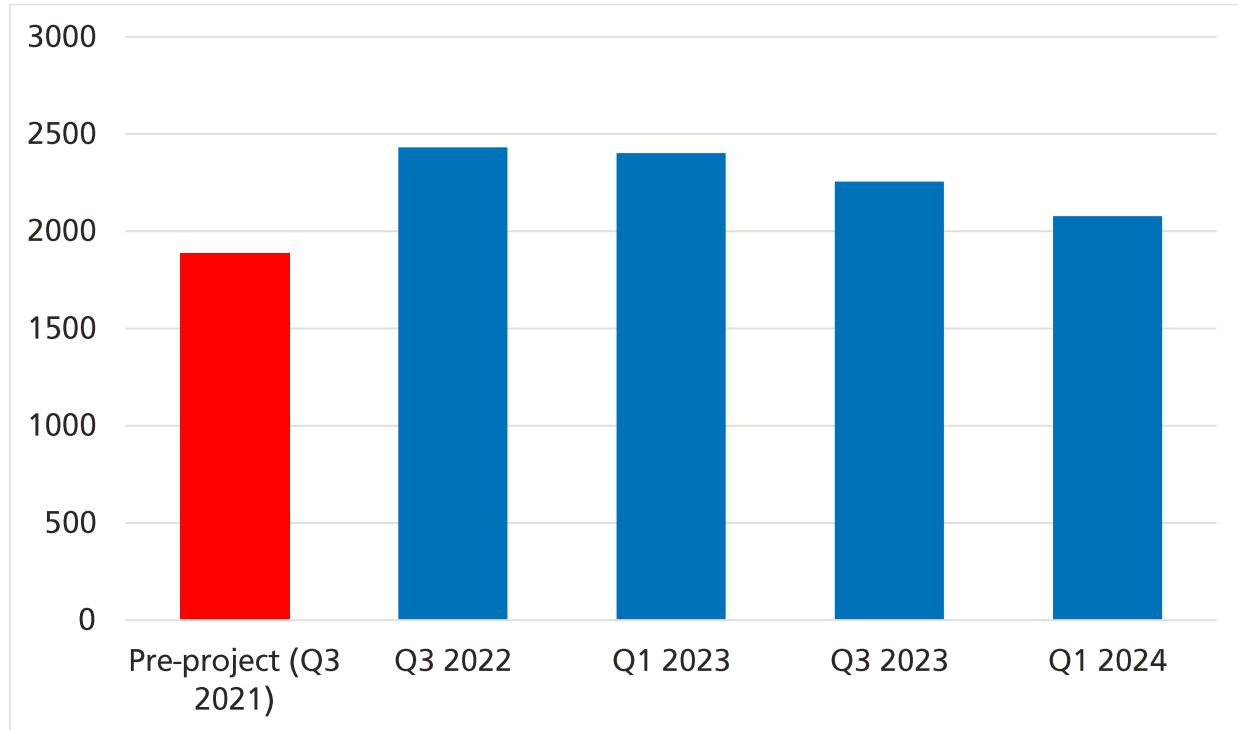


Figure 12: Estimated total person throughput (per hour, per direction), peak only on Lombard at Fillmore



Share of Total Person Throughput in HOV-Eligible Vehicles

Just as total person movement has mostly increased, so too has the share of total person throughput that is in HOV-eligible vehicles, as shown in Figures 13 and 14 on the following page. Notably, in the third quarter of 2023, fully 60 percent of all persons on Lombard were occupants of vehicles eligible to use the HOV lanes⁸. This is notable because the HOV lanes occupy just one-third of the roadway – making reservation of one lane in each direction for HOVs and buses a more efficient and equitable use of space than the previous arrangement, under which no space was dedicated to these vehicles. (It should be noted that these charts show a clear pattern of seasonal variation, with lower shares in the winter. A similar trend can be seen under "Average Vehicle Occupancy" on the following page.)

⁸ Including HOVs, buses, vanpools, vehicles with clean air vehicle decals and motorcycles.

Figure 13: Share of total person throughput in HOV-eligible vehicles on Park Presidio at Geary

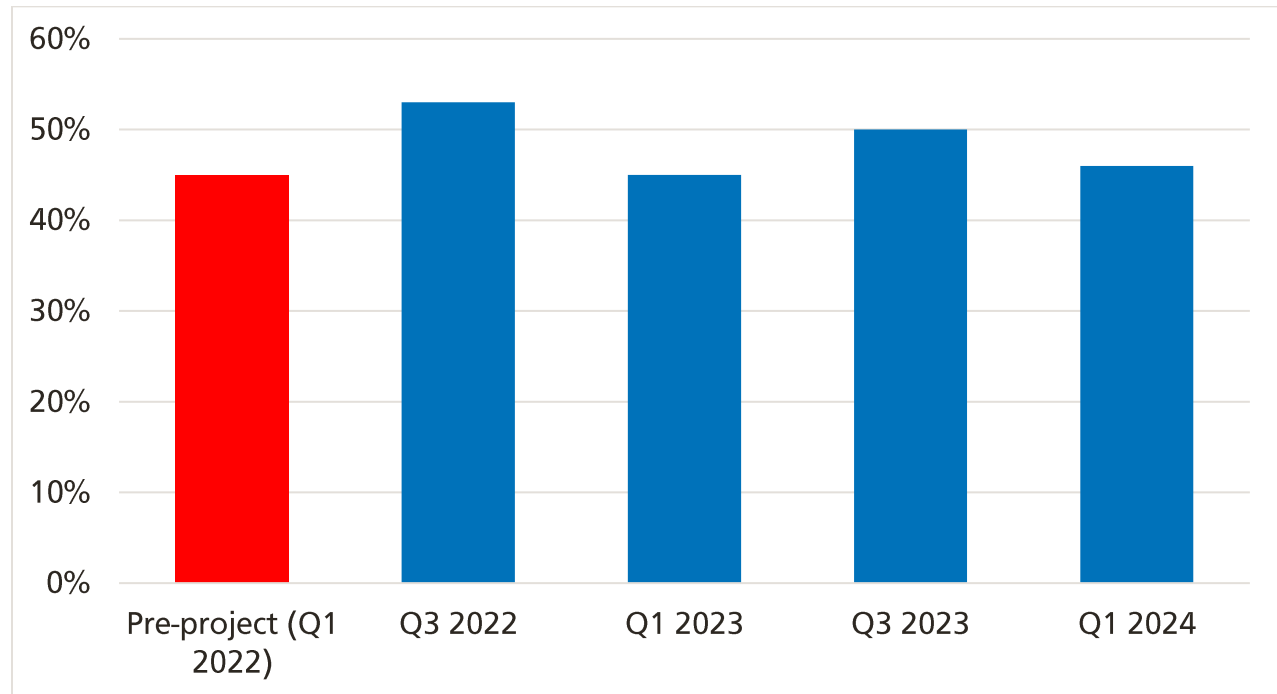
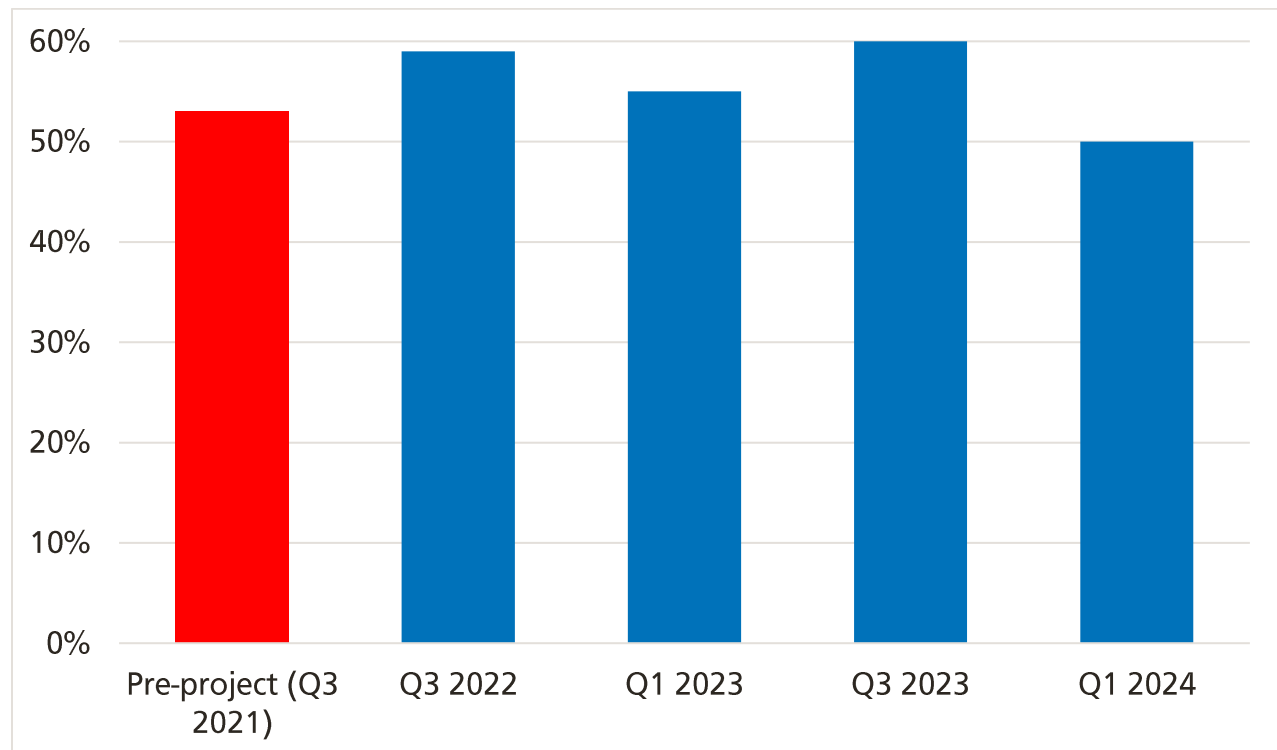


Figure 14: Share of total person throughput in HOV-eligible vehicles on Lombard at Fillmore



Average Vehicle Occupancy

Just as with total person throughput, average vehicle occupancy increased post-implementation, although on Lombard, it decreased notably in the final quarter of observation – see Figures 15 and 16 on the following page.

Figure 15: Estimated average vehicle occupancy on Park Presidio at Geary

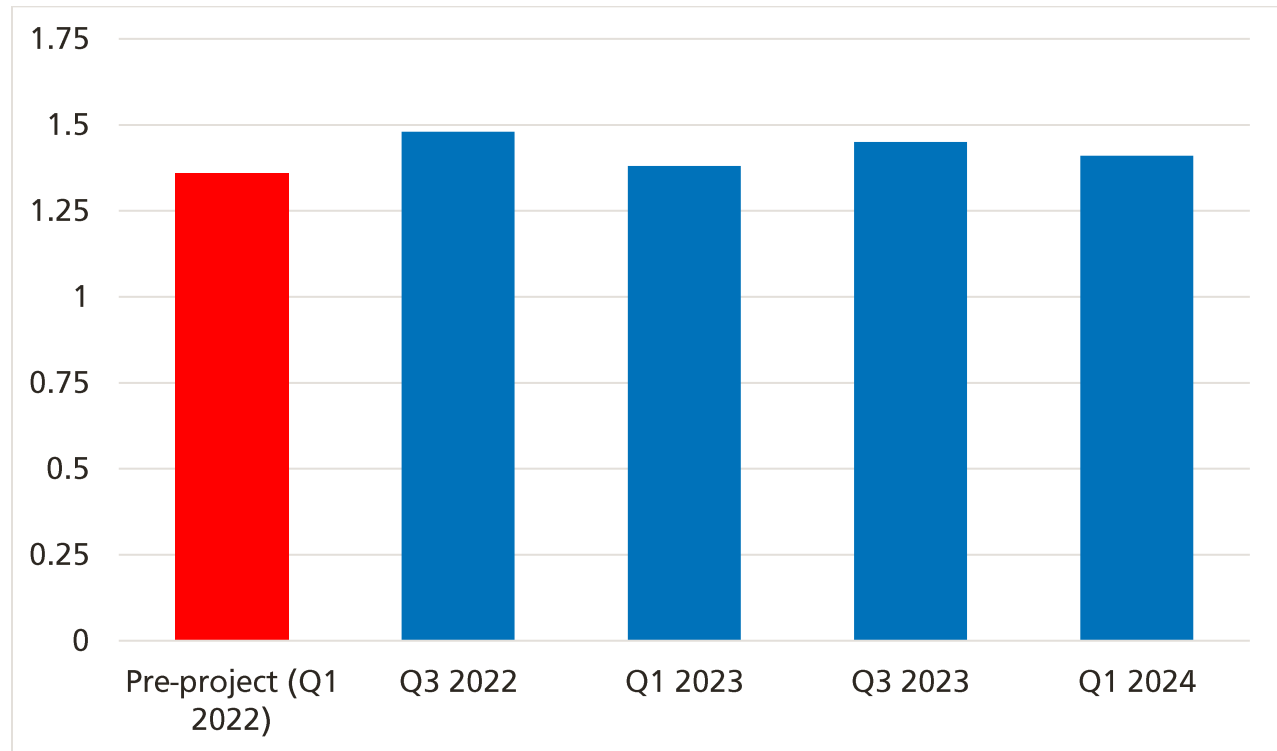
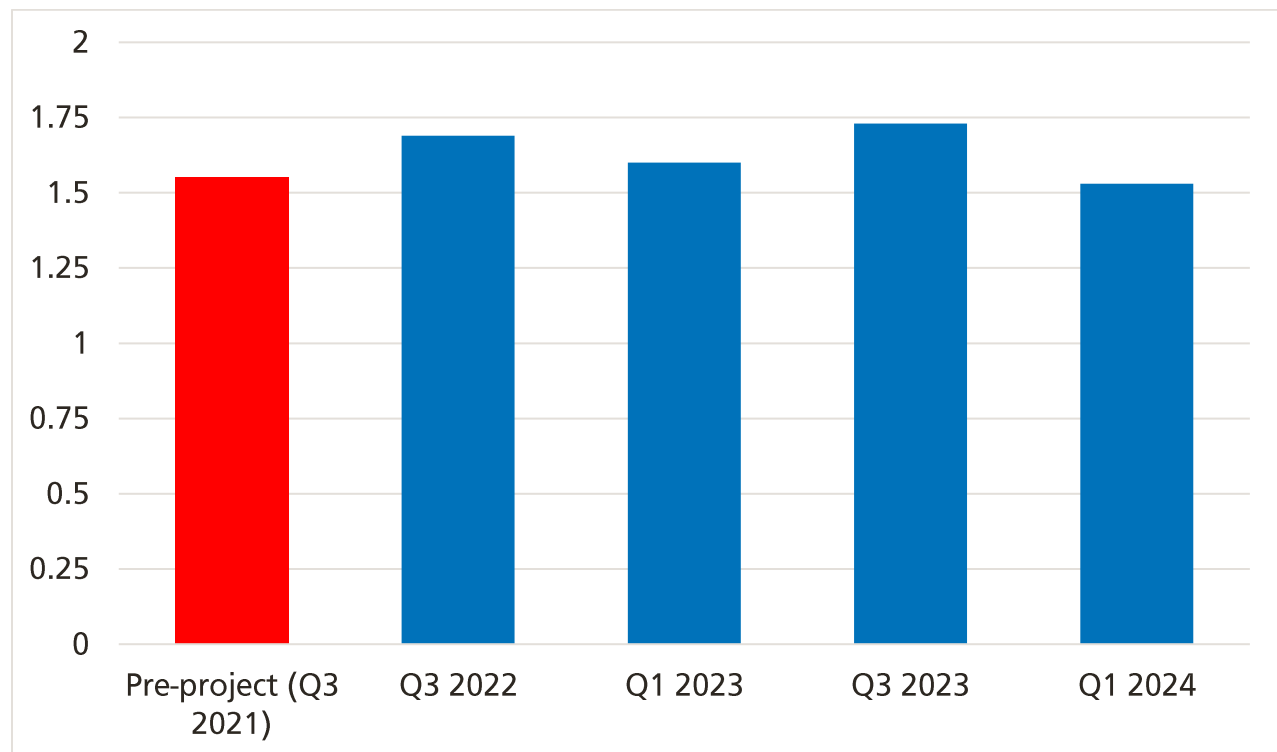


Figure 16: Estimated average vehicle occupancy on Lombard at Fillmore



Vehicle Volumes in HOV and Non-HOV Lanes

While not directly related to total person movement, another primary goal of the project related to person throughput is protection of occupants of HOVs, including bus riders, from any increases in traffic delay and congestion. This can be quantified in a number of ways; in terms of transit speed and reliability, or, as in the "Traffic Speeds" section in the following pages, by comparing average speeds in the HOV lanes to average speeds in other lanes.

Another way of measuring this is volumes of vehicles in each lane. As Figures 17 and 18 on the following page show, numbers of vehicles in the HOV lanes have declined since implementation, even as traffic in other lanes has increased. As of the first quarter of 2024, on Park Presidio, traffic volumes in the HOV lanes had declined 15 percent since the pre-project period even as traffic in the remaining lanes had increased 9 percent, while on Lombard, traffic volumes in the HOV lanes had declined 21 percent even as traffic in the remaining lanes had increased 15 percent. As a result, transit riders and people in HOVs are experiencing less congestion and potential delay.

Figure 17: Average number of vehicles per hour on Park Presidio at Geary

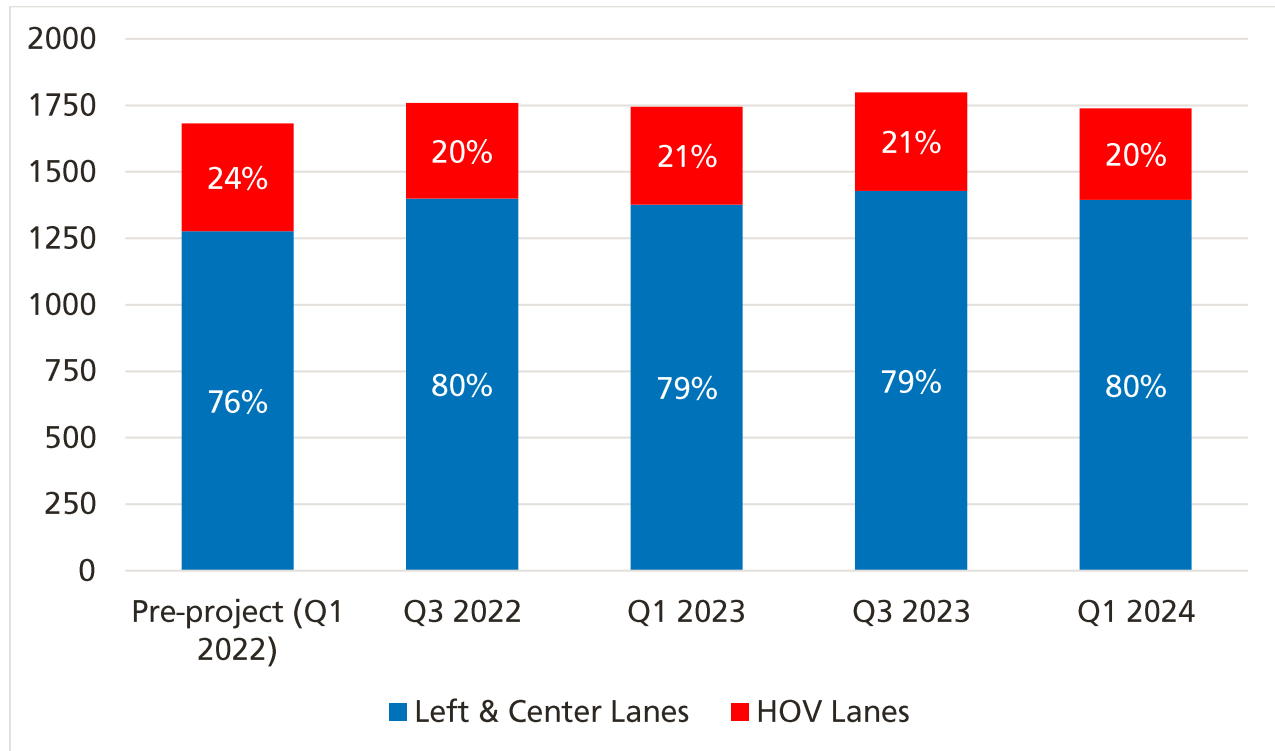
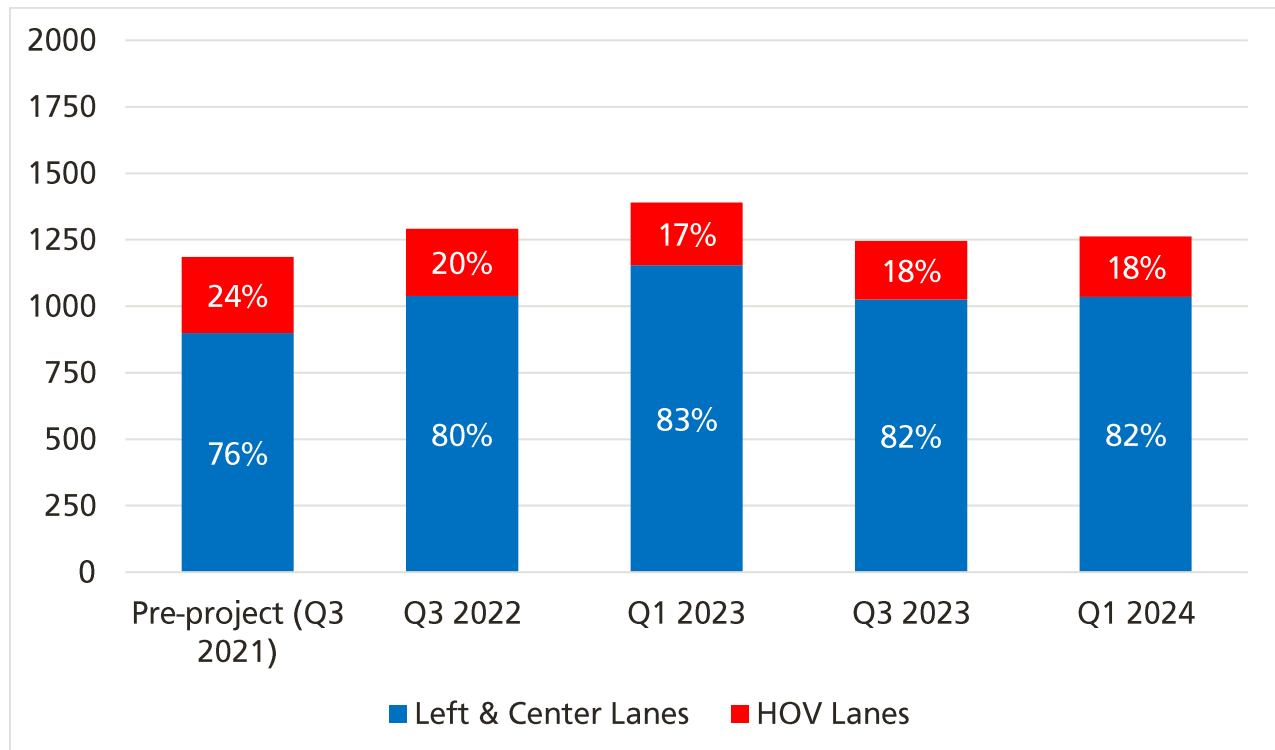


Figure 18: Average number of vehicles per hour on Lombard at Fillmore



HOV Lane Compliance

Summary: *HOV lane compliance is difficult to observe, as many SOVs are legally allowed in the lanes for reasons including right turns, access to curbside parking and driveways, and other exceptions. However, numbers of SOVs in the right-hand/HOV lanes declined following implementation of the HOV lanes.*

Compliance with HOV lane regulations is difficult to observe, as many SOVs are legally allowed in the lanes, including vehicles turning right or accessing curbside parking or driveways.⁹ Additionally, it can be difficult for observers to determine if there are occupants in rear seats, for reasons including tinted windows. For all of these reasons, conclusions about violation rates based solely on observed numbers of SOVs in HOV lanes will generally be overstated. However, steps were taken during observations to mitigate this issue. Specifically, screenlines were located just downstream of intersections, reducing numbers of right-turning vehicles included in counts.

Note that while extensive pavement markings and signage (including variable message signs on approaching routes) exist, and violators are subject to citation, the SFMTA has to date prioritized increasing awareness of HOV restrictions over enforcement.

Data on both vehicle volumes and vehicle types were collected by lane and time period (two hours in the AM peak, mid-day, and PM peak) over the course of a single mid-week day, at a single centrally located screenline within each corridor (Lombard and Fillmore, and Park Presidio and Geary).

⁹ There are no curb cuts or curbside parking and loading spaces on Park Presidio. However, left turns are prohibited at all times on Park Presidio and during peak periods on Lombard, so many motorists may turn right in order to go left, increasing the number of right turns.

Percentages of Single-Occupant Vehicles in HOV Lanes

On Park Presidio, the percentage of all vehicles in the curb (HOV) lanes that are single-occupant vehicles without a clean-air vehicle decal declined from 76 percent pre-project to 57 percent in the first quarter of 2024, while on Lombard it declined from 73 percent to 62 percent¹⁰, as shown in Figures 19 and 20 on the following page.

¹⁰ Note that single-occupant vehicles with clean air vehicle decals were counted separately from single-occupant or high-occupancy vehicles on Park Presidio and during the post-project period on Lombard, but not during pre-project data collection on Lombard.

Figure 19: Percentages of SOVs in HOV lanes that are SOVs without a clean air vehicle decal (including vehicles that may be in the lanes legally) on Park Presidio at Geary

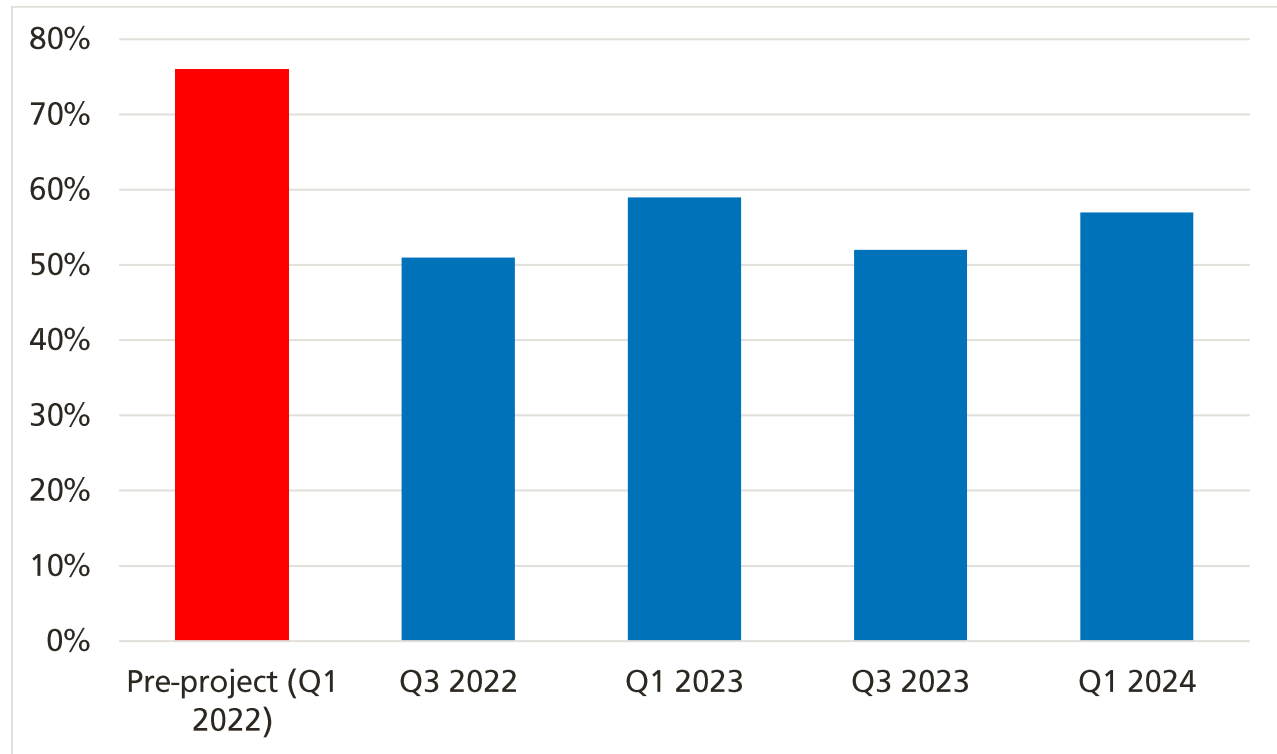
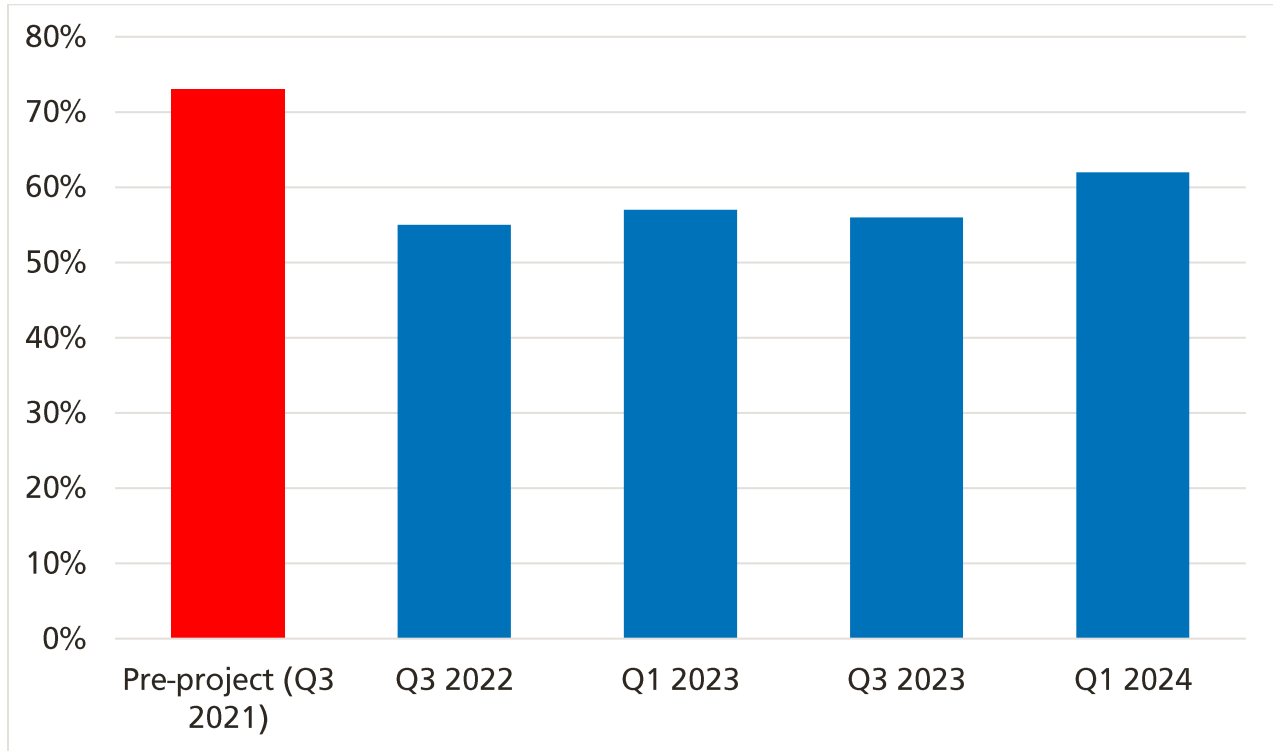


Figure 20: Percentages of vehicles in HOV lanes that are SOVs without a clean air vehicle decal (including vehicles that may be in the lanes legally) on Lombard at Fillmore



Traffic Speeds

Summary: *In both corridors, average speeds in the right lanes have improved since they were converted to HOV lanes, even as average speeds in the remaining lanes have declined (at least in part as a result of higher overall traffic volumes).*

To calculate average vehicle speeds by lane and time period (two hours in the AM peak, mid-day, and PM peak), a “floating car” study was conducted in which drivers recorded travel times between timepoints in both directions every half-hour over the course of a single mid-week day. For Park Presidio, pre- and post-project data were collected. Pre-project data were unavailable for Lombard¹¹.

¹¹ SFMTA staff originally planned to use publicly available speed data collected by INRIX, a private company. However, around the time of project implementation on Lombard, and too late to collect pre-project data using the “floating car” method that was eventually implemented, staff decided not to use INRIX data.

Average Speeds by Lane

On Park Presidio, average speeds in the curb (HOV) lanes, which were previously equivalent to or slower than speeds in the remaining lanes, are now greater than in the non-HOV lanes despite the presence of right-turning vehicles and buses stopping in the lanes. On Lombard, meanwhile, average speeds in the HOV lanes, which were previously slower than speeds in the remaining lanes, are now greater than in the center lanes, although they are still slower than in the left lanes.

On Park Presidio, average speeds in the center and left lanes declined following implementation of the HOV lanes. Since implementation, they have since varied considerably by quarter, likely reflecting seasonal demand in travel. As of the second quarter of 2024 they remained roughly equivalent to the third quarter of 2022, shortly after project implementation.

On Lombard, where pre-project data were not collected, speeds in the non-HOV lanes have also varied by quarter, although they have generally declined over time. Notably, overall traffic volumes have increased in both corridors since the pre-project period, by 3 percent on Park Presidio and 6 percent on Lombard¹². See Figures 21 through 26 on the following pages.

¹² Caltrans and the SFMTA have also made changes to roadway operations in both corridors. On Lombard, the SFMTA increased traffic signal cycle lengths, increasing vehicular throughput on Lombard, in August 2022, while Caltrans lowered the speed limit from 30 to 25 miles per hour in June 2023. In the Park Presidio corridor, signal timing at Crossover and Martin Luther King Jr. Drive was changed, serving to reduce throughput on Crossover, in December 2019, after the “before” period used for analysis of transit travel times. Additionally, signal cycle lengths on Park Presidio were increased in stages in 2023.

Figure 21: Average speed (miles per hour) on Park Presidio between Lake and Fulton, left lanes

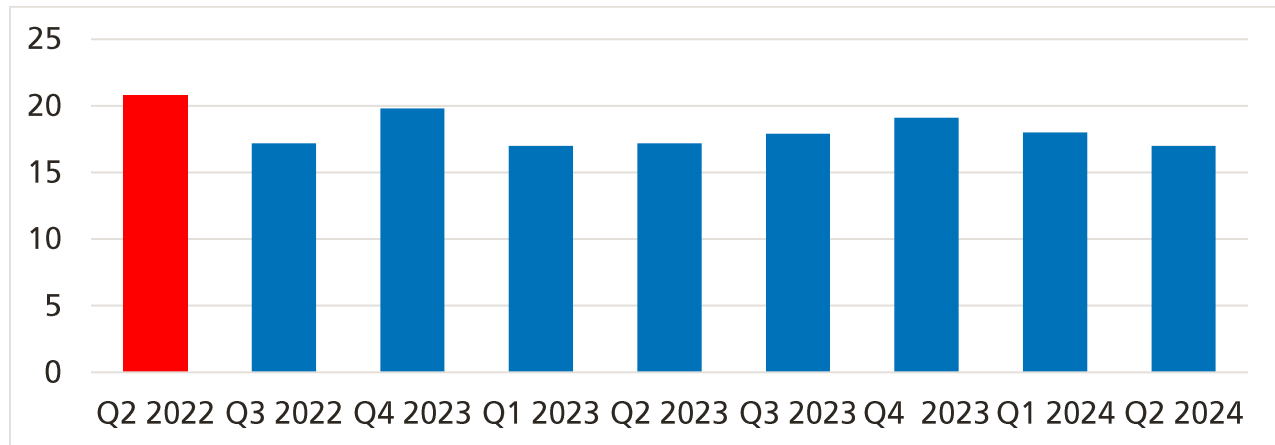


Figure 22: Average speed (miles per hour) on Park Presidio between Lake and Fulton, center lanes

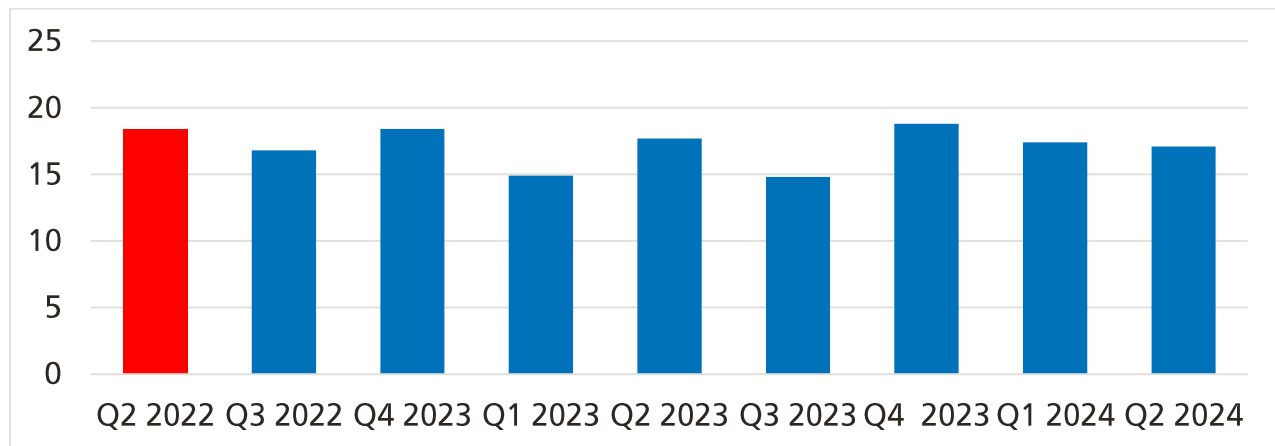


Figure 23: Average speed (miles per hour) on Park Presidio between Lake and Fulton, HOV lanes

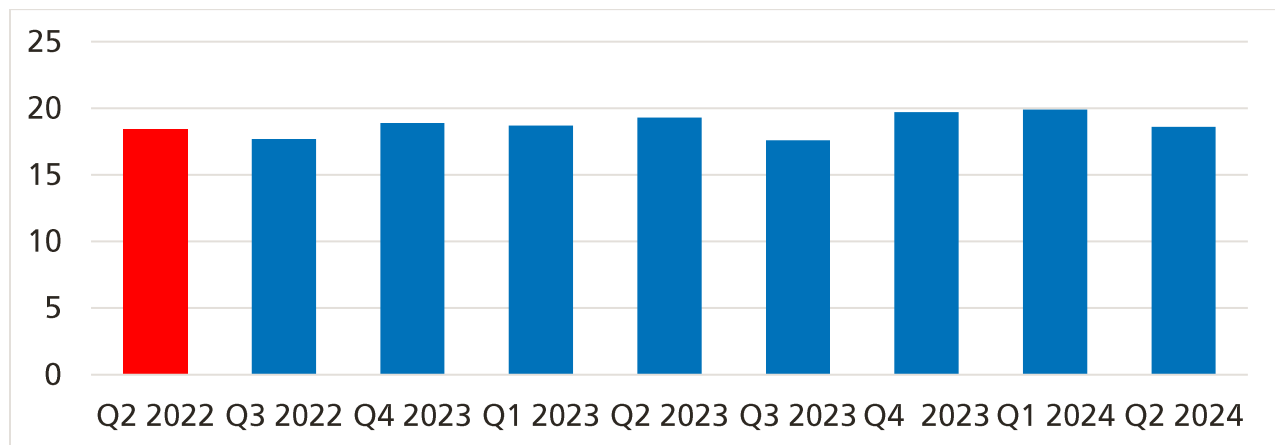


Figure 24: Average speed (miles per hour) on Lombard between Lyon and Gough, left lanes

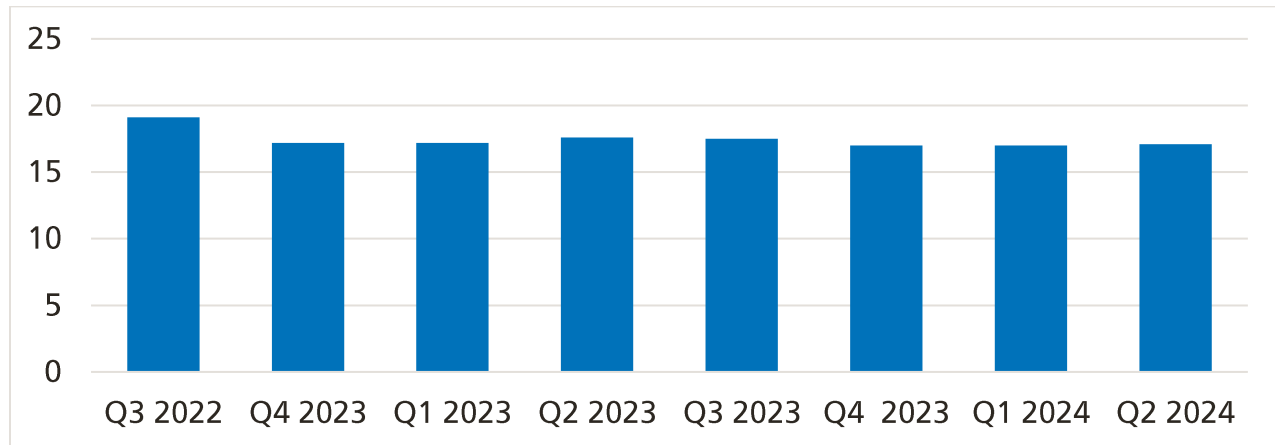


Figure 25: Average speed (miles per hour) on Lombard between Lyon and Gough, center lanes

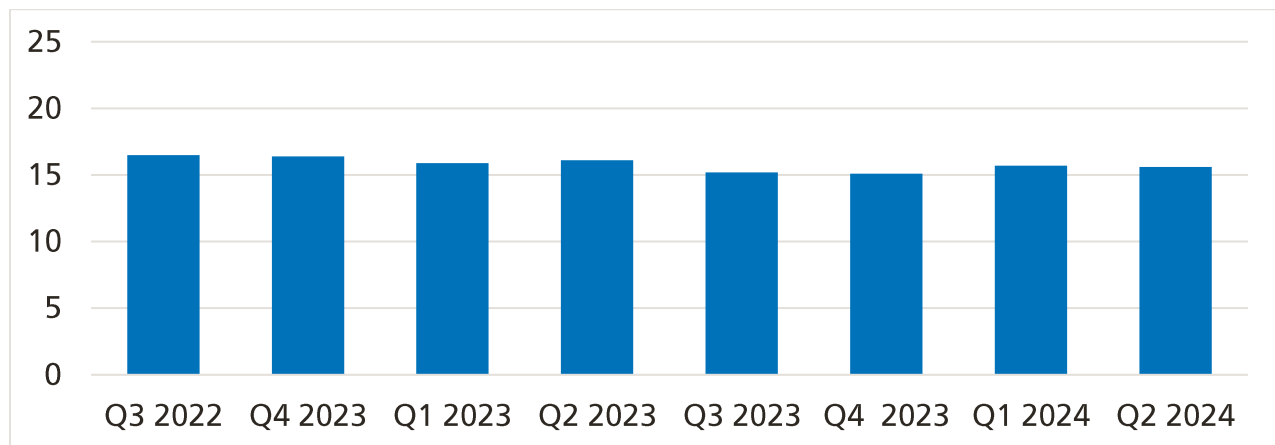
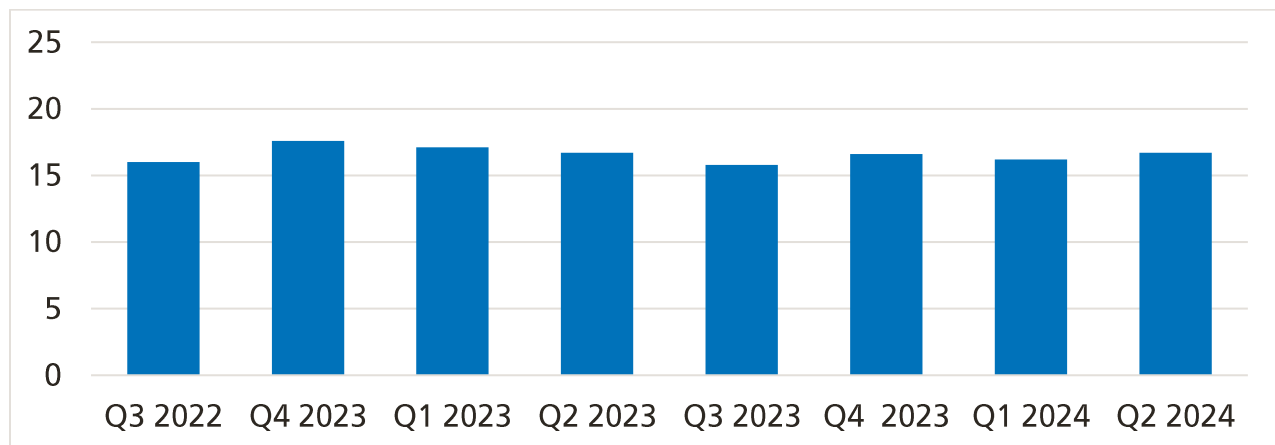


Figure 28: Average speed (miles per hour) on Lombard between Lyon and Gough, HOV lanes



Traffic Diversion

Summary: *Changes to traffic volumes on alternate routes to Park Presidio and Lombard have varied widely, with some locations increasing and others decreasing.*

Alternate routes to Park Presidio and Lombard are generally less attractive for motorists, as Park Presidio and Lombard are six-lane arterials without stop signs and with traffic signals timed for vehicular throughput, while alternate routes generally consist of narrower neighborhood streets with stop signs. However, data were collected on changes to traffic volumes on alternate routes.

To assess potential impacts to traffic in the surrounding neighborhoods, 24-hour counts were conducted over three mid-week days at seven screenlines near Park Presidio and six screenlines near Lombard. These locations were selected based on analysis of their potential utility as alternate routes, including factors such as the roadway network, roadway types, intersection controls, grades and adjacent land uses. On Lombard and Park Presidio, 24-hour counts were also conducted during the post-project period; however, pre-project volumes and changes from pre-project to post-project volumes are based on changes in the three-hour counts observed by SFMTA staff¹³.

¹³ The SFMTA's consultant was unable to provide complete pre-project traffic counts on Lombard due to problems with data collection.

Vehicle Volumes on Alternate Routes

As Figures 27 and 28 on the following pages show, changes to traffic volumes on alternate routes to Park Presidio and Lombard have varied widely, with some locations increasing and others decreasing.

In the area of Park Presidio, percentage changes ranged from a 48 percent decrease to a 32 percent increase. The greatest numerical increase, 1,005 vehicles over a 24-hour period, was on southbound Transverse Drive in Golden Gate Park. Access to Transverse Drive from the Richmond District to the north is via 25th Avenue, which is 12 blocks west of Park Presidio. Parallel streets closer to Park Presidio do not provide connections to the north or south of the Richmond District.

In the area of Lombard, percentage changes ranged from a 24 percent decrease to a 16 percent increase. The greatest numerical increase, 594 vehicles over a 24-hour period, was on eastbound Bay Street at Laguna Street.

As previously noted, traffic volumes have increased on both Park Presidio and Lombard, by 3 and 6 percent respectively between the pre-project period and the first quarter of 2024. Changes to traffic volumes on alternate routes should be understood in this context of generally increasing traffic in the city over the past two years.

Figure 27: Changes to traffic volumes on alternate routes in the Park Presidio corridor, pre-project to 2nd quarter of 2024



Figure 28: Changes to traffic volumes on alternate routes in the Lombard corridor, pre-project to 2nd quarter of 2024



Collisions

Summary: *While collision rates on Park Presidio generally did not change following implementation of HOV lanes, rates on Lombard have increased compared to pre-pandemic conditions. However, this increase began in early 2021, before HOV lanes were implemented. Analysis of whether some collisions may have been associated with the HOV lanes found a total of nine such collisions over 2 1/2 years on Lombard. However, five of these collisions occurred when HOV lane restrictions were not in effect, and the analysis was based on a conservative methodology, so the actual number of collisions attributable to HOV lanes is likely lower.*

Trends in collisions are best understood over longer periods with larger datasets. For this reason, post-project conditions were compared to roughly five years of pre-project data, starting in 2017¹⁴¹⁵. Additionally, times during which HOV restrictions are not in effect (overnight Monday through Friday, and weekends) were included in the baseline analysis (as roadway configuration remains constant), as were street segments just beyond HOV lane start and end points where motorists might merge into or out of HOV lanes. Because HOV lanes were implemented on Lombard in late September 2021, in the discussions that follow, the fourth quarter of 2021 is defined as the first quarter following implementation on Lombard. Because HOV lanes were implemented on Park Presidio primarily in early April 2022 (continuing through early May 2022), in the discussions that follow, the second quarter of 2022 is defined as the first quarter following implementation on Park Presidio.

¹⁴ Notably, both the project segment of Lombard and Park Presidio between Clement and Balboa streets were included in the 2022 update to the San Francisco Vision Zero SF program's "High Injury Network" based on analysis of fatal and severe-injury crashes between 2017 and 2021.

¹⁵ Data from the second quarter of 2024 were not included in the post-project analysis, as collision data was not yet available as of the time the report was written.

Total Collisions

Total numbers of collisions have varied significantly over time in both corridors, as shown in Figures 29 and 30 on the following page.

On Park Presidio, the number of collisions per quarter reached a five-year high in the third quarter following implementation, the fourth quarter of 2022. However, numbers of collisions decreased notably in the following quarters, declining to near or below pre-project levels, before increasing again in the first quarter of 2024.

On Lombard, the number of collisions per quarter increased significantly starting in the second quarter of 2021, two quarters prior to implementation, and numbers of collisions have since remained higher than in previous quarters.

For each of the following safety-related evaluation measures, two similar trends can be seen: numbers of collisions on Lombard have generally been higher in recent years than previously, and numbers of collisions on Lombard are generally higher than on Park Presidio. It should be noted, however, that while collisions occurring during times when HOV lane restrictions were in effect were included in the baseline analysis, supplemental analysis of how many collisions occurred during HOV lane hours found that on Lombard, most collisions (55 percent) took place when HOV lane restrictions were not in effect. On Park Presidio, meanwhile, nearly half of collisions (47 percent) took place when HOV lane restrictions were not in effect. This is despite the fact that HOV lane restrictions are in effect for 15 hours on weekdays, during times when traffic volumes are generally highest. Findings from this analysis are shown in Figures 31 and 32 in the following pages.

It should further be noted that Caltrans and the SFMTA have recently taken steps to improve safety on Lombard, including a reduction in the speed limit from 30 to 25 miles per hour in June 2023 and planned changes to signal timing evenings and weekends, when additional SFMTA analysis found that many speeding-related collisions occur.

Figure 29: Total collisions per quarter, Park Presidio

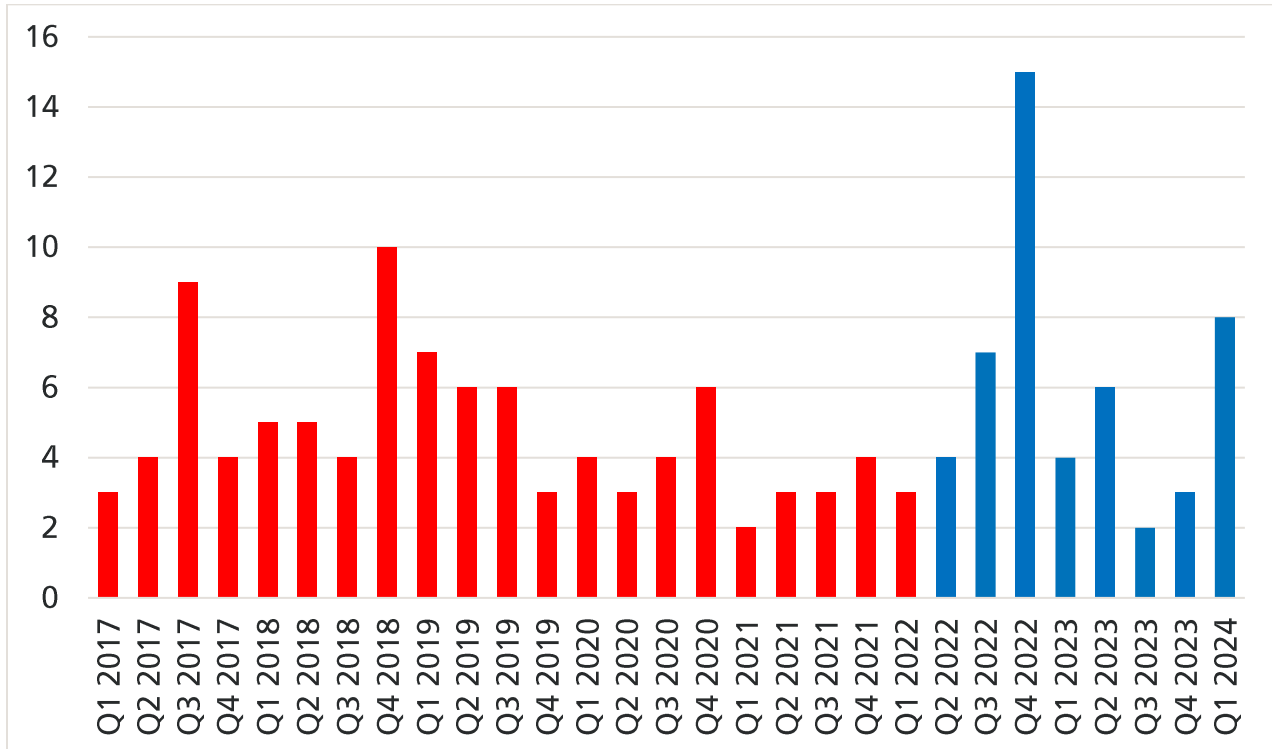


Figure 30: Total collisions per quarter, Lombard

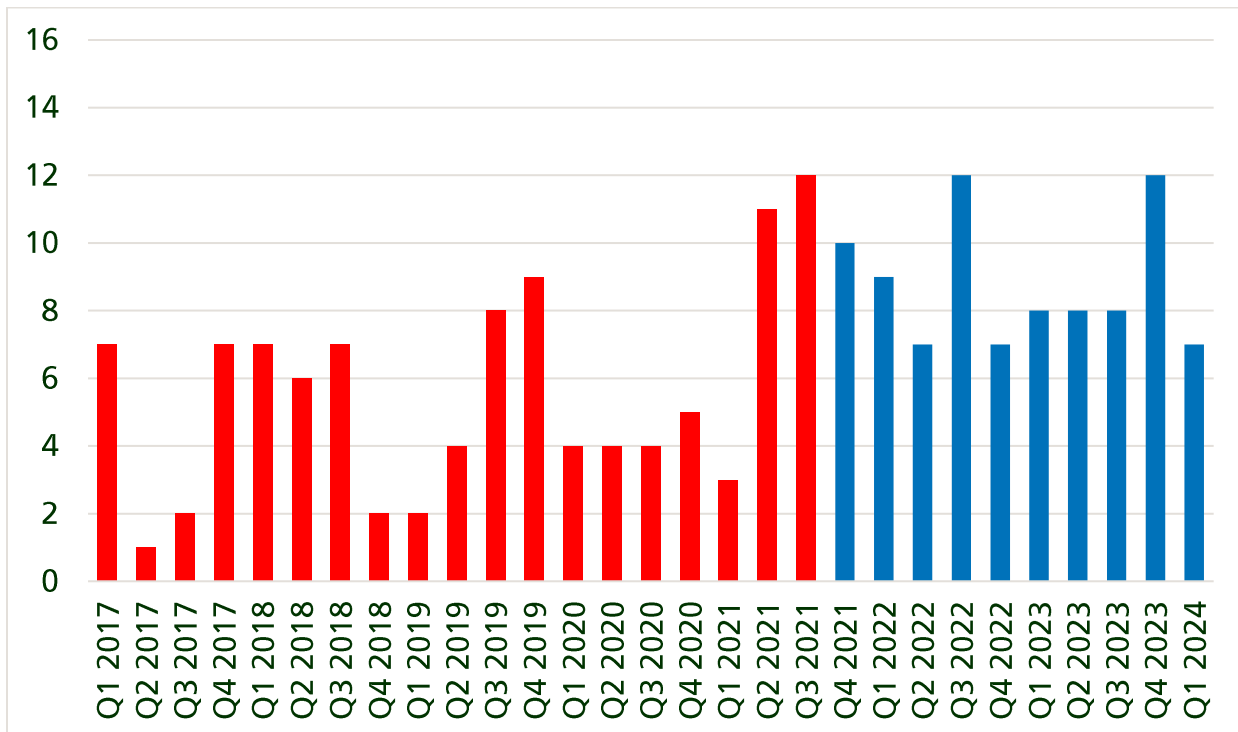


Figure 31: Total collisions per quarter during HOV lane hours, Park Presidio

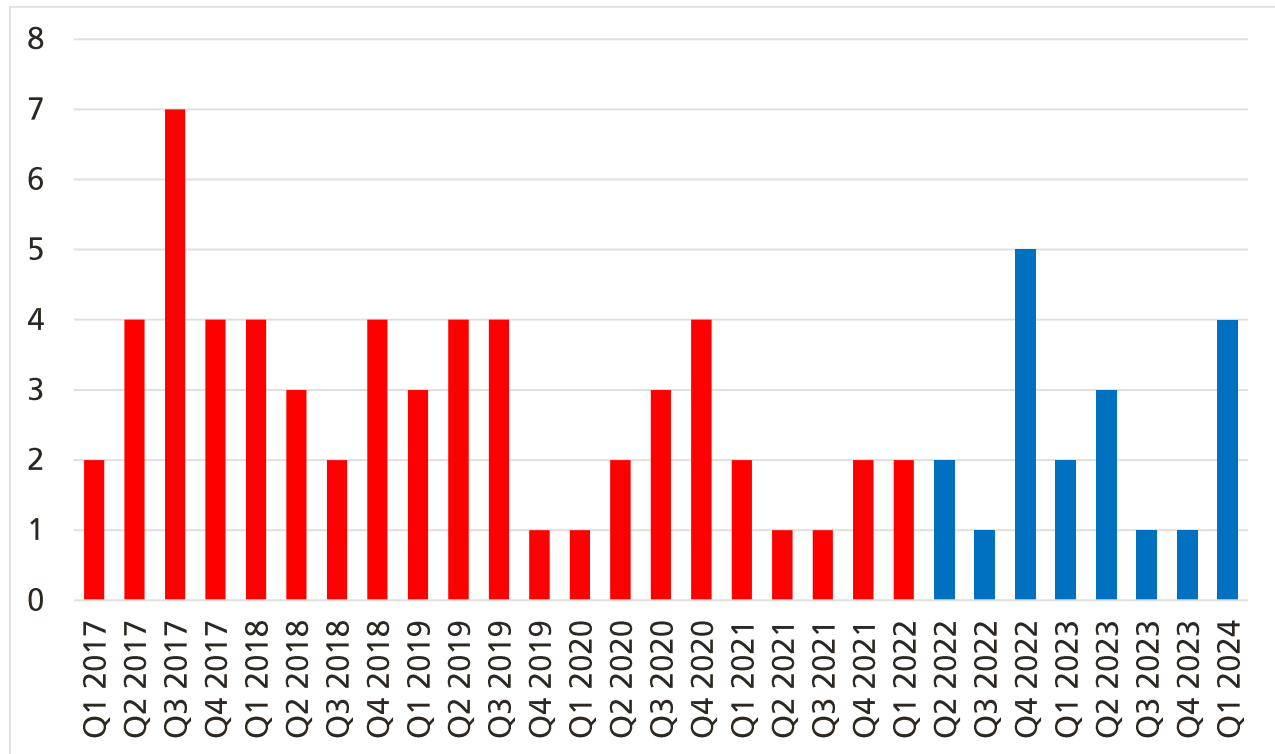
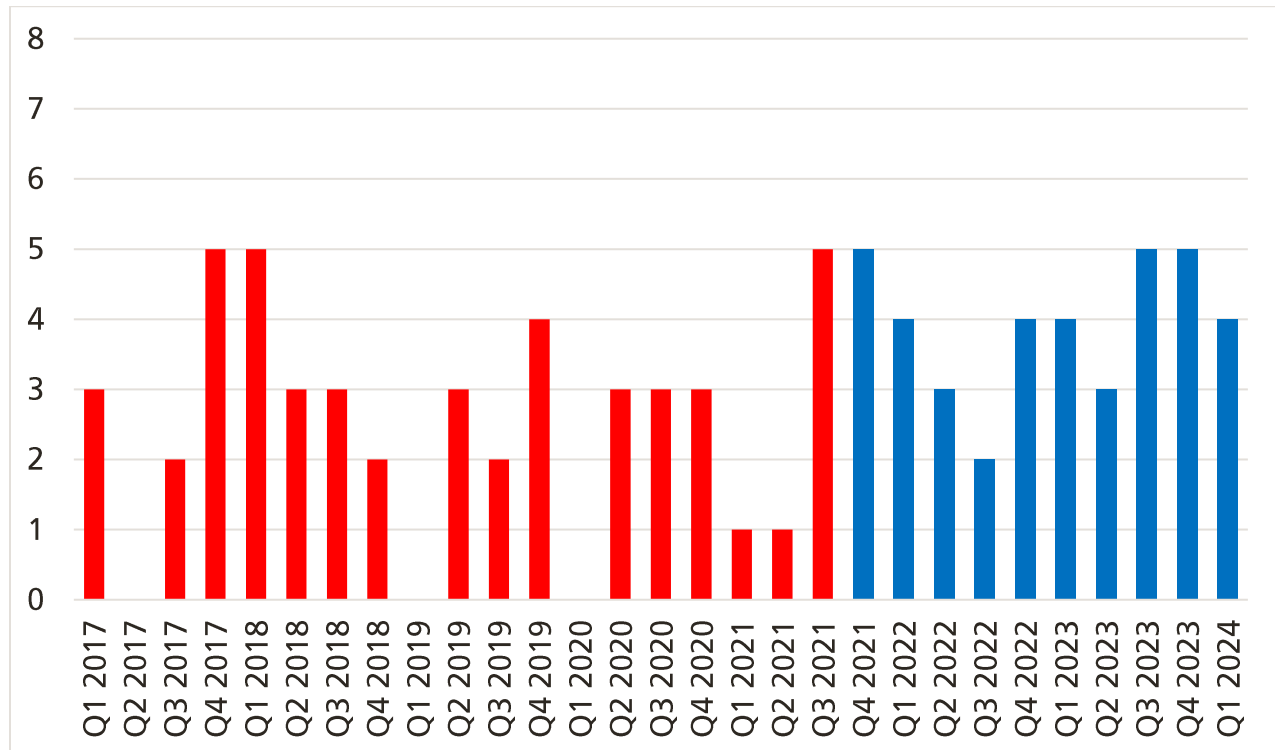


Figure 32: Total collisions per quarter during HOV lane hours, Lombard



Collision Rates Adjusted for Vehicle Miles Traveled

To normalize collision rates relative to traffic volumes, analysis was conducted based on a methodology used by Caltrans¹⁶ and the Federal Highway Administration¹⁷. For this measure, the traffic volumes used were a combination of Caltrans data (pre-project, and one quarter post-project when there were issues with the consultant data) and data collected by the SFMTA's consultant (all but one quarter post-project)¹⁸. Rates are expressed in terms of million vehicle miles traveled.

Because traffic volumes in each corridor have increased only modestly over the course of the project, trends in normalized rates are similar to those for total collisions – see Figures 33 and 34 on the following page.

¹⁶ <https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/annual-collision-data/2021-crash-data-on-cshwy-book-1-v2.pdf>

¹⁷ https://safety.fhwa.dot.gov/local_rural/training/fhwasa1109/app_c.cfm

¹⁸ Traffic volumes observed by SFMTA staff were used for most evaluation measures. Again, this is because the SFMTA's consultant was unable to provide complete pre-project traffic counts on Lombard due to problems with data collection. However, in this case, pre-project data were available from Caltrans, and the sample size of the consultant data is larger than for the staff data. Notably, consultant data were collected on weekdays, while dates of collection for Caltrans data could not be determined. However, Caltrans and consultant data for the same time periods were found to be similar (Caltrans data could not be used for all periods because it continues only through 2022).

Figure 33: Collision rates per million vehicle miles traveled, Park Presidio

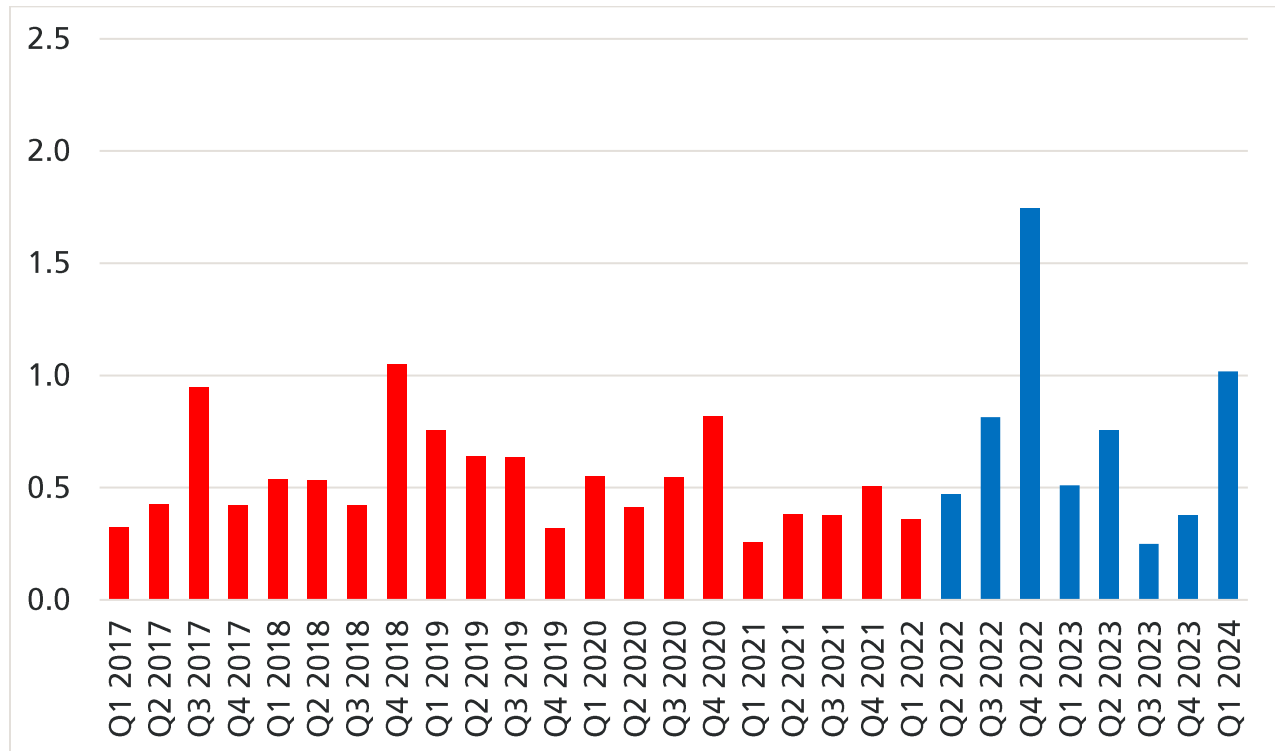
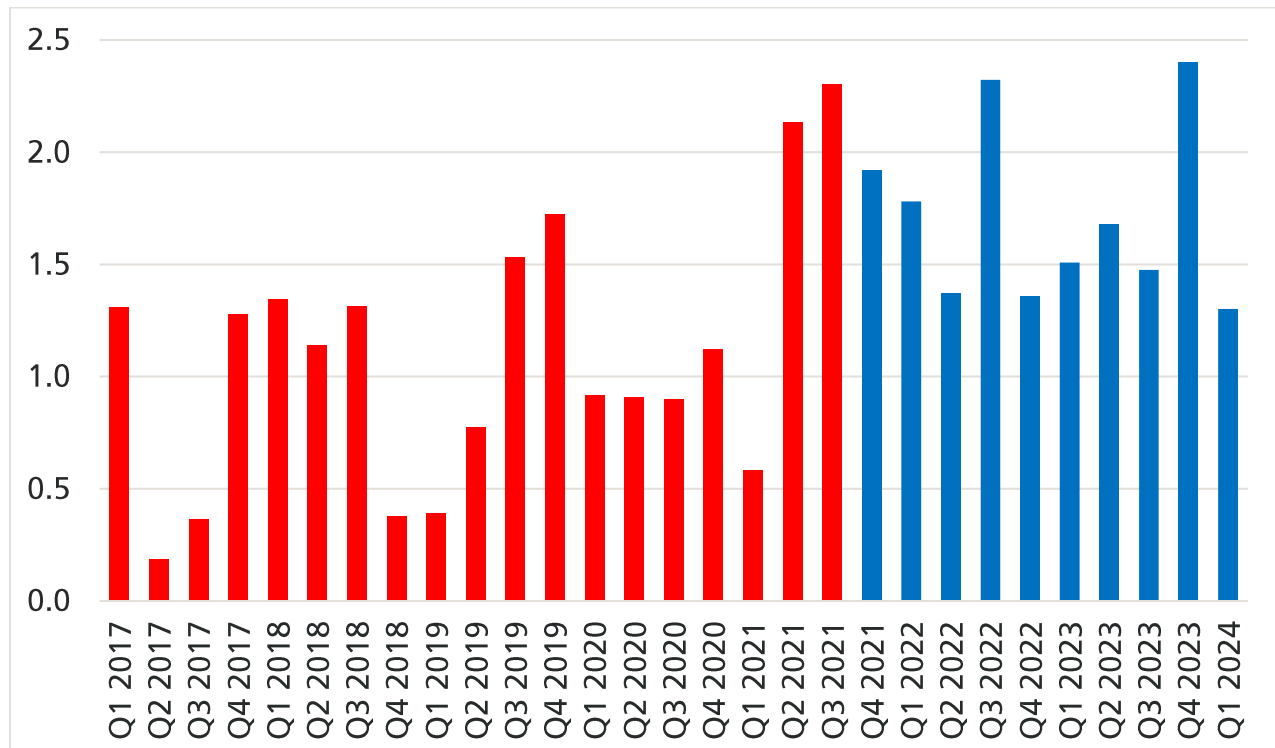


Figure 34: Collision rates per million vehicle miles traveled, Lombard



Numbers of Fatal and Severe Injury Collisions

Numbers of collisions resulting in fatalities and/or severe injuries is a subset of total numbers of collisions; thus sample sizes are smaller. At a corridor rather than system- or citywide level, this makes trends more difficult to assess over short timespans – quarterly, or even annually. Nonetheless, the number of severe collisions is a critical datapoint. Rates are shown in Figures 35 and 36 on the following page.

On Park Presidio, there were two fatal or severe injury collisions in the eight quarters following implementation, neither potentially associated with the HOV lanes (see section in the following pages).

On Lombard, however, there were a total of 14 in the 10 quarters following implementation, one of which was potentially associated with the HOV lanes (although it occurred outside of HOV lane hours – see section in the following pages). Again, Caltrans and the SFMTA have recently taken steps to improve safety on Lombard, including a reduction in the speed limit from 30 to 25 miles per hour in June 2023 and planned changes to signal timing evenings and weekends, when analysis found that many speeding-related collisions occur.

Figure 35: Numbers of fatal and severe injury collisions, Park Presidio

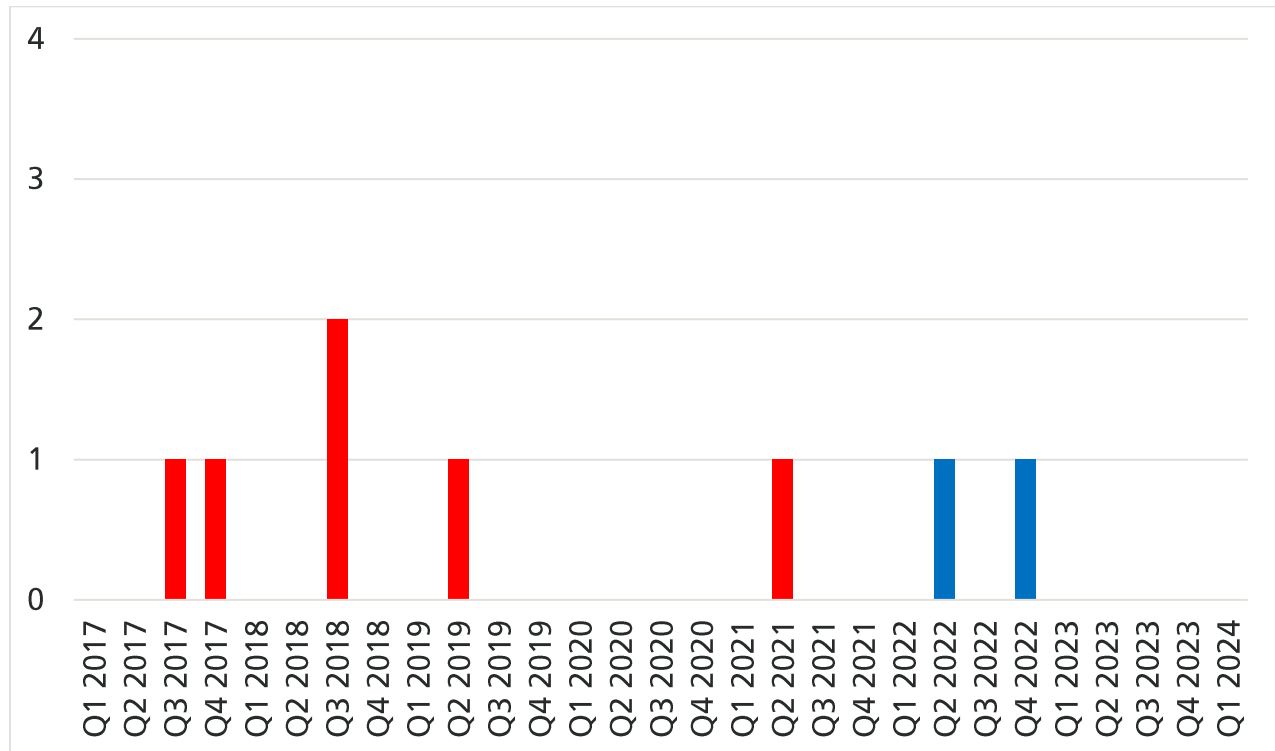
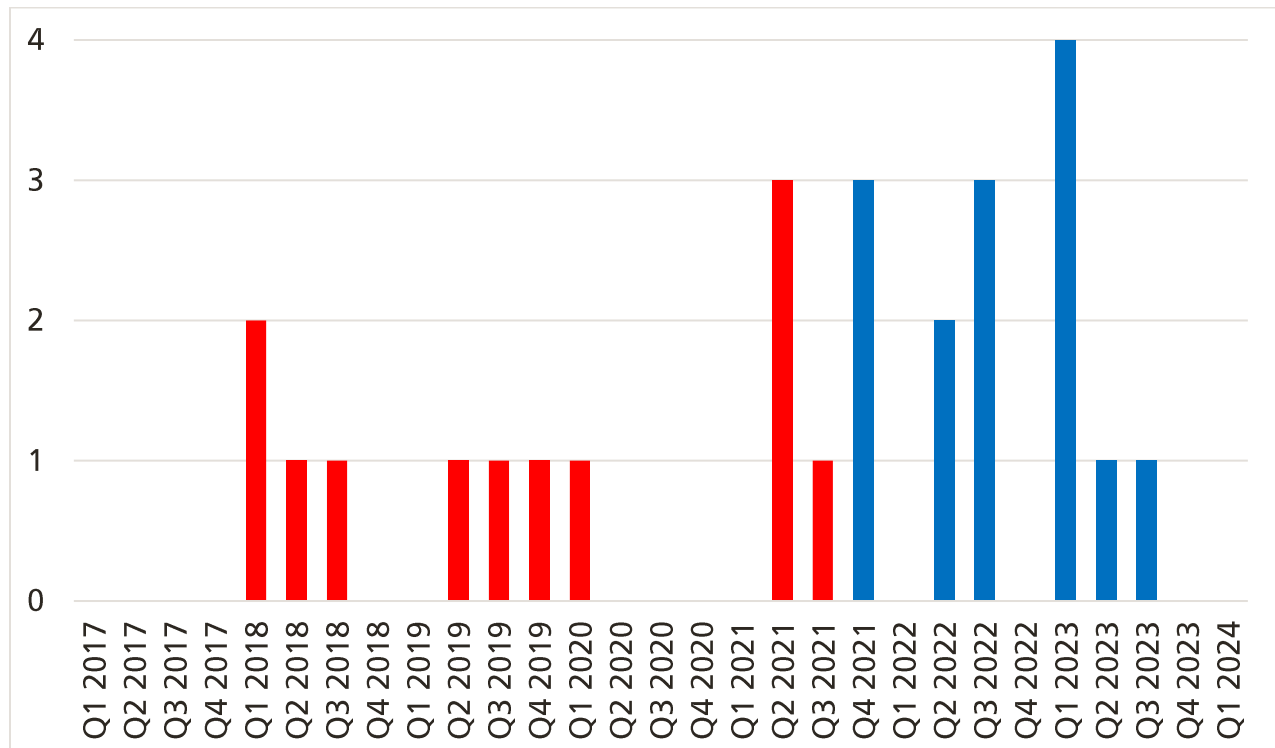


Figure 36: Numbers of fatal and severe injury collisions, Lombard



Numbers of Collisions Involving Pedestrians and Bicyclists

As with numbers of fatal and severe injury collisions, the sample sizes for this measure are relatively small. However, this metric is also critical, as pedestrians and cyclists are the most vulnerable users of the transportation system. As shown in Figures 37 and 38 on the following page, the trends are also broadly similar to those for the previous measure.

On Park Presidio, there were relatively few collisions involving pedestrians or cyclists in the eight quarters following implementation – a total of seven (three of which were in the first quarter of 2024), none of which were potentially associated with the HOV lanes. The trend compared to pre-pandemic conditions is generally unchanged.

On Lombard, however, there was a total of 25 such collisions in the 10 quarters following implementation, including seven collisions in the fourth quarter of 2023. This represents an increase compared to pre-pandemic trends, although none of the collisions were potentially associated with the HOV lanes. Once again, Caltrans and the SFMTA have recently taken steps to improve safety on Lombard.

Figure 37: Numbers of pedestrian- or bicyclist-involved collisions, Park Presidio

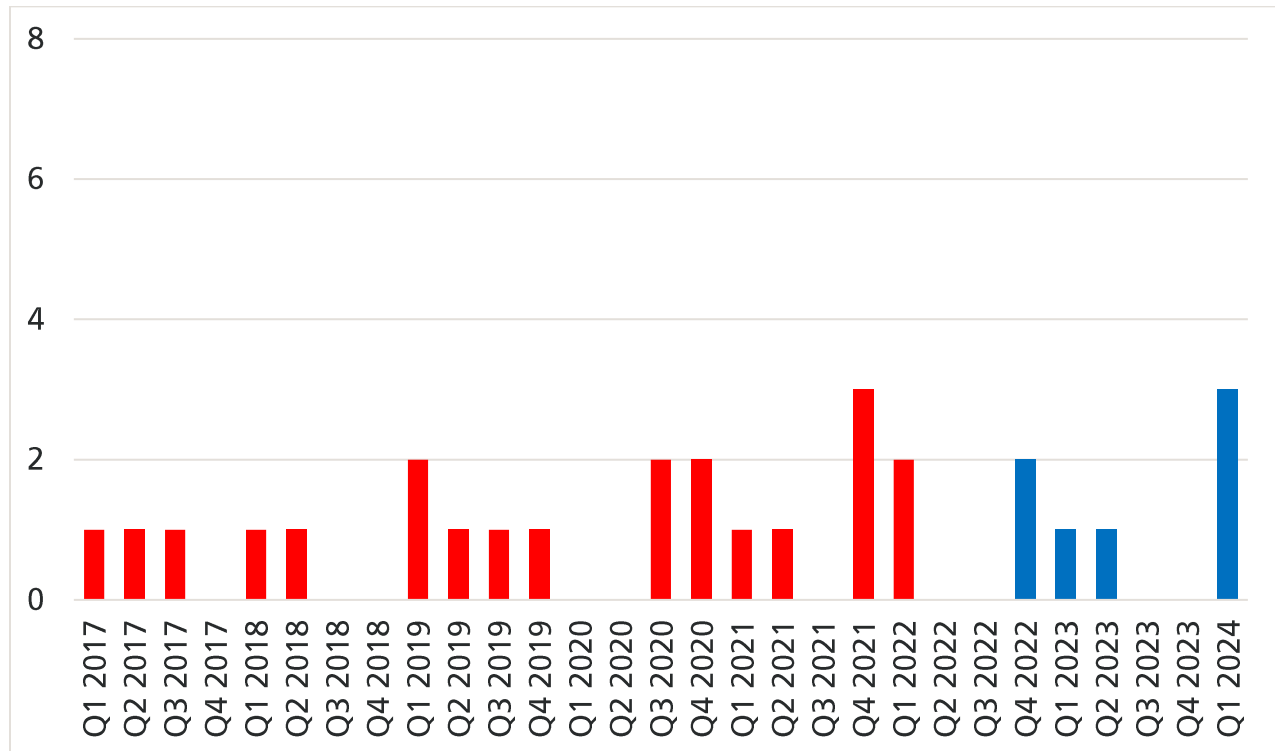
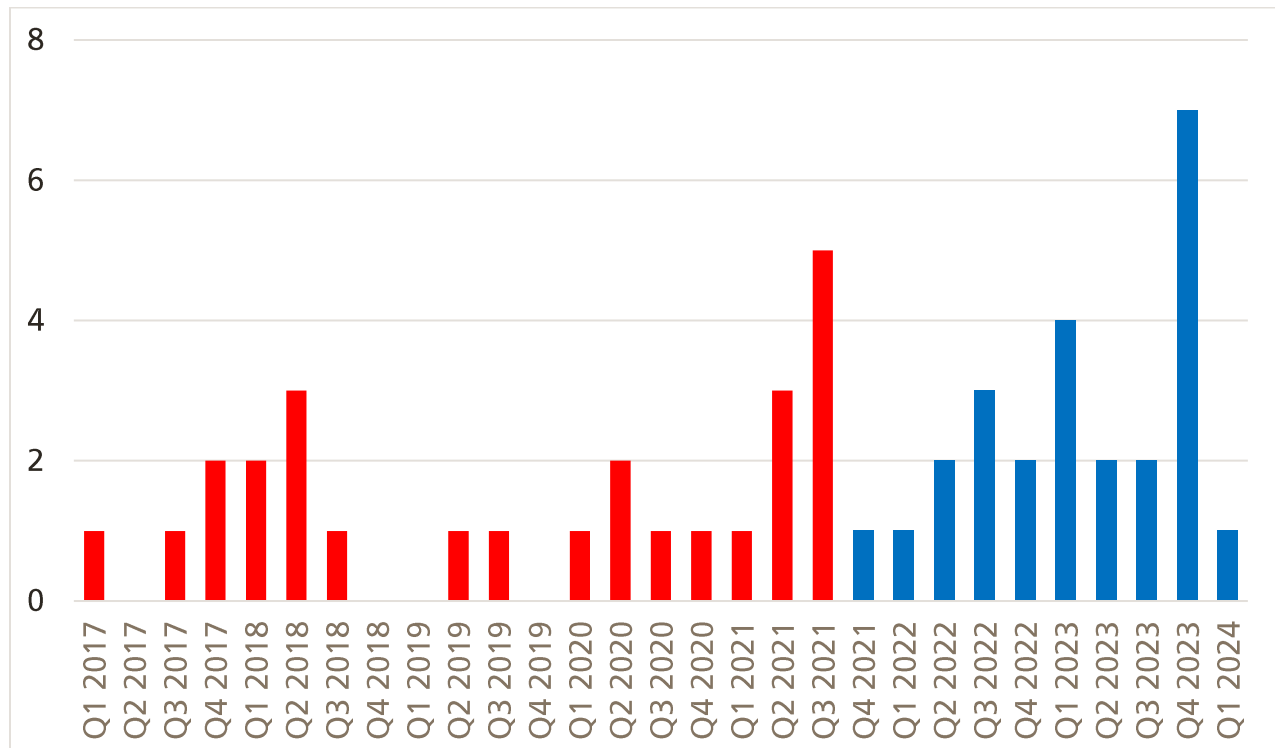


Figure 38: Numbers of pedestrian- or bicyclist-involved collisions, Lombard



Collisions Potentially Associated with HOV Lanes

To assess to what extent the implementation of HOV lanes might have been a cause of collisions, analysis was conducted of each post-implementation collision using a conservative methodology – meaning that if there was any logical reason to believe a collision *may* have been associated with the design or operation of the HOV lanes, it was included in the total. Notably, this included a number of collisions where motorists attempted to turn right across the HOV lanes, a type of collision that occurs on multi-lane streets without HOV lanes.

Over the eight quarters following implementation on Park Presidio, two collisions were identified as potentially associated with the HOV lanes, and neither resulted in fatalities or severe injuries.

Over the 10 quarters following implementation on Lombard, nine collisions were identified as potentially associated with the HOV lanes, including one resulting in severe injuries. However, it should be noted that this occurred late at night, when HOV lane restrictions were not in effect. Indeed, five of the nine collisions occurred when HOV lane restrictions were not in effect. It should further be noted that there were 88 total collisions on Lombard over this period.

Community Survey

In May and June 2023, the SFMTA conducted a community survey with questions on primary modes of travel, perceptions of changes to travel times, awareness of HOV lane restrictions, and potential for changes to travel behaviors. Survey respondents were also given an opportunity to comment on the HOV lanes.

The survey was open to the public for approximately five weeks, and there was a total of 863 responses, including 798 complete responses. Participants could complete the survey online, or by calling SFMTA staff, and the survey was available in English, Spanish and Chinese. It was publicized using:

- Posters at all intersections and bus stops within the HOV lane corridors (see Figure 39 on following page)
- Posters at select locations elsewhere along Route 28
- Postcards sent to nearly 24,000 addresses within the corridors
- An email and text blast to several thousand project update subscribers

Figure 39: Poster publicizing community survey

Park Presidio Lombard High-Occupancy Vehicle (HOV) Lanes

Have opinions about the high-occupancy vehicle lanes (HOV) on Park Presidio and Lombard?

¿Tiene opiniones sobre los carriles para vehículos de alta ocupación (HOV) en Park Presidio y Lombard?

對 Park Presidio 和 Lombard 的高承載車輛 (HOV) 車道有意見嗎？

Take our survey.
Toma nuestra encuesta.
請參加我們的調查。

Take this survey at [SFMTA.com/TempLanes28](https://www.sfmta.com/TempLanes28) or by phone at 415.646.2830 Monday-Friday, 9 a.m. - 5 p.m.

Responda a esta encuesta en [SFMTA.com/TempLanes28](https://www.sfmta.com/TempLanes28) o por teléfono al 415.646.2830 de lunes a viernes, de 9 a.m. a 5 p.m.

參加問卷調查，請瀏覽 [SFMTA.com/TempLanes28](https://www.sfmta.com/TempLanes28)，或於週一至週五，早上9點至下午5點致電 415.646.2830。



311 Free language assistance / 免費語言協助 / Ayuda gratis con el idioma / Бесплатная помощь переводчиков / Trợ giúp Thông dịch Miễn phí / Assistance linguistique gratuite / 無料の言語支援 / Libreng tulong para sa wikang Filipino / 무료 언어 지원 / פירונית'אור ופירונית'אור / 無料の言語支援 / خط المساعدة المجاني على الرقم / 311 Free language assistance

[SFMTA.com/TempLanes28](https://www.sfmta.com/TempLanes28)

Most notably, the survey found that perceptions of changes to travel times varied widely by the respondent's primary mode of travel. Since the HOV lanes were implemented, more bus riders said their travel times had decreased than increased, while the opposite was the case for motorists, including both solo drivers and HOV occupants.

The perceived increase in travel time for HOV lane occupants may be due in part to the large numbers of HOVs that remain in the non-HOV lanes: In the first quarter of 2023, before the survey was conducted, HOVs accounted for 25 percent of all vehicles in the non-HOV lanes on Lombard, and 21 percent on Park Presidio. General traffic volumes have also increased, which may contribute to the experience of slower travel among vehicle occupants, including in HOVs.

Because a majority of respondents to the question on mode were solo drivers, and nearly one-third were HOV occupants, the most common response (close to half in both corridors) was that travel times had increased.

Findings are detailed in Figures 40 through 43 on the following pages.

Figure 40: Perceived changes to travel times (all respondents)

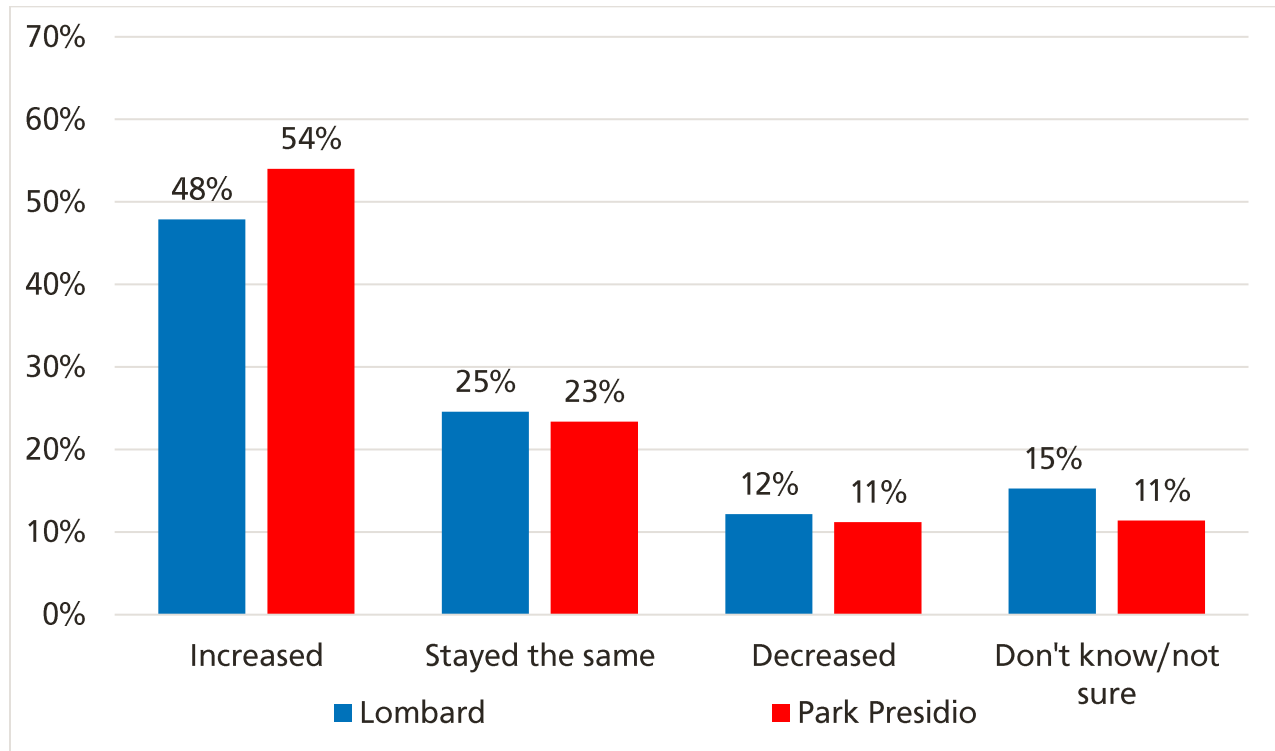


Figure 41: Perceived changes to travel times (primary mode of travel: drive alone)

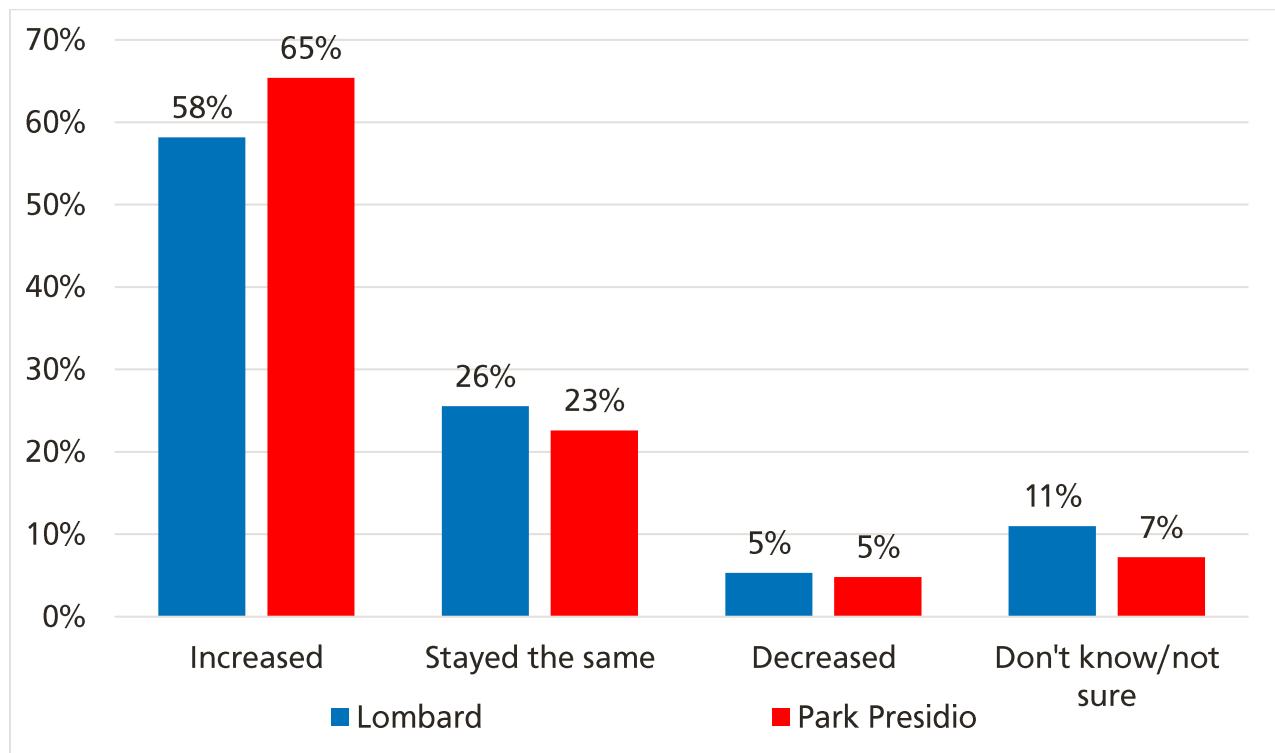


Figure 42: Perceived changes to travel times (primary mode of travel: carpool)

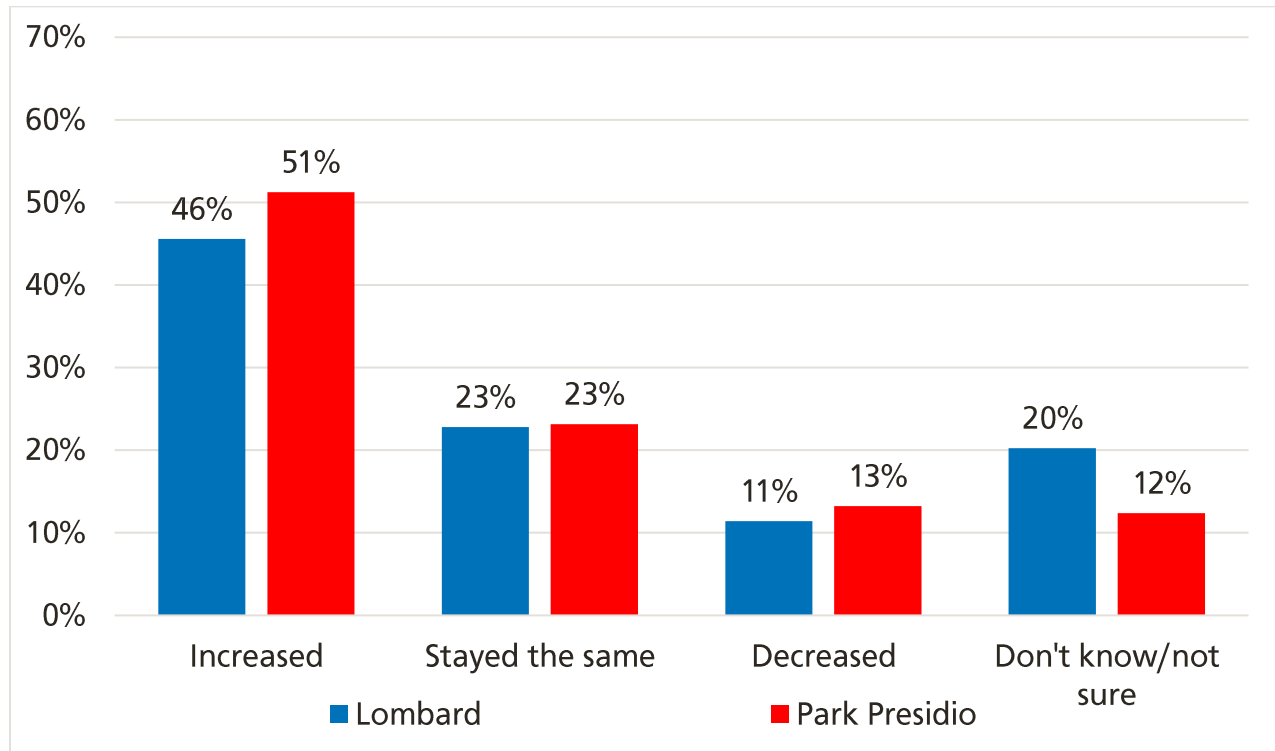
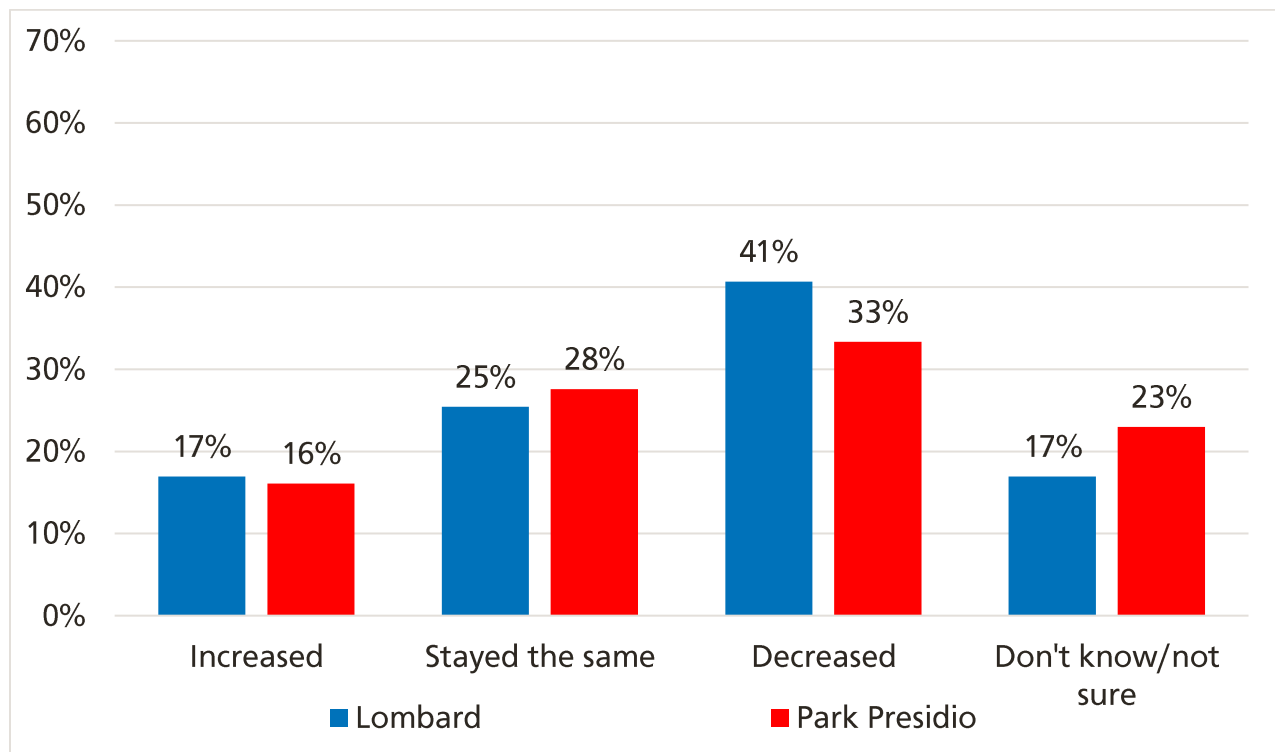
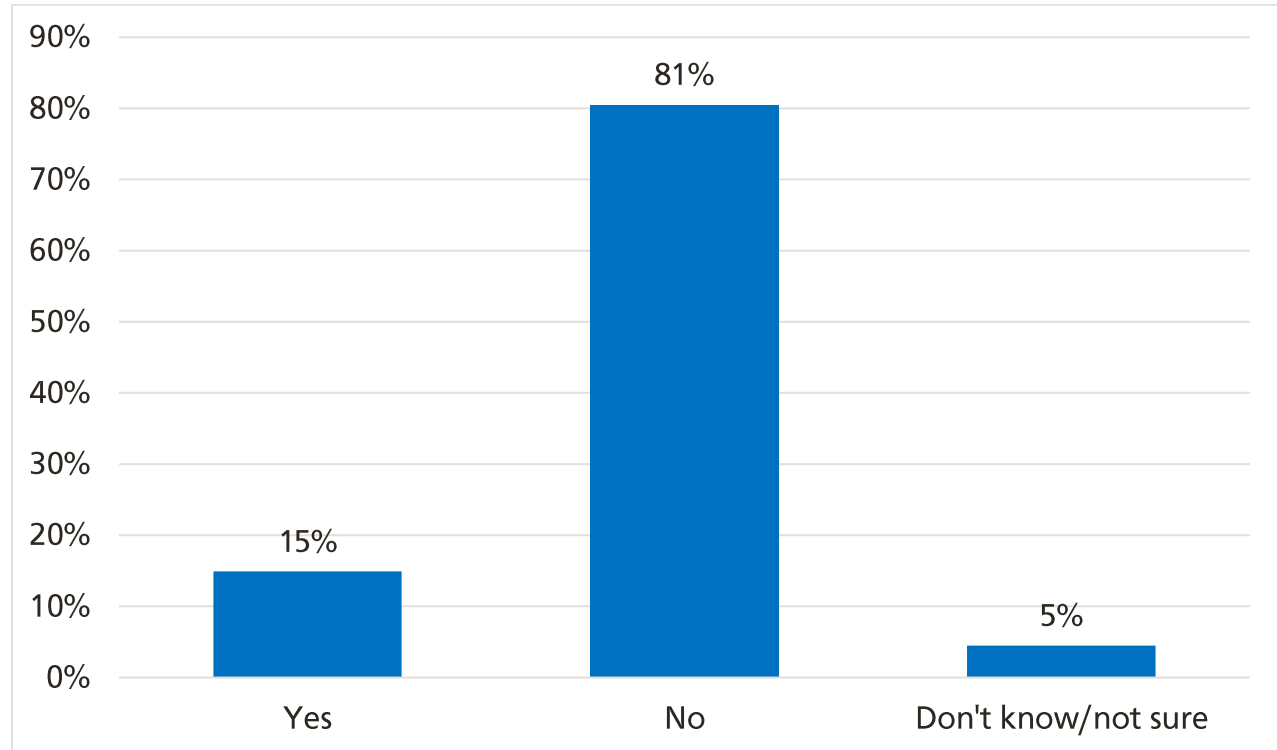


Figure 43: Perceived changes to travel times (primary mode of travel: bus)



Another question asked, "Have the HOV lanes encouraged you to consider carpooling or taking transit more often?" While most respondents answered no, about 15 percent answered yes, suggesting that the HOV lanes could encourage significant mode shift over time.

Figure 44: Have the HOV lanes encouraged you to carpool or take transit more often?



Finally, the survey found a high level of awareness of HOV lane restrictions, with large majorities stating that they'd seen and understood HOV lane signage.

The survey also asked a number of questions regarding respondents' demographic characteristics. Notably, respondents were somewhat older and more likely to be white than San Francisco residents in general. Complete responses to these questions as well as additional findings from the survey can be found in the appendix to this document.

Conclusions and Next Steps

Based on findings from the evaluation and community survey, SFMTA staff recommend that the temporary HOV lanes on both Park Presidio and Lombard remain in place.

While the evaluation identified some areas for improvement, overall, the project was found to achieve its primary goals, including improving transit speed and reliability by protecting buses and other HOVs from increasing traffic volumes as well as increased total person throughput and overall mobility.

In addition to safety, which the SFMTA continues to monitor and is already taking steps to address, compliance with HOV lane regulations was identified as an area in need of improvement. Given the uncertainty of future enforcement of HOV lane regulations, Caltrans and SFMTA staff recommend that additional design and engineering measures be considered to improve compliance through non-enforcement means. Potential changes to be further evaluated include:

- Addition of an overhead sign on southbound Veterans approaching Lake further clarifying for motorists that HOV lane regulations are in effect on Park Presidio.
- Design and engineering measures to improve compliance such as changes to striping.

Please note that both approval of permanent HOV lanes and the measures above are contingent on Caltrans approval. The overhead sign is a measure previously recommended by Caltrans staff.

Appendix A: Complete Community Survey Findings

A summary of findings from the project's community survey can be found in the Community Survey section of this document, starting on page 39. Following are additional findings.

- When asked if they traveled on the following streets:
 - 92 percent said they traveled on Park Presidio Bypass
 - 93 percent said they traveled on Park Presidio Boulevard
 - 64 percent said they traveled on Lombard and Richardson

- When asked their most common mode of travel on the project segments:
 - 55 percent said they drove alone
 - 31 percent said they carpooled
 - 11 percent said they rode the bus¹⁹

- When shown a photograph of HOV lane signage and asked what the sign indicated:
 - 14 percent said that two or more people should be in each vehicle
 - 9 percent said that it indicated an HOV lane
 - 75 percent said it indicated all of the above
 - 3 percent were not sure

- When asked if they'd seen such signs on Park Presidio or Lombard:
 - 88 percent said yes
 - 6 percent said no
 - 7 percent were not sure

- When asked if they knew that to turn right, vehicles could enter the HOV lanes one block before turning:
 - 84 percent said yes
 - 11 percent said no
 - 5 percent were not sure

¹⁹ 41 percent of respondents, however, said they had taken Route 28 19th Avenue.

Questions were also asked about demographic characteristics of respondents. Findings are summarized below:

- 27 percent of respondents said they were age 65 or older, and another 36 percent said they were between the ages of 45 and 64, meaning that a large majority of respondents were age 45 or older. 27 percent of respondents said they were between the ages of 25 and 44, while just 3 percent of respondents said they were age 24 or younger. 7 percent of respondents declined to answer.
- 46 percent of respondents described their gender as male, and 41 percent as female. 12 percent declined to answer.
- 48 percent of respondents described their race or ethnicity as white, and another 20 percent as Asian and/or Pacific Islander. 4 percent described their race or ethnicity as Hispanic and/or Latinx, 1 percent as Black and/or African/American, and 4 percent as something else. 23 percent declined to answer.
- 13 percent of respondents said they had a disability that affects their daily lives, while 74 percent said they did not. 12 percent declined to answer. Similarly, 16 percent of respondents said they used a wheelchair or another mobility device.
- 42 percent of respondents said their annual household income was \$100,000 or more. 13 percent said their annual household income was between \$50,000 and \$99,999, and just 6 percent said it was below \$50,000. 38 percent declined to answer.
- 39 percent of respondents said there were two people in their household, and 21 percent said there was just one. 13 percent said there were three, and 19 percent said there were four or more. 9 percent declined to answer.
- 91 percent of respondents said they or someone else in their household owned a car.

Appendix B: Detailed Evaluation Methodologies

Following are methodologies for the evaluation measures included in this report, as well as additional traffic data collected by a consultant to the SFMTA and shared with Caltrans staff.

Transit Travel Times

Summary	Median travel times on Muni Route 28 19th Avenue between designated timepoints within project segment
Methodology	SFMTA collects timestamped data on transit vehicle positions using automated passenger counters. From this, travel times can be calculated.
Time Period(s)	<ul style="list-style-type: none"> AM peak (7-9AM), Mid-day (12-2PM), PM peak (4-6PM) Weekdays
Location(s)	<ul style="list-style-type: none"> Park Presidio Blvd between California St and Fulton St Lombard St between Gough St and Francisco St
Frequency	Quarterly

Transit Reliability

Summary	Differences in seconds between median and 90th percentile travel times on Muni Route 28 19th Avenue between designated timepoints within project segment
Methodology	SFMTA collects timestamped data on transit vehicle positions using automated passenger counters. From this, travel times can be calculated.
Time Period(s)	<ul style="list-style-type: none"> AM peak (7-9AM), Mid-day (12-2PM), PM peak (4-6PM) Weekdays
Location(s)	<ul style="list-style-type: none"> Park Presidio Blvd at Geary Blvd Lombard St at Fillmore St
Frequency	Quarterly

Transit Ridership

Summary	Average weekday boardings on Muni Route 28 19th Avenue
Methodology	SFMTA collects data on boardings using automated passenger counters.
Time Period(s)	<ul style="list-style-type: none"> Weekdays
Location(s)	<ul style="list-style-type: none"> Entire route
Frequency	Monthly

Total Person Movement

Summary	Estimated numbers of vehicles and people in each lane at screenlines based on direct observation of vehicle volumes by category
Methodology	<ul style="list-style-type: none"> Teams of six observers (one for each lane) use forms and counters to observe the category of each passing vehicle (single-occupant, high-occupant, bus, clean air decal vehicle, motorcycle, or vanpool), and total volumes by category. Occupancies are estimated as follows: <ul style="list-style-type: none"> For SOVs, vehicles with clean air vehicle decals and motorcycles, 1 occupant For HOVs, 2.2 occupants For Muni buses, internal data on average loads are used For Golden Gate Transit buses and Presidio GO shuttles, 20 during peak hours in the peak direction, 10 at other times For all other buses, including commuter shuttles and tour buses, 20 occupants For vanpools, 5 occupants
Time Period(s)	<ul style="list-style-type: none"> AM peak (~8-9AM), Mid-day (~12-1PM), PM peak (~4:15-5:15PM) On a single mid-week day (Tuesday, Wednesday, or Thursday)
Location(s)	<ul style="list-style-type: none"> Park Presidio Blvd at Geary Blvd Lombard St at Fillmore St
Frequency	Every other quarter
Notes	<ul style="list-style-type: none"> Data on vehicle volumes collected as part of these surveys are used as inputs into other metrics (e.g., Collision Rates Adjusted for Vehicle Miles Traveled).

HOV Lane Compliance

Summary	Percentages of all vehicles in the HOV lanes that are single-occupant (not including vehicles with clean air vehicle decals)
Methodology	<i>See Total Person Movement</i>
Time Period(s)	
Location(s)	
Frequency	
Notes	Single-occupant vehicles may be in HOV lanes legally to turn right or access driveways or curbside parking. Because this would require additional resources to observe, these vehicles are assumed to be non-compliant (and rates of non-compliance are thus overstated).

Traffic Speeds

Summary	Average vehicle speeds by lane and direction
Methodology	Motorists drive segments every 30 minutes, recording times at designated timepoints. From this, speeds can be calculated.
Time Period(s)	<ul style="list-style-type: none"> • AM peak (7-9AM), Mid-day (11:30-1:30PM), PM peak (4-6PM) • Weekdays
Location(s)	<ul style="list-style-type: none"> • Veterans Blvd & Presidio Pkwy • Park Presidio Blvd & Lake St • Park Presidio Blvd & Geary Blvd • Park Presidio Blvd & Fulton St • Crossover Drive & Park Presidio Bypass • Crossover Drive & Martin Luther King, Jr. Drive • 19th Ave & Lincoln Way • Van Ness Ave & Filbert St • Lombard St & Van Ness Ave • Lombard St & Franklin St • Lombard St & Gough St • Lombard St & Laguna St • Lombard St & Fillmore St • Lombard St & Divisadero St • Richardson Ave & Chestnut St • Richardson Ave & Francisco St • East portal of Presidio Pkwy
Frequency	Quarterly
Notes	"Runs" for each lane in the same segment and direction of travel take place at the same time.

**Traffic Diversion**

Summary	Total volumes of vehicles in each direction at screenlines on alternate routes
Methodology	Volumes are 24-hour averages based on counts conducted using tubes over 72-hour periods.
Time Period(s)	Tuesday-Thursday
Location(s)	<ul style="list-style-type: none"> • 12th Ave south of Geary Blvd • 15th Ave south of Geary Blvd • 17th Ave south of Geary Blvd • 25th Ave south of Geary Blvd • Arguello south of Geary Blvd • Crossover Drive between Transverse Drive and Fulton St • Park Presidio Blvd south of Geary Blvd • Park Presidio Blvd north of Lake St • Park Presidio Bypass between Fulton St and Crossover Drive • Transverse Drive between John F. Kennedy Drive and Middle Drive West • Cervantes Blvd west of Beach St • Chestnut St east of Richardson Ave • Chestnut St west of Fillmore St • Greenwich St west of Fillmore St • Lombard St west of Divisadero St • Lombard St west of Fillmore St • Lombard St west of Gough St • Richardson Ave east of Chestnut St • Union St west of Fillmore St
Frequency	Quarterly
Notes	Screenlines were selected based on analysis of potential alternate routes, including proximity, distance, roadway design, speed limits and intersection controls.

Collisions

Summary	Rates, severity and potential causes of reported collisions involving vehicles, bicyclists and pedestrians
Methodology	SFMTA collects data on reported collisions.
Time Period(s)	All
Location(s)	Project segments (plus adjacent blocks, in order to capture merging movements associated with HOV lanes)
Frequency	Quarterly
Notes	<ul style="list-style-type: none"> • Pre-project analysis is based on five years of data • For analysis of rates adjusted for vehicle volumes, volume data from Caltrans and SFMTA consultant • Analysis of collisions potentially associated with the presence of HOV lanes is based on information from police reports.

Collisions per Million Vehicle Miles Traveled

Summary	Collision rates adjusted to account for changes in traffic volumes
Methodology	Vehicle miles traveled are estimated by multiplying average observed bidirectional traffic volumes at multiple screenlines in each corridor by the length of the corridor (including transitions) and the number of days in a quarter.
Time Period(s)	All
Location(s)	Project segments (plus adjacent blocks, in order to capture merging movements associated with HOV lanes)
Frequency	Quarterly
Notes	<ul style="list-style-type: none"> • Volumes are based on Caltrans and consultant data

Movement Counts

Summary	Total volumes of vehicles by movement at designated intersections
Methodology	Cameras are used.
Time Period(s)	<ul style="list-style-type: none"> • AM peak (7-9AM), Mid-day (11:30-1:30PM), PM peak (4-6PM) • On a single mid-week day (Tuesday, Wednesday, or Thursday)
Location(s)	<ul style="list-style-type: none"> • Park Presidio Blvd & California St • Park Presidio Blvd & Geary Blvd • Park Presidio Blvd & Fulton St • Lombard St & Van Ness Ave • Lombard St & Fillmore St • Lombard St & Divisadero St • Richardson Ave & Francisco St
Frequency	Quarterly



Queue Lengths

Summary	Vehicular queue lengths on intersection approaches
Methodology	Cameras are used. Lengths are observed every 15 minutes.
Time Period(s)	<ul style="list-style-type: none">• AM peak (7-9AM), Mid-day (11:30-1:30PM), PM peak (4-6PM)• On a single mid-week day (Tuesday, Wednesday, or Thursday)
Location(s)	<ul style="list-style-type: none">• Park Presidio Blvd & California St• Park Presidio Blvd & Geary Blvd• Park Presidio Blvd & Fulton St• Lombard St & Van Ness Ave• Lombard St & Fillmore St• Lombard St & Divisadero St• Richardson Ave & Francisco St
Frequency	Quarterly