43 Masonic / 44 O'Shaughnessy Temporary Emergency Transit Lanes Project Evaluation Report

SFMTA.com/TempLanes4344

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Contents

Executive Summary

The 43 Masonic / 44 O'Shaughnessy Temporary Emergency Transit Lanes Project (43/44 TETL Project) is part of the SFMTA's efforts to respond to the COVID-19 pandemic. The project included transit lanes, left turn restrictions, and "keep clear" markings on six sections of streets used by these two routes. Altogether, these treatments are intended to protect transit from the return of traffic congestion to provide faster, more reliable trips for those making essential trips on Muni and to limit the potential for crowding and pass-ups.

Installation of the changes was completed in April 2021. The 43/44 TETL Project was approved as a temporary project, subject to removal within 120 days of the lifting of San Francisco's State of Emergency Order, pending evaluation and additional public process to consider whether to make the changes permanent. More information about the project is available at SFMTA.com/TempLanes4344.

This report evaluates the 43/44 TETL project as implemented against the goals of the TETL program. The evaluation includes the findings listed below.

- The 43 Masonic and 44 O'Shaughnessy lines, which serve focus neighborhoods in the Muni Service Equity Strategy, have the following characteristics:
    - The lines serve a higher proportion of low-income households compared to the systemwide average – 36% compared to 26%.
    - The lines serve several neighborhoods–Bayview, Crocker Amazon, Excelsior, Ocean View, Outer Mission, and Visitacion Valley– with a greater proportion of low-income riders and people of color than the systemwide average.
- Survey results show community support for making the changes permanent and operator satisfaction with the project.
    - A majority of respondents support making the project permanent, with 61% indicating they either "definitely support" or "probably support" doing so.
    - People who most frequently ride transit, bike, or walk in the project area are particularly supportive: a vast majority of respondents agreed it is somewhat, very, or extremely important to make sure Muni does not get delayed in traffic (96%).
    - 79% of respondents who typically walk, bike, or ride transit in the project area would either "definitely support" or "probably support" making the project permanent.
- Despite recent increases in traffic citywide, evaluation results show that the TETL improvements are helping keep 43 and 44 buses moving, with minimal traffic impacts to the project streets or parallel streets.
- Observations by SFMTA staff, and comments from bus operators, indicate that further improvements and enforcement may be needed at some locations to increase compliance by motorists and to reduce transit travel times.

Introduction

The 43 Masonic / 44 O'Shaughnessy Temporary Emergency Transit Lanes Project (43/44 TETL Project) is part of the SFMTA's efforts to respond to the COVID-19 pandemic. The project included transit lanes, left turn restrictions, and "keep clear" markings on six sections of streets used by these two routes. Altogether, these treatments are intended to protect transit from the return of traffic congestion to provide faster, more reliable trips for those making essential trips on Muni and to limit the potential for crowding and pass-ups. Installation of the changes was completed in April 2021. More information about the project is available at SFMTA.com/TempLanes4344.

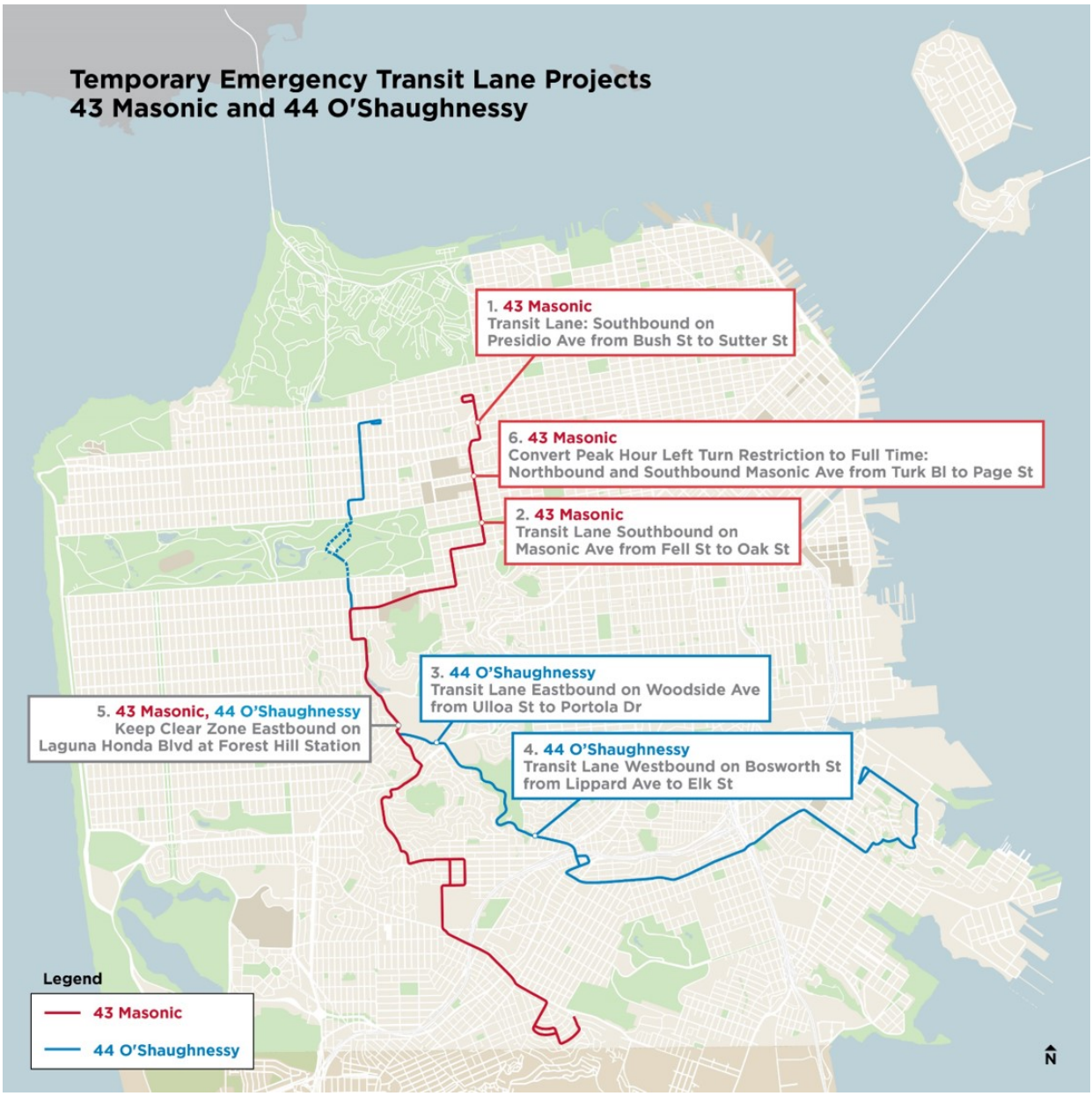

Figure 1: Overview of the 43/44 TETL Project locations

The 43/44 TETL Project was approved as a temporary project, subject to removal within 120 days of the lifting of San Francisco's State of Emergency Order, pending evaluation and additional public process to consider whether to make the changes permanent. This document presents the results of the 43/44 TETL project evaluation, which finds that despite recent increases in traffic citywide, evaluation results are showing that the new transit lanes are helping keep buses moving, with minimal traffic impacts.

The rest of the document is organized as follows. First, maps and descriptions of the project segments are presented. Next, the evaluation approach is summarized including overviewing the objectives analyzed and analysis periods included. Then, methods and findings for the relevant metrics for each of the six objectives considered in the evaluation are presented.

Project description

The 43/44 TETL Project has six separate sections, spread across San Francisco from Laurel Heights to Glen Park. They have been implemented and evaluated as a group because they are each used by the 43 Masonic and/or 44 O'Shaughnessy, two crosstown Muni routes that serve the central and southern neighborhoods of the city. Some segments are also used by the 36 Teresita and 52 Excelsior neighborhood routes.

Four of the segments consist of transit lanes, intended to allow buses to avoid commonly congested sections of the street network. These are:

1. Presidio Avenue, southbound, from Bush Street to Sutter Street (43)
2. Masonic Avenue, southbound, from Fell Street to Oak Street (43)
3. Woodside Avenue, eastbound, Ulloa Street to Portola Drive (36, 44, 52)
4. Bosworth Street, westbound, Lippard Street to Elk Street (44)

Detailed maps of these segments are shown in Figures 2 through 5.

Figure 2: Detail map of the Presidio Avenue transit lane

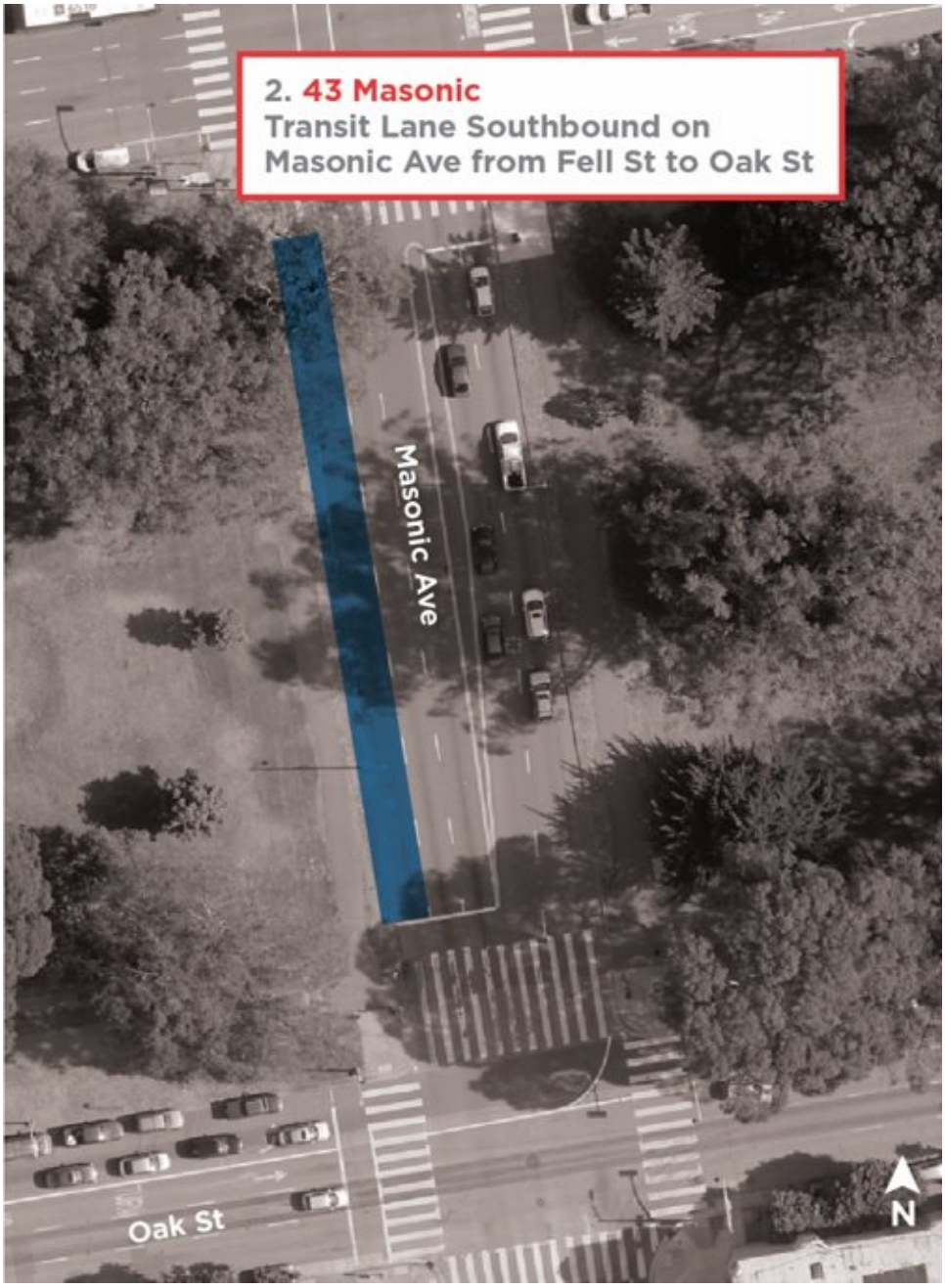

Figure 3: Detail map of the Masonic Avenue transit lane

Figure 4: Detail map of the Woodside Avenue transit lane

Figure 5: Detail map of the Bosworth Street transit lane

The fifth segment consists of a "keep clear" zone, intended to allow southbound buses (36, 43, 44, 52) to pull out from the bus stop at Forest Hill station. A detail map and photograph of the zone are shown in Figure 6 and Figure 7.

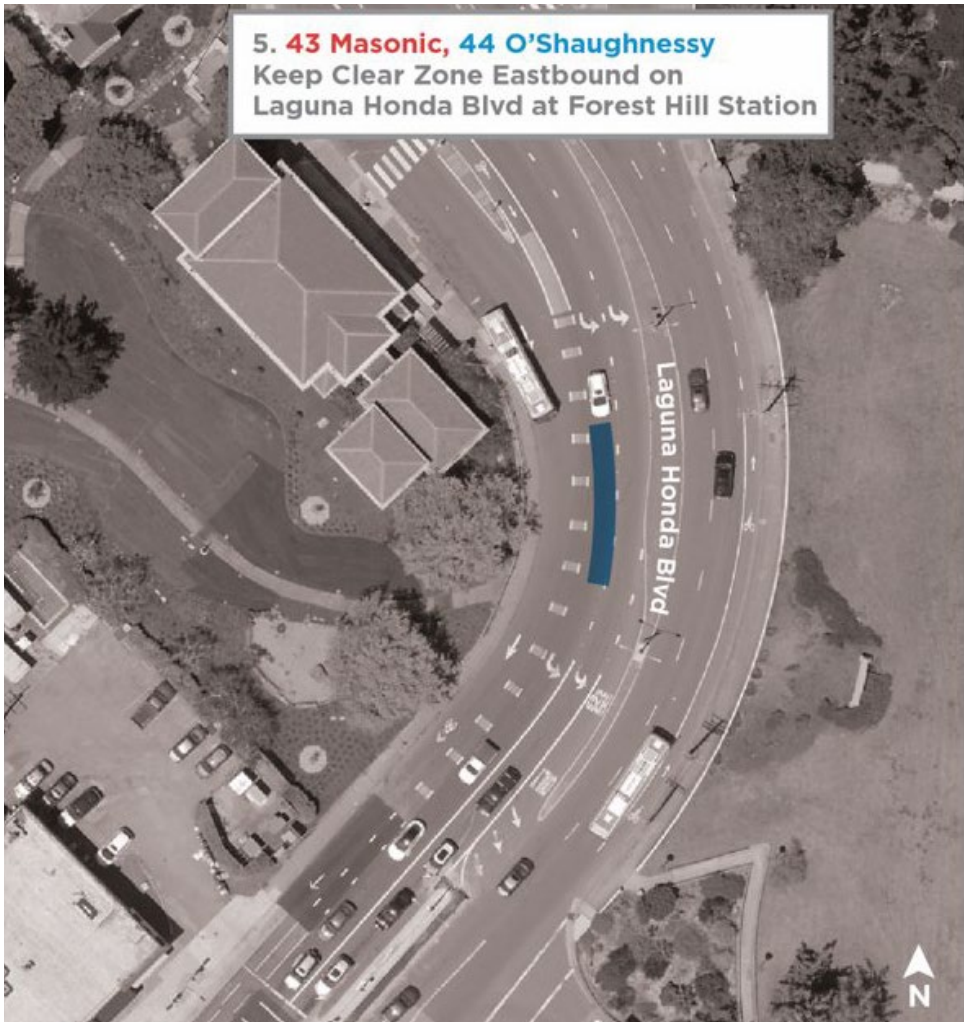

Figure 6: Detail map of "keep clear" zone at Forest Hill station

Figure 7: Keep clear zone at Forest Hill station, facing south

The sixth segment consists of full-time left turn restrictions on Masonic Avenue at Page Street[1], Hayes Street, Fulton Street, Golden Gate Avenue, and Turk Boulevard (northbound only).[2] These intersections do not have dedicated left turn lanes, which causes vehicles to frequently make quick lane changes into the right lane to go around vehicles waiting to turn left. These quick lane changes can often impede the movement of buses in the right lane. These turn restrictions are intended to reduce these quick lane changes and improve bus speeds and reliability. In addition, since left-turns are a chief cause of vehicle collisions in San Francisco, this should provide a safety benefit for pedestrians, seniors, people on bicycles, and others on this stretch of Masonic Avenue. A map of the turn restrictions is shown in Figure 8.

Figure 8: Map of left turn restrictions on Masonic Avenue

[1] The southbound left turn restriction at Page Street, which was added by the TETL project, is being legislated as part of a separate project on Page Street.
[2] The existing peak-hour northbound left turn restriction at Fell Street was not modified.

Evaluation approach

The TETL program's objectives are centered around improving transit performance in support of the three following citywide goals:

1. **Equity:** The TETL program aims to provide efficient and reliable transit service for people with the fewest travel choices while reducing the risk of COVID-19 exposure by providing adequate capacity for physical distancing and less time spent onboard transit vehicles.
2. **Health:** The TETL program aims to reduce the risk of COVID-19 exposure for all transit riders.
3. **Economic Recovery:** The TETL program aims to support increasing economic activity by providing an efficient, reliable, and safe transit system.

Table 1 below summarizes each objective considered in the 43/44TETL Project evaluation. This framework was developed to consider potential project benefits and impacts and was informed by community feedback in Fall 2020.

Table 1: Evaluation objectives for the 43/44 TETL project

Objective
1. Consider stakeholder feedback
2. Improve experience for Muni operators
3. Provide a safe travel option for those with the fewest travel choices, particularly Black, Indigenous, People of Color, lower income, and people experiencing homelessness
4. Preserve Muni travel time savings
5. Monitor collision rates along 43/44 TETL area and nearby streets
6. Monitor traffic impacts

In addition to this project-level evaluation of the 43/44 TETL Project, some additional metrics will be considered programmatically across all TETL projects. When available, this information will be shared online at SFMTA.com/TempLanes.

Stakeholder feedback

Methods

A public survey was distributed to ask 43/44 corridor travelers and nearby residents about their perceptions of changes in travel after implementation of the 43/44 TETL Project. The survey questions are available in Appendix A.

The survey was available online during July and August 2021. The survey was advertised via multilingual posters at bus stops and near the project areas, multilingual mailers sent to businesses and residents in the project area, the SFMTA website, and emails and text messages to the project list. Surveys were available in English, Chinese, and Spanish. A total of 140 responses were received.

Key Findings

Overall, 91% of respondents agreed it is somewhat, very, or extremely important to make sure Muni does not get delayed in traffic (Figure 9). 95% of transit riders and 100% of bicyclists agreed, as did 95% of walkers and 83% of drivers.

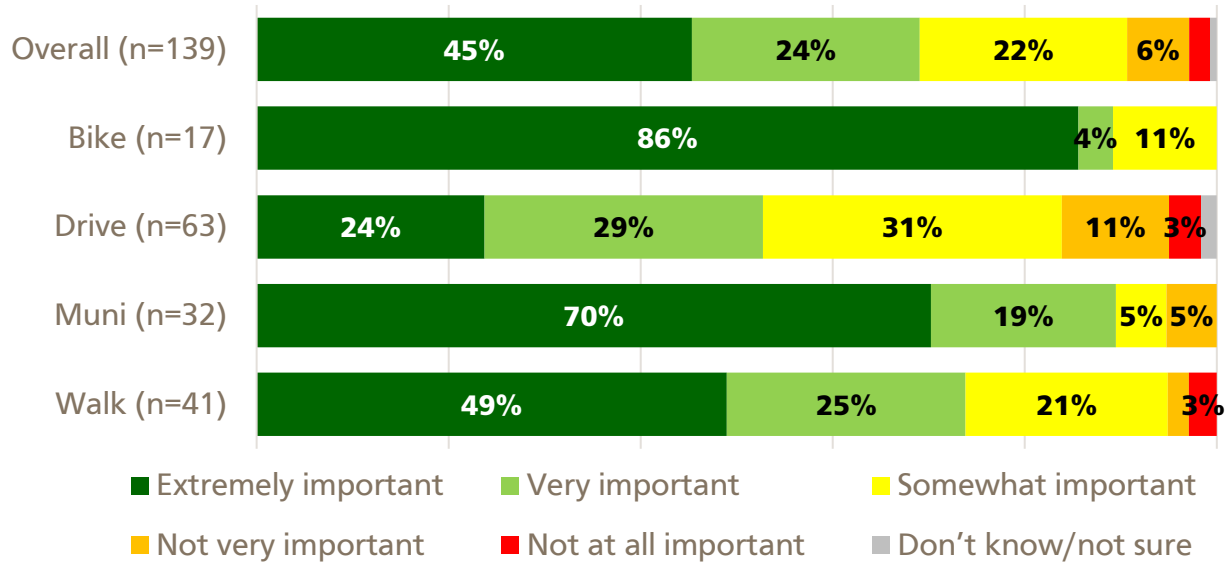

Figure 9: Responses to "How important is it to you that Muni doesn't get delayed in traffic?"[3]

[3] Respondents who indicated different modes for different segments were assigned partial weight for each mode. The counts of respondents for each mode in these graphs includes those who chose multiple modes, so the sum of these counts is greater than the number of total respondents.

Overall, 61% of respondents would definitely or probably support making the project permanent, while 26% were opposed (Figure 10).

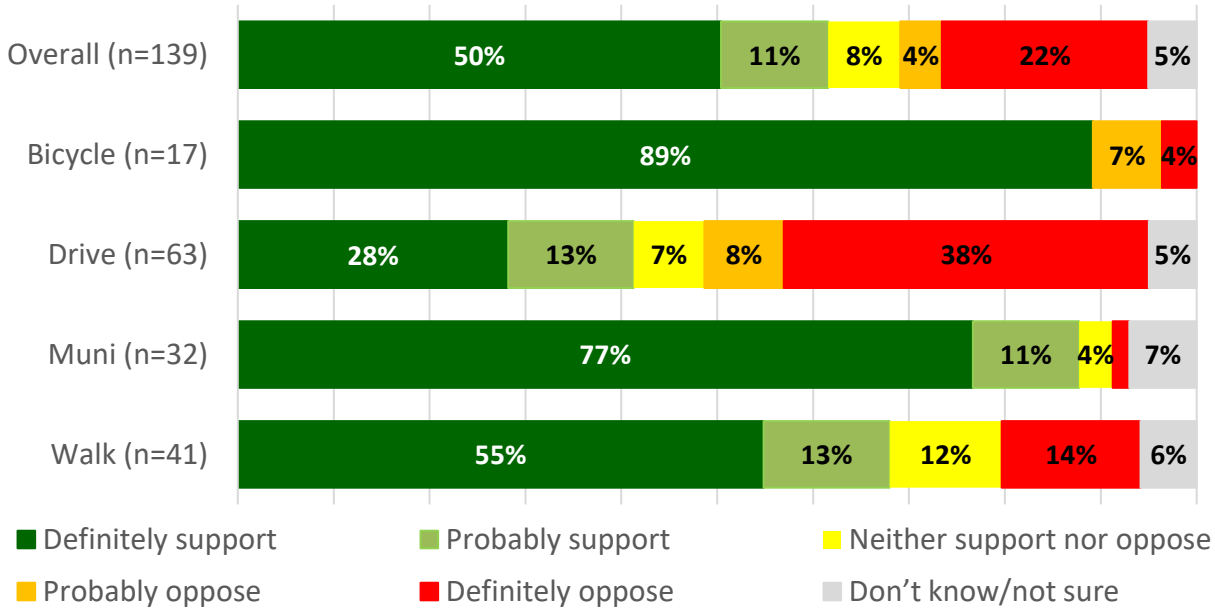

Figure 10: Overall responses to "Emergency transit lanes are a temporary measure to benefit those who rely on Muni. Would you support making them permanent?"[3]

Most respondents who rode the 43 and/or 44 lines thought travel time and reliability was better or about the same (Figure 13). 54% of respondents had ridden the 43 and/or 44 lines since the TETL project was implemented.

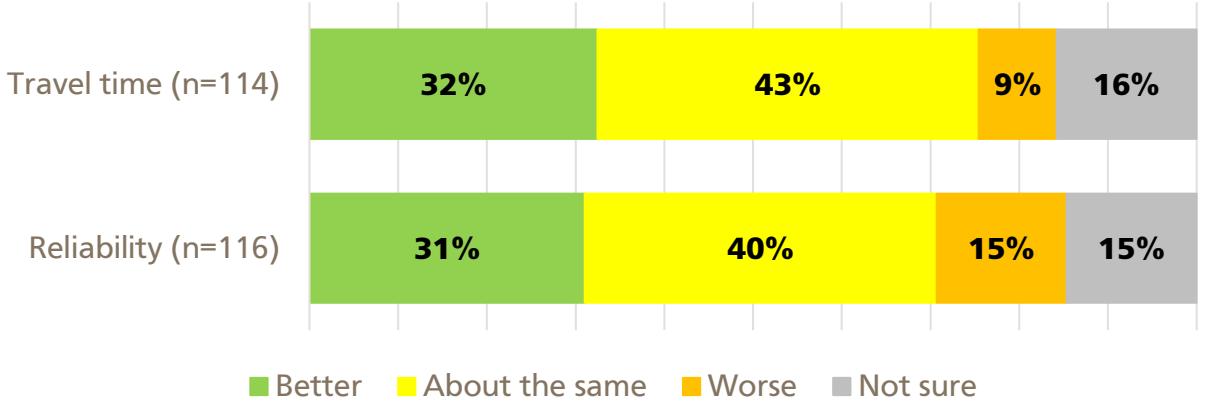

Figure 11: Responses to questions asking whether travel time and reliability had changed since the 43/44 TETL project was implemented.

Additional findings

In addition to the key findings above, the following summarizes the results for other survey questions.

74% of respondents reported that someone in their household owned a car for trips in San Francisco, while 26% reported that no one in their household owned a car. For those who primarily drove in the corridor, responses about driving difficulty in the TETL area are shown in Figure 15.

Figure 12: Responses (n=98) to questions asking whether driving difficulty had changed since the 43/44 TETL project was implemented

Masonic Avenue attracted the most responses among the sections of the project. As shown in Figure 13, drivers had more positive opinions about changes on Masonic Avenue, where the left turn restrictions reduced potential conflicts at intersections.

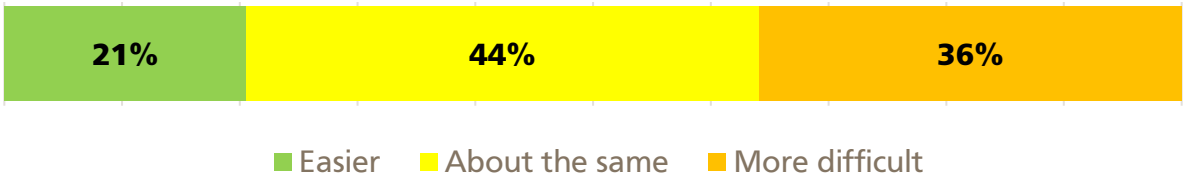

Figure 13: Responses (n=39) to questions asking whether driving difficulty on Masonic Avenue had changed since the 43/44 TETL project was implemented

As shown in Figure 14, in terms of safety, over half of respondents felt safer walking along the corridor after the TETL project, with another third reporting that safety was about the same.

Figure 14: Responses (n=70) to questions asking about perceptions of traffic safety while walking along the corridor after the 43/44 TETL project

Responses for safety on Masonic Avenue were again more positive, as seen in Figure 15, as the left turn restrictions also reduced potential conflicts with pedestrians.

Figure 15: Responses (n=33) to questions asking about perceptions of traffic safety while walking along Masonic Avenue after the 43/44 TETL project

Operator feedback

Methods

Muni's highly trained operators can offer valuable firsthand knowledge of how street changes affect their day to day operating experiences. In addition, Muni operators are frontline essential workers who have an extremely difficult and important job, particularly during the COVID-19 pandemic. Improving operators' work experience is explicitly part of the TETL programs' goals. Paper surveys were distributed to operators at Woods and Kirkland divisions, the divisions from which 43 and 44 service is run. Twenty-one operator survey responses were complete. An SFMTA staffer also talked to operators at the 4 O'Shaughnessy terminal for additional comments.

Key findings

The majority of operators who were aware of recent 43/44 TETL changes (62%) reported that these changes had made their jobs easier. The left turn restrictions and the transit lane on Masonic Avenue were most frequently cited as effective, while the changes on Laguna Honda, Woodside, and Bosworth were less noted.

Operators had mixed opinions about the effectiveness of the TETL changes. The majority of operators reported no change in travel time as a result of the changes, and that motorists frequently ignored transit lanes and turning restrictions. Several operators specifically mentioned that motorists do not respect the KEEP CLEAR markings on Bosworth.

Equity

Methods

One of the key TETL program objectives is to provide a safe travel option for those reliant on Muni, particularly Black, Indigenous, People of Color, lower income people, and people experiencing homelessness. This section provides information about the equity implications of the 43/44 TETL Project by sharing more information about the demographics of Muni riders who are the key beneficiaries of the project. Data considered includes information on Muni rider demographics collected through SFMTA's biennial On Board Survey and comparing that to census data of the neighborhoods served by the 43 and 44 lines.

Key findings

- The 43 Masonic and 44 O'Shaughnessy lines serve a higher proportion of low-income households compared to the systemwide average – 36% compared to 26%.
- The 43 Masonic and 44 O'Shaughnessy lines serve several neighborhoods–Bayview, Crocker Amazon, Excelsior, Ocean View, Outer Mission, and Visitacion Valley– with a greater proportion of low-income riders and people of color than the systemwide average.
- The 43 Masonic and 44 O'Shaughnessy lines are also designated as Muni Equity Strategy lines because of its importance for Bayview, Excelsior, Ocean View, Outer Mission, Visitacion Valley, and Western Addition residents, seniors, and people with disabilities for citywide accessibility[4].

Additional results

Table 2 compares ridership demographics of the 43 Masonic and 44 O'Shaughnessy lines to Muni systemwide averages and to demographics of the neighborhoods served by the 43 Masonic and 44 O'Shaughnessy lines. Low-income households are defined as those with total incomes under 200% of the federal poverty level. People of color are defined as those who identify as anything other than Non-Hispanic White.

Table 2: 43 Masonic and 44 O'Shaughnessy lines and systemwide customer demographics and neighborhood demographics (pre-COVID-19). Source: American Community Survey 2019 5-Year Estimates

	Lines	Low Income Households	People of Color
43 Masonic	–	33%	57%
44 O'Shaughnessy	–	40%	68%
43 Masonic/44 O'Shaughnessy	–	36%	63%
Systemwide average	–	26%	57%
Bayview	44	37%	90%
Bernal Heights	44	16%	50%
Crocker Amazon	43	19%	88%
Diamond Heights	44	13%	52%

[4] https://www.sfmta.com/projects/muni-service-equity-strategy

	Lines	Low Income Households	People of Color
Excelsior	43, 44	23%	85%
Glen Park	44	10%	37%
Golden Gate Park	43, 44	6%	8%
Haight Ashbury	43	14%	27%
Inner Richmond	43, 44	16%	53%
Inner Sunset	43, 44	14%	53%
Marina	43	9%	22%
Ocean View	43	23%	84%
Outer Mission	43, 44	20%	78%
Pacific Heights	43	8%	33%
Presidio	43, 44	11%	31%
Presidio Heights	43, 44	11%	30%
Twin Peaks	43, 44	14%	43%
Visitacion Valley	43	33%	93%
West of Twin Peaks	43, 44	9%	48%
Western Addition	43	22%	49%

Note: bold neighborhoods indicate neighborhoods identified as SFMTA Equity Strategy neighborhoods

Transit travel time

Methods

Transit travel time data for the 43 and 44 lines was processed from automated vehicle location (AVL) data collected in Muni's OrbCAD system. Travel times were calculated between major stops bracketing each TETL segment. Time periods used were October 1, 2019 to February 28, 2020 (typical pre-COVID conditions), February 1 to March 30, 2021 (pre-TETL), and August 1 to October 31, 2021 (typical TETL conditions, with citywide traffic levels close to pre-COVID).

50th percentile (median) running times were calculated, which approximates the typical passenger experience. The following time periods were analyzed: AM peak (7-10am), midday (10am-3pm), and PM peak (3-7pm) for analysis, with all-day (7am-7pm) also analyzed. (Evening and overnight hours tend to have minimal congestion and lower ridership, so the 43/44 TETL project is expected to have less significant impacts between 7pm and 7am). Weekends similarly have lower congestion and ridership, so only weekday data was used.

Key findings

The nature of the 43/44 TETL project made it difficult to determine how effective the changes were in improving travel time using vehicle location data, so the data was supplemented with qualitative observations and operator input. Most other TETL projects included continuous lengths of transit lanes, which have provided travel time changes substantial enough to be separated from other changes (like traffic and ridership increases) that can affect travel times. However, the 43/44 TETL project consisted of smaller changes scattered across two lengthy crosstown routes, where a variety of other factors were at play. Additionally, the need to use major stop pairs for travel time analysis (in order to have a large enough sample size) meant that some analysis segments were substantially longer than the TETL changes, making it difficult to determine the source of changes in travel time. However, from operator feedback and the success of similar improvements on other projects, SFMTA staff were able to identify beneficial outcomes from the temporary improvements.

Additional changes may be needed in some locations as traffic returns. Peak-hour travel times on routes 43 and 44 increased between 3% and 18% from the pre-TETL to TETL periods. While some of this is likely a result of ridership returning, the by-segment travel time changes shown in Figure 16 indicate that increases in travel time are concentrated in areas with increasing traffic congestion. Because relatively short queues at intersections can prevent buses from pulling into and out of stops, bus travel time is more sensitive to minor increases in congestion than vehicle travel time.

The most significant increases in bus travel time were in the eastbound direction on Woodside (approaching Portola Drive) and Bosworth (approaching Glen Park), with increases exceeding 40% in both peaks. Eastbound Bosworth was not modified by the TETL project, while observations indicated that lengthy queues prevented the section of transit lane on Woodside from being used by buses. It is unlikely that the transit lanes contributed to an increase in

congestion on these streets, given that the Bosworth lane did not reduce auto capacity and the Woodside lane combined through and right turns into a single lane, representing a minor decrease in auto capacity. Travel time on Masonic Avenue increased by over 30% northbound in the morning and southbound in the evening. This segment had existing peak-hour left turn restrictions extended to full-time, so the transit improvement at peak hours consisted of the single block of southbound transit lane.

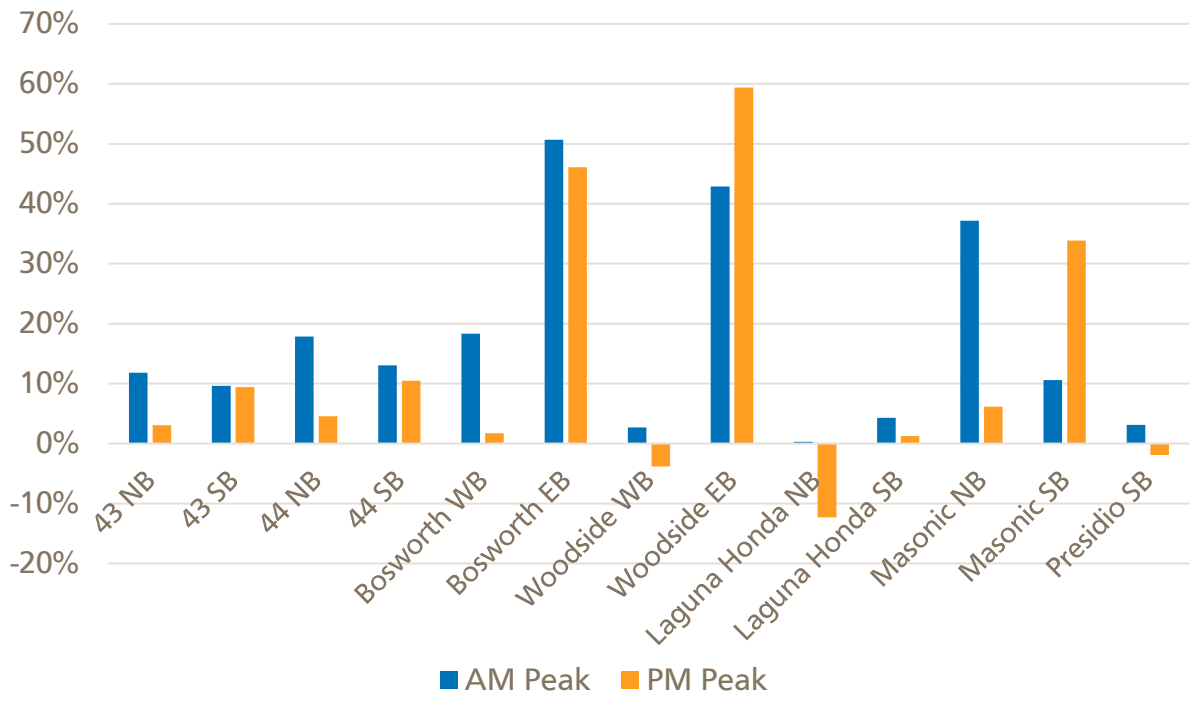

Figure 16: Changes in peak-hour travel times before and after the implementation of the 43/44 TETL project

Traffic

Methods

Traffic conditions were monitored using the INRIX IQ Roadway Analytics suite,[5] which aggregates data from navigation apps, commercial vehicle GPS locations, and other sources to estimate speeds and travel times. Block-by-block average speeds were aggregated into 8 sections of roadway as shown in Figure 16:

A. Bosworth Street (between Elk and Diamond)
B. Forest Hill area (along Laguna Honda Boulevard between Dewey and Clarendon)
C. Laguna Honda Boulevard (between Woodside and Portola)
D. Masonic Avenue (between Page and Turk)
E. Panhandle area (along Masonic Avenue Between Page and Hayes)
F. Presidio Avenue (between Geary and California)
G. Stanyan Street (between Page and Turk)
H. Woodside Avenue (between Hernandez and Portola)

Only data from Tuesdays, Wednesday, and Thursdays were used, as these tend to be the days with the highest levels of congestion. Since the time periods used for analysis varied for each road segment, they were presented as "Before TETL Project" and "After TETL Project" [6]. The time periods used for each road segment's analysis are shown in Table 2 below:

Table 3: Before and after time periods for each analysis segment

Corridor Name		Before TETL Project	After TETL Project
A	Bosworth Street	March 30 to April 1, 2021	April 13 to April 22, 2021
B	Forest Hill	March 30 to April 8, 2021	April 20 to April 29, 2021
C	Laguna Honda Boulevard	March 30 to April 8, 2021	April 20 to April 29, 2021
D	Masonic Avenue	June 29 to July 15, 2021	July 27 to August 12, 2021
E	Panhandle	March 30 to April 8, 2021	April 20 to April 29, 2021
F	Presidio Avenue	March 30 to April 29, 2021	June 1 to June 25, 2021
G	Stanyan Street	June 29 to July 15, 2021	July 27 to August 12, 2021
H	Woodside Avenue	March 30 to April 8, 2021	April 20 to April 29, 2021

[5] https://inrix.com/products/roadway-analytics/
[6] A change in the methodology that INRIX uses to calculate traffic speeds took effect on March 30, 2021. Data from after this time cannot be directly compared with previous data.

Figure 17. Road segments used for traffic and collision analysis

Key Findings

The 43/44 TETL projects did not substantially and negatively impact vehicle speeds in the project areas. Overall, the project did not have deleterious effects on travel speeds on the study corridors.

As Figure 18 shows, vehicle speeds remained steady or increased with implementation of the projects. Traffic speeds did decrease along Bosworth (both directions), Laguna Honda (eastbound), and Stanyan (northbound). Those average speed decreases were all less than 1 mile per hour difference from before to after project implementation.

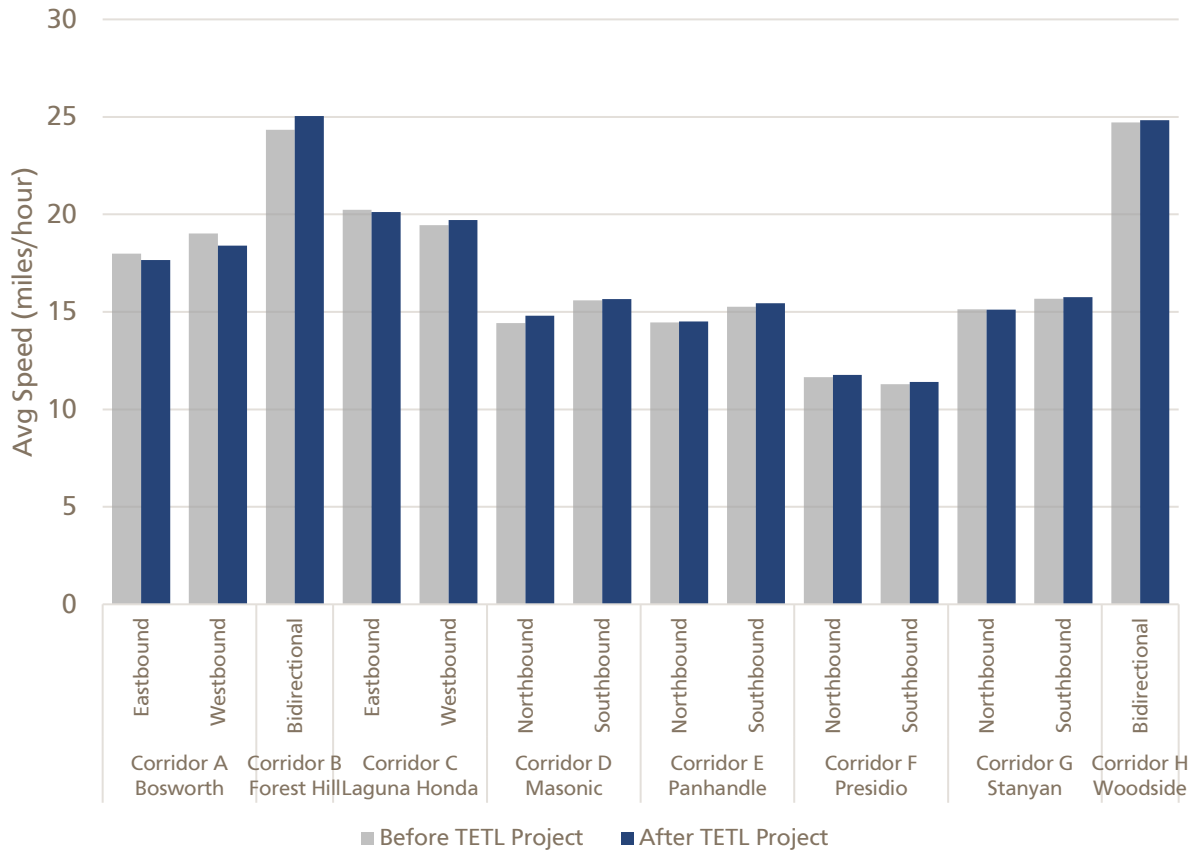

Figure 18: Comparison of all-day average speeds on all corridors before/after the TETL project

Collisions

Methods

All SFMTA projects aim to support the city's Vision Zero policy, which aims to achieve zero traffic deaths. The TransBASE Dashboard (https://transbase.sfgov.org/dashboard/dashboard.php) displays the location and basic data for all traffic collisions in San Francisco involving injury or death. The data is provided by the SFMTA, San Francisco Police Department (SFPD), and San Francisco Department of Public Health (SFDPH). Collision data is updated quarterly.

Collisions were monitored on the same road segments as for traffic, with monthly rates calculated. Time periods used were pre-COVID (September 2019 – February 2020), COVID (October 2020 until implementation) and TETL (implementation – September 2021).

This metric has a small sample size compared to others in the evaluation – less than 30 collisions during each sample period, versus thousands of bus trips and tens of thousands of auto trips. It also has longer time periods with more outside factors, including variation in vehicle volumes, weather events, construction, and road conditions. These factors mean there is inherently a higher degree of randomness in these results than in others in this evaluation. While the aggregated monthly averages provide some indication of overall trends, this metric is intended to be largely qualitative. For segments or locations that show an increase in collisions compared to others in the future, staff will review SFPD collision reports to ensure that collisions are not being increased by traffic changes associated with the 43/44 TETL project nor by traffic diversions caused by the project.

Key findings

During the pre-COVID period, 19 injury collisions (3.2 per month) were reported in the TETL project area During the COVID period, 15 injury collisions (3.0 per month) were reported in the same area. During the TETL period, 13 injury collisions (2.8 per month) were reported in the same area – an increase expected with increased traffic during reopening, but still lower than the pre-COVID rate. Collision rates on the control segments stayed constant at 0.8 to 1.0 collisions per month during these periods. No individual street segments or intersections showed a significant increase in collisions that would indicate a potential deterioration in safety.

Collision reports were checked by SFMTA, with no collisions attributed to conditions that changed as part of the 43/44 TETL project. Therefore, the evaluation does not show that the 43/44 TETL project caused any increase in collisions. SFMTA staff will continue to monitor collision rates as additional quarterly data becomes available.

Observations

To better understand effects associated with improvements and to corroborate analytical findings presented in this report, SFMTA staff conducted observations at each project location between April 2021 and August 2021. The findings for each project location are described in further detail below.

Presidio Avenue, Bush to Sutter

Observations were conducted at Presidio & Sutter on August 26 from 5-6 pm. The treatment at this site is a transit lane southbound on Presidio Avenue from Bush to Sutter streets. To evaluate compliance and effectiveness, the observers counted violations of the transit-only lane and whether those violations impacted bus operations. Violations were defined as use of the transit lane for the entirety of the block.

From 5-6 pm, there were 10 violations (7% of all southbound vehicles observed on the segment during the observation period). Of the ten observed violations, two impeded bus operations for a few seconds. The roadway segment was uncongested (i.e., no queues at the stop sign at Sutter Street) for the entire observation period. Most of the drivers violating the transit-only lane appeared to be speeding. The 43 Masonic has scheduled 12-minute headways during the observation period, so the two buses obstructed account for about one-third of the 43 Masonic buses passing by during the observation period.

Masonic Avenue, Fell to Oak

Observations were conducted at Masonic between Fell and Oak on August 31 between 5-6 pm. The treatment at this site is a transit lane southbound from Fell to Oak. To evaluate effectiveness and compliance, the observers at this site counted violations of the transit-only lane and whether those violations impacted bus operations. There were few violations (2% of traffic). None of four buses observed were impeded by violations.

Woodside Avenue, Ulloa to Portola

Observations were conducted at Woodside/Portola on May 12th and August 24 from 8-10 am. The treatment at this site is an eastbound transit-only lane that begins midblock between Ulloa Street and Portola Drive. To evaluate compliance and effectiveness, the observers for this site noted three items: eastbound queue lengths, violations of the transit-only lane, and whether each bus observed was able to access the transit-only lane.

- Queue lengths: The two-hour observation noted different results for each hour. Between 8 and 9 am, about 85% of observed signal cycles included long enough queues that a bus could not access the transit-only lane. Between 9-10 am, the fraction lowered to 50%.
- Violations: There was an overall average of two drivers per cycle who violated the transit-only lane. Typically, this number of violators did not affect the utility of the lane: buses could still access the lane.
- Bus Access: Between 8-9 am, none of the five observed buses was able to enter the lane because of queue lengths at the signal. Between 9-10 am, five of six observed buses were able to access the transit-only lane.

During the highest-peak hour, buses are typically unable to access the transit-only lane. Outside the highest traffic peaks, the bus can access the lane. Queue lengths appear to determine whether a bus can access the lane.

Bosworth Street, Lippard to Elk

Observations were conducted at Bosworth Street and Elk Street from 8-9 am on April 21, April 27, and August 31. The treatment at this site is a KEEP CLEAR marking which, if observed, allows buses to use the right-turn only lane approaching the intersection and re-enter the through travel lane. Therefore, observers at this site noted the number and frequency of violations of the KEEP CLEAR zone and whether violations impeded the bus. Virtually no drivers observed the marking: each observation period noted a single driver in compliance. The zone was blocked for all signal cycles. Most Muni buses did not use the transit lane to access to the KEEP CLEAR queue cut.

The marking at this location alone does not provide the ability for buses to use the right-turn only lane and re-enter with through traffic.

Laguna Honda Boulevard at Forest Hill Station

Observations were conducted at the Forest Hill KEEP CLEAR marking on August 12 between 5-6 pm. The treatment at this site is a KEEP CLEAR marking which, if observed, allows buses to merge from a bus stop into the left-turn lane. Therefore, the observers at this site noted the number of KEEP CLEAR violations and whether violations impeded the bus.

Among signal cycles where the queue along Laguna Honda was past the KEEP CLEAR marking, the marking was blocked 90% of the time. A bus arrived once during a cycle where the queue extended past the KEEP CLEAR marking; the zone was blocked, preventing the bus from merging into the left-turn lane.

Masonic Avenue at Fulton Street

Observations were conducted at Fulton Avenue & Masonic Street on August 25th between 10-11 am and between 2-3 pm. The treatment at this site is the conversion of peak hour left turn restrictions to full-time left turn restrictions in both directions. Therefore, the observers at this site counted left-turn violations and noted whether the bus was impacted by these violations. Overall, left turn violations were not very common in either period. There were 10 violations between 10-11 am period and five between 2-3 am. Most violations in both period occurred in the southbound direction. Southbound traffic was heavier than northbound traffic, so left-turn gaps were more available for southbound drivers. No buses were affected by any of the violations.

Appendix A: Public survey questions

1. Hello. Thanks for taking SFMTA's survey about Transit Improvements for Muni's 43 Masonic and 44 O'Shaughnessy. Please choose your language.
    a. English
    b. Español
    c. 中文

2. For which project area would you like to provide feedback? (select all that apply)
    - Transit lane on Bosworth
    - Transit lane and left turn restrictions on Masonic
    - Transit lane on Woodside
    - Keep clear zone at Forest Hill Station
    - Transit lane on Presidio

3. How important is it to you that Muni doesn't get delayed in traffic?
    A. Extremely important
    B. Very important
    C. Somewhat important
    D. Not very important
    E. Not at all important
    F. Don't know/not sure

TRANSIT LANE ON BOSWORTH

4. An emergency transit lane was installed on Bosworth Street in April 2021. Thinking about your trips since April, how do you most often travel on Bosworth Street in Glen Park?
    A. Muni
    B. Walk
    C. Drive
    D. Taxi
    E. Uber/Lyft
    F. Bicycle
    G. Scooter (Lime/Spin/etc)
    H. Other
    I. I don't travel there
    J. Don't know/not sure

If answer is C, D, E (Drive, Taxi, Uber/Lyft) send them to Question #9
If answer is anything else, send them to Question #5

5. Have you ridden the 44 O'Shaughnessy since April 2021?
    A. Yes
    B. No
    C. Don't know/not sure

If answer is 5A or 5C, send them to Question #6
If answer is 5B, send them to Question 9

[Ask Questions 6-8 if 5A or C (Yes or Don't know) is selected]

6. How often do you currently take the 44 O'Shaughnessy?
    A. Daily
    B. At least once a week
    C. At least once a month
    D. Occasionally
    E. Never
    F. Don't know/not sure

7. Thinking about Muni's reliability since April 2021, would you say the 44 O'Shaughnessy is:
    a. More reliable
    b. About the same
    c. Less reliable
    d. Don't know/not sure

8. Thinking about your travel time on Muni since early January, would you say the 44 O'Shaughnessy is:
    A. Quicker
    B. About the same
    C. Slower
    D. Don't know/not sure

[Ask Question 9 if 5 DEF (How do you travel? Drive, Taxi, Uber/Lyft) is selected]

9. Since the temporary emergency transit lane was installed in April 2021, how would you describe driving on or near Bosworth Street?
    A. Easier
    B. About the same
    C. More difficult
    D. I don't drive there
    E. Don't know/not sure

If answer is 9C, send them to Question #10
If answer is anything else, send them to Question #11

[Ask Question 10 if 9C (More difficult) is selected]

10. How is driving more difficult on or near Bosworth
    a. Open-ended

Answer is open-ended, send them to Question #11

[Back to asking everyone]

11. Thinking about traffic safety, since the temporary emergency transit lane was installed in April how safe do you feel walking along or across Bosworth Street?
    a. Safer
    b. About the same
    c. Less safe
    d. I don't walk there
    e. Don't know/not sure

12. This project is a temporary measure to benefit those who rely on Muni. Would you support making it permanent?
    a. Definitely support
    b. Probably support
    c. Neither support nor oppose
    d. Probably oppose
    e. Definitely oppose
    f. Don't know/not sure

TRANSIT LANE and TURN RESTRICTIONS ON MASONIC

13. An emergency transit lane and left turn restrictions were installed on Masonic Avenue in April 2021. Thinking about your trips since then, how do you most often travel on Masonic Avenue in the Panhandle?
    A. Muni
    B. Walk
    C. Drive
    D. Taxi
    E. Uber/Lyft
    F. Bicycle
    G. Scooter (Lime/Spin/etc)
    H. Other
    I. I don't travel there
    J. Don't know/not sure

If answer is C, D, E (Drive, Taxi, Uber/Lyft) send them to Question #18
If answer is anything else, send them to Question #14

14. Have you ridden the 43 Masonic since April 2021?
    a. Yes
    b. No
    c. Don't know/not sure

If answer is 14A or 14C, send them to Question #15
If answer is 14B, send them to Question [TBD]

[Ask Questions 15-17 if 14A or C (Yes or Don't know) is selected]

15. How often do you currently take the 43 Masonic?
    a. Daily
    b. At least once a week
    c. At least once a month
    d. Occasionally
    e. Never
    f. Don't know/not sure

16. Thinking about Muni's reliability since April 2021, would you say the 43 Masonic is:
    a. More reliable
    b. About the same
    c. Less reliable
    d. Don't know/not sure

17. Thinking about your travel time on Muni since early January, would you say the 43 Masonic is:
    A. Quicker
    B. About the same
    C. Slower
    D. Don't know/not sure

[Ask Question 18 if 13 DEF (How do you travel? Drive, Taxi, Uber/Lyft) is selected]

18. Since the temporary emergency transit lane and left turn restrictions were installed in April 2021, how would you describe driving on or near Masonic Avenue in the Panhandle?
    A. Easier
    B. About the same
    C. More difficult
    D. I don't drive there
    E. Don't know/not sure

If answer is 18C, send them to Question #19
If answer is anything else, send them to Question #20

[Ask Question 19 if 18C (More difficult) is selected]

19. How is driving more difficult on or near Masonic Avenue
    a. Open-ended

Answer is open-ended, send them to Question #20

[Back to asking everyone]

20. Thinking about traffic safety, since the temporary emergency transit lane and left turn restrictions were installed in April how safe do you feel walking along or across Masonic Avenue?
    a. Safer
    b. About the same
    c. Less safe
    d. I don't walk there
    e. Don't know/not sure

21. This project is a temporary measure to benefit those who rely on Muni. Would you support making it permanent?
    a. Definitely support
    b. Probably support
    c. Neither support nor oppose
    d. Probably oppose
    e. Definitely oppose
    f. Don't know/not sure

TRANSIT LANE ON WOODSIDE

22. An emergency transit lane was installed on Woodside at Portola in April 2021. Thinking about your trips since then, how do you most often travel on Woodside Avenue near Portola?
    A. Muni
    B. Walk
    C. Drive
    D. Taxi
    E. Uber/Lyft
    F. Bicycle
    G. Scooter (Lime/Spin/etc)
    H. Other
    I. I don't travel there
    J. Don't know/not sure

If answer is C, D, E (Drive, Taxi, Uber/Lyft) send them to Question #27
If answer is anything else, send them to Question #23

23. Have you ridden the 44 O'Shaughnessy since April 2021?
    A. Yes
    B. No
    C. Don't know/not sure

If answer is 23A or 23C, send them to Question #24
If answer is 23B, send them to Question [TBD]

[Ask Questions 24-26 if 23A or C (Yes or Don't know) is selected]

24. How often do you currently take the 44 O'Shaughnessy?
    A. Daily
    B. At least once a week
    C. At least once a month
    D. Occasionally
    E. Never
    F. Don't know/not sure

25. Thinking about Muni's reliability since April 2021, would you say the 44 O'Shaughnessy is:
    a. More reliable
    b. About the same
    c. Less reliable
    d. Don't know/not sure

26. Thinking about your travel time on Muni since early January, would you say the 44 O'Shaughnessy is:
    A. Quicker
    B. About the same
    C. Slower
    D. Don't know/not sure

[Ask Question 27 if 2 DEF (How do you travel? Drive, Taxi, Uber/Lyft) is selected]

27. Since the temporary emergency transit lane was installed in April 2021, how would you describe driving on or near Woodside Avenue at Portola Drive?
    A. Easier
    B. About the same
    C. More difficult
    D. I don't drive there
    E. Don't know/not sure

If answer is 27C, send them to Question #28
If answer is anything else, send them to Question #29

[Ask Question 28 if 27C (More difficult) is selected]

28. How is driving more difficult on Woodside near Portola
    a. Open-ended

Answer is open-ended, send them to Question #29

[Back to asking everyone]

29. Thinking about traffic safety, since the temporary emergency transit lane was installed in April how safe do you feel walking along Woodside Avenue?
    A. Safer
    B. About the same
    C. Less safe
    D. I don't walk there
    E. Don't know/not sure

30. This project is a temporary measure to benefit those who rely on Muni. Would you support making it permanent?
    A. Definitely support
    B. Probably support
    C. Neither support nor oppose
    D. Probably oppose
    E. Definitely oppose
    F. Don't know/not sure

KEEP CLEAR ZONE AT FOREST HILL

31. A keep clear zone was installed on Laguna Honda Boulevard at Forest Hill Station in April 2021. Thinking about your trips since then, how do you most often travel on Laguna Honda Boulevard at Forest Hill Station?
    A. Muni
    B. Walk
    C. Drive
    D. Taxi
    E. Uber/Lyft
    F. Bicycle
    G. Scooter (Lime/Spin/etc)
    H. Other
    I. I don't travel there
    J. Don't know/not sure

If answer is C, D, E (Drive, Taxi, Uber/Lyft) send them to Question #37
If answer is anything else, send them to Question #33

32. Have you ridden the 43 Masonic or the 44 O'Shaughnessy since April 2021?
    A. Yes
    B. No
    C. Don't know/not sure

If answer is 32A or 32C, send them to Question #33
If answer is 32B, send them to Question [TBD]

[Ask Questions 33-35 if 32A or C (Yes or Don't know) is selected]

33. How often do you currently take the 43 Masonic or the 44 O'Shaughnessy?
    A. Daily
    B. At least once a week
    C. At least once a month
    D. Occasionally
    E. Never
    F. Don't know/not sure

34. Thinking about the 43 Masonic and/or the 44 O'Shaughnessy's reliability since April, would you say Muni is:
    A. More reliable
    B. About the same
    C. Less reliable
    D. Don't know/not sure

35. Thinking about your travel time on the 43 Masonic and/or the 44 O'Shaughnessy since early January, would you say the Muni is:
    A. Quicker
    B. About the same
    C. Slower
    D. Don't know/not sure

[Ask Question 35 if 32 DEF (How do you travel? Drive, Taxi, Uber/Lyft) is selected]

36. Since keep clear zone was installed in April 2021, how would you describe driving on Laguna Honda Boulevard at Forest Hill Station?
    A. Easier
    B. About the same
    C. More difficult
    D. I don't drive there
    E. Don't know/not sure

If answer is 36C, send them to Question #37
If answer is anything else, send them to Question #38

[Ask Question 10 if 9C (More difficult) is selected]

37. How is driving more difficult on Laguna Honda Boulevard at Forest Hill Station
    a. Open-ended

Answer is open-ended, send them to Question #38

[Back to asking everyone]

38. Thinking about traffic safety, since the keep clear zone was installed in April how safe do you feel walking along or on Laguna Honda Boulevard at Forest Hill Station?
    A. Safer
    B. About the same
    C. Less safe
    D. I don't walk there
    E. Don't know/not sure

39. This project is a temporary measure to benefit those who rely on Muni. Would you support making it permanent?
    A. Definitely support
    B. Probably support
    C. Neither support nor oppose
    D. Probably oppose
    E. Definitely oppose
    F. Don't know/not sure

TRANSIT LANE ON PRESIDIO

40. An emergency transit lane was installed on Presidio Avenue on the block between Sutter and Post streets in April 2021. Thinking about your trips since then, how do you most often travel on Presidio Avenue on the block between Sutter and Post streets?
    A. Muni
    B. Walk
    C. Drive
    D. Taxi
    E. Uber/Lyft
    F. Bicycle
    G. Scooter (Lime/Spin/etc)
    H. Other
    I. I don't travel there
    J. Don't know/not sure

If answer is C, D, E (Drive, Taxi, Uber/Lyft) send them to Question #44
If answer is anything else, send them to Question #41

41. Have you ridden the 43 Masonic since April 2021?
    A. Yes
    B. No
    C. Don't know/not sure

If answer is 41A or 41C, send them to Question #42
If answer is 41B, send them to Question [TBD]

[Ask Questions 42-44 if 41A or C (Yes or Don't know) is selected]

42. How often do you currently take the 43 Masonic?
    A. Daily
    B. At least once a week
    C. At least once a month
    D. Occasionally
    E. Never
    F. Don't know/not sure

43. Thinking about Muni's reliability since April 2021, would you say the 43 Masonic is:
    A. More reliable
    B. About the same
    C. Less reliable
    D. Don't know/not sure

44. Thinking about your travel time on Muni since early January, would you say the 43 Masonic is:
    A. Quicker
    B. About the same
    C. Slower
    D. Don't know/not sure

[Ask Question 45 if 40 DEF (How do you travel? Drive, Taxi, Uber/Lyft) is selected]

45. Since the temporary emergency transit lane was installed in April 2021, how would you describe driving on Presidio Avenue on the block between Sutter and Post streets?
    A. Easier
    B. About the same
    C. More difficult
    D. I don't drive there
    E. Don't know/not sure

If answer is 45C, send them to Question #46
If answer is anything else, send them to Question #47

[Ask Question 46 if 45C (More difficult) is selected]

46. How is driving more difficult on Presidio Avenue on the block between Sutter and Post streets
    a. Open-ended

Answer is open-ended, send them to Question #47

[Back to asking everyone]

47. Thinking about traffic safety, since the keep clear zone was installed in April how safe do you feel walking on Presidio Avenue on the block between Sutter and Post streets?
    F. Safer
    G. About the same
    H. Less safe
    I. I don't walk there
    J. Don't know/not sure

48. This project is a temporary measure to benefit those who rely on Muni. Would you support making it permanent?
    G. Definitely support
    H. Probably support
    I. Neither support nor oppose
    J. Probably oppose
    K. Definitely oppose
    L. Don't know/not sure

SUMMARY QUESTIONS AT END

49. Is there anything you'd like to add about the emergency transit improvements for either the 43 Masonic and/or the 44 O'Shaughnessy Routes?
    a. Open-ended

[demographic questions]

50. What is your age?
    a. 18 or under
    b. 19-24
    c. 25-34
    d. 35-44
    e. 45-54
    f. 55-64
    g. 65-74
    h. 75 or over
    i. Don't know/not sure
    j. Prefer not to answer

51. How do you describe your gender identity?
    a. Female
    b. Male
    c. Transgender
    d. Gender Non-binary
    e. Another gender
    f. Don't know/not sure
    g. Prefer not to answer

52. With what race and/or ethnicity do you identify?
    a. Asian, Pacific Islander
    b. Black, African American
    c. Hispanic, Latinx
    d. Middle Eastern, North African
    e. Native American
    f. White
    g. Other
    h. Don't know / not sure
    i. Prefer not to answer

[Ask Question 20 if 19G (Other) is selected]

53. Please specify your race and/or ethnicity
    a. Open-ended

54. What is your native language?
    a. English
    b. Cantonese
    c. Mandarin
    d. Spanish
    e. Filipino and/or Tagalog
    f. Russian
    g. Vietnamese
    h. Other
    i. Don't know/not sure
    j. Prefer not to answer

55. How well do you speak English?
    a. Very well
    b. Well
    c. Not well
    d. Not at all
    e. Don't know/not sure
    f. Prefer not to answer

56. Do you have a disability that currently affects your daily life?
    A. Yes
    B. No
    C. Don't know/not sure
    D. Prefer not to answer

57. What is your total annual household income?
    a. Less than $10,000
    b. $10,000 to $24,999
    c. $25,000 to $49,999
    d. $50,000 to $99,999
    e. $100,000 to $149,999
    f. $150,000 to $199,999
    g. $200,000 or more
    h. Don't know
    i. Prefer not to answer

58. How many people are in your household?
    a. 1
    b. 2
    c. 3
    d. 4
    e. 5
    f. 6 or more
    g. Don't know/not sure
    h. Prefer not to answer

59. Do you or someone in your household own a car that is used for transportation in San Francisco?
    a. Yes
    b. No
    c. Not applicable/Don't know/not sure

60. What is your zip code?
    a. Open ended

61. Would you like text or email updates about the future of the temporary emergency transit lanes?
    a. Yes! Text me updates.
    b. Yes! Email me.
    c. No thanks.

[Ask Question 29 if 28A (Text) is selected]

62. What phone number would you like subscribed to project update texts?
    a. Open ended

[Ask Question 30 if 28B (Email) is selected]

63. What email address would you like subscribed to project update emails?
    a. Open ended (ensure it only accepts email formats)