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Municipal  
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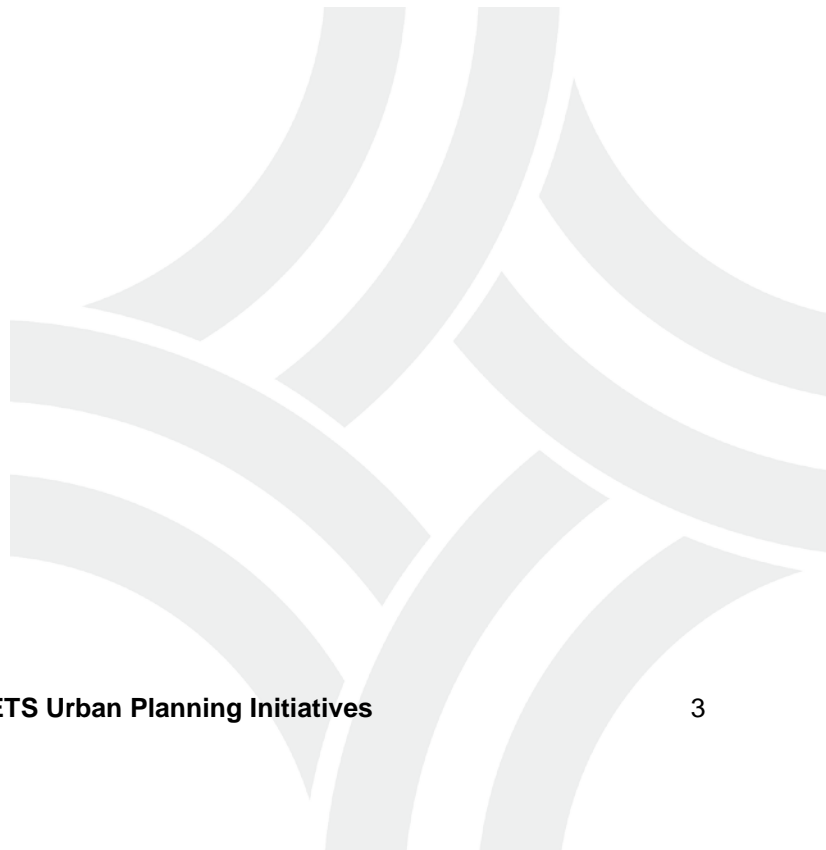
# Commuter Shuttle Pilot Program

Evaluation Report  
October 5, 2015

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## **Introduction**

This report provides an evaluation of the Commuter Shuttle Pilot Program (the “Pilot Program”), adopted by the San Francisco Municipal Transportation Agency (SFMTA) Board of Directors in January 2014. The ongoing 18-month Pilot Program has provided the SFMTA with an opportunity to test the management of privately operated commuter shuttles by creating a network of shared Muni zones and shuttle-only zones for loading and unloading of passengers.

## **Background**

Privately operated commuter shuttles, which ferry workers from their neighborhoods to places of work or transportation hubs, have become increasingly common on the streets of San Francisco. Commuter shuttles provide a commute choice to thousands of employees, students, and other residents of the City, and provide alternatives to drive-alone trips. Shuttles are associated with reduced auto ownership and the increased use of transit, walking, and bicycling for non-commute trips. Shuttles participating in the Pilot Program currently provide approximately 17,000 individual boardings on an average weekday (with one or both ends of the trip in San Francisco), most of these during morning and evening peak hours.

Before August 2014, San Francisco did not regulate commuter shuttles. Shuttles operated throughout the City on both large arterial streets, such as Van Ness and Mission Streets, and smaller residential streets. Shuttles loaded and unloaded passengers in a variety of zones, including white loading zones, red Muni zones, and other vacant curb space. When curb space was unavailable, shuttles often would load or unload passengers in the street. The lack of rules for where and when loading and unloading were permitted resulted in confusion for shuttle operators and neighborhood residents, inconsistent enforcement, and real and perceived conflicts with other transportation modes.

To address these issues, in January 2014, the SFMTA Board approved an 18-month Pilot Program to test sharing of designated Muni zones with eligible commuter shuttles that pay a fee and receive a permit containing terms and conditions for use of the shared zones. The Pilot Program began in August 2014, and created a network of shared stops for use by Muni and those commuter shuttle buses that chose to participate, and restricted parking for some hours of the day in a few locations to create passenger loading (white) zones exclusively for the use of permitted commuter shuttles.

## **Objectives of the Pilot Program**

Commuter shuttles have used the streets of San Francisco for decades, but their numbers have increased in the last few years. Without designated curb space for loading and unloading, private commuter shuttle operators have imperfect choices to make about where to load and unload riders. Stopping in the travel lane (adjacent to parked cars)

blocks auto and bicycle traffic, presents safety hazards for riders boarding and alighting, and risks a parking or traffic citation. Stopping without authorization at a Muni zone enables safer curbside access, but can delay Muni and risks a parking citation.

In addition to potential conflicts at loading points, commuter shuttles present other benefits and challenges for the transportation system. The shuttles take cars off the streets by giving commuters an alternative to driving in order to get to work. However, they are sometimes larger than Muni buses, can produce more emissions per vehicle than smaller vehicles, and can present an unwelcome presence particularly on smaller city streets.

The objectives of the Pilot Program included:

- Create clear and enforceable locations and guidelines for shuttle loading and unloading
- Reduce conflicts with Muni and other vehicles
- Improve safety in shuttle interactions with other users
- Reduce drive-alone trips, vehicle miles traveled, and greenhouse gas emissions
- Provide a positive partnership between City agencies and private sector transportation partners
- Increase acceptance of commuter shuttles by community members
- Gather data regarding shuttle activity in the City

The Pilot Program also allowed SFMTA to collect data regarding the movement of, usage of, and reaction to commuter shuttles in San Francisco. Based on the data collected, this report evaluates how the Pilot Program performed on its objectives. In addition, this Evaluation Report will be used to make recommendations as to (a) whether the program should be continued, and (b) whether any policy or procedural changes should be made if a commuter shuttle program is established.

## **Summary of findings**

### **Shuttle activity**

- The Pilot Program shuttle zone network began with requests from shuttle operators for over 240 zones. The SFMTA established a network of 101 zones, which grew to 124 zones by July 2015.
- Shuttles make an average of nearly 3,000 stop-events every weekday. A stop-event is every time a shuttle stops at a zone with the intention of loading or unloading passengers.

- In July 2015, Van Ness between Union and Market saw an estimated 498 stop-events per day, or 17% of all the daily stop-events in the City.
- The top 20% of zones saw 58% of all stop-event activity.
- In June 2014, before the official launch of the Pilot Program, shuttles made an estimated 2302 daily stop-events at zones in the network. In July 2015, shuttles made an estimated 2978 daily stop-events at zones in the network, a 29% increase.
- Shuttles participating in the permit program see 356,998 boardings per month, or 17,000 on an average weekday.
- 76% of the monthly boardings are on intercity regional shuttle trips, and 24% are on shuttle trips that begin and end in San Francisco.
- About 8,500 people ride a permitted shuttle round-trip each day.
- Shuttles load or unload an average of 5.7 people per stop-event.
- Intercity regional shuttles travel an average of 47 miles one-way, while intracity shuttles travel an average of two miles one-way.
- Across the Pilot Program, shuttle vehicle miles traveled (VMT) is an estimated 47,484 per weekday, 997,156 per month, and 11,965,877 per year.

### **Shuttle ridership and shuttles' impact on drive-alone vehicle trips**

- Shuttle riders' homes are widely dispersed among neighborhoods in the City, though the top ten neighborhoods of origin are concentrated in the Mission and the northeastern quadrant of the City.
- The vast majority of shuttle riders work in the Peninsula/South Bay.
- 45% of shuttle riders do not own cars, and 45% of those who do not own cars cited shuttles as the "main reason" they did not own a car.
- 47% of shuttle riders said they would drive alone to work if a shuttle were not available.
- Shuttles remove nearly 4.3 million vehicle miles traveled from the region's streets each month.

### **Traffic, transit and safety issues**

- Average shuttle dwell times grew from about 58 seconds to about 62 seconds from June 2014 to June 2015.
- On a per-stop-event basis, instances of shuttles blocking Muni decreased by 35% from the pre-pilot to during-pilot data collection periods.
- Twelve of the 20 zones (60%) observed in June 2015 saw no Muni buses blocked at all.

- An average of 2.7% of shuttle stop-events resulted in blocking Muni access to a zone.
- Across all the 706 shuttle stop-events observed in June 2015, a total of 19 Muni buses were temporarily prevented from accessing the Muni zone.
- The delay per Muni run (Muni makes over 1,200 runs every weekday) is approximately four seconds.
- Seven of the eight shuttle-only zones not shared with Muni saw no blocked Muni buses at all in the June 2015 field data collection.
- Shuttles block travel and bike lanes about 35% of the time that they stop.
- Shuttles block drivers' views of pedestrians, or block crosswalks, less than 2% of the time that they stop.

### **Enforcement and community feedback**

- Between the beginning of the Pilot Program in August 2014 and the end of May 2015, SFMTA enforcement officers issued 1200 citations to shuttle buses, or an average of 103 citations per month.
- The most common citations issued to shuttle buses were for double-parking and non-permitted use of a Muni zone.
- 69% of public comments focused on shuttles being in a place where they are either not permitted or not appreciated: idling on streets, using weight-restricted streets, using unauthorized stops, or simply being unwelcome on the streets of San Francisco.
- Safety-related comments (unsafe driving, blocking crosswalks, and blocking bike lanes) made up 34 of 296 comments, or 11%.

### **Pilot Program overview**

The Pilot Program applies to privately operated transportation services that move commuters to, from, and within San Francisco. Services that are arranged by an employer, building, or institution to provide transportation from home to work, work to home, last-mile to work, or work site to work site are eligible to participate in this program.

To implement the Pilot Program, the SFMTA designated, and marked with appropriate signage, approximately 100 Muni zones and approximately 20 limited-hours permitted-shuttle-only loading zones for participating shuttle providers to load and unload passengers. These shuttle zones were determined by first soliciting suggestions for locations from shuttle providers and members of the public via an online map. The suggested shuttle zones were then reviewed with transit and other divisions within the SFMTA to attempt to limit any adverse impacts on Muni operations, traffic flow, or safety

for people walking and biking. SFMTA staff worked extensively with shuttle providers to determine the best shuttle zones that would have minimal impacts to the transportation system. The original network of shuttle zones was then approved by the SFMTA Board.

Commuter shuttle zones are indicated by signs and painted curbs (red curbs at Muni zones, and white curbs at loading zones). The Pilot Program did not include modifications to existing Muni transit routes and did not remove or relocate any existing Muni bus stops.

A map and a list of Muni zones and passenger loading white zones currently designated as commuter shuttle zones for the Pilot Program are available on the SFMTA's Pilot Program project page.<sup>1</sup> Over the course of the Pilot Program, some zones have been added, removed, moved or lengthened to accommodate the transportation, safety, or community concerns, such as:

- Muni-dictated changes to the Muni stop network as a result of Muni Forward or other projects
- Changes to pedestrian or bike infrastructure that may eliminate a loading zone
- Tree conflicts or other height-clearance hazards
- Heavier-than-expected (or increased) shuttle demand
- Lower-than-expected (or decreased) shuttle demand
- Streetscape projects that change or prevent commuter shuttles' ability to access an existing loading zone

The Pilot Program required the removal or restriction of a limited number of existing on-street parking spaces in order to extend the length of a few Muni and loading zones. Added shuttle loading zones typically required the use of 60 to 100 feet of curb space for loading during certain hours, restricting parking at that curb space during those hours only. All changes to zone locations or lengths during the Pilot Program were submitted for public review and comment at publicly noticed SFMTA hearings.

The Pilot Program did not dictate the routing of individual shuttles, though all shuttle providers were required to comply with San Francisco's commercial vehicle, weight, and passenger restrictions for designated streets. Additionally, permitted commuter shuttles were encouraged, through outreach by SFMTA staff to the companies providing shuttle services, to select routes that follow arterial streets and avoid residential streets.

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<sup>1</sup> Map:  
<https://www.sfmta.com/sites/default/files/projects/2015/Pilot%20Shuttle%20Network%20150818%20%28map%29.pdf>

List:  
<https://www.sfmta.com/sites/default/files/projects/2015/Shuttles%20Network%20150818%20%28list%29.pdf>



With the approval of the SFMTA Board, the Pilot Program charged a fee to shuttle providers to recover the costs associated with planning, administering, maintaining and updating the program and the network of stops. The fee is charged on a per-stop-event basis, in order to charge more to those participating providers who make more use of the zone network. For Fiscal Year 2016, which began on July 1, 2015, the fee is \$3.67 per stop-event, per shuttle. Thus, a shuttle provider with 10 buses making 10 stop-events each per day would be charged  $\$3.67 \times 10 \text{ shuttles} \times 10 \text{ stop-events per day} = \$367$  per day.

The Pilot Program required shuttle providers to apply for permits to participate in the program. In order to receive a permit, shuttle providers were required to provide, among other things: vehicle registration and license information; the estimated number of stop-events the shuttle provider would make at each zone in the network on a typical day; and GPS data regarding the real-time location and stop-events of each shuttle in the Pilot Program. The Pilot Program required that shuttle providers reapply for all permits by February 1, 2015—six months in to the Pilot Program.

Currently, 16 shuttle providers participate in the Pilot Program. Most shuttle vehicles are either cutaway buses (buses/shuttles formed by a small- to medium- truck chassis attached to the cabin of a truck or van, also called “mini buses”) or motor coaches (also called “over the road” coaches) of either 40 or 45 feet in length designed for transporting passengers on intercity trips.

The most-used zones see more than 100 shuttle stop-events per day, while some zones in the network see no stop-events at all. The corridors or locations with the most shuttle traffic in the Pilot Program include:

- Lombard,
- Van Ness,
- Divisadero/Castro,
- Valencia,
- 24th/25th Street in the Mission/Noe Valley,
- 30th Street in Noe Valley, and
- Townsend/Fourth Street near the Caltrain station.

## **Shuttle activity**

### **The Pilot Program shuttle loading zone network**

To create the shuttle loading zone network, the SFMTA invited shuttle operators to propose zones to be included in the network, and sought input from community members and Muni operators and inspectors on zones to be included in or excluded from the

network and factors to consider in evaluating proposed zones. Shuttle operators initially submitted requests for 240 zones across the City. SFMTA transit service planning and engineering staff evaluated requested stops in light of community input, Muni operations and stop configuration to propose a pilot network of shared stops. The pilot network of shared zones, zone extensions, and shuttle-only zones was submitted for public review at SFMTA engineering hearings.

At the time of the Pilot Program launch, a shuttle loading zone network of 101 zones was created. The shuttle zone network has since grown to 124 zones. Assuming that the shuttle providers' initial requested list of zones is an accurate representation of the locations at which shuttles were loading before the Pilot Program, the Pilot Program's zone network reduced shuttle loading locations by nearly 50%.

As of July 2015, 14 of the approved zones have seen zero stop-events. Of these zones, seven were included in the Pilot Program network despite the fact that they were not requested by shuttle operators, for geographic diversity, in response to residents' requests, and to determine if shuttle operators would use them. The other seven zones that currently see no shuttle stop-events were, in fact, initially requested by the shuttle operators. In contrast, all of the 25 most-used zones were initially requested by shuttle operators (or are within two blocks of a zone location requested by a shuttle operator). This suggests a few conclusions:

- To some extent, shuttle-riding populations attract shuttle operators to where they live, rather than shuttle-riding populations being drawn to shuttle zones;
- Shuttle demand changes rapidly enough, especially at lower-use zones, that zones that were used one year ago now get no use at all; and
- The high-demand areas before the Pilot Program continued to be high-demand areas during the pilot.

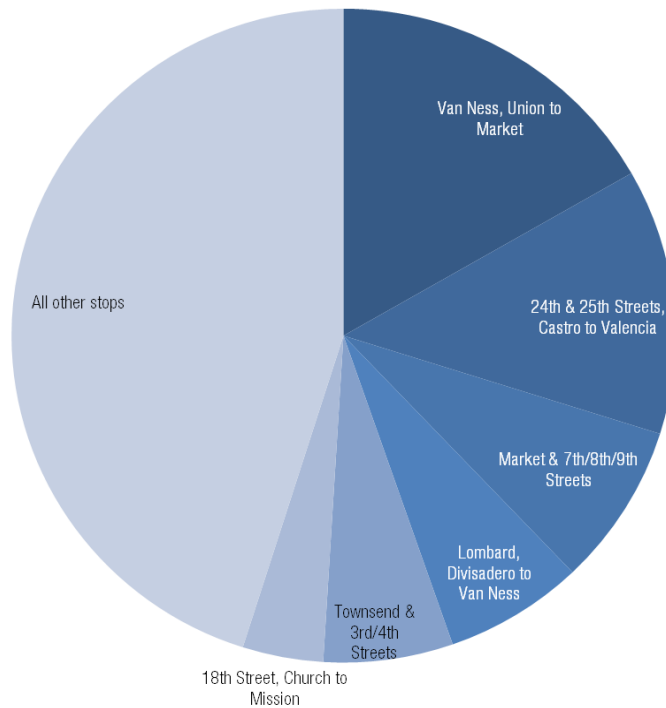
### **Shuttle stop-event activity**

As a requirement of the Pilot Program, each month shuttle operators are required to provide an estimate of daily stop-events made by their shuttle vehicles at each zone in the network. Shuttles make an average of nearly 3,000 stop-events every weekday.

Stop-events tend to be concentrated on certain corridors. In July 2015, Van Ness between Union and Market saw an estimated 498 stop-events per day, or 17% of all the daily stop-events in the City. The top 20% of zones saw 58% of all stop-event activity.

The busiest areas for shuttle stop-events are:

Daily shuttle stop-event distribution, July 2015	
Area	Stop-events
Van Ness, Union to Market	498
24th & 25th Streets, Castro to Valencia	391
Market & 7th/8th/9th Streets	239
Lombard, Divisadero to Van Ness	202
Townsend & 3rd/4th Streets	188
18th Street, Church to Mission	117
All other stops	1,343
<b>Total</b>	<b>2,978</b>



The number of stop-events made by shuttles has grown over time. In June 2014, before the official launch of the Pilot Program, shuttles made an estimated 2302 daily stop-events at zones in the network. In July 2015, shuttles were estimated to make 2978 daily stop-events at zones in the network, a 29% increase.

In addition, the pilot network of designated zones has grown since the beginning of the Pilot Program. In June 2014, there were 101 zones in the network, compared to 124 in July 2015, a 23% increase. The 26 zones added to the network since June 2014 now see an estimated 344 stop-events per day, while the three zones removed since June 2014 saw six stop-events per day, for a net change of 338 additional stop-events per day. Because the zone network has grown along with the number of stop-events, the average

number of daily stop-events per zone has grown by just one from June 2014 to July 2015, from 23 to 24.

The field data collection effort, which focused on 20 representative zones from before and during the Pilot Program, provides a more detailed look at changes in regulation on traffic and safety at individual zones. That data is analyzed below.

### Shuttle rider boardings

Shuttles participating in the permit program see 356,998 boardings per month, or 17,000 boardings on an average weekday (a boarding is one person riding a shuttle in one direction, with origin or destination in San Francisco). Of the total monthly boardings, 270,253 are on intercity regional shuttle trips, and 86,745 are on shuttle trips that begin and end in San Francisco. Assuming that most people board the shuttle twice in a day, this means that an average of 8,500 people ride a permitted shuttle each day. Shuttles load or unload an average of 5.7 people per stop-event.

### Shuttle miles traveled

Intercity regional shuttles travel an average of 47 miles one-way, while intracity shuttles, which primarily ferry people between transit hubs and business locations, have average trip lengths of two miles.

Across the Pilot Program, the aggregate shuttle vehicle miles traveled (VMT) in service of commuter shuttle operations is an estimated 47,484 per weekday, 997,156 per month, and 11,965,877 per year.<sup>2</sup> The table below compares shuttle VMT with estimates of total VMT in San Francisco, San Mateo and Santa Clara Counties.<sup>3</sup>

Average weekday VMT	VMT	% of total
Pilot program shuttles	47,484	0.06%
San Francisco	8,846,000	12%
San Mateo	18,817,200	26%
Santa Clara	45,459,100	62%

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<sup>2</sup> These numbers include vehicle miles traveled on “deadhead” trips, or trips made by empty shuttles to a waiting or overnight location.

<sup>3</sup> Vehicle miles traveled data for San Francisco, San Mateo and Santa Clara counties comes from: [http://www.mtc.ca.gov/maps\\_and\\_data/datamart/stats/vmt.htm](http://www.mtc.ca.gov/maps_and_data/datamart/stats/vmt.htm)

## Shuttle vehicles and occupancy

As of March 2015, shuttle operators had registered 479 vehicles for use in the permit program. The table below shows the different vehicle types and specifications (note that not all registered vehicles are used every day—many permittees register back-up vehicles or whole fleets to enable operational flexibility):

Shuttle vehicle types	
Motor Coaches (typical 40+ passenger intercity bus, including double decker vehicles)	399
Urban buses (low floor 30-40 passenger bus, similar to a Muni bus)	30
Mini buses (20-30 passengers)	40
Vans (6-12 passengers)	10
<b>Total</b>	<b>479</b>

Single-decker motor coach



Double-decker motor coach



Mini bus (cutaway van)



Van



The majority of these vehicles are motor coaches, which are as long as most Muni buses and often much taller. The seating capacity of the double-decker motor coaches is more than twice that of the smaller mini buses.

As will be discussed in more detail below, the size of the shuttle vehicles has raised concerns among some community members, who question whether the charter bus-style shuttles are appropriate for narrow, residential streets or streets with high concentrations of people walking and biking. In addition, the SFMTA has received many anecdotal accounts claiming that the large shuttle buses were not full.

To determine (a) the relative occupancy levels of the shuttles and (b) how many vehicles would be added to the streets if those larger buses were replaced with smaller vehicles, the SFMTA obtained from the shuttle operators a sampling of average occupancy rates for regional runs by the larger motor coach shuttles.<sup>4</sup> The sample included 225 intercity motor coach runs, which carried 6,555 passengers on an average day.

Motor coaches are available as either single-decker or double-decker. Single-decker motor coaches accommodate 50-56 passengers, while double-decker motor coaches accommodate 60-80 passengers. Typical cutaway shuttles accommodate about 30 passengers. For the 225 motor coach runs for which shuttle operators provided data, occupancy upon exiting San Francisco ranged from 4 to 67, with an average occupancy of 29 riders.<sup>5</sup> Based purely on these numbers, 29 riders per shuttle could be accommodated by 225 smaller 30-seat cutaway vehicles, exactly the number of large motor coaches in the sample. However, by definition, an average occupancy of 29 does not mean that each specific shuttle run has 29 passengers and could be accommodated by a 30-seat bus—some runs have more than 29 passengers, some have fewer. In addition, the total number of 30-seat cutaway vehicles that would be required to accommodate these passengers varies further when including the following considerations:

- Shuttle operators plan for shuttle occupancy not to exceed a certain level, to ensure that riders are not left behind in the event of higher-than-expected ridership on a particular day. A survey of Pilot Program participants indicates that shuttles in the Pilot Program generally plan, on average, not to exceed 75% occupancy.
- If there were a restriction on vehicles larger than 30-seat cutaways, shuttle providers might be able to reshuffle their routes and schedules to ensure that vehicles were as full as possible and reduce the number of buses needed to accommodate the 6,555 passengers from the 225-bus sample. In an ideal world, which is in reality prevented by considerations of geography, schedules, and contingencies, bus runs would be redistributed so that every run has a full bus every time.

These considerations suggest a range of options were there a limitation on the use of large motor coaches: from replacing each current motor coach run with at least one (and sometimes two or more) 30-seat cutaway vehicles running at a maximum of 75% capacity, to a completely reshuffled schedule that fills every 30-seat cutaway bus to 100% capacity. The table below shows the number of 30-seat cutaway vehicles that would be

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<sup>4</sup> For purposes of this analysis, smaller vehicles are excluded, as the smaller vehicles do not present the same space and maneuverability issues as the charter buses. Intracity runs are excluded because they almost exclusively use smaller vehicles.

<sup>5</sup> It should be noted that some shuttle operators make continued stops along the Peninsula on their way to destinations on the Peninsula and in the South Bay, meaning that the average occupancy of the motor coaches upon reaching their destinations may be well above 29.



needed to accommodate the riders in the 225-motor coach sample using four different assumptions.<sup>6</sup>

Replacing 225 motor coaches with smaller vehicles	Total 30-seat vehicles needed
Same runs at 75% capacity	398
Same runs at 100% capacity	333
Runs reshuffled at 75% capacity	291
Runs reshuffled at 100% capacity	218

Even assuming that each run currently made by a motor coach would have to be replaced by at least one 30-seat cutaway vehicle, which would nearly double the number of vehicles on the streets, shuttles would continue to compose a small fraction of the total number of vehicles on San Francisco’s streets, and would have a negligible impact on overall traffic congestion. However, more buses would mean more vehicle miles traveled, which may marginally increase greenhouse gas emissions and could increase the likelihood of a serious or fatal collision.

## Shuttles’ impact on drive-alone vehicle trips

### Shuttles’ impact on transportation choices

In June 2015, the SFMTA distributed a survey via shuttle operators and employer sponsors to shuttle riders to determine the impact of shuttle availability on their transportation choices. 546 shuttle riders responded to the survey; 418 (77%) were intercity regional shuttle riders, while 128 (23%) rode intracity shuttles. This split of riders matches the share of boardings for intercity (76%) and intracity shuttles (24%).

Shuttle riders are widely dispersed among neighborhoods in the City, though the top ten neighborhoods of origin are concentrated in the Mission and the northeastern quadrant of the City. The top ten neighborhoods house 55% of total survey respondents, while the remaining 45% of survey respondents are scattered across 56 other neighborhoods.

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<sup>6</sup> This analysis does not address potential other seating configurations for commuter shuttles. For example, some shuttle vehicles are equipped with tables to facilitate working on the bus. These configurations may reduce bus capacity while serving other operational needs.

Neighborhoods of origin	Total riders
Mission	60
Mission Bay	47
Noe Valley	45
SoMa	36
Nob Hill	21
Castro	20
Marina/Cow Hollow	19
Pacific Heights	18
Lower Haight/NoPa	16
North Beach	16
Other Neighborhoods	248

The vast majority of survey respondents work in the Peninsula/South Bay, with more than half of survey respondents working in Menlo Park. (The survey intentionally did not ask for the names of employers, though the prevalence of Menlo Park as a work destination suggests that many Facebook employees completed the survey.)

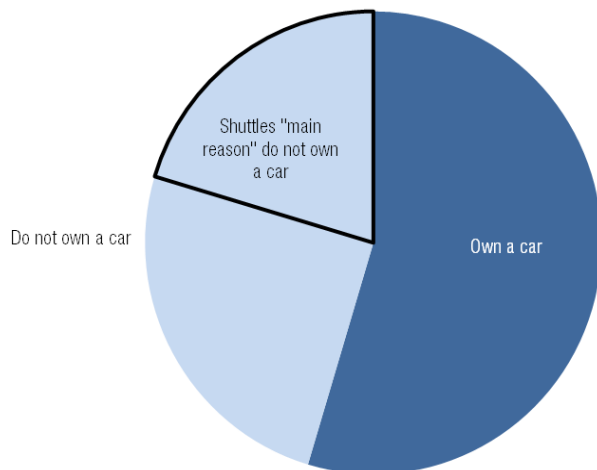
Workplace location	Total riders
Menlo Park	298
San Francisco	128
Mountain View	42
Sunnyvale	41
Cupertino	19
All other locations	18

Nearly 72% of survey respondents ride the shuttle every work day:

Shuttle trip frequency	Total riders	Percent of total
Every day	391	71.6%
A few times a week	95	17.4%
A few times a month	40	7.3%
Less than once a month	20	3.7%

Nearly half (45%) of survey respondents do not own cars, and 45% of those who do not own cars cited shuttles as the “main reason” they did not own a car:





Nearly 50% of survey respondents said they would drive alone to work if a shuttle were not available. The table below shows the breakdown of how survey respondents said they would get to work in the absence of a shuttle:

How would you get to work without the shuttle?	Riders	Percent of total
Drive alone	257	47.2%
Public transit	158	29.0%
Get a job closer to home	75	13.8%
Carpool	28	5.2%
Move closer to work	26	4.8%

These numbers suggest that, for 47% of shuttle riders, shuttles displace drive-alone trips. In sum, assuming survey respondents' views of their behavior in the absence of shuttles is accurate, it appears that shuttles take substantial numbers of cars off the streets.

### Shuttles' impact on vehicle miles traveled

The principal purpose of employer-sponsored shuttles is to provide commuters an alternative to drive-alone trips. To determine whether shuttles are actually taking cars off the road, the SFMTA collected the following data from participating shuttle operators:

- Monthly boardings (includes all boardings for all trips)
- Average one-way trip length
- Monthly miles traveled by each shuttle vehicle (includes "deadhead" miles, when empty shuttles return to a starting point or resting place)

As a whole, shuttles saw 356,997 boardings every month—76% on regional intercity shuttles, 24% on intracity shuttles. Assuming that everyone who rides the shuttles takes

two trips per day (to work and back), an estimated 8,500 people ride the shuttles in the Pilot Program on an average weekday.

The average shuttle trip length of intercity shuttles was 47 miles, and approximately two miles for intracity shuttles. Below is a calculation of the number of vehicle miles that shuttles remove by taking private automobiles off the streets. This calculation is obtained using the results of the rider survey, and assumptions regarding the amount of driving shuttle riders would do if they drove alone, carpooled, moved closer to home or moved closer to work. As discussed above, the shuttle rider survey showed that 47% of shuttle riders would drive alone to work if a shuttle were not available. Applying that figure, and the one-way shuttle trip length, the table below shows that shuttles reduce the total number of vehicle miles traveled by removing private automobiles from the streets:

Monthly VMT reductions attributable to shuttles	Regional	Intracity
VMT eliminated by shuttles	5,166,396	127,598
Shuttle miles traveled	997,156	
Net monthly reduction in VMT	4,296,837	

## Traffic, transit and safety issues

A chief objective of the Pilot Program was to dedicate curb space for loading and unloading of private shuttles in order to minimize commuter shuttles' conflict with Muni and other users of the streets. Delays to Muni, boardings away from the curb, traffic back-ups, blocking bike lanes, or blocking crosswalks or pedestrian visibility may occur when multiple vehicles (either more than one shuttle or a shuttle bus and a Muni bus) are competing for limited curb space, or when shuttle drivers do not take care to pull entirely out of the travel lane to load or unload.

### Field data collection at representative shuttle zones

The SFMTA conducted field data collection in June 2014, before the start of the Pilot Program, and in June 2015, during the Pilot Program, to examine the impact of the Pilot Program on traffic conflicts and safety issues potentially caused by shuttle activity.

This field data collection effort observed shuttle and Muni activity at 20 shuttle zone locations: 10 in the morning (6:45-9:15am) and 10 in the evening (5:30-8:00pm) commute period. Data was collected in the field by SFMTA staff observing stop activity at the selected locations, usually in 2.5-hour increments.

The field data collection locations were chosen with the following considerations in mind:

- **Obtaining a reasonable sample of total stop-events made by commuter shuttles on a typical day.** The pre-pilot data collection observed 372 total stop-events, or 16% of the 2302 average daily estimated stop-events in June 2014.

The during-pilot data collection observed 706 total stop-events, or 24% of the 2978 average daily estimated stop-events in July 2015.

- **Observing shuttles at various types of zones.** In order to measure the impact of shuttles on various types of zones and streets, the SFMTA identified four zone types:
  - Muni rapid/frequent zone
  - Muni non-rapid/frequent zone
  - Non-Muni zone
  - On a street with a bike lane
- **Observing shuttles in geographically diverse and high-profile locations.** To the extent possible, sample zones were chosen to provide geographic diversity, and represent various areas in San Francisco where shuttles operate. Zones range from Lombard/Pierce Streets in the north to Valencia/25th Street in the south, to 19th Avenue and Taraval/Wawona in the west. Zones also cover several sites in the Mission, where shuttle activity has received significant attention.

The during-pilot field data collection effort observed zones that corresponded as closely as possible to the pre-pilot zones observed:

- Geographically: during-pilot zones were either the same zone observed in the pre-pilot data collection effort, or, in cases where previously used zones had been substituted with zones with lower bus frequencies, the Pilot Program's replacement zone
- Time of day: pre-pilot AM zones were observed in the AM during-pilot; pre-pilot PM zones were observed in the PM during-pilot

The pre-pilot zones, during-pilot zones, and combined "zone names" are shown in the table below.<sup>7</sup>

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<sup>7</sup> The first street listed in a zone name is the street upon which the zone appears. "FS" means far-side of intersection, "NS" means near-side. "BZ" means bus zone (i.e., an already existing Muni zone). "WZ" means white zone (i.e., a shuttle-only loading zone).

Pre-pilot zone	During-pilot zone	Zone name
4th St&Townsend St SW-FS/BZ (AM)	Townsend & 4th, Midblock WZ (AM)	4th & Townsend
16th St&Mission NE-NS/BZ (PM)	16th St&Mission SE-FS/BZ (PM)	16th & Mission
16th St&Mission NE-NS/BZ (AM)	16th St & South Van Ness, SW/WZ (AM)	16th & Mission/South Van Ness
19th Ave&Taraval St NE-FS/BZ (PM)	19th Ave & Wawona, SE/BZ (PM)	19th & Taraval/Wawona
24th St&Castro St SE-FS/BZ (AM)	Castro St&25th St, SE-NS/BZ (AM)	Castro & 24 <sup>th</sup> /25th
Church St&16th St NW-NS/BZ (AM)	Church St & 15th St, NW/WZ (AM)	Church & 15 <sup>th</sup> /16 <sup>th</sup>
Church St&Duboce Ave SE-NS/SI (PM)	Church St & Market St, NE corner/WZ (PM)	Church & Market
Divisadero St&Haight St NE-FS/BZ (PM)	Divisadero St & Oak St, NE/BZ (PM)	Divisadero & Haight/Oak PM
Divisadero St&Geary Blvd SW-FS/BZ (AM)	Divisadero St&Geary Blvd SW-FS/BZ (AM)	Divisadero & Geary
Divisadero St&Haight St SW-FS/BZ (AM)	Divisadero St&Haight St SW-FS/BZ (AM)	Divisadero & Haight AM
Fillmore St&Jackson St NE-FS/BZ (PM)	Fillmore St&Jackson St NE-FS/BZ (PM)	Fillmore & Jackson
Lombard St&Pierce St NE-NS/BZ (PM)	Lombard St&Pierce St NE-NS/BZ (PM)	Lombard & Pierce
Van Ness Ave&Oak St NW-NS/BZ (AM)	South Van Ness & Market St, SW/WZ (AM)	Van Ness & Market AM
Valencia St&24th St SW-FS/BZ (AM)	Valencia St&24th St SW-FS/BZ (AM)	Valencia & 24th
Valencia St&25th St NE-FS/BZ (PM)	Valencia St&25th St NE-FS/BZ (PM)	Valencia & 25th
Van Ness Ave&Market St NE-FS/BZ (PM)	Van Ness Ave&Grove St, NE-FZ, BZ (PM)	Van Ness & Market PM
Van Ness Ave&Sacramento St NW-NS/BZ (AM)	Van Ness Ave & Sacramento St, SW/WZ (AM)	Van Ness & Sacramento
Van Ness Ave&California St NE-FS/BZ (PM)	Van Ness Ave&California St NE-FS/BZ (PM)	Van Ness & California
Van Ness Ave&Union St SE-NS/BZ (PM)	Van Ness Ave&Union St SE-NS/BZ (PM)	Van Ness & Union PM
Van Ness/Union SW/WZ (AM)	Van Ness/Union SW/WZ (AM)	Van Ness & Union AM

## Data collection methodology

Data collectors recorded the following information at each shuttle zone:

- Shuttle identifying information (license plate number or Pilot Program placard number)
- Shuttle arrival and departure time
- Number of shuttle passengers boarding/alighting
- Number of Muni vehicle stop-events at the location, or, at non-Muni shuttle zones, the number of Muni vehicles that stopped at the Muni zone nearest the shuttle zone
- Traffic conflicts: whether each shuttle
  - Blocked travel lane
  - Blocked bike lane
  - Blocked right-turning cars from seeing crossing pedestrians (“right turn/near-side”)
  - Double parked (also recorded as blocking travel lane)
  - Could not access stop (because another shuttle, Muni, or another vehicle blocked access)
  - Prevented an arriving Muni bus from accessing stop

- Prevented an arriving shuttle bus from accessing stop
- Loaded/unloaded in street
- Led to Muni loading/unloading in street
- Any other conflicts (e.g., blocked crosswalk)
- Any other issues that may have affected traffic in and around the stop (e.g., road construction, illegally parked vehicle, etc.)

Most of the selected zones experienced substantial activity, leaving data collectors with limited time. Thus, data collectors did not record the following information:

- Muni arrival or departure times
- Number of passengers boarding/alighting on Muni
- Specific instances of people who experience disabilities (or other platform lift users) being denied access to a Muni bus (note that a Muni bus loading/unloading in the street is a general proxy for the Muni bus, and thus any platform lift users on the Muni bus, being denied access to the curb)

### Shuttle frequency

Shuttle frequency (measured by stop-events) at the observed zones increased by nearly 80% from June 2014 to June 2015, while Muni frequency rose by 8.5%.

Average vehicles per hour per stop	Shuttles	Muni
June 2014	7.87	7.83
June 2015	14.12	8.50
Change	80%	8.5%

This substantial increase in stop-events at the observed zones likely results from a combination of:

- The overall increase in shuttle activity over the course of the pilot. Total estimated stop-events by shuttles increased by 29% from June 2014 to July 2015
- A slight increase in the total hours spent observing shuttle activity for the during-pilot field data collection
- A concentration of shuttle stop-event activity at particular high-demand zones—many of which were included in the field data collection effort—as a result of the Pilot Program’s requirement that shuttles limit their loading and unloading to the zone network, rather than at zones across the City. The table below shows a doubling or tripling of shuttle activity in major zones like Lombard, Van Ness, and Castro:

Shuttles per hour	Pre-pilot	During pilot
4th & Townsend	12	11.2
16th & Mission	9.9	0.4
16th & Mission/South Van Ness	8	6.8
19th & Taraval/Wawona	6	8.8
Castro & 24th/25th	3.6	11.6
Church & 15th/16th	1.6	7.2
Church & Market	2.8	6.4
Divisadero & Haight/Oak PM	7.4	10.8
Divisadero & Geary	8	8.4
Divisadero & Haight AM	8.6	17.6
Fillmore & Jackson	0.4	4.4
Lombard & Pierce	7.6	19.2
Van Ness & Market AM	8.5	14
Valencia & 24th	10.3	16
Valencia & 25th	14	20.8
Van Ness & Market PM	8.8	16.8
Van Ness & Sacramento	9.5	24
Van Ness & California	10	28
Van Ness & Union PM	5.2	17.6
Van Ness & Union AM	15.2	32.4

Average shuttle dwell times were higher, by slightly less than five seconds, for the June 2015 data observations.<sup>8</sup> This difference likely results from random fluctuations in the data rather than distinct changes to shuttle operations.

Average shuttle dwell times (seconds)	AM zones	PM zones	Average
June 2014	67.2	48	57.6
June 2015	69	55.8	62.4
Change	1.8	7.8	4.8

### Shuttle and Muni conflicts

One of the principal objectives of the Pilot Program was to minimize or avoid shuttle conflicts with Muni, whenever possible. To that end, the Pilot Program shuttle zone network included zones on lower-frequency Muni lines and exclusive shuttle loading zones near, but not shared with, Muni zones. The table below compares the number of times that a Muni bus was temporarily blocked by a shuttle from accessing a Muni zone, pre- and during-pilot. Zones that are shuttle-only appear in bold.

<sup>8</sup> The 4<sup>th</sup> & Townsend zone was removed for purposes of the dwell time analysis. With a during-pilot average shuttle dwell time of nearly five minutes, it was almost five times longer than the average dwell time for all other zones, likely due to its proximity to the Caltrain depot.

Blocked Muni vehicles per hour	Pre-pilot	During pilot
<b>4th &amp; Townsend</b>	0.8	0
16th & Mission	0	0
<b>16th &amp; Mission/South Van Ness</b>	0.4	0
19th & Taraval/Wawona	0	0
Castro & 24th/25th	0	0
<b>Church &amp; 15th/16th</b>	0	0
<b>Church &amp; Market</b>	0	0
Divisadero & Haight/Oak PM	0	0.4
Divisadero & Geary	1.2	0
Divisadero & Haight AM	0.2	0.8
Fillmore & Jackson	0.4	0.4
Lombard & Pierce	0	0
<b>Van Ness &amp; Market AM</b>	0	0
Valencia & 24th	0.86	1.6
Valencia & 25th	0	0.4
Van Ness & Market PM	0	0.8
<b>Van Ness &amp; Sacramento</b>	1	0.4
Van Ness & California	0.8	0
Van Ness & Union PM	0	3.2
<b>Van Ness &amp; Union AM</b>	1.2	0

On a per-stop-event basis, instances of shuttles blocking Muni decreased by 35% from the pre-pilot to during-pilot data collection periods (this factors in the 80% increase in shuttle stop-events). Twelve of the during-pilot zones saw no Muni buses blocked at all (60% of the 20 zones observed), compared to 11 pre-pilot. During-pilot, an average of 2.7% of shuttle stop-events resulted in blocking Muni access to a zone. Two locations saw Muni blockages at 10% or more of shuttle stop-events:



Shuttles blocking Muni	Per hour	Percentage of stop-events
4th & Townsend	0	0%
16th & Mission	0	0%
16th & Mission/South Van Ness	0	0%
19th & Taraval/Wawona	0	0%
Castro & 24th/25th	0	0%
Church & 15th/16th	0.0	0%
Church & Market	0.0	0%
Divisadero & Haight/Oak PM	0.4	4%
Divisadero & Geary	0.0	0%
Divisadero & Haight AM	0.8	5%
Fillmore & Jackson	0.4	9%
Lombard & Pierce	0	0%
Van Ness & Market AM	0.0	0%
Valencia & 24th	1.6	10%
Valencia & 25th	0.4	2%
Van Ness & Market PM	0.8	5%
Van Ness & Sacramento	0.4	2%
Van Ness & California	0	0%
Van Ness & Union PM	3.2	18%
Van Ness & Union AM	0	0%
<b>Average</b>	<b>0.4</b>	<b>3%</b>

Across all the during-pilot field data collection locations, which saw 706 total stop-events, or 24% of the 2978 stop-events that happen at all network zones on a typical day, a total of 19 Muni buses were temporarily prevented from accessing the Muni zone. Assuming that every blocked Muni bus was denied access for the average shuttle dwell time (62.4 seconds), and extrapolating that experience over 2978 total daily stop-events, shuttles add a total of 83 minutes per day of delay into the Muni system. The delay per Muni run (Muni makes over 1,200 runs every weekday) is approximately four seconds.

Seven of the eight shuttle-only zones not shared with Muni saw no blocked Muni buses at all. The shared Muni zones that experienced increased numbers of Muni vehicles blocked pre-pilot to during-pilot also saw considerable increases in the number of shuttle stop-events.

Change in blocked Muni buses and shuttle stop-events, 2014 to 2015	Blocked Muni per hour increase	Shuttle stop-event increase
Divisadero & Haight/Oak PM	0.4	46%
Divisadero & Haight AM	0.6	105%
Valencia & 24th	0.7	56%
Valencia & 25th	0.4	49%
Van Ness & Market PM	0.8	91%
Van Ness & Union PM	3.2	238%



In addition, the two zones that saw the most Muni conflicts pre-pilot—Van Ness & Union PM and Divisadero & Geary—were replaced with shuttle-only zones under the pilot program. Those zones both saw the number of blocked Muni buses drop to zero in the during-pilot data collection.

The number of Muni conflicts seen at shared shuttle-Muni zones did not appear to correspond to Muni frequency at those zones: on average, the number of blocked Muni vehicles at shared shuttle-Muni zones varied by 0.2 per hour from low-frequency to high-frequency Muni lines. Van Ness & California, which sees 13.5 Muni buses per hour, had no Muni conflicts, while Valencia & 24th, which sees only 3 Muni buses per hour, had 1.6 Muni conflicts per hour.<sup>9</sup>

While increased shuttle frequency did generally correlate with increased shuttle-Muni conflicts, the three highest-activity shuttle zones saw zero or very few Muni buses blocked. The Van Ness & California zone is notable, since it had the highest shuttle frequency and two high-frequency Muni lines, but no blocked Muni buses.

Shuttle buses and blocked Muni buses per hour	Shuttles per hour	Blocked Muni buses per hour
16th & Mission	0.4	0
Fillmore & Jackson	4.4	0.4
19th & Taraval/Wawona	8.8	0
Divisadero & Haight/Oak PM	10.8	0.4
Castro & 24th/25th	11.6	0
Valencia & 24th	16	1.6
Van Ness & Market PM	16.8	0.8
Divisadero & Haight AM	17.6	0.8
Van Ness & Union PM	17.6	3.2
Lombard & Pierce	19.2	0
Valencia & 25th	20.8	0.4
Van Ness & California	28	0

These data points suggest the following conclusions about shuttle-Muni conflicts:

- While more shuttles may lead to more conflicts with Muni, it is possible to have high shuttle frequency without any Muni conflicts at all, and
- When shuttles are provided exclusive zones for loading and unloading, conflicts with Muni are erased almost completely.

<sup>9</sup> This was a known risk of the Pilot Program: that by reducing conflicts at busy stops, less busy stops might see an increase in conflicts.

## Other traffic conflicts

Shuttles that fail to pull all the way to the curb, or are denied access to the curb by another shuttle, a Muni bus, or another vehicle, can cause traffic conflicts by blocking the travel lane or the bike lane.

The Pilot Program attempted to address these issues by, among other things:

- Providing shuttles with permitted Muni zones in which to stop outside the flow of traffic;
- Extending shuttle zones or creating shuttle-only zones; and
- Confining shuttles as much as possible to low-frequency Muni zones where they are less likely to encounter a Muni bus.

Because more shuttle stop-events means greater opportunities for shuttles to block traffic or bike lanes, traffic conflicts would be expected to rise with shuttle stop-events. To control for changes in shuttle stop-events pre-pilot to during-pilot, the table below looks at traffic conflicts as a percentage of stop-events at each zone. Zones that are shuttle-only appear in bold.<sup>10</sup>

Hourly blocked travel or bike lanes as a percentage of hourly stop-events	Pre-pilot	During pilot
<b>4th &amp; Townsend</b>	73%	25%
16th & Mission	12%	0%
<b>16th &amp; Mission/South Van Ness</b>	18%	94%
19th & Taraval/Wawona	7%	68%
Castro & 24th/25th	78%	10%
<b>Church &amp; 15th/16th</b>	0%	28%
<b>Church &amp; Market</b>	0%	0%
Divisadero & Haight/Oak PM	100%	15%
<b>Divisadero &amp; Geary</b>	5%	90%
Divisadero & Haight AM	7%	0%
Fillmore & Jackson	100%	73%
Lombard & Pierce	42%	98%
<b>Van Ness &amp; Market AM</b>	12%	0%
Valencia & 24th	29%	105%
Valencia & 25th	29%	17%
Van Ness & Market PM	9%	7%
<b>Van Ness &amp; Sacramento</b>	0%	30%
Van Ness & California	16%	7%
Van Ness & Union PM	23%	0%
<b>Van Ness &amp; Union AM</b>	8%	26%

<sup>10</sup> The Valencia & 24th zone saw blocked travel and bike lanes in excess of 100% because two shuttles managed to block both the bike and travel lane at the same time.

At five of the eight shuttle-only zones, blocked travel and bike lanes as a percentage of shuttle stop-events increased from pre-pilot to during-pilot, sometimes substantially.

A comparison of zones placed on the near side of intersections or mid-block to zones placed on the far side of intersections (which provides more room in front of the zone for shuttles to maneuver to the right and out of travel or bike lanes) shows that far-side zones are much less likely than near-side zones to result in blocking travel or bike lanes:

Hourly blocked travel or bike lanes as a percentage of hourly stop events	
Near-side zones	51%
Far-side zones	23%

This data suggests the following conclusions:

- Shuttles block travel and bike lanes about 35% of the time that they stop
- Increased training and enforcement may be necessary to ensure that shuttle drivers pull shuttle vehicles completely into the zone and out of traffic or bike lanes
- When possible, far-side zones are preferred for minimizing blockages of travel and bike lanes

### **Pedestrian safety issues related to shuttle size and placement**

In the context of shuttle buses, pedestrian safety issues focus on crosswalks: whether shuttle buses are preventing right-turning drivers from seeing pedestrians who may be crossing in front of a shuttle at a near-side stop, and whether the shuttle bus itself blocks a crosswalk.

#### *Blocking view of right-turn drivers*

Because of their size, shuttles at near-side zones often block the view of drivers attempting to make a right turn, but only under all of the following conditions: (a) the shuttle is stopped at the near side of the intersection, (b) a driver in another vehicle is attempting to make a right turn around the shuttle (that is, from the left of the stopped shuttle), and (c) pedestrians are crossing in front of the shuttle and may not be seen by the car driver. Because this issue only arises in limited circumstances, it was observed at 2% of stop-events in both the pre-pilot and during-pilot data collection periods. Twelve of the 16 during-pilot instances happened at Lombard & Pierce, the busiest near-side zone for which data was collected.

### *Blocking crosswalks*

Another infrequent but important pedestrian safety issue is shuttle vehicles blocking crosswalks. This usually occurs when a shuttle driver misjudges a light or attempts to access a zone that is already occupied by another vehicle. Shuttles blocked crosswalks six times out of 706 stop-events observed, or less than 1% of the time.

### *Conclusions*

As with the blocking of travel and bike lanes, the surest solution for the issue of blocking the view of right-turning drivers is to create far-side shuttle loading zones whenever possible. However, it is important to note that while the issue is an important one when it arises, it was very infrequent: the issue arose at only three of the six near-side zones, and did not arise at all at any of the far-side or mid-block zones.

Though blocking of crosswalks by shuttles appears to be an infrequent problem, increased enforcement, and better training for shuttle drivers, likely would be the most effective options to address the issue.

## **Enforcement, incidents, and community perception of shuttles<sup>11</sup>**

One goal of the Pilot Program was to manage the movement of commuter shuttles by providing shuttle operators with clear guidelines on where and when to stop at the curb, and by providing the SFMTA with the funds to enforce violations by shuttle operators and those who block shuttles' access to loading zones. This section reviews how shuttles have fared in terms of compliance with parking/loading rules and permit terms, and how the shuttles have been received by members of the public.

### **Citations and enforcement<sup>12</sup>**

The Pilot Program included funding for a 10-person morning and evening enforcement team known as the "shuttle detail." Members of the shuttle detail patrol the zones in the shuttle network to ensure that:

- Zones are safe for people
- Traffic is flowing as smoothly as possible around the zones
- The zones are being used only by permitted vehicles
- Permitted vehicles are stopping, parking and loading appropriately in the zones
- Resident and community concerns regarding shuttles are addressed

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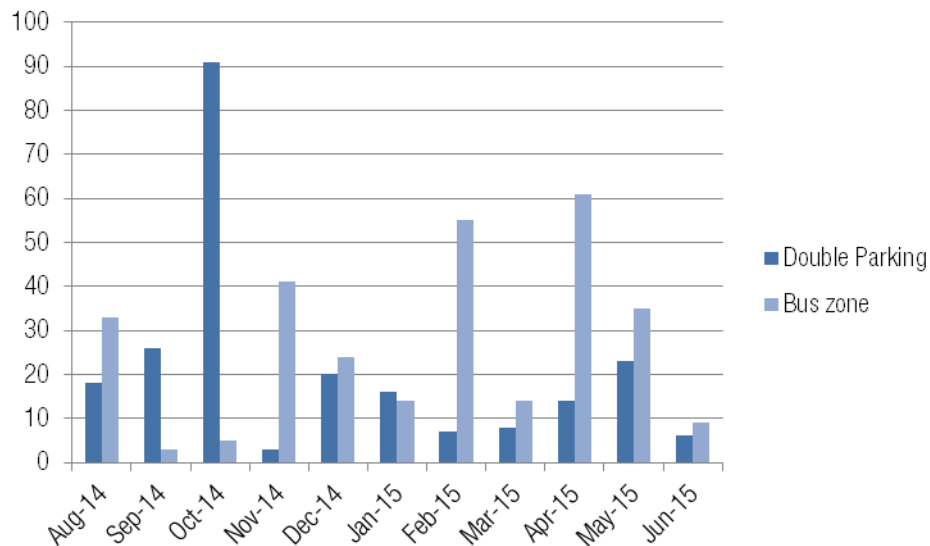
<sup>11</sup> Data source: I:\TDM\Commuter Shuttle data collection\Citation data\Summary of shuttle bus and Muni zone citations.xlsx

<sup>12</sup> Data source: I:\TDM\Commuter Shuttle data collection\Citation data\Summary of shuttle bus and Muni zone citations.xlsx

Because the primary goal of the shuttle detail was not to issue citations, but to keep zones safe and to keep traffic flowing smoothly by encouraging vehicles that might be blocking access to shuttle zones to move along, the number of citations issued by the shuttle detail is not necessarily instructive of whether the Pilot Program’s goals were met through enforcement efforts.

Between the beginning of the Pilot Program in August 2014 and the end of May 2015, SFMTA enforcement officers as a whole (not just the shuttle detail) issued 1200 citations to shuttle buses, or an average of 103 citations per month.

The most common citations issued by all enforcement officers (not just those on the shuttle detail) to shuttle buses were for double-parking and non-permitted use of a Muni zone, both of which the Pilot Program specifically seeks to avoid. However, a month-by-month review of those citations shows fairly large fluctuations in citation issuance:



A few examples of the large fluctuations in citation issuance:

- Double-parking citations dropped from 91 (the highest monthly total) in October 2014 to three (the lowest monthly total) the next month.
- February 2015 saw 55 bus-zone citations, the highest of any month to that point. March 2015 then saw 14 bus-zone citations, while April 2015 saw 61 bus-zone citations.
- November 2014 saw 65 citations issued by the shuttle detail, about half of the number of citations issued in April and May 2015.

The fluctuations in citation issuance likely result from: (a) limited staffing for the shuttle detail; (b) shifting the focus of enforcement to respond to specific resident complaints

about shuttles; (c) success, at least temporarily, in tamping down certain violations by focusing on them, causing the focus to shift to other issues; and (d) the fact that a small number of enforcement officers cannot address every issued raised in a network of 124 zones that sees thousands of stop-events per day.

As a result, the only firm conclusions to be drawn from this enforcement data are:

- Keeping streets safe, keeping transit moving, and preventing shuttle-zone blockages are not necessarily reflected in citation data
- More enforcement staffing, and a focus on enforcement both at shuttle zones and along shuttle routes, would assist in keeping traffic flowing smoothly throughout the shuttle zone network
- Creative solutions could be used to provide the most coverage possible with limited staffing<sup>13</sup>

### Major traffic incidents

There have been three recorded incidents of shuttle buses becoming stuck on streets with steep inclines: in June 2012, on August 5, 2014, and on September 24, 2015. In the August 5, 2014 incident, the shuttle temporarily blocked the tracks of the J-Church line and resulted in a Muni delay costing \$7,000 (for which the shuttle provider was billed). The SFMTA has been unable to locate records of any collisions involving a permitted shuttle vehicle and is unaware of any additional traffic incidents pertaining to shuttle activity (though there have been a few incidents involving shuttles or tour buses that are not participants in the Pilot Program).

### Community feedback

While the Pilot Program was intended to minimize impacts of the shuttles on the streets and neighborhoods of San Francisco, the project also was designed to collect community feedback to improve the regulatory approach and inform a potential shuttle program. Beginning in October 2014, SFMTA staff kept a log of all comments received from community members, most of which came via:

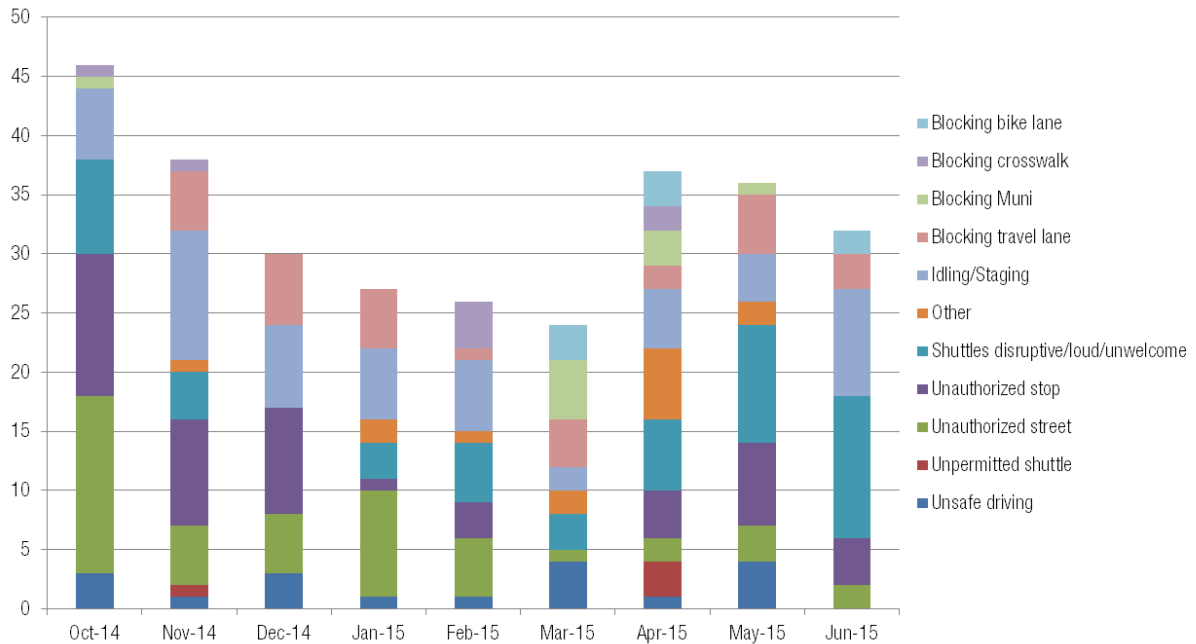
- 311 (the City's customer service center)
- Offices of members of the Board of Supervisors
- Telephone or email contact with SFMTA staff
- Public meetings

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<sup>13</sup> One example, tried in the late Summer/early Fall of 2015, is to station enforcement officers at single, high-demand stops for the entirety of their shifts. This allows officers to cover more stop-events, if not more zones, in the course of a shift. In addition, SFMTA can shift enforcement staffing based on resident concerns or staff observations by using shuttle GPS data to determine where enforcement is needed most.

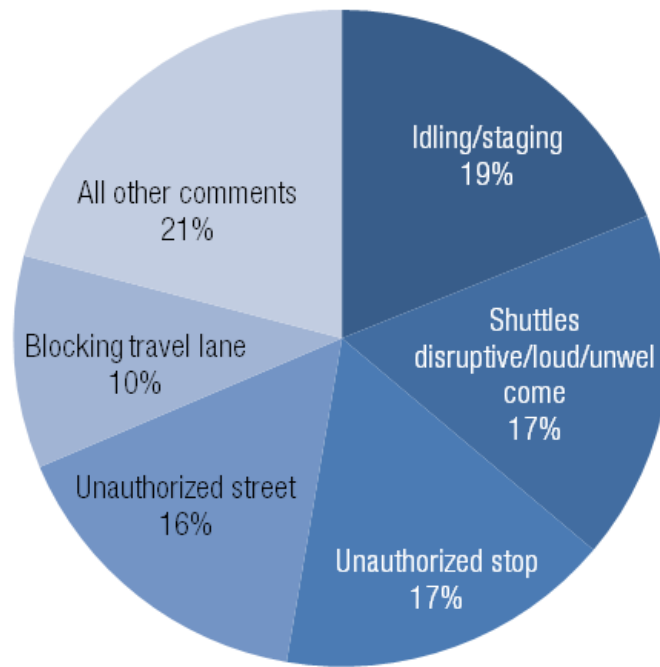
- Shuttle operators

Overall, the SFMTA received 296 complaints between October 2014 and June 2015. October 2014 saw the most complaints of any month, with 46, while March 2015 saw the fewest, with 24. As can be seen from the chart below, comments were scattered across 11 categories:



One particularly active community member, a resident of Noe Valley, provided 69 of the 296 comments, or 23% of the total.

The most frequent comments from community members are shown below (the active community member discussed above submitted 31% of the “unauthorized stop” and 81% of the “unauthorized street” comments):



Community comment distribution	Comments	Percent of total
Idling/staging	56	19%
Shuttles disruptive/loud/unwelcome	51	17%
Unauthorized stop	49	17%
Unauthorized street	47	16%
Blocking travel lane	31	10%
All other comments	62	21%

The most frequent comments focused on shuttles being in a place where they are either not permitted or not appreciated: idling on streets, using weight-restricted streets, using unauthorized stops, or simply being unwelcome in a particular location or generally on the streets of San Francisco. Safety-related comments (unsafe driving, blocking crosswalks, and blocking bike lanes) made up 34 of 296 comments, or 11%.

Comments focused on the Mission and Noe Valley neighborhoods numbered 118, or 40% of the total (69 of these were by the active community member mentioned above). In addition to those neighborhoods, the rest of the top ten neighborhoods for community comments were in the northeast quadrant of the city.



Neighborhoods for community feedback	Total comments
Mission	68
Noe Valley	50
Marina/Cow Hollow	32
Castro	29
SoMa	16
Pacific Heights	14
Western Addition	13
Haight-Ashbury	12
Mid-Market	10
Lower Haight/NoPa	8
Other locations	44

The concentration of comments corresponds to the highest-demand shuttle corridors and locations:

- Lombard and Van Ness (Marina/Cow Hollow, Pacific Heights)
- 24th and 25th Streets (Mission/Noe Valley/Castro)
- 4th & Townsend (SoMa)

The feedback does suggest that quality-of-life issues matter to community members, who commented most on idling and large vehicles being unwelcome on certain streets and at certain locations. More and dedicated enforcement—to prevent idling and the use of unauthorized streets—could resolve some community issues.

The most common suggestion from community members for how to resolve the issues presented by the size of and noise generated by shuttle buses was to limit the size of the shuttle vehicles. As discussed in more detail above, requiring smaller vehicles likely would reduce noise and sound complications while somewhat increasing the number of vehicles on the streets.

## **Project administration and the alternative to the Pilot Program**

### **Project administration**

Most of the administration and management of the Pilot Program was undertaken by two SFMTA employees, one transportation planner and one manager, who devoted only part of their time to the program and the rest to other duties. A junior transportation engineer also spent some time implementing the program, which required on-site duties such as coordinating public notification, signage installation and curb painting. Other sections of the agency, like the Sign Shop and the Paint Shop, and the finance, accounting, and technology teams, also played key roles.

A shuttle program nevertheless would benefit from more resources, specifically a project manager or analyst devoted to the project on a full-time basis.

### **Compliance with permit terms**

The Pilot Program allowed the SFMTA to test the effectiveness of a permit program for use of public curb space. The SFMTA has relied on Pilot Program partners to abide by the rules of the program; due to the limited enforcement resources described above, relying solely on the issuance of citations to keep shuttles out of Muni and other no-stopping zones appears to have limited effectiveness.

Shuttle operators have complied with their obligations to provide estimated stop-event, boarding, and vehicle data, register vehicles, and respond to issues raised by SFMTA staff. The shuttle operators have, with a few exceptions, paid their permit fees on time and in full. Penalties have been issued to those who have not paid their fees on time. Most participated in the regular conference call hosted by SFMTA to discuss improvements to the program, though a few providers routinely skipped the conference call. Most providers have stayed informed of changes to the zone network, construction and other issues.

The SFMTA relied on shuttle providers to adjust their routes to accommodate requests by residents for shuttles to avoid certain streets or intersections. This was a less punitive and more effective tack than attempting to enforce shuttle routing, especially since (a) most streets are legal for shuttle use despite residents' concerns, and (b) the SFMTA lacks the authority to enforce moving violations. Some shuttle providers have been more responsive than others to resident complaints about unwelcome shuttle vehicles on their streets.

The Pilot Program required all shuttle operators to provide real-time data on shuttle stop-events and shuttle vehicle movements. This seemed like a straightforward requirement at the outset of the Pilot Program, but has proved to be more complicated than originally contemplated. While all shuttle operators have made at least some effort to provide this data, some have provided the data without interruption or issue, while others have failed provide data regularly and accurately. Some operators who have failed to send data have worked closely with SFMTA staff to resolve data delivery issues, while others have been slow to respond to inquiries from SFMTA staff and do not appear concerned about ensuring the proper delivery of data. Issues with SFMTA's data vendor have complicated the process even further, such that, more than a year into the Pilot Program, the real-time vehicle data is still not flowing completely or accurately from all operators. Limited queries of shuttle activity at certain zones and streets are possible, but take more effort and time than originally envisioned.

SFMTA currently is undertaking a process to bring the data collection and reporting in-house, which should eliminate vendor issues and allow SFMTA staff to be notified of, and respond to, data interruptions or inaccuracies as quickly as possible. Given the rich data set that this data feed would produce, with benefits not only for the shuttle providers but

also for the transportation system as a whole, the SFMTA expected a more concerted effort by the shuttle providers to ensure the data was flowing properly.

### **Shuttle operator efforts to minimize shuttles' impacts**

Shuttle operators have undertaken some efforts to improve their performance and public face on the streets, including:

- As discussed above, in some instances attempting to accommodate community complaints and requests from SFMTA staff to alter shuttle routing, even when the streets they are being asked to avoid are open and unrestricted for shuttle vehicles;
- Coordinating scheduling among themselves to reduce conflicts and overcrowding on high-demand corridors like Van Ness; and
- Providing general and specific training to their drivers about safe driving and parking/loading rules.

### **Conclusion**

Well before the beginning of the Pilot Program, shuttles were making thousands of stop-events at hundreds of locations around the City. By all accounts, a shuttle ride to the job location has become an integral part of the working conditions of thousands of workers in the Bay Area.

The alternative to the Pilot Program was not the disappearance of shuttles, but instead a return to the pre-pilot days, when shuttles stopped at more than twice as many locations as they do now, and the SFMTA had only limited enforcement resources to issue citations for parking and stopping violations. Given the importance of the shuttles to the businesses that use them, even significant increases in the number of citations likely would have been accepted by the shuttle operators as a cost of doing business.

In this sense, the Pilot Program addressed the principal issue that shuttles present by managing shuttles to minimize their impacts and maximize their benefits to the transportation system.

Based on this Evaluation Report, the key findings that could inform an ongoing commuter shuttle permit program are:

- 47% of shuttle riders said they would drive alone to work if a shuttle were not available.
- Shuttles remove nearly 4.3 million vehicle miles traveled from the region's streets each month.

- An average of 2.7% of shuttle stop-events resulted in blocking Muni access to a zone.
- Shuttles block travel and bike lanes about 35% of the time that they stop.
- Keeping streets safe, keeping transit moving, and preventing shuttle-zone blockages are key objectives of enforcement, but are not reflected in citation data.
- More enforcement staffing, and a focus on enforcement both at shuttle zones and along shuttle routes, would assist in keeping traffic flowing smoothly throughout the shuttle zone network.
- The vast majority of community feedback focused on large shuttles being unwelcome on the streets, especially residential streets.
- The Pilot Program allowed for the collection of unprecedented data about shuttle activity.
- Real-time shuttle vehicle data would greatly assist the SFMTA in regulating and managing commuter shuttle activity.

In response to these findings, an ongoing commuter shuttle program should, among other things:

- Continue the program in a form similar to that of the Pilot Program, to allow continued management of shuttle activity on San Francisco's streets and continue the transportation benefits that shuttles bring;
- Increase enforcement to ensure that shuttles do not block bike or travel lanes;
- Address the perception that commuter shuttle vehicles do not belong on certain streets; and
- Ensure that real-time shuttle vehicle data is flowing and accurate.