

# Transportation Demand Management Plan for Hayward Park Station Parking Lot Redevelopment

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Prepared by:

Steer  
1502-80 Richmond St W  
Toronto, ON M5H 2A4  
Canada

+1 (647) 260 4860  
[www.steergroup.com](http://www.steergroup.com)

Prepared for:

City of San Mateo  
330 W. 20th Avenue  
San Mateo, CA 94403

2409601

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# 1 Introduction

A Transportation Demand Management (TDM) Plan is a long-term management strategy for an organization or site that seeks to deliver sustainable transportation objectives. It is articulated in a document that is regularly reviewed by the implementing organization. It involves identifying an appropriate package of measures aimed at promoting sustainable travel, with an emphasis on reducing reliance on single occupancy car journeys and vehicle miles traveled (VMT). It can also assist in meeting other objectives such as increasing accessibility and reducing congestion, greenhouse gases and noise.

This TDM Plan was produced on behalf of the City of San Mateo for the Hayward Park project site, which is for a proposed residential building being developed by Sares Regis Group of Northern California (referred to as ‘the developer’ or as ‘Sares Regis’ throughout this document).

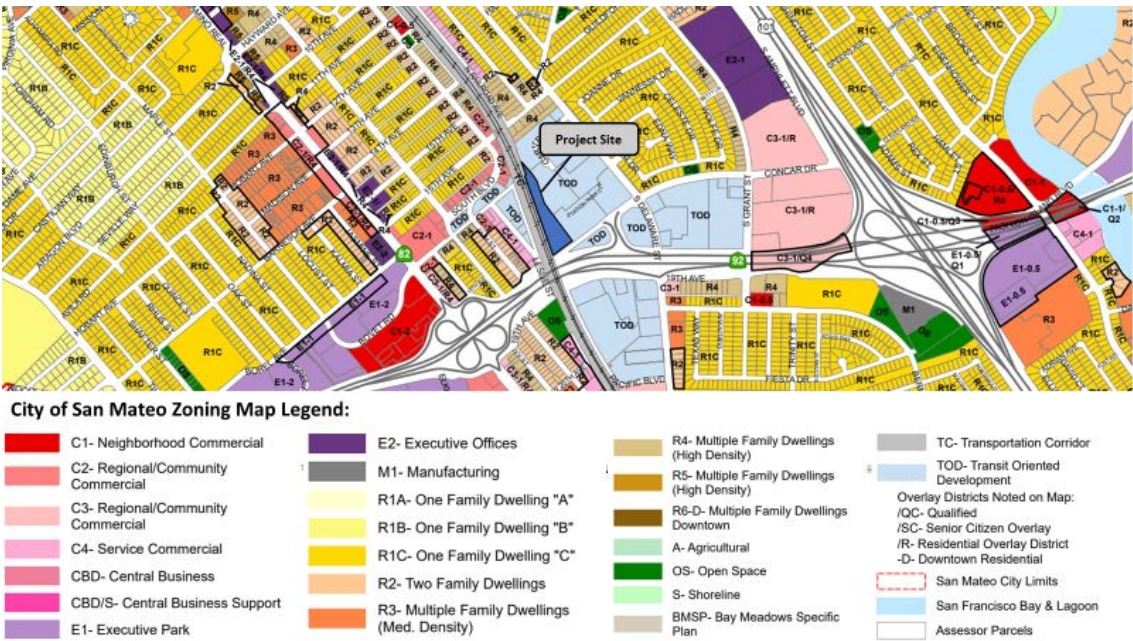
## Project Description

The project site is located east of the Hayward Park Caltrain station at 401 Concar Drive. The project site is currently a Caltrain Station parking lot, on which the developer has proposed to build a new 5 story residential building. The project includes –

- 17 studios, 119 one-bedroom, and 55 two-bedroom units (a total of 191 units)
- 192 parking spaces provided via a parking garage and an uncovered off-street parking lot

The 122,875 sq./ft project site is located on the 138,521 sq./ft parking lot adjacent to the Hayward Park Caltrain Station on Pacific Boulevard and Concar Drive. The site is zoned as ‘TOD – Transit Oriented Development’. As shown in Figure 1, the lots in the general area around the project site are also zoned for ‘TOD – Transit Oriented Development’. The zoning in the area allows for mixed-use development, varying densities, and emphasizes transit and pedestrian supportive design. Outside of the TOD area, lots are zoned as ‘R1C- One Family Dwelling “C”’.

Figure 1. City of San Mateo Zoning Map



Source: City of San Mateo

The project site does not have a limit on a floor area ratio (FAR) due to its zoning as a TOD.<sup>1</sup> The developer has proposed an FAR of 1.56. The project site has an allowable height of 55 ft.; the developer has proposed a height of less than 55 ft.

<sup>1</sup> City of San Mateo Rail Corridor Transit-Oriented Development Plan Ch. 5 – Land Use & Zoning



**Table 1. Proposed Project Attributes**

	Current	Proposed
<b>Description</b>	Hayward Park Caltrain Parking lot	One 5-story residential building
<b>Square Footage</b>	122, 538 sq. ft., all surface parking	235,195 sq. ft. total building area
<b>Zoning Designation</b>	TOD	TOD

The project will be providing 192 total parking spaces for residential and guest use. The City may also request that some spaces be assigned for Caltrain park and ride users. The project proposes that the parking will be provided through a combination of covered parking garage and surface parking.

## Demography and Travel Trends

The project site is located within Census Tract 6076 and has a population of 3,611. The travel trends described in this section are based on information from the Census Bureau for the project's census tract.

### Demography

About twenty-seven percent (27%) of the population located in the census tract are under the age of 18, with the median age and average household size being 39.2 and 2.8, respectively. This information suggests that the project site is located in an area with young families that may add school or childcare trips into their scheduling, generating more trips in the area. Thirty-five percent (35%) of the households in the census tract live in rental housing units.

### Travel Trends

Census Reporter data from 2019 indicates that the majority (67%) of people that live within Census Tract 6076 drive alone to work. The data also reports that 25% of the population use sustainable modes of transportation to commute to work, while 6% work from home (Figure 2). Of those that commute to work, the average travel time is 28.2 minutes. Commuting patterns have been impacted by the pandemic however, and post-pandemic scenarios might produce new commuting patterns as more organizations implement hybrid and flexible working schedules.

The residents that live within Census Tract 6076 commute to a variety of locations for work. The most popular work destination is the City of San Francisco, followed by the City of San Mateo, as shown in Table 2.

Figure 2: Commute Mode

Means of transportation to work

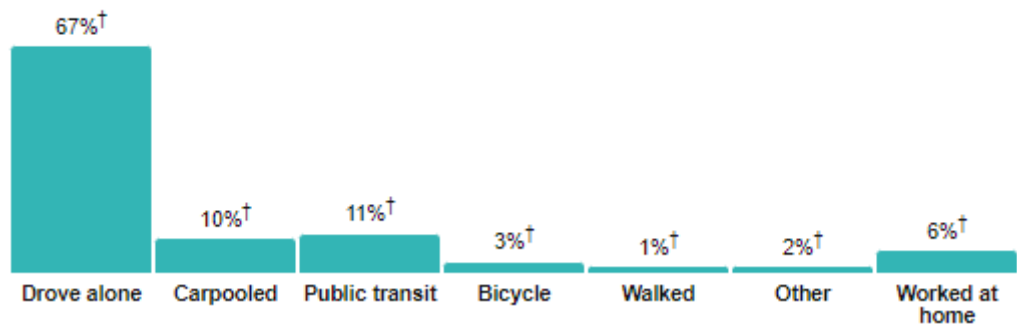
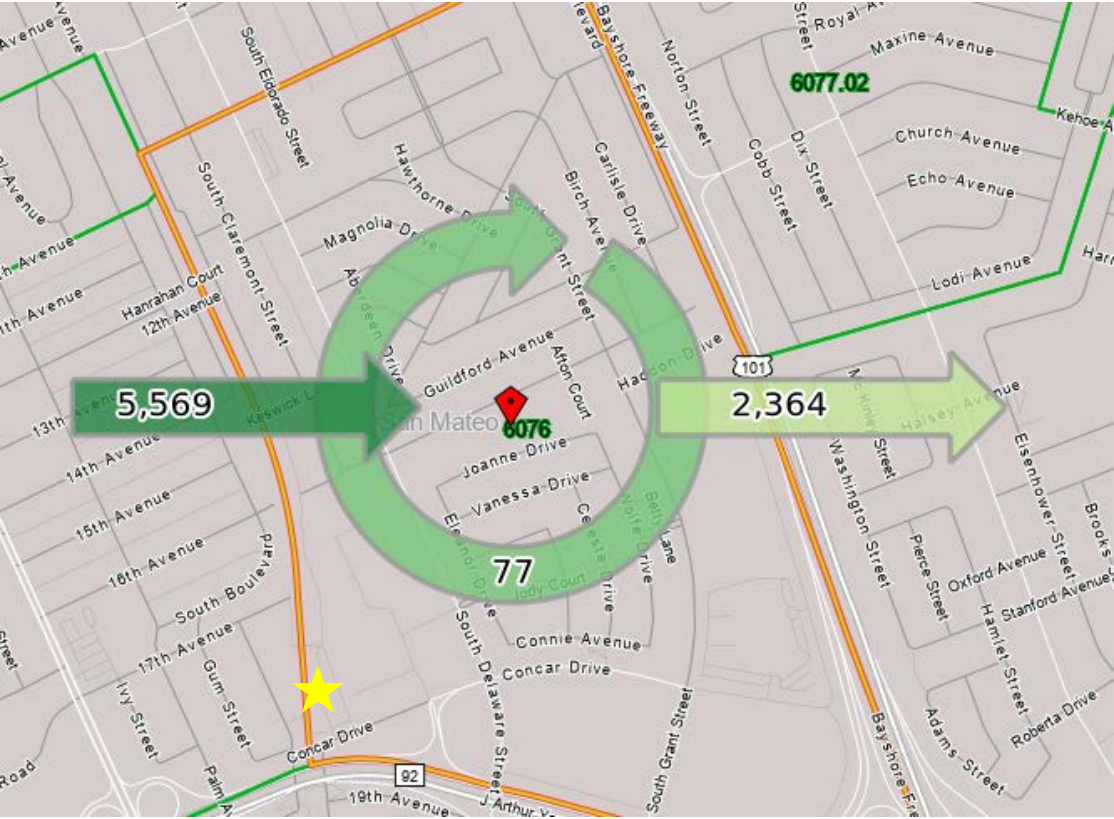


Table 2: Job Locations

Job Locations	Count	Share
San Francisco, CA	480	19.7%
San Mateo, CA	357	14.6%
Redwood City, CA	136	5.6%
Palo Alto, CA	134	5.5%
South San Francisco, CA	101	4.1%
San Jose, CA	96	3.1%
Burlingame, CA	87	3.6%
Menlo Park, CA	79	3.2%
Foster, CA	74	3.0%
Mountain View, CA	71	2.9%
All Other Locations	826	33.8%
All Places (Cities, CDPs, etc.)	2,441	100%

Inflow/Outflow analysis of the census tract, as shown in Figure 3, depicts that 2,364 individuals commute out of the area and 5,569 people commute into the area for work on a daily basis. A total of 77 individuals both live and work inside the census tract.

Figure 3: Inflow and Outflow patterns



Source: U.S Census Bureau, Center for Economic Studies

## 2 Site Assessment

A site assessment was conducted as part of the TDM Plan development process. The site assessment included a description of the site's geography and road network, pedestrian and bicycle infrastructure, transit services, nearby attractions, and existing TDM services. For the complete assessment, please refer to the Hayward Park Background Assessment Memo in Appendix B. Key findings from the site assessment are as follows:

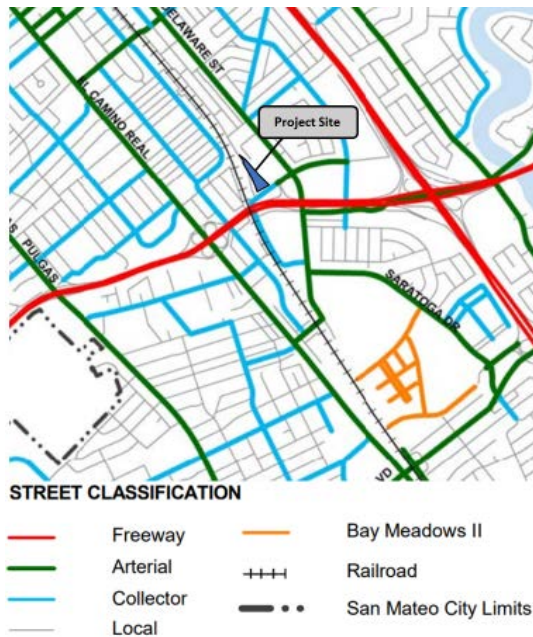
### Site Geography and Road Network

The project site is located on the current Caltrain Hayward Park Station parking lot, adjacent to the railroad tracks. The site is located close to:

- Concar Drive (a collector street)
- Delaware Street (an arterial)
- Highway 92
- Both single and multi-family residential properties

The lots surrounding the site have also been zoned for Transit Oriented Development.

Figure 4. Street Network



Source: City of San Mateo Public Works

Concar Drive connects to J. Arthur Younger Freeway (Highway 92), which leads to the San Mateo-Hayward Bridge to the east, and Half Moon Bay to the west. Highway 92 also provides quick access to Highway 82 and Highway 101 which connect to San Francisco to the north and San Jose to the south.

The intersection at Concar Drive and S. Delaware Street was included in the San Mateo Existing Conditions Circulation Report<sup>2</sup>. The intersection sees a moderate vehicle flow as indicated in the traffic count study undertaken by Kittelson & Associates in Table 3.

**Table 3: Baseline (2021) Traffic Counts at Study Intersection**

Intersection (Year)	North Bound			Southbound			Eastbound			Westbound			PHF
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour													
Project Driveway at Concar Dr	Not Applicable												
SR-92 WB Ramps/Concar Dr (2019)	65	0	883	0	0	0	0	23	68	651	39	0	1
S Delaware St/Concar Dr (2019)	192	339	139	112	448	189	223	265	394	88	294	83	1
S Delaware St/19th Ave/SR-92 EB Ramps (2019)	0	409	240	351	493	0	245	363	219	0	0	0	1
PM Peak Hour													
Project Driveway at Concar Dr	Not Applicable												
SR-92 WB Ramps/Concar Dr (2019)	41	0	638	0	0	0	0	32	131	764	34	0	1
S Delaware St/Concar Dr (2019)	213	517	114	166	420	146	193	263	214	210	386	172	1
S Delaware St/19th Ave/SR-92 EB Ramps (2019)	0	541	404	426	448	0	240	354	92	0	0	0	1

Source: Kittelson & Associates (2021). San Mateo Hayward Park Station Traffic Impact Analysis-Traffic Volume Estimation Memorandum

## Pedestrian and Bicycle Infrastructure

The site's topography and access to transit make this an area conducive to pedestrian and bicycle use. The walkability website Walkscore.com gives the site a 73/100 score for walking, which they classify as "Very Walkable – Most errands can be accomplished on foot."

Currently S. Delaware Street is a Class III bike route that connects to a bike lane and network throughout the rest of San Mateo. Other bike facilities providing access to the project site include a newly-constructed Class I shared-use path along the front of Station Park Green Apartments southeast of the project site and another Class I route that starts at the corner of S. Railroad

<sup>2</sup> [San Mateo Existing Conditions Report - Circulation](#)

Avenue and E. 16<sup>th</sup> Avenue and terminates at the north end of the project site. Concar Drive is included in the San Mateo Bicycle Master Plan as a high priority bikeway project.

Concar Drive and Delaware Street have characteristics such as high traffic volumes or lack of bicycle facilities that resulted in their identification as “High Stress” streets by the April 2020 San Mateo Bicycle Master Plan, making the streets suited for more experienced cyclists. The streets are however in a high bicycle connectivity area.

BikeLink operates four on-demand bike lockers at the Hayward Park Caltrain station, allowing bicyclists to securely store their bikes in lockers using a store-value card that can be purchased online or at nearby vendors. Additionally, three free-to-use public bike repair stations are located within two miles of the project site. These stations are located at San Mateo City Hall, the San Mateo Main Library, and the Downtown San Mateo Caltrain station.

### **Planned Bicycle Projects**

The 2020 Bicycle Master Plan was adopted by City Council on April 6, 2020 and serves as a blueprint for expanding and improving the San Mateo bicycle and mobility network in the coming years. The Plan includes three recommendations relevant to project site:

- Class I shared-use path along Concar Drive. This shared-use path is a high priority project and has been partially constructed by the adjacent Station Park Green project.
- Class I shared-use path along the western boundary of the project site, from Concar Drive to the existing shared-use facility north of the project.
- Class IV separated bike lane along Concar Drive. This separated bike lane is a high priority project.

### **Transit Services**

The project site is located next to the Hayward Park Caltrain Station and is served by two San Mateo County Transit District (SamTrans) routes. There is also a Commute.org shuttle that stops at the project site and provides services along S. Amphlett Boulevard, S. Norfolk Street, and Concar Drive, as well as service to residential properties along Day Avenue<sup>3</sup>.

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<sup>3</sup> [Norfolk \(Hayward Park Caltrain\) - Commute](#)

**Table 4: Transit Services and Frequency**

Transit Service	Hours of Operation	Frequency	Closest Stop	Distance to Stop	Cost
SamTrans Route 53	School day service schedule	1 morning bus, 2 afternoon buses	Delaware Street & Charles Lane	0.3 mile/ 6-minute walk	\$2.25 (Cash/Mobile), \$2.05 (Clipper)
SamTrans Route 292	Daily; 4am – midnight	20 minutes	Delaware Street & Charles Lane	0.3 mile/ 6-minute walk	\$2.25 (Cash/Mobile), \$2.05 (Clipper)
Caltrain	Daily; 6AM to 11.40 PM	Hourly	Hayward Park	Less than 500ft.	\$3.20-\$10+**
Commute.org Shuttle	Weekdays; morning and afternoon peaks	Hourly	Hayward Park	Less than 500ft.	Free***

\*Reduced trips due to COVID-19

\*\*Depending on distance

\*\*\*Temporarily suspended

## Nearby Destinations

Key destinations in close proximity to the project site include:

- Seven shopping centers within a three-mile distance from the project site that offer access to restaurants, grocery stores, banks, a pharmacy, and a gym.
- More than two dozen childcare facilities within two miles of the project site.
- Four parks within one mile of the project site
- More than a dozen schools within two miles of the project site

**Table 5: Schools Assigned to Project Site**

Nearby Schools	Travel distance in miles
Sunnybrae Elementary School	0.6
Borel Middle School	1.0
Aragon High School	1.3

## TOD Requirements

The Hayward Park proposed residential development is within a designated Transit-Oriented-Development (TOD) zone. The City of San Mateo has adopted the Rail Corridor TOD Plan to guide development within a half-mile of the Hayward Park and Hillsdale Caltrain Station areas. The goals of the plan include the improvement of pedestrian, cycling, and bus access to transit stations, encouragement of compact neighborhoods and land use developments, and enhancement of economic development opportunities.

The TOD Plan has established objectives to support the overall goals of plan. They include:

- Improvement of connections and creation of multi-modal streets
- Transit-Oriented Development at station areas
- Encouragement of transit supportive land uses
- Compatibility with existing development

### Rail Corridor TDM Requirements

The Plan includes a framework for Transportation Demand Management (TDM) with the goal of achieving overall reduction in new vehicle trips of at least 25%, corridor wide. The TDM plan will be coordinated with the Traffic Impact Assessment (TIA) to establish short-term and long-term trip reduction goals. In addition to the corridor-wide trip reduction goals, included in the framework are:

- The establishment of a Transportation Management Association (TMA) with an associated membership requirement. The San Mateo Rail Corridor TMA has already been established; the project will be required to join and participate.
- The definition of a range of TDM measures to achieve trip reduction goals. Examples include parking cash-out programs, on-site car share programs, cycling programs, and discounted transit passes for employees and residents.
- Monitoring and evaluation of TDM programs.



## Available TDM Services

### Commute.org Incentives

Commute.org is San Mateo County's Transportation Demand Management Agency. Their resources are available to all residents and employees in the County. As such, the residents and employees of the project site will be able to take advantage of TDM resources curated for those commuting within the County and in the surrounding areas. The Commute.org website serves as a regional clearinghouse for all transportation and commuting-related information. They also provide the following services:

- **Try Transit Incentives:** Commute.org provides a free 'try transit' program that allows individuals to request free tickets for the transit option that works best for them.
- **Carpool Incentives:** Commuters who use Waze Carpool or Scoop are eligible to earn gift cards worth up to \$100.
- **Vanpool Incentives:** Drivers of a new vanpool can earn a \$500 reward, and vanpool riders can be reimbursed \$100/month of their costs for up to three months.
- **Bike Education:** Free bike safety workshops and bike marketing materials are available to residents and commuters. These are scheduled upon request and are available to employers and other sites, including residential properties, within San Mateo County. They can be 60, 75, or 90 minutes in length depending on what is ideal for the requesting party and include time for Q&A.
- **Bike Incentives:** Commute.org currently provides commuters who live or work in San Mateo County with incentives worth between \$25 to \$100 for biking to work. To participate in the program, bike commuters must track their work commutes using the Strava app. The rides are then recorded in the STAR platform, Commute.org's incentive delivery platform, where commuters can access their incentives.

### 3 Project TDM Measures

The TDM strategies in this section are effective and appropriate based on the project’s size, location, land use, and the trip reduction requirements in the Rail Corridor TOD Plan. They provide guidelines for implementation, cost estimates, expected timelines, and indicate the anticipated responsible party for each recommended measure. It is understood that the property management team will be the ‘responsible party’ for most TDM measures outlined below.

The Rail Corridor TOD plan requires that all developments within the corridor submit a TDM plan with a minimum trip reduction target of 25 percent. This section provides an estimate the percentage of trips that each strategy can reduce for the property. It is important to note that many of the TDM strategies in this section are scalable and can easily be expanded by increasing the number of resources allocated. The remaining TDM strategies play a supportive role that help increase the impact of the other strategies listed. The ‘percent vehicle trip reduced’ calculations presented in this section are based on the City’s estimate of 908 total daily trips for the property.

#### Transportation Management Association (TMA) Membership

The project is within the Rail Corridor Transit Oriented Development (TOD) and is required to join the Rail Corridor TMA. New developments are required to join before receiving their certificate of occupancy. Membership with the Rail Corridor TMA does not have a direct impact on the reduction of trips and VMT reduction. It is, however, a platform to show how developments will meet their TDM requirements. The Rail Corridor TMA acts as a coordinating body to developments within the corridor. The Project will be required to complete an annual survey, and to participate in the TMA’s annual trip count effort to meet City requirements. The survey will be used to understand how successful the project site has been in achieving its TDM targets.

<b>Estimated timeframe</b>	Annual
<b>Estimated cost</b>	\$1200
<b>Responsible party</b>	Property Management

## Unbundled Parking

Access to free parking often dramatically reduces the cost of car ownership. Unbundling parking refers to the process of charging for parking spaces separately from a unit price or monthly rent. By unbundling the cost of renting an apartment from the cost of the parking spot, the property will encourage and reward sustainable travel.

### Implementation guidelines:

Provide parking spaces for a market rate, included as a separate line item from the unit price or monthly rent.

<b>Estimated timeframe</b>	Ongoing
<b>Estimated cost</b>	\$2,000 to \$10,000 per year depending on policy set and number of participants
<b>Responsible party</b>	Property Management
<b>Estimated daily VMT reduced</b>	1,741 to 3,914
<b>Percent of daily vehicle trips reduced</b>	14.0% to 31.1%

## TDM Coordinator

An on-site TDM coordinator would act as a liaison between the developer, City, and the residents to develop, implement, and report on the site's TDM programming. This person would be responsible for coordinating and marketing the selected TDM strategies as well as maintaining working relationships with the City and the Rail Corridor TMA.

### Implementation Guidelines:

Assign the role of TDM Coordinator to an individual on the apartment management team to plan and implement the TDM program. Allocate approximately 5 hours per month for the TDM Coordinator to spend on the following activities:

- **Annual Monitoring:** Survey the residents and compile a monitoring report for submission to the Rail Corridor TMA once a year.
- **TDM Program Coordination and Outreach:** Organize and promote sustainable travel options through building communications such as emails, newsletters, and social media.
- **ITMA Board Meetings:** Attendance at Rail Corridor TMA board meetings
- 

<b>Estimated timeframe</b>	Ongoing
<b>Estimated cost</b>	\$2,000 per year
<b>Responsible party</b>	Property Management team
<b>Estimated daily VMT reduced</b>	142 to 284
<b>Percent of daily vehicle trips reduced</b>	Spending 5 hours per month organizing TDM programs will lead to a 0.9% to 1.7% decrease in vehicle trips (can be reduced further with an increased commitment in time and TDM strategies)

## Institutionalizing TDM

It is important that the TDM program be implemented as the site becomes occupied and be updated if needs change when units turn over or transportation and technology options evolve. Therefore, the TDM program should become institutionalized as part of the property's organizational structure to ensure it remains in place and new tenants are aware of its existence.

### Implementation Guidelines:

Institutionalize the TDM Program through the apartment lease by ensuring it outlines the TDM infrastructure, amenities, and programs available to residents and how they will be made available to the tenants.

<b>Estimated timeframe</b>	During the drafting of lease language and ongoing
<b>Estimated cost</b>	\$0 – it is likely that this cost will already be undertaken by the property management in order to establish the details of the lease agreement, so including TDM in this effort will likely come at no additional cost.
<b>Responsible party</b>	Property Management
<b>Estimated daily VMT reduced</b>	3 to 6
<b>Percent of daily vehicle trips reduced</b>	0%

## New Resident Packets

Individuals are most likely to make a change in their transportation behavior alongside other life changes. Providing new residents with a packet that offers them information about their transportation options in one place can increase the likelihood for them to try, and ultimately adopt, new options,

New residents will be provided with welcome packets that include a subsidized Way2Go Pass and/or subsidized GO Pass, customized transportation information about nearby transit routes, bus stops, bike maps and routes and other TDM initiatives undertaken by the property. The welcome packets should also include the contact information of the property's TDM Coordinator. Figure 5 offers an example of a welcome packet distributed to new residents in Santa Monica, CA.

**Figure 5. A New Resident Packet distributed in Santa Monica**


### Implementation Guidelines:

Design a New Resident Packet for the property that provides information on all transportation modes available as well as services that may make choosing sustainable travel easier. The TDM Coordinator can work directly with Commute.org, who can assist the property in purchasing annual Way2Go and GO passes as well as provide supportive materials, commuter incentives and advice.

The packet should include:

- Subsidized Way2Go Pass and/or subsidized GO Pass
- Map depicting a 10- and 20-minute walk and bicycle radius
- Information about the transit options available (free Commute.org Shuttle, SamTrans, and Caltrain) and how to connect to them, including Park and Ride options
- Information about the transportation related amenities offered by the property
- Information about Commute.org services and resources

<b>Estimated timeframe</b>	Pre-occupancy, ongoing
<b>Estimated cost</b>	\$3,000 to develop packet, then up to \$3 per packet to print and distribute Approximately \$4,000 total (cost of transit subsidies included in that strategy description)
<b>Responsible party</b>	Owner or consultant to develop; Property Management team to maintain and distribute long term
<b>Estimated daily VMT reduced</b>	17 to 19
<b>Percent of daily vehicle trips reduced</b>	1.9% to 2.1%

## TDM Communications

In order to encourage individuals to choose sustainable travel options, it is critical to provide them with the information needed to do so. Having a communications plan that outlines what should be shared and how will set clear expectations for the TDM Coordinator. It is recommended that the Communications Plan utilize the following tools to promote TDM services; transit, bike, and walking to tenants:

- **Website** - Having all transportation-related information and resources available in one virtual location makes it easy and convenient for residents to learn about their travel options. The webpage should provide information about relevant special offers and programs from outside agencies (such as the Peninsula Clean Energy e-bike subsidy while there is funding), nearby transit routes and schedules, bike and pedestrian paths, shuttles and services offered by Commute.org and other amenities. This is especially helpful for residents new to the neighborhood who are unaware of the transportation options available to them.
- **Resident Bulletin Boards** – Include TDM messaging in residents bulletin boards or other visible locations such as elevator screens on a regular basis to inform and update residents of sustainable travel options, upcoming events, and activities. Commute.org sends out regularly scheduled newsletters that provide up-to-date transportation information to utilize on boards or screens.
- **Newsletters and social media Posts** – Promote transportation options and updates via the apartment website and social media channels such as Facebook, Instagram, and Nextdoor, and include transportation information in newsletters or other communication distributed to tenants.

### Implementation Guidelines:

Create a webpage that lives on or is linked from the property's resident facing website and includes all the above listed information, at a minimum.

Develop a regular schedule for newsletters or social media posts and promote relevant transportation information regularly.

<b>Estimated timeframe</b>	Pre-occupancy, property management (TDM Coordinator) to maintain webpage and newsletter/social media calendar as well as managing all transportation-related information to residents.
<b>Estimated cost</b>	\$2,000
<b>Responsible party</b>	Property Management
<b>Estimated daily VMT reduced</b>	32 to 64
<b>Percent of daily vehicle trips reduced</b>	0.2% to 0.3%

## Bicycle Support and Repair Facilities

End of trip amenities such as bike parking in an easily accessible location, or on-site repair can encourage residents to cycle by making it an easier and safer experience.

### Implementation Guideline:

The applicant has provided plans for 205 long-term and 16 short-term bicycle parking spaces. On-site bicycle repair facilities should be located close to the long-term bike parking facility.

<b>Estimated timeframe</b>	Facility construction at development phase, maintenance ongoing
<b>Estimated cost</b>	\$0 as already included in applicant plan
<b>Responsible party</b>	Applicant/Property Management
<b>Estimated daily VMT reduced</b>	12 to 26
<b>Estimated of daily vehicle trips reduced</b>	0.1% to 0.3%

## 4 Optional TDM Measures

In addition to the project TDM measures, the following strategies would help to support further trip reductions. They are offered as optional recommendations as they are measures that will require additional financial investments.

### GOPass and Way2GO Pass Provision

Free or subsidized unlimited Caltrain and SamTrans rides can be provided for residents through participation in Caltrain's Go Pass and SamTrans Way2Go programs, which allows residential complexes to purchase annual unlimited ride passes for all residents. This program is required to be offered to all eligible residents for a period of no less than three (3) years from date of initial occupancy. After the initial three years, an alternate TDM measure(s) may be proposed by the project for the City's consideration which achieves a similar or increased trip reduction. Project must track issuance of transit passes, promotion of program, and usage data during this time.

#### Implementation Guidelines

Partner with Caltrain and SamTrans to provide free or discounted transit options to residents through the GO Pass and Way2Go Pass programs.

<b>Estimated timeframe</b>	Monthly
<b>Estimated cost</b>	Approximately \$116,701 per year for years 1-3 based on approximately 305.5 residents. <i>Calculations based on number of studio (17), 1-bedroom (119) and 2-bedroom units (55). 1 person per studio unit, 1.5 persons per 1-bedroom apartment and 2 persons per 2-bedroom unit. Go Pass pricing is \$342/participant, Way2go pricing is \$40/participant</i> Costs may be reduced through residents paying in part or in full for the reduced-price passes.
<b>Responsible party</b>	Property Management
<b>Estimated daily VMT reduced</b>	1,179 to 1,310
<b>Percent of daily vehicle trips reduced</b>	12.6% to 13.9%

### Bike Education/Workshop

Encouraging bike ridership is one of the most effective ways of reducing short range trips by car. About 59.4% of vehicle trips in the United States were less than six miles in 2017.<sup>4</sup> The

<sup>4</sup> As per data collected from Office of Energy Efficiency and renewable Energy 2017.  
<https://www.energy.gov/eere/vehicles/articles/fotw-1042-august-13-2018-2017-nearly-60-all-vehicle-trips-were-less-six-miles#:~:text=Data%20collected%20on%20one%2Dway,distance%20categories%20about%205%25%20each.>



developer could partner with local bike advocacy groups, bike shops or Commute.org to host bike safety workshops to educate residents on the basics of biking and share educational resources such as maps of nearby bike amenities (such as BikeLink lockers at train stations).

#### Implementation Guidelines:

Partner with Commute.org or a local bike advocacy organization to organize a bicycle safety training webinar or workshop annually. Commute.org offers free bike training workshops to employers and residential properties within San Mateo County. Promote the workshop or webinar along with additional resources on the property's dedicated website, resident newsletter, and social media. Some additional resources to share with residents and employees include:

- Bike Safety and Rules of the Road
- Family Biking - How to Bike Safely with Adults and Kids of Any Age
- Biking Maps and Trails

<b>Estimated timeframe</b>	75% occupancy, annually
<b>Estimated cost</b>	\$500
<b>Responsible party</b>	Property management to coordinate
<b>Estimated daily VMT reduced</b>	7 to 16
<b>Percent of daily vehicle trips reduced</b>	0.1% to 0.2% for every four individuals who participate in a workshop and will increase further with additional participants

## Carshare

The developer could partner with an existing carshare company such as Zipcar, Envoy, or Car2Go to provide those who do not own a vehicle the ability to use a car when needed. Providing occasional access to a vehicle, coupled with incentives to reduce parking needs, can encourage households to forgo vehicle ownership (studies show increased car access decreases use of other modes such as transit)<sup>5</sup>.

#### Implementation Guidelines:

Partner with a shared vehicle provider to provide residents access to a car when needed. The benefit can be made available to all residents, or only to those who do not have access to a parking space. Each participating household can be provided with annual credits.

<b>Estimated timeframe</b>	Ongoing
<b>Estimated cost</b>	\$3,600 to \$7,500 (depending on number of participants)
<b>Responsible party</b>	Property Management
<b>Estimated daily VMT reduced</b>	337 to 389
<b>Estimated of daily vehicle trips reduced</b>	2.0% to 2.4%

<sup>5</sup> Jordan, S. (May 2019). Ridership Study Revisited UCLA ITS Scholars 2018 Report on Falling Transit Ridership Gets a Second Look. Retrieved from <https://caltransit.org/news-publications/publications/transit-california/transit-california-archives/2019-editions/may/ridership-study-revisited/>

## Bike Share

Providing shared bikes to residents is an excellent way to further encourage bike ridership for short trips. Use of e-bikes can increase the bike-shed for longer trips, up to around seven miles.

### Implementation Guidelines:

Offer San Mateo bikeshare memberships to residents if/when a vendor becomes available. Alternatively, if a public bike share is not available, purchase four or more bicycles to create a property bike share. If considering a property-based bike share program, the following factors should be considered at the outset to ensure the program meets resident needs and is widely used:

- Choose at least one e-bike as part of the fleet
- Choose at least one cargo bike or trailer for the fleet so that residents can transport children or make grocery store trips
- Choose bikes with easily adjustable seat height and wide seat height range to allow use by riders of different sizes
- Keep the bikes well maintained and clean by partnering with local bike shops to do on-site maintenance or tune-ups twice a year.
- Place the bikes in a visible easy to access location so that using the bikes is convenient for the residents

<b>Estimated timeframe</b>	Ongoing
<b>Estimated cost</b>	\$10,000 to \$15,000 depending on cost and number of bikes, ongoing maintenance. Administrative costs will vary based on program structure
<b>Responsible party</b>	Property management to coordinate
<b>Estimated daily VMT reduced</b>	2 to 4
<b>Percent of daily vehicle trips reduced</b>	0 to 0.1%

Multimodal Wayfinding Signage

The developer might want to provide multimodal wayfinding signage at entry and exit points of the property. Wayfinding can help people visualize the time to nearby amenities using sustainable travel options. Examples of wayfinding window decals used in the City of Tulsa, Oklahoma are shown in Figure 6.

Implementation Guidelines:

Using consistent and legible design guidelines, create and post a network of pedestrian-scale signage at key entry and exit points of the property. The signs should point users to relevant destinations and give them estimates for how far away they are by walking and/or biking. For example:

- 9-minute walk to Sunnybrae Park/Playground
- 10-minute bike ride to Hillsdale Shopping Center

Be sure to evaluate the signage regularly to take into consideration any infrastructural or service changes that may impact options.

Figure 6. Multimodal wayfinding window decals used in Tulsa



Estimated timeframe	Pre-occupancy
Estimated cost	Under \$500
Responsible party	Property Management
Estimated daily VMT reduced	4 to 7
Percent of daily vehicle trips reduced	0%

## 5 Impact of TDM Measures

New developments within the Rail Corridor TOD are required to meet a minimum trip reduction of 25% for all new vehicle trips. However, given that the development is in proximity with transit, the City has given the developer a 10% credit, hence they are only required to meet a trip reduction rate of 15%. In the absence of a comprehensive TDM program, the project site has the potential to generate 908 daily trips. If implemented correctly and consistently, the recommended TDM strategies outlined in Chapters 3 and 4 is estimated to result in a daily trip reduction rate of 17 percent, totaling 2,269 vehicle miles traveled (VMT), which would lead to a reduction in over 750 kilograms of carbon dioxide daily.

### VTM Reduction Calculations

Estimated VMT reduction calculations were made using the TDM Return on Investment (ROI) Calculator, a tool owned by Mobility Lab and developed by university and governmental partners. The TDM ROI Calculator helps practitioners and policy makers understand the benefits of their investment in TDM strategies and programs by calculating estimated vehicle trips, VMT, hours of congestion delay, and emissions reduced. More information about the TDM ROI Calculator and assumptions made to calculate estimated impacts are included in Appendix A.

### Program Impacts

#### TDM Program for Hayward Park

Table 6 outlines the total estimated VMT, trip reduction percentage, and congestion hours reduced with the recommended and optional TDM program for the project site.

**Table 6: Cumulative TDM Strategies**

Hayward Park	Annual VMT Reduced		Annual Vehicle Trips Reduced		% Trip Reduction		Annual Congestion Reduced (hours of delay)		Carbon Dioxide Reduced (kg)	
	Low Est.	High Est.	Low Est.	High Est.	Low Est.	High Est.	Low Est.	High Est.	Low Est.	High Est.
Recommended TDM Strategies	560,443	1,147,809	38,285	79,534	17.1%	35.4%	16,796	24,700	191,672	392,483
Optional TDM Strategies	339,625	388,037	33,345	37,791	15%	17%	43,719	48,906	116,090	132,639
Recommended and Optional TDM Program	900,068	1,535,846	71,630	117,325	33.1%	51.4%	60,515	73,606	307,762	525,122

## Individual Strategies

Table 7: Individual TDM Strategies

Strategy	Daily VMT Reduced		Daily Vehicle Trips Reduced		% Trip Reduction		Daily Congestion Reduced (hours of delay)		Daily Carbon Dioxide Reduced (kg)	
	Low Est.	High Est.	Low Est.	High Est.	Low Est.	High Est.	Low Est.	High Est.	Low Est.	High Est.
TMA Membership	-	-	-	-			-	-	-	-
Unbundled Parking	1761	3914	127	282	14.0%	31.1%	0	0	602	1339
TDM Coordinator	142	284	8	15	0.9%	1.7%	23	45	49	97
Institutionalizing TDM at the Property	3	6	0	0	0.0%	0.0%	0	1	1	2
New Resident Package	322	358	17	19	1.9%	2.1%	42	47	110	122
TDM Communications	32	64	2	3	0.2%	0.3%	4	8	11	22
Bicycle Support and Facilities	12	26	1	3	0.1%	0.3%	4	8	11	22
Carshare	337	389	18	22	2.0%	2.5%	44	49	115	133
GOPass and Way2Go Provision (years 1-3)	1,179	1,310	114	127	12.6%	13.9%	153	170	403	448
Bike Share	2	4	0	1	0.0%	0.1%	0	0	0	0
Bike Education and Promotion	7	16	1	2	0.1%	0.2%	0	0	2	5
Wayfinding to outside building (signs/stickers)	4	7	0	0	0.0%	0.0%	0	1	1	3

## 6 Monitoring

Annual monitoring and reporting are required of the site according to the Rail Corridor TOD Plan Policy. Ongoing monitoring will help the project site track the impact of their TDM programs as well as provide a regular schedule for evaluating programming and identifying gaps and opportunities. The results will help the building adjust programs to better meet the needs of their residents.

The Rail Corridor TOD Plan states that a monitoring plan must be established as a condition for the approval of project. It states that the monitoring plan should be site specific and appropriate for the development size.

### Annual Survey

The City of San Mateo requires an annual letter to the Public Works Director or designee that outlines the TDM measures implemented and information from a mode split survey.

As a member of the Rail Corridor TMA the development will conduct annual resident surveys that will be coordinated by the Rail Corridor TMA. The annual resident survey will be used to understand residents' commute patterns modes. During the first year of occupancy, an initial survey should be conducted to establish a baseline to which future surveys will be compared.

The baseline survey and the subsequent annual surveys should ask questions to understand how residents travel for different types of trips and understand barriers to sustainable travel. To gain an insight into the resident's travel characteristics and attitudes, the survey should include the following key topics:

- Mode of travel by trip purpose (work, school, leisure, etc.)
- Work location
- Daycare or school pick-up/drop-off location, if applicable
- Flexible working arrangements, if applicable
- Car ownership
- Level of awareness of the property's TDM amenities
- Feedback on amenities and services currently available to the residents
- Current barriers to sustainable travel modes
- Other services or amenities that are not currently offered which would encourage residents to try a different mode of travel

The survey results allow the property to not only track program progress but also identify ways to adjust the program and further shift travel behavior towards more sustainable modes (transit, bike, walk and carpool) over time. The TDM Coordinator could use the data to understand which amenities are popular and should remain, which are not effective and should be adjusted, and

identify additional measures to implement in their place. The TMA also coordinates annual driveway trip counts to collect data to assess project compliance with their trip reduction goals. The Project will be expected to participate in this effort and contribute financially for the annual counts and report preparation.

# Appendices



# A TDM ROI Calculator

The Transportation Demand Management (TDM) Return on Investment-(ROI) Calculator is a tool owned by Mobility Lab, an Arlington County, Virginia funded transportation behavior and policy research center. It was developed in partnership with university and governmental partners, with funding from the Federal Highway Administration, to provide TDM program staff, transportation planners, and others involved in implementing TDM services a quantifiable way to estimate the ROI for TDM services.

According to the TDM ROI Calculator User Manual, the model calculates impacts for individual TDM services then combines the individual impacts, with discounts to account for overlap between services, to determine the cumulative impact of all services.<sup>6</sup>

The calculator performs the following functions:

- Estimates TDM travel impacts, defined as reductions in commute vehicle trips and vehicle miles travelled (VMT), from a user-defined package of TDM services
- Converts vehicle trip and VMT reductions into societal benefits, such as reduction in hours of travel time delay and gallons of gasoline saved
- Calculates the societal cost savings from each benefit and the overall cost saving from all benefits combined
- Compares the societal cost saving to the TDM program "investment" cost to estimate ROI

As most TDM programs do not have detailed VMT and trip reduction data, the ROI Calculator instead asks for user participation numbers and program costs as the inputs for its calculations. The model then uses four calculation factors derived from TDM service user surveys along with pre-set regional inputs and national environmental data to estimate the number of participants who will shift behavior and the number of daily vehicle trips, VMT and hours of congestion that their behavior shift will reduce. If more detailed regional and national data are known, they can be input to override the preset data used for calculation.

The inputs used for calculating the VMT and vehicle trip reductions for the Hayward Park TDM Plan are outlined below so that the results can be duplicated with ease.

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<sup>6</sup> Mobility Lab.(2019).TDM ROI Calculator User Manual Retrieved from <https://mobilitylab.org/calculators/>

# A1 Regional Inputs

At the outset in Section A (Your Region, Service Area Type and Transit Availability), the TDM ROI Calculator asks users to make a series of selections to determine geographic and transit characteristics of the area being examined. The options selected for the Hayward Park TDM Plan are displayed in **Table A.1** as follows:

**Table A.1: Selections made for region, service area type and transit availability**

Questions in the ROI Calculator	Option Selected for the TDM Plan
Metropolitan Region	San Francisco-Oakland-Hayward, CA
Primary land use density and development pattern	Moderate density, urban or small city/town
Primary focus of TDM program outreach	Primarily to commuters at residential areas
Percentage of commuters within 1/2 mi of bus/train stop in the service area	76% to 100% of commuters are within 1/2 mile of a bus or train stop
Average public transit frequency in the service area in the morning peak period (Select ONLY ONE option)	Moderate-Average rush hour frequency for most routes is 16-30 minutes

With the above inputs selected, the model determines the classifications for the project site as follows in **Table A.2**:

**Table A.2: Project site TDM service area and transit availability classifications**

Your TDM Service Area classification is:	Suburban/Small city
Your Transit Availability classification is:	High Transit

## A2 Regional Travel, Environmental and Cost Benefit Factors

The final section of the ROI Calculator (Section F - Additional Regional/Service Area Data Environmental Inputs) shows the default numbers used for regional travel, environmental and cost benefit factors. Users have the option to override these defaults by inputting values into the “User Defined” cells if specific local factors are known. Table A.3 shows the defaults assumed by the model and indicates if the defaults were overridden, and which values were used. The inputs defined in Table A.3 remained the same for all calculations for the Hayward Park TDM Plan.

**Table A.3: Travel, vehicle pollutant emission, and benefit cost factor default and user defined values**

Regional Travel Factors	Regional Default	User Defined
Average home-to-work commute miles for the region (one-way distance)	9.6	13.9 <sup>1</sup>
Percentage of regional commuters who drive alone to work OR percentage of weekly commute trips made by driving alone	63.2%	67% <sup>2</sup>
Percentage of regional commuters who ride public transit to work OR percentage of weekly commute trips made by transit	17.6%	11% <sup>2</sup>
Regional Vehicle Pollutant Emission Factors	National Default	User Defined
Oxides of Nitrogen (NOx) emission rate in grams per mile of travel	0.445	0.171 <sup>7</sup>
Volatile Organic Compounds (VOC) emission rate in grams per mile of travel	0.075	0.035 <sup>4</sup>
Greenhouse gas (Carbon Dioxide Equivalent) emission rate in grams per mile of travel	387.460	342.000 <sup>4</sup>
Regional Benefit Cost Factors	Regional Default	User Defined
Median average wage rate for commuters in the service area or metropolitan region	\$24.90	\$49.71 <sup>1</sup>
Estimated average annualized cost to build/maintain one lane-mile of major roadway (combination of Interstate and limited access roadway)	\$165,000	N/A
Average pump price per gallon for regular unleaded gasoline	\$3.36	\$5.80 <sup>3</sup>

<sup>1</sup> Source: San Mateo Economic Development Association’s Labor Supply and Commute Patterns in San Mateo County Report, 2012.

<sup>2</sup> Source: ACS 2018 5-year for the Census Tract 6076, Census.gov

<sup>3</sup> Source: [AAA Gas Prices](#)

<sup>4</sup> Source: California Air Resources Board Emissions Factors (EMFAC) database

## Assumptions

### Resident Characteristics Assumptions

To estimate potential participation numbers, some assumptions about the number of individuals living at the property at 100% occupancy were made. These assumptions begin with the knowledge that there will be 189 units for rent. The assumptions and the basis for each are outlined in Table A.4.

**Table A.4: 1 Hayward Avenue resident and employee characteristics assumptions**

Category	Assumption and Basis	Number
Total number of people residing at the property at full occupancy	ACS data indicates that there are 2.8 persons per household in the census tract 6078 and there will be 119 one-bedroom, 17 studios and 53 two-bedroom units on site.	529
Children under 18	ACS data shows that 27% of the census tract's population is children	143
Adults	Subtracting children from the total population	386
Number of residential commuters	ACS data shows that 30.3% of people residing in the census tract are not in the labor force	297

### ROI Calculator Participation and Calculation Factors Assumptions

In order to use the ROI calculator to calculate estimated impacts for the Hayward Park project, assumptions were made to estimate participation rate for each strategy. Additionally, if a strategy was not outlined as a direct input in the model, assumptions were made to estimate the calculation factors associated with it. Table A.5 outlines those assumptions.

Strategy	ROI Calc Input	Participation Assumption (per year)	Basis for Participation Assumption	Placement rate (%) Assumption	Vehicle Trip Reduction Factor Assumption	One-Way Commute Distance Assumption	Drive-Alone Access % Assumption
Unbundled Parking	Custom	176	All parking residential parking spots	100%	2.0	13.9	0%
TDM Coordinator	Comprehensive commute assistance	53	Organize all TDM activities on the property and assist 10% of residents with questions about transportation including one-on-one assistance when asked and promoting sustainable transportation options	40% Pre-set in model	0.8 Pre-set in model	19.8 miles Pre-set in model	40% Pre-set in model
Institutionalizing TDM at the Property	Targeted residential marketing	297	All adults residing at the property would see and sign the lease	1% Pre-set in model	0.5 Pre-set in model	19.8 miles Pre-set in model	40% Pre-set in model
New Resident Packet	Alternative mode “try it” incentive	48	All new residents will receive packet and 15% will make use of new resident packet.	50% Pre-set in model	1 Pre-set in model	19.8 miles Pre-set in model	40% Pre-set in model
Wayfinding to outside building (signs/stickers)	Targeted residential marketing	329	The decals would be visible to all residents	1% Pre-set in model	0.5 Pre-set in model	19.8 miles Pre-set in model	40% Pre-set in model
TDM Communications	Commute program website	104	10% of adults would access webpage for transportation info and incentives and approximately 25% would see the newsletter and social media communications, especially if they are included with communications regarding other property updates.	35% Pre-set in model	0.3 Pre-set in model	19.8 miles Pre-set in model	40% Pre-set in model
Bicycle Support and Facilities	Custom	10	3% of Commuters will use it and an additional 2 users will use it based on the placement rate	30%	1.2 Used the same pre-set for a bike commute program	10.0 Average doable biking distance according to Mobility Lab <sup>A1</sup>	40% Pre-set in model

Carshare	New Mode Options	88	Half of the residents (176) assigned parking spaces will have an interest in a carshare program	15% Pre-set in model	0.3 Pre-set in model	11.5 Pre-set in model	0% Pre-set in model
GOPass and Way2Go Pass Provision	Ongoing Transit Incentive	306	All residents aged 5+ will be provided with a subsidized pass. An incentive program can encourage more people to try transit	40% Pre-set in model	1.2 Pre-set in model	11.5 Pre-set in model	40% Pre-set in model
Bike Share	Alternative Try it Incentive	12	3% of Commuters will use it and an additional 3 users will use it based on the placement rate	40% Preset in model	0.2 Preset in model	4.5 Preset in model	0% Preset in model
Bike Education and Promotion	Custom	9	Approximately 9 individuals will attend the workshop based on the number of cyclists in the census tract. That number is likely to increase over time as bike infrastructure improves. According to NACTO, approximately 155 of the 386 adults at the property would be willing to ride a bike on streets with a protected bike lane.	20% Pre-set in model (for commute challenges/ events)	1.2 Used the same pre-set for a bike commute program	10 miles Average doable biking distance according to Mobility Lab <sup>A1</sup>	40% Pre-set in model

## B Background Assessment

Control Information

<b>Prepared by</b>	<b>Prepared for</b>
Steer 1502-80 Richmond St W Toronto, ON M5H 2A4 Canada +1 (647) 260 4860 www.steergroup.com	City of San Mateo 330 W. 20th Avenue San Mateo, CA 94403
<b>Steer project/proposal number</b>	<b>Client contract/project number</b>
	2409601
<b>Author/originator</b>	<b>Reviewer/approver</b>
Titi Onabanjo	
<b>Other contributors</b>	<b>Distribution</b>
	Client: Steer:
<b>Version control/issue number</b>	<b>Date</b>



