



# HEXAGON TRANSPORTATION CONSULTANTS, INC.



## Millbrae Serra Station Development Millbrae, California



### Transportation Demand Management Plan

Prepared for:

**Mr. Vincent A. Muzzi, Millbrae Serra Station, LLC**



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#### **Hexagon Transportation Consultants, Inc.**

Hexagon Office: 4 North Second Street, Suite 400

San Jose, CA 95113

Hexagon Job Number: 16LJ08

Phone: 408.971.6100

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# 1. Introduction

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Transportation Demand Management (TDM) is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle (SOV) trips to help relieve traffic congestion, parking demand, and air pollution problems. The purpose of TDM is to promote more efficient utilization of existing transportation facilities, and to ensure that new developments are designed to maximize the potential for sustainable transportation usage. This TDM Plan (Plan) has been prepared for the proposed mixed-use Millbrae Serra Station Project, which is a portion of Site One on the west side of the Millbrae Station in Millbrae, California. In order to propose effective and appropriate TDM measures, this Plan has been developed based on the project's size, location, and land use.

The purpose of the Plan is to satisfy the City of Millbrae's Millbrae Station Area Specific Plan's (MSASP) requirement for community benefit in conjunction with the proposed residential and office development. This Plan seeks to reduce the number of peak-hour trips through a combination of appropriate measures to promote alternative forms of transportation and to reduce the number of cars requiring long-term parking.

## Project Description

The project site is located in Millbrae on the west side of the Millbrae BART/Caltrain station (see Figure 1).

The proposed project would demolish the existing lumber yard and convalescent hospital and build 444 residential units, 290,100 sq. ft of office space and 13,200 sq. ft of retail space (Project). The Project includes parking in an underground garage.





LEGEND

 = Site Location

+++++ = Caltrain

+++++ = BART

**Figure 1**  
**Site Location**

## Project Trip Generation

As indicated in the MSASP, all new developments within the Specific Plan Area that generate more than 50 trips are required to implement a TDM program to achieve at least a 20% trip reduction.

An evaluation of the Project's trip generation for the daily, weekday AM and weekday PM peak hours was conducted using trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation, 9th Edition*. Table 1 shows that the project trips would calculate to 6,717 daily trips, including 692 AM and 756 PM peak hour trips, using ITE trip rates. Therefore, the Plan seeks to reduce trip-making by 1,344 trips on a daily basis, with 139 trips and 152 trips reduced during the AM and PM peak hours, respectively.

**Table 1**  
**Project Trip Generation Estimates**

Land Use	Size	Unit	Daily Rate	Daily Trips	AM Peak Hour			PM Peak Hour					
					Peak Rate	Trips In	Trips Out	Total Trips	Peak Rate	Trips In	Trips Out	Total Trips	
<b>Proposed Use</b>													
Residential <sup>1</sup>	444	units	6.65	2,953	0.51	45	181	226	0.62	179	96	275	
Office <sup>2</sup>	290.1	ksf	11.03	3,200	1.56	399	54	453	1.49	73	359	432	
Retail <sup>3</sup>	13.2	ksf	42.7	564	0.96	8	5	13	3.71	24	25	49	
<b>Proposed Total</b>				<b>6,717</b>		<b>452</b>	<b>240</b>	<b>692</b>		<b>276</b>	<b>480</b>	<b>756</b>	

**Notes:**

All rates are from: Institute of Transportation Engineers, *Trip Generation, 9th Edition*

1. Land Use Code 220: Apartment (average rates, expressed in trips per dwelling unit)
2. Land Use Code 710: General Office Building (average rates, expressed in trips per 1,000 square feet gross floor area)
3. Land Use Code 820: Shopping Center: (average rates, expressed in trips per 1,000 square feet gross leasable floor)

## Report Organization

The remainder of this report is divided into three chapters. Chapter 2 describes the transportation facilities and services in the area that would be available to the Project. Chapter 3 presents the TDM measures for the Project. Chapter 4 describes the program for implementing and monitoring the TDM reductions.



## 2. Transportation Facilities and Services



Transportation facilities and services that support sustainable modes of transportation include commuter rail, buses and shuttle buses, high-occupancy vehicle (HOV) lanes, bicycle facilities, and pedestrian facilities. This chapter describes existing facilities and services near the Project site that will support the TDM measures contained in this plan. Figure 2 shows the existing bus and rail services.



### Millbrae Transit Center

The Project site is located on the west side of the Millbrae Transit Center, which serves as a regional bus transit hub, a Bay Area Rapid Transit (BART) station, a Caltrain station, and a shuttle bus hub. On the west side, the station has two shuttle bus bays, a kiss-and-ride/taxi lot, bike racks, bike lockers, and a park-and-ride lot.



### Caltrain Commuter Rail

Caltrain provides commuter rail service between San Francisco and San Jose, with limited service to Gilroy during commute hours. Caltrain provides service at the Millbrae Station from 5:15 AM to 12:00 AM on weekdays with eight limited and Baby Bullet trains in the AM peak and one local, seven limited, and six Baby Bullet trains in the PM peak hour. On weekends, Caltrain provides service from 8:30 AM to 10:00 PM with local trains arriving every hour and four Baby Bullet trains throughout the day.



### Bay Area Rapid Transit (BART)

BART connects San Francisco with cities in the East Bay and suburbs in northern San Mateo County. The Millbrae BART Station is the terminal station for BART on the San Francisco Peninsula, with primary service by the BART Richmond–Daly City/Millbrae line and the





Pittsburg/Bay Point–SFO/Millbrae line. Currently there is no direct train service to SFO airport from Millbrae station on weekdays during peak hours; instead, a timed transfer to an airport-bound BART train is provided north of Millbrae, at the San Bruno Station, during the day on weekdays. BART provides service from 4:00 AM to 12:00 AM on weekdays with typical headways (frequency of service) of 15 minutes on the Richmond-Millbrae Line serving the station during peak and mid-day hours and 20 minute headways on the Pittsburg/Bay Point-SFO Airport-Millbrae Line in the evening after 8:00 PM and 6:00 AM (8:00 AM on Sundays) to 12:00 AM on weekends with typical headways of 20 minutes.



## Shuttles

There are multiple commuter and employer-based shuttle lines providing services between different areas and the Millbrae Transit Center. On the west side of the station, the following two commuter shuttles provide service:

- **Broadway/Millbrae Caltrain Shuttle:** Caltrain offers this free non-stop shuttle service between the Broadway and Millbrae Stations during AM and PM peak hours. At Millbrae Station, this shuttle stops on the west side of the station at the bus bays. During the morning peak period of 6:00-9:45 AM, there are 10 run with 18 to 26-minute headways. During the afternoon commute hours (3:50 PM - 7:15 PM), the shuttle line operates with 13 to 23-minute headways.
- **North Burlingame Shuttle:** This shuttle runs between the Millbrae BART and Caltrain Station, Mills-Peninsula Health Services, Sisters of Mercy and the Easton-Burlinghome neighborhood during commute hours, Monday through Friday. This shuttle is open to the general public and free to riders. At Millbrae Station, this shuttle stops on the west side of the station at the bus bays. During the morning peak period of 6:00-9:45 AM, the shuttle operates with 22 to 38-minute headways. During the afternoon commute hours (3:00 PM - 6:30 PM), the shuttle line operates with 24 to 30-minute headways.

There are four other shuttles stopping on the east side of the station.

- **Burlingame-Bayside BART/Caltrain Shuttle:**
- **North Foster City Shuttle**
- **Sierra Point Shuttle**
- **Private Shuttles:** Genentech, Google, Cisco, and Mercy High School.



## Bus Routes

SamTrans provides bus service within San Mateo County and has weekday bus routes serving the Millbrae Transit Center and surrounding areas including:

**Route ECR** Route ECR is a north-south bus line that provides regional transit service between Daly City and Palo Alto via El Camino Real. The route operates from 4:00 AM to 2:00 AM on weekdays with headways of 15 minutes during the peak commute and midday periods. On weekends, the route operates from 5:00 AM to 2:00 AM with headways of 20 to 30 minutes. The closest northbound stop to the Millbrae





Station is located at the intersection of Linden Avenue and El Camino Real – almost in front of the Project site. Sidewalks are provided on Linden Avenue to get from the bus stop to the project site. The closest southbound ECR stop is located at Victoria Avenue, right across the street from the Project site.



**Route 397** The 397 bus line provides service between the Palo Alto Caltrain Station and the San Francisco Downtown via El Camino Real, with 60-minute headways during the midnight service hours. This route does not operate mid-day. The closest bus stop is located on the east side of the station. There is also a northbound stop located at the intersection of El Camino Real and Murchison Drive.





LEGEND

-  = Site Location
-  = Caltrain
-  = BART
-  = SamTrans Routes Connecting to BART and Caltrain Stations

**Figure 2**  
**Existing Transit Services**



## Bicycle Facilities

Currently, there are minimal bicycle facilities located in the Project area (see Figure 3). There are no designated bike lanes along the streets in the vicinity of the Project site. The existing bicycle facilities within the study area include bike routes. Bike Routes refer to streets that are well-suited for bicycling where cyclists share the road with motor vehicles. Bike Routes may also be defined by a wide curb lane and/or use of a shared use arrow stencil marking on the pavement, known as a “sharrow.”

- California Drive south of Murchison Drive
- Trousdale Drive west of Magnolia Avenue
- Magnolia Avenue between Murchison Drive and Trousdale Drive

In addition to the marked bike routes, there are some cyclist suggested routes, which are compiled by cyclists as preferred routes shown on 2009 San Mateo County Bicycle map.

- California Drive north of Murchison Drive
- Linden Avenue
- Millbrae Avenue between Ashton Avenue and Old Bayshore Boulevard
- Rollins Road south of Millbrae Avenue

Bicyclists can use the above mentioned bike routes to access the Project site.

The *San Mateo County Comprehensive Bicycle and Pedestrian Plan* adopted on September 8, 2011 has identified the following proposed improvements to the bike network within the Project vicinity: Rollins Road is proposed for Class II bicycle lanes; Magnolia Avenue and Trousdale Drive are proposed for Class III signed bicycle routes.

The MSASP report dated February 10, 2016 has proposed to incorporate increased separation from other road users with Class I bicycle paths and Class II bicycle lanes to improve bicyclist comfort and safety, where possible in the Plan Area. Streets within the Plan Area that are planned to be striped with on-street bicycle lanes include Adrian Road, South Station Street, California Drive, and Victoria Avenue east of El Camino Real. The MSASP also proposed improvements for bicycle access to Millbrae Station. Under MSASP build-out, all station entrances would connect directly to a bicycle facility. Stair channels would be provided to allow riders to wheel their bicycles up and down all stairways, and elevators large enough to accommodate bicycles would be located in a central location.

## Pedestrian Facilities

The pedestrian facilities within in the study area include sidewalks along the majority of the streets and striped crosswalks at intersections with major roadways. The Project site is connected to El Camino Real via existing or planned sidewalks. The Project site is directly adjacent to the BART/Caltrain station.



LEGEND

- = Site Location
- = Caltrain
- = BART
- = Bike Route (Class III)
- = Additional Cyclist Suggested Routes

**Figure 3**  
**Existing Bicycle Facilities**



### 3.

## Proposed TDM Measures

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This chapter describes Transportation Demand Management (TDM) measures that are applicable to the mixed-use Project. The Project's TDM measures include planning and design measures related to the attributes of the site design and on-site amenities. Such design measures encourage walking, biking, use of transit, and internalization of trips. The Plan includes measures that are geared towards the residential tenants and office employees of the Project.



### Proximity to Transit Center

The Project, which is located across the street from the Millbrae Transit Center, provides direct access to BART and Caltrain service as well as to multiple shuttle routes and SamTrans bus routes.. At a normal walking pace, it would only take a couple of minutes to walk from the Project site to the transit center. This encourages the use of BART, Caltrain and SamTrans for both residents and workers at the Project.



### Unbundling of On-Site Residential Parking

Unbundled parking means separating the cost of parking from residential leases/purchases and allowing residents to choose whether to lease/purchase a parking space. Unbundling of parking encourages residents to forego a second car or to have no car at all. This is especially effective when used in conjunction with an on-site car share service. This TDM measure is applicable only to the residential portion of the Project.



### On-Site Amenities

Amenities on-site include providing a tenant-orientation (welcome) packet, transportation kiosk, bicycle storage, high-bandwidth internet connections, and a TDM contact person. These are described below.



#### Tenant -Orientation (Welcome) Packet

New residents and office tenants will be provided transportation information packets. This packet will include information about transit maps/schedules (BART, Caltrain and SamTrans), location of





bus stops, bike maps, ride matching services, transit planning resources, and bicycle parking on-site. Also included in the packet would be information regarding how to contact a TDM person that can provide information regarding modes of transportation to residents and office tenants.

### Transportation Kiosk



This Plan proposes to establish an “online kiosk” with similar information that residents/employees could access from their home, their desk at work, or anywhere else. This online kiosk can be available on the residential/office tenants website. In addition to including all of the non-auto transportation alternatives that would be provided in the tenant-oriented (welcome) packet, the online kiosk can have a list of nearby restaurants and entertainment uses to help encourage residents/office employees to walk to their destinations.



One of the major impediments to using an alternative mode to travel to work is often simply lack of familiarity with the facilities and services available. The traditional measure included in most TDM plans is to establish an information kiosk with such “hard copy” information as transit schedules, bike maps, and information about ride matching services. We believe an “online kiosk” will be even more useful and more inviting to residents and employees.



By allowing someone to have all the information about transportation alternatives and TDM programs available to them in a single online location, people will be more likely to refer to this information from home or from their desk. The building developer or property manager will have responsibility for setting up and maintaining this online information center for only the Millbrae Serra Station Project portion of Site One. When other portions of Site One or the MSASP Area are improved, applicants should be required to share equitably in this responsibility.

### Bicycle Storage and Amenities



According to the bike parking requirements specified in the MSASP report, the Project is required to provide 0.5 long-term spaces for each bedroom for the residential development, 1 long-term space per 10,000 square feet of office floor area, and 1 long-term space per 12,000 square feet of retail floor area with a minimum requirement of 2 space. For short-term bicycle parking, the Specific Plan requires 0.05 spaces for each bedroom of residential development, 1 space per 20,000 square feet of office area, and 1 space per 2,000-5,000 square feet of retail floor area.



The Project will provide enough bike parking space to meet the MSASP requirements. In addition to bike parking the Project should include a bike hub facility with equipment for minor repairs and maintenance of bicycles free of charge to tenants. As part of the Project’s online information center, resources useful to cyclists will be included. For example, the local bikeway maps will be posted for easy reference. The following resources are available to bicycle commuters through 511.org. These resources also will be noted on the Project’s online information center.



- Free Bike Buddy matching
- Bicycle maps
- Bicycle safety tips
- Information about taking bikes on public transit
- Location and use of bike parking and transit stations
- Information on Bike to Work Day
- Tips on selecting a bike, commute gear, and clothing
- Links to bicycle organizations





## High-Bandwidth Internet Connection

The residential units should include high-bandwidth internet connections to facilitate telecommunicating. Telecommunicating is an effective TDM strategy that enables employees to work from home, thereby reducing the number of commute trips to and from the Project site during peak periods. An on-site business center with telecommunicating equipment is also recommended to serve the residents of the Project. When other portions of Site One are improved, applicants will be required to share equitably in this responsibility.



## TDM Contact Person

A TDM contact person should be assigned to provide information regarding alternative modes of transportation to residential and office tenants of the Project. When other portions of Site One are improved, applicants will be required to share equitably in this responsibility.



- Provide information and resource materials on the full range of transportation choices available to the residents
- Provide transportation information packets to tenants
- Post material on commute alternatives on the information kiosk and provide up to date transit maps and schedules



## Car Sharing

One of the major impediments to using transit, bicycling, carpooling, or vanpooling to get to work is employees' need to use a car occasionally to make a mid-day trip for personal or business purposes. Car sharing programs provide individuals with access to a vehicle when they need it during the work day, so they do not need to drive their own car. Car-sharing for residents or tenants traveling to and from the Project site should be encouraged by providing a list of car sharing services such as Zipcar as part of the move-in packet **for both the residential and office uses**. Car share parking spaces should be provided in the on-site parking garage.



## Carpool and Vanpool Programs

Carpool and vanpool programs will be promoted as a TDM measure to residents and office employees through the online information center and in the welcome packets.



## 511 Ride Matching Assistance

The 511 RideMatch service provides an interactive, on-demand system that helps commuters find carpools, vanpools or bicycle partners. This free car and vanpool ride matching service helps commuters find others with similar routes and travel patterns with whom they may share a ride. Registered users are provided with a list of other commuters near their employment or residential ZIP code along with the closest cross street, email, phone number, and hours they are available to commute to and from work. Participants are then able to select and contact others with whom they wish to commute. The service also provides a list of existing car and vanpools in their residential area that may have vacancies. Ride matching assistance is also available through a number of peer-to-peer matching programs, such as Zimride, which utilize social networks to match commuters.





## Carpool/Vanpool Incentives for New Users

The 511 Regional Rideshare Program and the Peninsula Traffic Congestion Relief Alliance offer a number of incentive programs to encourage people to try carpooling and vanpooling. Most of these programs are designed to reward someone for forming or trying a carpool or vanpool, and provide an award or subsidy after the first three or six months of use.



**Vanpool Formation Incentive.** The 511 Regional Rideshare Program provides up to \$500 in gas cards to new vanpools that meet certain eligibility requirements and complete three to six consecutive months of operation. The gas cards are awarded on a first-come, first-served basis, until funds are exhausted.



**Vanpool Seat Subsidy.** The 511 Regional Rideshare Program also offers a vanpool seat subsidy in the form of gas cards. The seat subsidy will provide \$100 per month, with a limit of three months per van during the program year, to help cover the fare of a lost participant. The gas cards will be offered to eligible vans on a first-come, first-served basis until the funds are exhausted.



**Vanpool Participant Rebates.** Commuters who live in or commute through San Mateo County can also receive a rebate from the Peninsula Traffic Congestion Relief Alliance (the Alliance) to try vanpooling. The Alliance will pay half of the cost of a new vanpool participant's seat, up to \$100 per month. New vanpools that operate for at least six months can receive a one-time rebate of \$500, paid to the vanpool driver (rotating drivers may share the bonus).

## Emergency Ride Home Program



An Emergency Ride Home program will guarantee that office employees within the Project need not worry about being stranded at work without a car in the event of illness, family emergency, or unexpected overtime if they use transit, carpool, or vanpool. The emergency ride home program will offer free taxi service from the workplace to the employee's home. By reassuring commuters who do not drive alone that they can have timely and paid transportation in the event of an emergency, this program removes one of the largest concerns expressed by most employees about using alternative modes of transportation.



Future tenants of the Project will reimburse their employees for rides home in the event of an emergency. For a project of this size, there is no need to set up a separate contract with taxi providers or add administrative burdens to the program. An employee would, however, need to provide an explanation of the emergency, and a limit on the number of rides that will be provided per employee per year is reasonable.

## Trip Reduction with the Proposed TDM



The Project is the first portion of a planned mixed-use development for Site One in the MSASP that can internalize some of its trips by residents living and working on site. Also, the Project location is in a mixed-use area with good pedestrian connections. This will further result in walking trips. Based on the California Air Pollution Control Officers Association (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures*, dated August 2010, the estimated trip reduction credit for the Project would be 35% for the residential portion, 37.5% for the office portion of the Project, and 32% for the retail portion of the Project resulting from:



- (1) the Project's proximity to complementary land uses and transit services;
- (2) the on-site amenities and transportation information provided, and



(3) the proposed unbundled parking program

Consequently, the estimated trip reduction with the proposed TDM measures would exceed the 20% trip reduction required in the MSASP (see Table 2) for the Project.

**Table 2  
Estimated Trip Reductions**

Land Use	Trip Reduction		Daily Trips	AM Peak Trips	PM Peak Trips
	Measures	% Reduction			
<b>Proposed Use</b>					
Residential <sup>1</sup>			2,953	226	275
	Compact Infill Location	30%			
	Neighborhood/Site Enhancement	2%			
	Unbundled Parking	3%			
	<b>Total Reduction</b>	<b>35%</b>	<b>(1,034)</b>	<b>(79)</b>	<b>(96)</b>
Office <sup>2</sup>			3,200	453	432
	Compact Infill Location	30%			
	Neighborhood/Site Enhancement	2%			
	Commute Trip Reduction Programs	5.5%			
	<b>Total Reduction</b>	<b>37.5%</b>	<b>(1,200)</b>	<b>(170)</b>	<b>(162)</b>
Retail <sup>3</sup>			564	13	49
	Compact Infill Location	30%			
	Neighborhood/Site Enhancement	2%			
	<b>Total Reduction</b>	<b>32%</b>	<b>(180)</b>	<b>(4)</b>	<b>(16)</b>
<b>Proposed Total</b>			<b>6,717</b>	<b>692</b>	<b>756</b>
<b>Total After Reduction</b>			<b>4,303</b>	<b>439</b>	<b>482</b>
<b>Trip Reduction Achieved %</b>			<b>36%</b>	<b>36%</b>	<b>36%</b>



## 4. TDM Implementation and Monitoring

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The purpose of the Plan is to reduce vehicle trips, traffic congestion, and encourage non-auto modes of transportation. As stated in the MSASP (dated February 10, 2016), projects located within the Plan Area are required to submit annual reports to the City describing the specific TDM measures that are being implemented, the number of employees on-site, and the success of the measures expressed in AM and PM peak hour vehicle trips generated by the Project. The goal is a 20% trip reduction compared to ITE trip generation rates.



### Implementation

Applicants shall submit a final Plan to the City and shall be responsible for ensuring that the trip reduction measures are successfully implemented and remain in substantial compliance with the MSASP. The Project shall not be responsible at any time for trips generated by any other parcels within Site One or the MSASP area as a whole because other individual development projects will be obligated to provide their own TDM measures.



This will require that the aforementioned trip reduction measures be incorporated into the Project.

It is anticipated that, after a development is constructed, an owner or property manager within the Project will assume responsibility for the ongoing TDM measures. When any ownership, management, or contact information changes, the City will be notified of the name and phone number of the designated TDM coordinator.



In addition, all Lease Agreements will require tenants within the Project to participate in the Plan upon occupancy and will describe the elements of this Plan for which tenants have immediate or potential future responsibility.

### Monitoring



Monitoring will help ensure that the implemented TDM measures are effective. In order to monitor progress towards this goal, counts will be conducted to compare the actual peak hour vehicle trips to the number of peak hour trips estimated with the Institute of Traffic Engineers' rates for these land uses.





Consistent with common traffic engineering data collection principles, trip generation will be monitored by means of driveway counts. The counts will be conducted one day per year on a typical weekday (Tuesday, Wednesday, or Thursday) during the fall when school is in session. The Project trips during the AM and PM peak hours of commute traffic will also be extracted from the daily driveway count. Monitoring will be conducted for the first two years following full occupancy of the Project and thereafter at the request of the Planning Director.



The site TDM coordinator will work with an independent consultant to obtain traffic count data and to document the results in a TDM monitoring report. The annual monitoring report will be submitted to the City by the TDM coordinator. The data will be reviewed by the City to assess whether the goal of 20% trip reduction is being fulfilled. This will be assessed by comparing the driveway counts to the trip targets set forth in Table 2 of this TDM plan report.



The annual TDM monitoring report will describe any planned modifications to the TDM program intended to ensure compliance with and equitable accounting and adjustments for the trip reduction targets established for this Project.

