



HEXAGON TRANSPORTATION CONSULTANTS, INC.

# Hillsdale Terraces Mixed-Use Development

## Draft Transportation Management Plan

Prepared for:

**City of San Mateo**

**May 17, 2016**

### Hexagon Transportation Consultants, Inc.

Hexagon Office: 4 North Second Street, Suite 400

San Jose, CA 95113

Hexagon Job Number: 15GB45

Phone: 408.971.6100

Document Name: Hillsdale Terraces Transportation Management Plan 2016 5 17.docx

**San Jose • Gilroy • Pleasanton • Phoenix**

**[www.hextrans.com](http://www.hextrans.com)**

Areawide Circulation Plans Corridor Studies Pavement Delineation Plans Traffic Handling Plans Impact Fees Interchange Analysis Parking Studies  
Transportation Planning Neighborhood Traffic Calming Traffic Operations Traffic Impact Analysis Traffic Signal Design Travel Demand Forecasting

## Table of Contents

---

Executive Summary .....	ii
1. Introduction .....	1
2. Project Setting and Traffic Demand .....	7
3. TDM Strategies .....	17
4. C/CAG Trip Reductions.....	25

## List of Tables

Table 1	TIA Project Trip Generation Estimates.....	12
Table 2	Trip Type Split for Reduction.....	16
Table 3	Summary of C/CAG Trip Credits.....	26

## List of Figure

Figure 1	Site Location within the San Mateo Rail Corridor Transit-Oriented Development.....	2
Figure 2	Site Location within the Hillsdale Station Area Plan .....	3
Figure 3	Existing Bicycle Facilities .....	10
Figure 4	Existing Transit Facilities.....	11
Figure 5	Residential Peak Hour Trip Types .....	13
Figure 6	Restaurant Peak Hour Trip Types.....	14
Figure 7	Project AM Peak Hour Trip Types.....	15
Figure 8	Project PM Peak Hour Trip Types.....	15

## Executive Summary

---

The Hillsdale Terraces mixed-use development project site is located on the west side of El Camino Real, and spans from 27<sup>th</sup> Avenue to 28<sup>th</sup> Avenue. The project would demolish the existing on-site structures and construct a five-story structure with 15,678 square feet of commercial space on the ground floor, 74 condominiums on the upper 4 floors, and a 3-level below grade parking garage. Garage access would be provided by driveways on the 27<sup>th</sup> Avenue and 28<sup>th</sup> Avenue. For the purposes of the transportation impact analysis and this plan, the ground floor commercial space is assumed to be restaurant space.

The project location falls within the boundary of both the San Mateo Rail Corridor Transit-Oriented Development Plan and the Hillsdale Station Area Plan. As part of these plans, it is stipulated that new developments prepare a Transportation Management Plan (TMP). The purpose of this *TMP* is to evaluate trip reduction strategies with the goal of reducing overall vehicular trip making activity in the area. This document identifies the baseline vehicular trip generation of the proposed project and documents appropriate trip reduction strategies.

### Project Trip Generation - Prior TIA Estimates

The *Transportation Impact Analysis (TIA)* for the proposed project analyzed the number of net new trips that would be added to the roadway network during the weekday AM and weekday PM peak hours. To determine this, the project *TIA* estimated the magnitude of traffic by multiplying the applicable trip generation rates by the size of the development. The trip generation rates used for the analysis were published in the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation Manual, 9<sup>th</sup> Edition*. After applying trip credits for the existing site trips, the project *TIA* estimated that the project would generate 184 new trips during the AM peak hour (89 inbound and 95 outbound) and 171 new trips during the PM peak hour (105 inbound and 66 outbound).

### Trip Generation with Trip Type

The *TIA* trip generation does not include a breakdown of trips by type (i.e. employee vs. patron) nor does it assume any reductions for transit service. This approach is conservative and appropriate when estimating traffic impacts for California Environmental Quality Act (CEQA) purposes. However, to determine more realistic trip generation characteristics for the purposes of this Transportation Management Plan, a detailed assessment of peak hour trip generation is useful.

Residential uses generate trips from residents and visitors, and restaurant uses generate trips from employees and patrons. For restaurant uses, it is estimated that the majority of trips are made by

patrons that occur from traffic already passing by the site or from vehicles that modified their existing trip to include a stopover at a restaurant. Without reduction, residential trips would account for 33 trips out of a total of 184 trips, approximately 18%, during the AM peak hour. During the PM peak hour, without reduction, residential trips would account for 38 trips out of a total of 175 trips, approximately 22%.

For the purpose of calculating trip reduction, the trips that would be made by residents, residential visitors, restaurant employees, and restaurant patrons are considered. This excludes restaurant diverted-link and pass-by trips because these trips are already on the roadway network. Based on this, there are 80 trips during the AM and PM peak hours that can be reduced.

## Proposed TDM Measures for Project Area

The transportation demand management (TDM) measures to be implemented for the Hillsdale Terraces mixed-use development project include design measures related to the physical attributes of the site and the proposed buildings. Such design measures encourage walking, biking, and use of transit. For the proposed project, these include:

- **Site Design.** The project would provide building entrances along El Camino Real, 27<sup>th</sup> Avenue, and 28<sup>th</sup> Avenue directly adjacent to the sidewalks. The project proposes adding community amenities such as high visibility crosswalks, new landscaping, and accessible ramps along El Camino Real.
- **Vehicle Parking Supply.** The parking supply and demand are discussed in detail in the project's *Parking Management Plan*. Based on that analysis, the project parking supply will not be excessive nor result in greater walking distances for pedestrians.
- **Clean Air Vehicle Parking/Electric Vehicle Charging Stations.** The project would include parking spaces for low emitting/fuel efficient vehicles. In addition, the project plans to leave space to convert the low emitting/fuel efficient spaces to spaces that include a charging station for electric vehicles.
- **Bicycle Parking.** Secure bicycle parking encourages residents and employees to bike to their destinations. The project proposes short-term bicycle parking at the ground floor main entrance and a long-term bicycle parking area located on Level B (middle level) of the parking garage.
- **Unbundling of Residential Parking.** Residential parking will be unbundled from each living unit. This will allow residents without cars to rent a unit without having to pay for a parking spot. Parking spaces will be added to leases only for tenants who desire parking.
- **Residential Transit Passes.** Residents will receive free Caltrain Go Passes as part of their lease agreement for the first year of each occupancy.
- **Proximity to Rail.** The project site is directly served by several SamTrans bus routes and is within walking distance of the Hillsdale Caltrain Station. This minimal distance to bus and transit stops promotes walking and transit use.
- **Participation in a Transportation Management Associate.** As required by the Hillsdale Station Area Plan, the project will join the Rail Corridor TMA.

Potential additional measures involve programs and services that promote sustainable modes of transportation. These could include:

- Compressed Work Week
- Flex Time
- Subsidized Transit Tickets for Employees
- Participation in Car Sharing

## C/CAG Trip Reductions

The project's *Transportation Impact Analysis* estimated that, without reductions, the proposed redevelopment would generate 184 AM peak hour trips and 175 PM peak hour trip. However, accounting for pass by trips and diverted-linked trips, a reasonable starting point for scoring City/County Association of Governments (C/CAG) trip credits was determined to be 81 trips. The project site design includes the following TDM measures to comply with the C/CAG requirements: bike storage, upgrades to pedestrian facilities, upgrades to landscaping, proximity to rail, fuel efficient vehicle parking, unbundling of residential parking, and participation in the Rail Corridor TMA. Adapting C/CAG's TDM measures for employment and residential uses to the proposed project, it was determined that the Hillsdale Terrance mixed-use development project could receive 131 trip credits based on this TMP, thus offsetting the project's net trip generation to less than zero.

# 1.

## Introduction

---

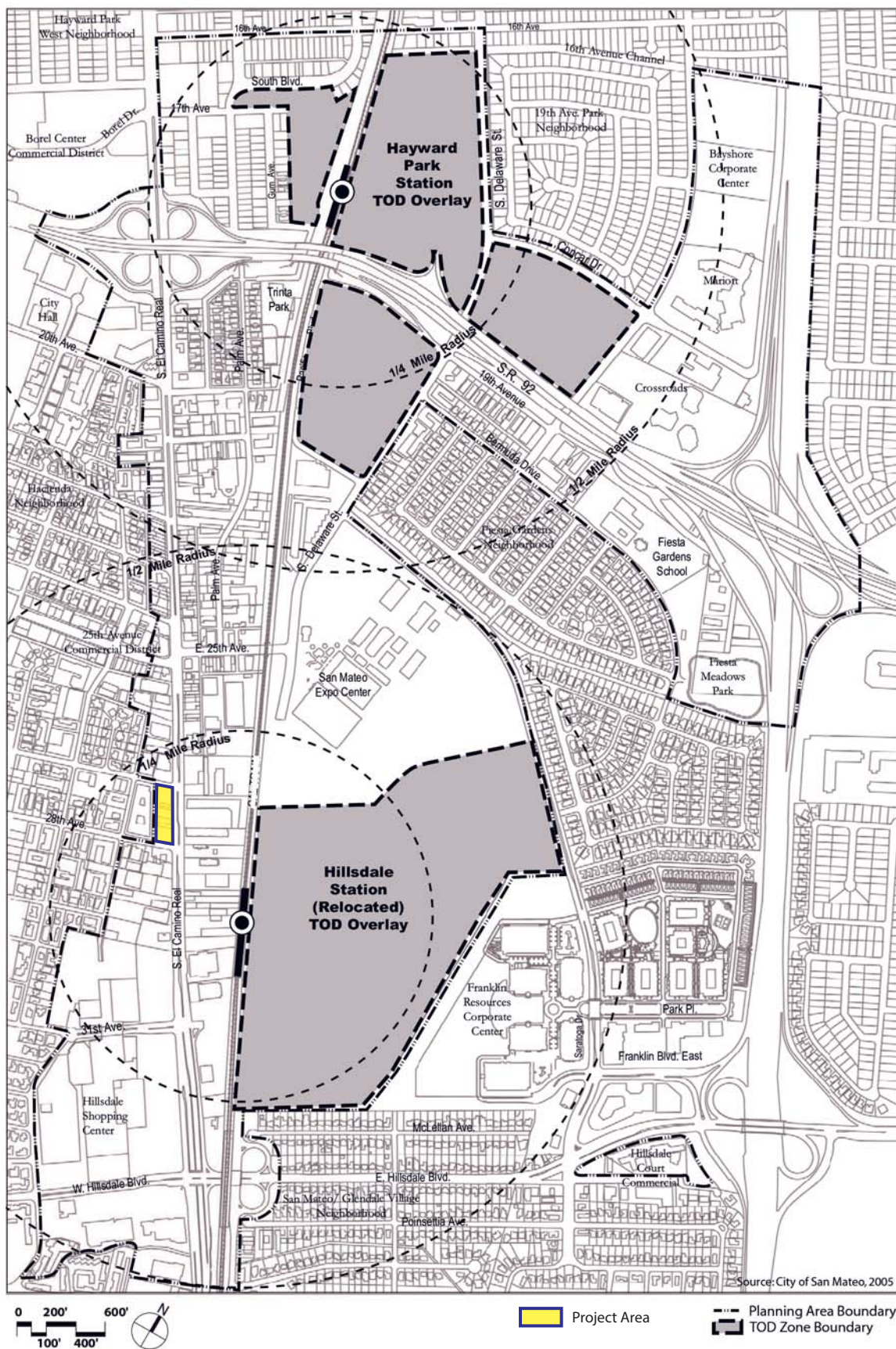
The proposed Hillsdale Terraces mixed-use development project is located at 2700 El Camino Real in San Mateo, California. The project location falls within the boundary of both the San Mateo Rail Corridor Transit-Oriented Development Plan and the Hillsdale Station Area Plan. As part of these plans, it is stipulated that new developments prepare a Transportation Management Plan (TMP). The purpose of this TMP is to evaluate trip reduction strategies with the goal of reducing overall vehicular trip making activity in the area. This document identifies the baseline vehicular trip generation of the proposed project and documents appropriate trip reduction strategies.

### Project Description

The proposed project site is located on the west side of El Camino Real, and spans from 27<sup>th</sup> Avenue to 28<sup>th</sup> Avenue. The project would demolish the existing on-site structures and construct a five-story structure with 13,978 square feet of commercial space on the ground floor, 74 condominiums on the upper 4 floors, and a 3-level below grade parking garage. Garage access would be provided by driveways on the 27<sup>th</sup> Avenue and 28<sup>th</sup> Avenue. For the purposes of this plan, the commercial space is assumed to be used as restaurant space.

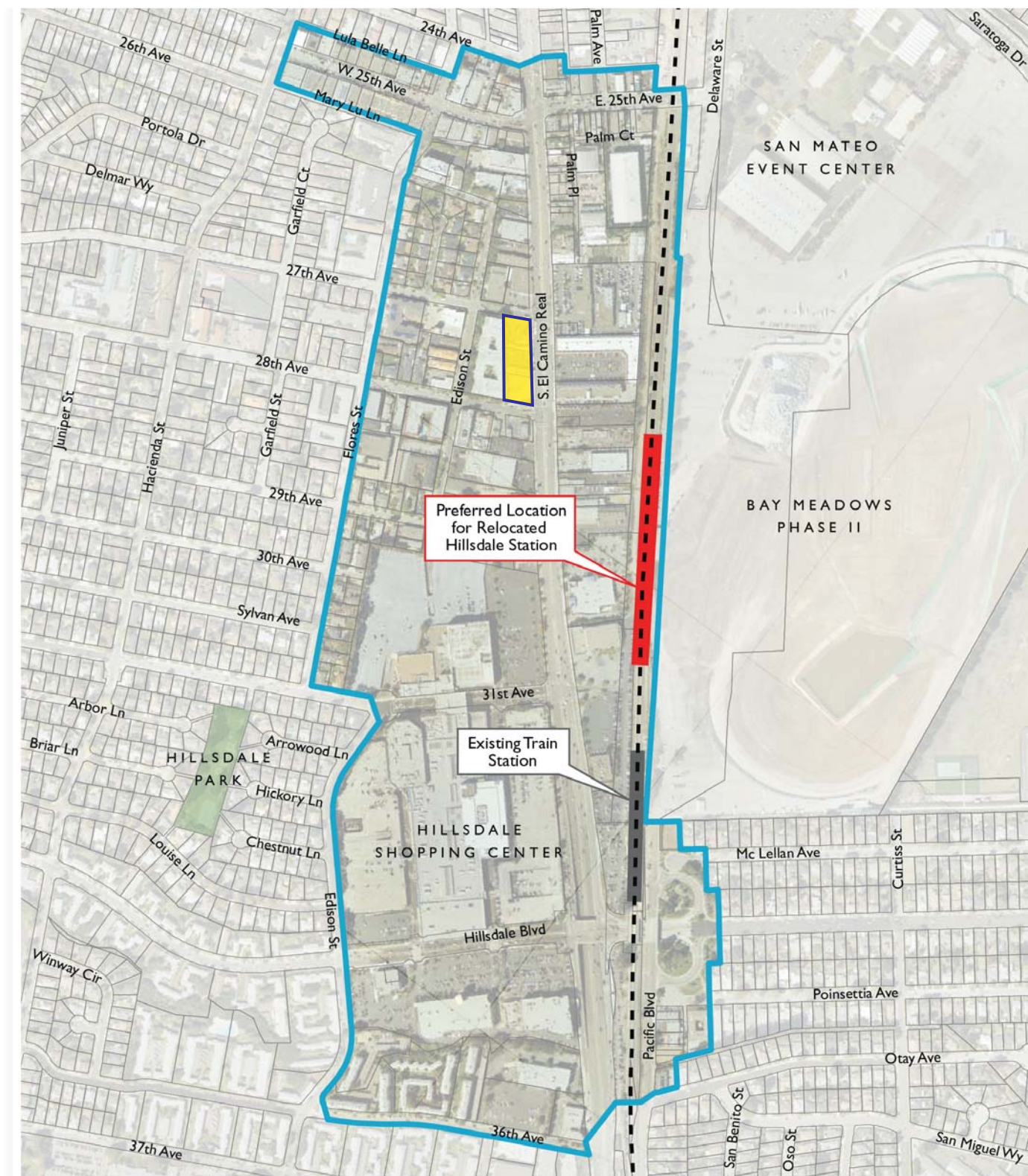
The location of the proposed project relative to the San Mateo Rail Corridor Transit-Oriented Development Plan is shown on Figure 1. The location of the proposed project relative to the Hillsdale Station Area Plan is shown on Figure 2.





**Figure 1**  
Site Location within the San Mateo Rail Corridor  
Transit-Oriented Development





 Project Area

**Figure 2**  
**Site Location within the**  
**Hillsdale Station Area Plan**



## Background & Applicable Policies

The Hillsdale Station Area Plan established a goal to encourage the use of transit, cycling, and walking as primary forms of transportation within the Station Area and to destinations throughout the region (Goal TRA-4.1). To achieve this goal, several policies were created as design guidelines for projects within the Station Area. Excerpts of the policies that affect the proposed mixed-use development project are as follows:

*Policy TRA-4.1: New development on properties in the Station Area must develop a Trip Reduction and Parking Management Program, following the recommendations in Appendix A of this Plan, including implementing the required and optional measures for both employers and residential developments.*

*Policy TRA-4.2: Expand the Transportation Management Association (TMA) formed under the Rail Corridor Plan to include all properties within the Station Area and require that all new development join the TMA.*

The project is also outside of the TOD zone but within the Corridor Plan area in the San Mateo Rail Corridor Plan, which discusses the following policies pertaining to the project:

*Policy 7.17: The goal of the TDM program is to achieve an overall reduction in new vehicle trips of at least 25 percent corridor-wide. It is recognized that this reduction will occur over time and that the reduction achieved by individual projects will vary based on the specific characteristics of the project, such as location and proposed uses.*

*Policy 7.19: All development projects within the TOD zone shall be required to submit a trip reduction and parking management plan as part of the development application. Projects outside the TOD zone, but within the Corridor Plan area shall be strongly encouraged to submit this trip reduction and parking management information as part of the development application. The zoning code shall be modified to establish a threshold defining projects such as remodeling or additions to existing development within the Corridor Plan area that trigger the TDM requirement.*

As the regional administrator of the San Mateo Countywide Congestion Management Program (CMP), the City/County Association of Governments (C/CAG) requires new development projects to limit their impact on regional roadway facilities. According to C/CAG Draft CMP 2015 guidelines:

*Local jurisdictions must ensure that the developer and/or tenants will reduce the demand for all new peak hour trips (including the first 100 trips) projected to be generated by the development. The local jurisdiction can select one or more of the options that follow or may propose other methods for mitigating the trips. It is up to the local jurisdiction working together with the project sponsor to choose the method(s) that will be compatible with the intended purpose of the project and the community that it will serve.*

This guideline enables local jurisdictions to choose the appropriate method for mitigating new project trips. One method recommended by the C/CAG is to require all developments to implement TDM programs that have the capacity to fully reduce the demand for new peak hour trips. This means that all trip credits must be equal to or greater than the new peak hour trips generated by a project. Since this represents a complete mitigation of trips, this *Transportation Management Plan* set this method as the target goal.

## Trip Reductions

The proposed project is located outside the San Mateo Rail Corridor Transit-Oriented Development (TOD) zone but within the TOD plan area. According to the TOD Policy 7.17, developments within the TOD plan area are required to achieve a trip reduction of 25%. This trip reduction goal is applicable to the residential component of the project. Since the proposed project is located within the TOD Plan area and is well served by transit options, the 25% trip reduction requirement is achievable.

Because the project would replace the existing occupied uses, trips associated with the existing uses were subtracted from the project-generated traffic to derive the net site-generated trips. The AM and PM peak hour trips generated by the existing uses were obtained from driveway counts conducted on September 9, 2015 at existing site driveways.

## Definitions

**Project Area** – The area between 27<sup>th</sup> Avenue and 28<sup>th</sup> Avenue, along El Camino Real, that would be the location of the proposed Hillsdale Terraces mixed-use development project.

**Vehicle Trip** – A one way event between an origin and a destination. For example, a vehicle leaving the residential use to head to work would constitute one trip. The return of the vehicle from work to the project site would constitute a second trip.

**Resident Trip** – A one way vehicle trip generated exclusively by a resident of the proposed project.

**Employee Trip** – A one way vehicle trip generated exclusively by an employee of the proposed project.

**Patron Trip** – A one way vehicle trip generated exclusively by a patron of the commercial uses of the proposed project.

**Primary Trip** – A one way vehicle trip that is the primary reason for the trip making activity, for example customers going to the commercial use on the proposed project site and nowhere else. Primary trips represent new trips on the roadway network. Employee trips are primary trips as are some patron trips.

**Visitor Trip** – A one way vehicle trip generated exclusively by a visitor of the residential use of the proposed project.

**Trip Generation Rates** – The ratio of vehicular trips correlated to an independent variable. For example, when the independent variable is square footage, 4 trips / 1,000 square feet means that 4 trips will be generated for each 1,000 square feet of space provided. The source of the trip generation rates for this analysis is the ITE *Trip Generation Manual, 9<sup>th</sup> Edition*.

**Mode** – The method of travel from one destination to another. Common transportation modes include walk, bike, single occupant vehicle, carpool, bus, or rail.

**Mode Share** – The “share” of each mode is defined as the number of trips for that mode divided by the total number of trips from a land use for a given period.

**Transportation Demand Management (TDM)** – Methods used to reduce the number of single occupant vehicles from a given land use. Methods typically include physical measures (such as bike lockers) or programs (such as subsidized transit passes) to increase the ease or reduce the cost of alternative transportation modes.

**Peak Hour** – Traffic demand is analyzed during the peak hours of a typical day. The peak hour represents the highest 60 minute period of traffic demand during a given study period. The weekday

AM peak hour of traffic is typically between 7:00 and 9:00 AM and the weekday PM peak hour is typically between 4:00 and 6:00 PM. These are commonly referred to as the commute periods. It is during these periods that the traffic demand for the project coincides with the highest on-street ambient traffic demand.

## **Report Organization**

The remainder of this report is divided into three chapters. Chapter 2 describes the transportation setting and the baseline trip generation anticipated for the Hillsdale Terraces mixed-use development project. Chapter 3 discusses the TDM measures to be considered by the proposed project and Chapter 4 presents an analysis of project TDM measures using C/CAG trip credits.

## 2. Project Setting and Traffic Demand

---

This chapter describes the existing transportation setting and the traffic demand anticipated by the proposed mixed-use development project. Included are descriptions of the methods used to estimate traffic demand and the anticipated mode split. An analysis of parking conditions for the project area is provided in the project's *Parking Management Plan*. A description of the project's impacts to adjacent roadways and intersections as well as left turn queuing is discussed in the project's *Transportation Impact Analysis (TIA)*. The project TIA includes an analysis of the weekday AM and PM commute hours at 10 intersections.

### Project Setting

Regional roadway access to the project area is provided by U.S. 101 and State Route (SR) 92. Local access to the project site is provided via El Camino Real (SR 82), 27<sup>th</sup> Avenue, 28<sup>th</sup> Avenue, and Edison Street.

Pedestrian facilities near the project site consist of sidewalks along El Camino Real, 27<sup>th</sup> Avenue, 28<sup>th</sup> Avenue, and Edison Street and crosswalks at all of the signalized study intersections. The intersection of El Camino Real/25<sup>th</sup> Avenue has crosswalks on three of the four legs. The intersections of El Camino Real/27<sup>th</sup> Avenue and El Camino Real/28<sup>th</sup> Avenue have crosswalks on two of the three legs. The unsignalized intersections at Edison Street/27<sup>th</sup> Avenue and Edison Street/28<sup>th</sup> Avenue do not have crosswalks. The intersection of Flores Street/27<sup>th</sup> Avenue has crosswalks on all of the four legs and the intersection of Flores Street/28<sup>th</sup> Avenue has crosswalks on the two approaches along 28<sup>th</sup> Avenue.



According to the City of San Mateo's Bicycle Master Plan adopted on October 17, 2011, the following bicycle facilities exist within the vicinity of the project site.

Class I Bicycle Path:

- Parallel to Delaware Street between 28th Avenue and Pacific Boulevard

Class II Bicycle Lanes:

- Hillsdale Boulevard between Edison Street and Laurel Creek Drive
- Delaware Street between Bermuda Drive and 25<sup>th</sup> Avenue
- Pacific Boulevard between Otay Avenue and Laurie Meadows Drive

Class III Signed Bicycle Routes:

- 25th Avenue between Hacienda Street and Delaware Street
- Hacienda Street between 25th Avenue and 37th Avenue
- Pacific Boulevard between Delaware Street and Otay Avenue
- Hillsdale Boulevard between Norfolk Street and El Camino Real

Existing bicycle facilities are shown on Figure 3.

Existing transit service to the study area is provided by the San Mateo County Transit District (SamTrans) and Caltrain. Within the project area, there are bus stops located directly adjacent to the project on El Camino Real, 27<sup>th</sup> Avenue, and 28<sup>th</sup> Avenue. In addition, there are bus stops located at the Hillsdale Shopping Center and Caltrain Hillsdale Station that are within a quarter mile of the project site. The existing SamTrans service in the project vicinity is described below and shown on Figure 4.

- The 57 bus line operates on school days only with one westbound service during the AM peak hour and one eastbound service during the PM peak hour. The bus runs along 31st Avenue and Hillsdale Boulevard in the project vicinity.
- The 250 bus line provides service between downtown San Mateo, the Hillsdale Shopping Center, and the College of San Mateo via Alameda de Las Pulgas, with 30-minute headways during the AM and PM peak hours.
- The 251 bus line provides serves the Bridgepointe Shopping Center, Foster City, San Mateo, and the Hillsdale Shopping Center, with 60-minute headways.
- The 256 bus line provides service between the Hillsdale Shopping Center and the Foster City area, with 60-minute headways.
- The 294 bus line serves the Coastsides region and San Mateo via Alameda de Las Pulgas during commute hours, with 90-minute to 2-hour headways. Transfers are possible at the Hillsdale Caltrain Station. There are two bus stops located in front of the project site: one on 27th Avenue and the other on 28th Avenue.





- The 295 bus line provides service between the Menlo Park Caltrain Station and the San Mateo Caltrain Station via Alameda de Las Pulgas, with 30 to 60-minute headways during the weekday AM and PM commute hours. There are two bus stops located in front of the project site: one on 27th Avenue and the other on 28th Avenue.
- 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 midday service hours. The closest bus stop is located in front of the project on El Camino Real.
- The 398 bus line serves Redwood City Transit Center, San Bruno Bart station, and San Francisco Airport. Route 398 stops at the Hillsdale Caltrain Station with 60 minute headways.
- Route ECR, which operates only on weekends, runs about every 20 minutes along El Camino Real from the Palo Alto Transit Center to the Daly City BART Station.
- Route KX provides service between Redwood City and Downtown San Francisco during the AM and PM commute hours, and stops at the Hillsdale Caltrain Station with a 60-minute headway.

Commuter rail service between San Francisco and Gilroy is provided by Caltrain. The project is located about a 2,200 foot walk north of the Hillsdale Caltrain Station. Caltrain provides service with approximately 20 to 30-minute headways during the weekday AM and PM commute hours and 60 minute headways midday, at nights and on weekends. To get from the site to and from the Caltrain Station there are sidewalks along El Camino Real. There are crosswalks with pedestrian signals at the intersections of El Camino Real with 27th Avenue, 28th Avenue, and 31st Avenue to facilitate crossing to and from the station. According to the *Hillsdale Station Area Plan*, adopted on April 18, 2011, the station would be relocated to be between 28<sup>th</sup> Avenue and 31<sup>st</sup> Avenue, which would make it much closer to the project site.

Figure 4 shows the current location of bus stops and the Caltrain Hillsdale Station within the project area.



#### LEGEND

-  = Project Site Location
-  = Class I Bicycle Paths
-  = Class II Bicycle Lanes
-  = Class III Bicycle Routes

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



### Figure 4 Existing Transit Service



## Project Trip Generation

The *Transportation Impact Analysis (TIA)* for the proposed project analyzed the number of net new trips to be added to the roadway network during the weekday AM and weekday PM peak hours. To determine this, the project TIA estimated the magnitude of traffic by multiplying the applicable trip generation rates by the size of the development. The trip generation rates used for the analysis were published in the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation Manual, 9<sup>th</sup> Edition*.

The TIA trip generation estimate includes trip credits for the existing land uses and the project trip reduction goal of 25%. After applying these reductions the TIA estimates that the project would generate 2,079 new daily vehicle trips, with 176 new trips occurring during the AM peak hour (88 inbound and 88 outbound) and 162 new trips occurring during the PM peak hour (99 inbound and 63 outbound). Table 1 shows the project trip generation estimates.

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

San Mateo 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><u>Proposed Use</u></b>													
Residential Condominium <sup>1</sup>	74	units	5.81	430	0.44	6	27	33	0.52	25	13	38	
Restaurant <sup>2</sup>	13.98	ksf	127.2	1,777	10.81	83	68	151	9.82	82	55	137	
<b>Proposed Total</b>				<b>2,207</b>		<b>89</b>	<b>95</b>	<b>184</b>		<b>107</b>	<b>68</b>	<b>175</b>	
<b><u>Trip Reduction</u></b>													
TDM Trip Reduction <sup>3</sup>				(108)		(1)	(7)	(8)		(6)	(3)	(9)	
<b><u>Existing Uses</u></b>													
Existing Site Trips <sup>4</sup>				(20)		0	0	0		(2)	(2)	(4)	
<b>Net New Project Trips</b>				<b>2,079</b>		<b>88</b>	<b>88</b>	<b>176</b>		<b>99</b>	<b>63</b>	<b>162</b>	
<b>Notes:</b> All rates are from: Institute of Transportation Engineers, <i>Trip Generation Manual, 9th Edition</i> <sup>1</sup> Land Use Code 230: Residential Condominium/Townhouse (average rates, expressed in trips per dwelling unit) <sup>2</sup> Land Use Code 932: High-Turnover (Sit-Down) Restaurant (average rates, expressed in trips per 1,000 square feet gross floor area) <sup>3</sup> 25% trip reduction applied to residential trips based on the goal set in the San Mateo Rail Corridor Transit-Oriental Development Plan. <sup>4</sup> Existing AM and PM peak hour trip credits based on 9/9/2015 driveway counts. Existing daily trips were estimated.													

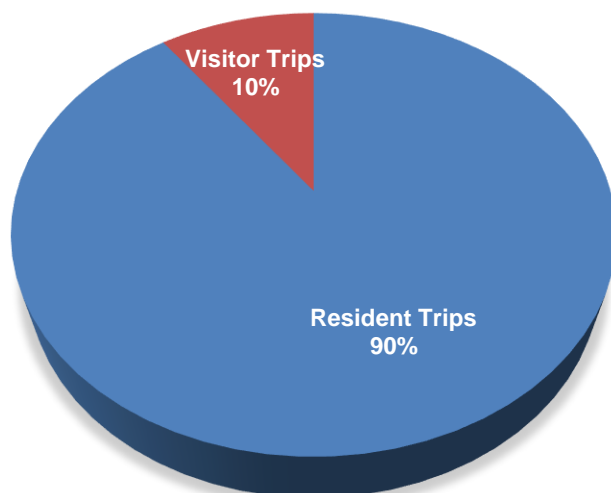
## Trip Generation with Trip Type

The *TIA* trip generation does not include a breakdown of trips by type (i.e. employee vs. patron). To determine trip generation characteristics for the purposes of this Transportation Management Plan, a detailed assessment of peak hour trip generation is useful.

For residential uses, trips are split between residents and visitors. During the peak hours, the percentage of resident trips and visitor trips are 90% and 10%, respectively (See Figure 5).<sup>1</sup>

For restaurant uses, trips are split between employees and patrons. Patron trips account for approximately 85% of restaurant use trips.<sup>2</sup> During the peak hour most patron trips, approximately 69%, occur from traffic already passing by the site or from vehicles that modified their existing trip to include a stopover at a restaurant establishment.<sup>3</sup> Therefore, during the peak hours, the percentage of primary patron trips to a restaurant is on the order of 16%, while the remaining 15% of the total trips are from employees (See Figure 6)

**Figure 5**  
**Residential Peak Hour Trip Types**

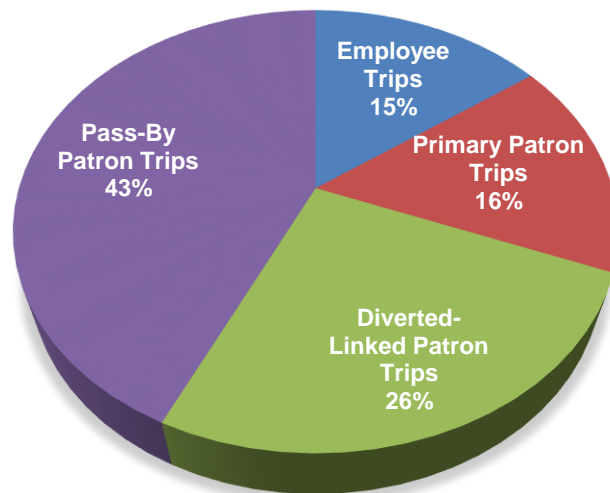


<sup>1</sup> The ULI Publication, *Shared Parking 2<sup>nd</sup> Edition*, shows resident parking demand as 90% of the total parking demand and visitor parking demand as 10% of the total parking demand for residential uses.

<sup>2</sup> The ULI Publication, *Shared Parking, 2<sup>nd</sup> Edition*, shows employee parking demand as 15% of the total parking demand and visitor parking demand as 85% of the total parking demand for restaurant uses.

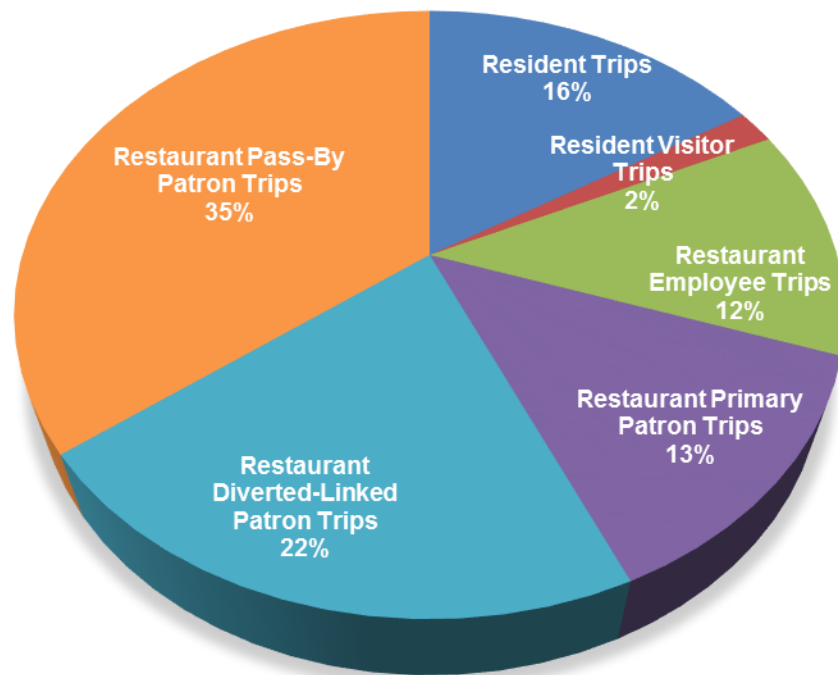
<sup>3</sup> *ITE Trip Generation Manual, 9<sup>th</sup> Edition* shows that the average High-Turnover (Sit-Down) Restaurant pass-by rate is 43%. For locations where diverted link trips were measured, the average diverted linked trip percentage is 26%

**Figure 6**  
**Restaurant Peak Hour Trip Types**

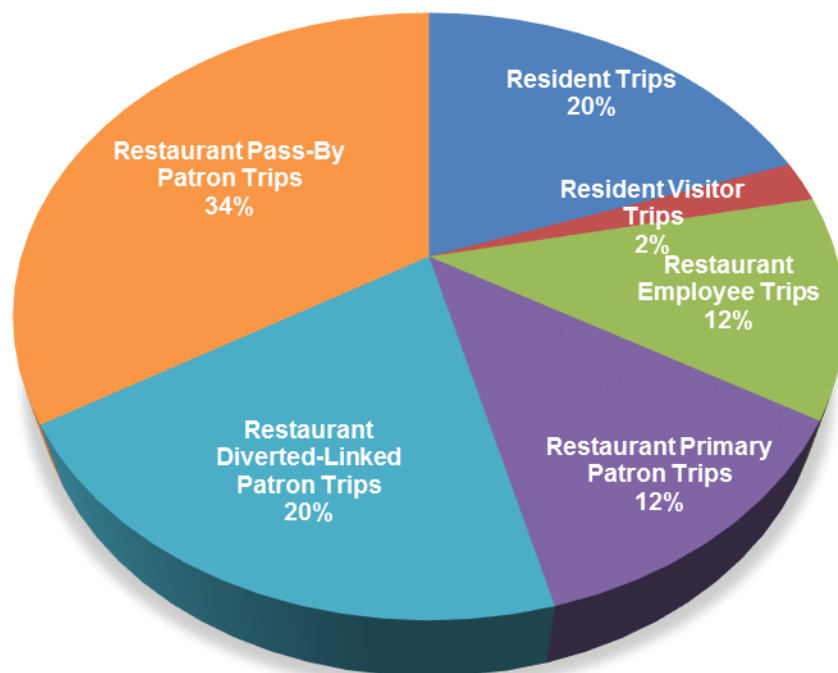


Since the project would include both residential and restaurant trips during the peak hours, the peak hour trip type estimations can be divided even further. As shown in the *TIA* trip generation analysis, without reduction, residential trips would account for 33 trips out of a total of 184 trips, approximately 18%, during the AM peak hour. During the PM peak hour, without reduction, residential trips would account for 38 trips out of a total of 175 trips, approximately 22%. This peak hour trip split between uses, along with the trip types previously discussed for each individual use, yields the AM and PM project trip types as shown in Figure 7 and Figure 8, respectively.

**Figure 7**  
**Project AM Peak Hour Trip Types**



**Figure 8**  
**Project PM Peak Hour Trip Types**





For the purpose of calculating trip reduction, the trips that would be made by residents, residential visitors, restaurant employees, and restaurant patrons are considered. This excludes restaurant diverted-link and pass-by trips because these trips are already on the roadway network. Based on this, there are 80 trips during the AM and PM peak hours that can be reduced. (See Table 2)

**Table 2**  
**Trip Type Split for Reduction**

Peak Hour	Trip Type	Factor	Trips
<b>AM</b>	<i>Resident Trips</i>	<b>16%</b>	<b>30</b>
	<i>Resident Visitor Trips</i>	<b>2%</b>	<b>3</b>
	<i>Restaurant Employee Trips</i>	<b>12%</b>	<b>23</b>
	<i>Restaurant Primary Patron Trips</i>	<b>13%</b>	<b>24</b>
	Restaurant Diverted-Linked Patron Trips	22%	39
	Restaurant Pass-By Patron Trips	35%	65
	Total	100%	184
<b>PM</b>	<i>Resident Trips</i>	<b>20%</b>	<b>34</b>
	<i>Resident Visitor Trips</i>	<b>2%</b>	<b>4</b>
	<i>Restaurant Employee Trips</i>	<b>12%</b>	<b>21</b>
	<i>Restaurant Primary Patron Trips</i>	<b>12%</b>	<b>21</b>
	Restaurant Diverted-Linked Patron Trips	20%	36
	Restaurant Pass-By Patron Trips	34%	59
	Total	100%	175
<b>AM Trips Eligible for Reduction</b>		<b>43%</b>	<b>80</b>
<b>PM Trips Eligible for Reduction</b>		<b>46%</b>	<b>80</b>

### 3.

## TDM Strategies

---

This chapter describes Transportation Demand Management (TDM) strategies that are applicable to the proposed mixed-use development project. As described in Chapter 1, this proposed project is required by the San Mateo Rail Corridor TOD Plan and Hillsdale Station Area Plan to submit a trip reduction and parking management plan. In addition, the site is required to be a member of the *Transportation Management Agency (TMA)* formed under the Rail Corridor TOD Plan.

### TMA Membership & Services

The purpose of the TMA is to (1) oversee TDM program implementation within the area subject to the San Mateo Rail Corridor TOD plan, (2) arrange for shared parking, (3) market TDM services and programs, (4) coordinate TDM measures with other agencies, (5) coordinate with the City on annual trip generation monitoring, (6) submit an annual report to the City, and (7) consult on trip reduction options with its members. The Peninsula Traffic Congestion Relief Alliance (also known as simply The Alliance), which is an existing TMA, has been contracted by the Rail Corridor TMA to provide general TDM services and to provide oversight and management of the TMA. The Alliance describes its purpose as follows:

*The Alliance is dedicated to addressing the challenges involved in getting to and from work in San Mateo County. Our goal is to help people find ways to get to work that are faster, cheaper, and/or easier through commuter information, employer programs, and city transportation demand management partnerships. The Alliance is San Mateo County's Transportation Demand Management Agency whose mission is to reduce the number of single occupancy vehicles traveling in, to, and through San Mateo County, reducing vehicle emissions resulting in improved air quality. The Alliance is funded by the City/County Association of Governments of San Mateo County, the San Mateo County Transportation Authority, the Bay Area Air Quality Management District and the Metropolitan Transportation Commission.<sup>4</sup>*

---

<sup>4</sup> Source: [www.smccvb.com/index.php/plan\\_your\\_visit/detail/peninsula\\_traffic\\_congestion\\_relief\\_alliance](http://www.smccvb.com/index.php/plan_your_visit/detail/peninsula_traffic_congestion_relief_alliance)

The 2014 TMA annual report states that before a project is occupied, a TDM plan is submitted that includes a list of strategies that the development plans to implement to meet the short-term and long-term project trip reduction goal.

## TDM Strategies

TDM strategies for the proposed-mixed use development project include measures that are geared towards the residential tenants, the employees, and visitors of the project.

### TDM Measures from the San Mateo Rail Corridor TOD and The Alliance

The San Mateo Rail Corridor TOD and The Alliance offer a variety of TDM measures that are well-suited for projects within the Corridor Area. A description of these services that are applicable to the proposed mixed-use development project is provided below.<sup>5</sup>

- **Free Transit Tickets.** The “Try Transit” program provides free transit tickets to anyone who is interested in trying one of the following services to get to work: BART, Caltrain, SamTrans, Dumbarton Express, AC Transit M Line, or VTA.
- **Emergency Ride Home.** The emergency ride home program provides employees with a free taxi ride or a 24-hour car rental in the case of an emergency. The Alliance pays 75% for the taxi ride or rental car. The participating employer pays the remaining 25%. Historically, program costs remain very low because emergencies are infrequent.
- **Rebates for New Vanpool Participants.** The Alliance pays employees to try a Vanpool program. As an incentive, the Alliance will pay for half of the vanpool seat costs for a new rider’s first 3 months (up to \$100/month). If an employee agrees to drive the new vanpool (with 7+ people) for at least six months, they will receive a \$500 cash bonus.
- **Carpool Incentives Program.** If employees form a new carpool with two or more people over the age of 18, or add a new member to an existing car pool, carpool participants will each receive a \$60 gas card incentive.
- **Shuttle Program.** The Alliance currently provides shuttle services from BART or Caltrain to a multitude of worksites in San Mateo County. Routes can be adjusted to accommodate new employers.
- **Bike Safety Workshop.** The Alliance sponsors bicycle safety workshops throughout San Mateo County. These bike safety workshops can be held directly at a work site to promote safety and biking to employees.
- **Bicycle Parking at Half Cost.** The Alliance pays half the cost of new bicycle racks and lockers (up to \$500 per unit). Quality bicycle parking encourages bicycle commuting, inexpensively increases



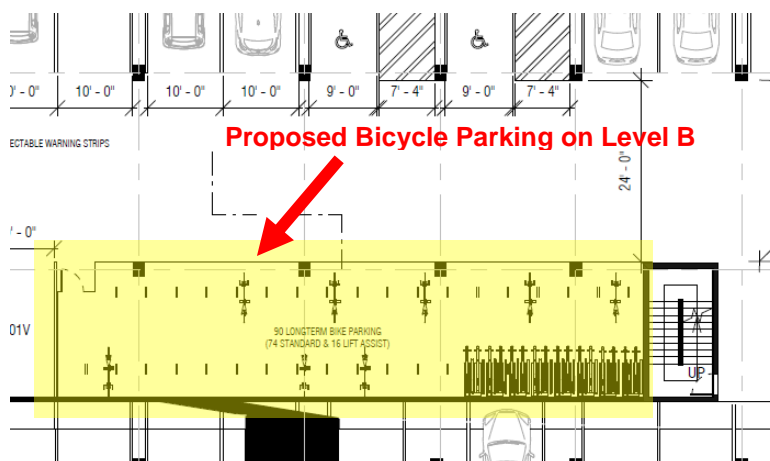
<sup>5</sup> Source: <http://commute.org/>

the parking capacity of a building, and reduces the demand for costly automobile parking spaces.

### TDM Design Features of the Project

The TDM measures to be implemented for the Hillsdale Terraces mixed-use development project include design measures related to the physical attributes of the site and the proposed buildings. Such design measures encourage walking, biking, and use of transit. For the proposed project, these include:

- Site Design.** To encourage walking and transit use, building entries would be oriented toward the adjacent roadways with pedestrian facilities to minimize the walking distance to nearby transit stops. The project area would provide building entrances along El Camino Real, 27<sup>th</sup> Avenue, and 28<sup>th</sup> Avenue directly adjacent to the sidewalks. The project proposes adding community amenities such as high visibility crosswalks, new landscaping, and accessible ramps along El Camino Real. At the intersection of El Camino Real/27<sup>th</sup> Avenue the project proposes upgrading the south leg crosswalk from basic to continental striping and providing an accessible ramp at the southeast corner. At the intersection of El Camino Real/28<sup>th</sup> Avenue the project proposes adding a crosswalk with continental striping across the north leg and an accessible ramp on the northeast corner. In addition, the project proposes adding landscaping along the entire center median along El Camino Real between 27<sup>th</sup> Avenue and 28<sup>th</sup> Avenue.
- Vehicle Parking Supply.** Excess parking supply encourages driving alone and can also result in increased walking distances between the building entrances and the public street network. The parking supply and demand for the proposed project are discussed in detail in the project's *Parking Management Plan*. Based on that analysis, the project parking supply will not be excessive nor result in greater walking distances for pedestrians. The site plan shows that all parking facilities will be located in a 3-level underground parking garage.
- Clean Air Vehicle Parking/Electric Vehicle Charging Stations.** The project would include parking spaces for low emitting/fuel efficient vehicles. In addition, the project plans to leave space to convert the low emitting/fuel efficient spaces to spaces that include a charging station for electric vehicles.
- Proximity to Rail.** The project site is directly served by SamTrans Routes 294, 295, 397, and ECR. In addition, the project is within walking distance of the Caltrain Hillsdale Station. This minimal distance to bus and transit stops promotes walking and transit use.
- Bicycle Parking.** Secure bicycle parking encourages residents and employees to bike to their destinations. The project proposes a bicycle parking area located on Level B (middle level) of the parking garage. Also, the project proposes to include a locked employee bicycle area on the ground floor.



- **Unbundling of Residential Parking.** Residential parking would be unbundled from each living unit. This will allow residents without cars to rent a unit without having to pay for a parking spot. Parking spaces will be added to leases only for tenants who desire parking.
- **Residential Transit Passes.** The Caltrain Go Pass program offers unlimited rides on Caltrain through all zones. Caltrain Go Passes are available to residential complexes for the same fare rates that are offered to employers (see discussion on the following page). Residential users five years and older are eligible to participate in this program. Residents will receive free Go Passes as part of their lease agreement for the first year of occupancy.
- **Online Resource Center.** The project would establish an online resource center on the residential website that would include transit schedules, bike maps, and information about car and ride sharing. In addition, the online resource center could include a list of nearby restaurant and entertainment uses to help encourage residents to walk to their destinations.

### Other Potential Hillsdale Terraces TDM Measures

Additional TDM measures could involve programs and services that promote sustainable modes of transportation. These measures include programs that would be implemented by the building developer and commercial tenants. These include:

- **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 and thereby reduce the number of commute trips to and from the project site.
- **Compressed Work Week and Flex Time.** Alternative work-hour programs offered by commercial use employers, such as the compressed work week or flex time, would directly reduce the number of trips taken by employees to travel to the project site for work. A compressed work week allows employees to work longer days in exchange for an additional day off that would normally be worked. Flex time, or staggered work hours, can be used to reduce peak hour trips and spread trips throughout non-peak times by allowing employees to begin and end work at a time that is different from the typical 8 AM to 5 PM shift. For the proposed restaurant use, work schedules could be staggered to avoid the AM and PM peak hours. For example, an evening shift could be established that starts before 4:00 PM and goes to the closing of the restaurant. In addition, employees that do not work full eight hours shifts or that are part time should have shifts that do not start and end during the normal commute hours.

- **Reimbursing Travel Expenses.** This project should require that employers of the commercial uses reimburse their employees for travel expenses. There are several different options for employers to satisfy this requirement and employers are advised to seek out the optimum options for their business. Some of these options are described below

- *Caltrain Go Pass* – The Caltrain Go Pass program is an employer-sponsored annual pass that offers unlimited rides on Caltrain through all zones, seven days a week. To participate in the Go Pass program, employers (or other program sponsors) sign a written agreement with Caltrans, have an acceptable photo identification badge where the company can affix the Go Pass sticker, and track the employee distribution of Go Passes. Participating companies pay an annual fee to provide the Go Pass to every regular, full-time employee (excluding contractors, temporary employees, interns and consultants), regardless of how many will use the transit pass. For 2016, the total cost of participating in the Go Pass Program will be the greater of \$190 per eligible employee or \$15,960. The cost is pro-rated if a company joins for less than a full year.



Caltrain Go Passes are available to residential complexes for the same fare rates as described above. Residential users five years and older are eligible to participant. Residents could receive Go Passes as part of their lease agreement.

- *SamTrans Way2Go Program* – Similar to the Go Pass program, the SamTrans Way2Go program allows companies and residential complexes to purchase annual ride passes for all eligible employees or residents. To participate in the SamTrans Way2Go Program, Participants pay an annual fee for every eligible employee or resident who will use the program. Currently, the total cost of participating in the Way2Go Pass program is the greater of \$125 per eligible employee or \$12,500. The cost is pro-rated if a participant joins for less than a full year.
- *Park-and-Ride Expenses* – The Caltrain Go Pass covers the cost of riding Caltrain, but the cost of parking in one of Caltrain's park-and-ride lots is not covered by the Go Pass. Go Pass holders are eligible to purchase monthly parking permits, which cost \$50 per month, or can purchase daily parking permits from ticket vending machines for \$5.

If employers choose to enroll their employees in one of the programs described above, they should cover the cost of enrolled and any fees associated with transit and parking expenses. However, the programs described above are geared towards larger business, so employers may forego enrollment into a program and simply reimbursed travel expenses based on their employees' needs. For this option, employees will choose their method of commuting and keep track of all expenses (train passes, bus passes, parking fares, etc.). Employees will need to provide appropriate documentation in order to request the reimbursement. The employers will then reimburse the employees for all transit commuting expenses.



- **Subsidized Transit Passes.** Hillsdale Terraces commercial tenants could provide their employees with financial incentives to utilize public transit (such as the Caltrain Go Pass<sup>6</sup> or Clipper Card<sup>7</sup>) when commuting to and from the project site. The transit subsidies are often set to the monthly maximum transit subsidy allowable under current federal legislation (\$125 per employee per month). There are several ways that employers can provide this subsidy. One option is for the employer to fund a pre-tax salary payroll deduction for transit passes through a voucher program (Commuter Check or similar program). Employers receive a payroll tax savings as a benefit of this program. Another option is for employers to purchase transit passes and provide them to employees free of cost or discounted up to the monthly maximum transit subsidy allowable. These programs help make transit more financially attractive than driving alone.



- **Car Sharing.** Residential and commercial car-sharing programs provide affordable and convenient mobility to employees who do not drive to work and residents who do not own a car. Registering for a car sharing service such as Zipcar, would encourage less residents to drive, decrease the demand of parking, and provide an additional option for the Emergency Ride Home program (i.e., depending on where an employee lives, using a Zipcar may make more sense than taking a taxi home). Currently there is a Zipcar location approximately 1.0 mile south of the project site at the San Mateo Medical Center and Zipcar locations approximately 2.0 miles north of the project site in Downtown San Mateo. These locations are not close enough to provide a relevant impact on our project, therefore, placing a Zipcar on-site in the parking garage could be beneficial. The Zipcar program should be promoted to employees and residents and if sufficient interested and demand is present, then the property manager and employers should look into working with Zipcar to get a car on site.
- **Bike Showers and Changing Areas.** Showers and changing areas could be provided for employees who walk, jog, or bike into work.



---

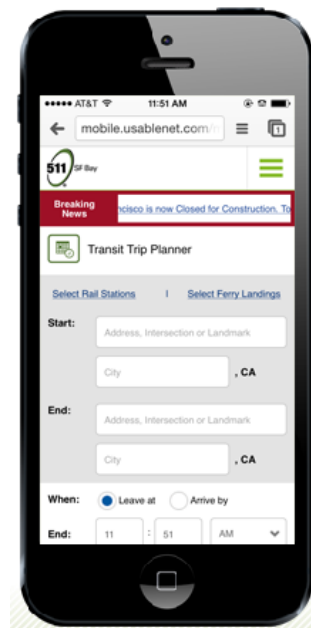
<sup>6</sup> For additional info visit [www.caltrain.com/Fares/tickettypes](http://www.caltrain.com/Fares/tickettypes)

<sup>7</sup> For additional info visit [www.clippercard.com](http://www.clippercard.com)

## Trip Planning Resources

There are several free trip planning resources that residents and employees may not be aware of, and information on these services could be promoted for residential and commercial tenants through the online transportation resource center. These include:

- 511 Transit Trip Planner.** Online transit trip planning services are available to the greater San Francisco Bay Area through 511.org. Users enter their starting and ending points, and either the desired starting or ending trip time. The service can build an itinerary that best suits the user's preferences for the fastest trip, fewest transfers, or less walking.
- 511 Mobile.** Many popular features from 511.org can be accessed using smart phones or mobile devices. With 511 Mobile, commuters can: (1) receive real-time transit departure predictions, (2) plan a public transit trip, (3) check real-time traffic conditions on the live traffic map, (4) get current driving times for the most popular routes in the Bay Area, (5) locate parking facilities throughout the bay area and get real-time availability and pricing, and (6) and create a custom transit schedule.
- 511 Carpool Calculator.** The 511 Carpool Calculator is a 511-sponsored online calculator that determines the cost of commuting by driving alone. Users input commute details such as the number of miles traveled to and from work, vehicle mileage, fuel cost, parking costs, and bridge tolls. The tool then calculates solo commuting costs and vehicle CO<sub>2</sub> emissions as well as the potential savings by adding carpool partners.
- 511 RideMatch.** The 511 RideMatch<sup>8</sup> service provides an interactive, on-demand system that helps commuters find carpools, vanpools or bicycle partners. This free car and vanpool ridematching 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.
- Dadnab.** Dadnab.com enables Bay Area commuters to get transit directions by text message. Users send a text message with their origin, destination, and optional departure or arrival time and Dadnab replies with a detailed itinerary listing which buses or trains to take, stop locations, and departure times.



<sup>8</sup> For additional info visit [www.rideshare.511.org](http://www.rideshare.511.org)

## Project Trip Reduction Goal

Based on Policy 7.17 from the Railroad Corridor TOD Plan, the goal of this Transportation Management Plan is for the project to achieve a 25% reduction in residential trips. Important features of this project and the Transportation Management Plan that would allow the goal to be met are the residential transit passes, the project's proximity to rail, the online transportation information center, and the on-site amenities.

This project plans to provide residents with Caltrain Go Passes upon signing their lease agreement and will promote the use of both SamTrans bus routes and Caltrain commuter trains through the online transportation information center. This would encourage residents to use the nearby transit services and provide easy access to route destinations and timetables. Along with information about transit services, the online transportation information center would include information about bicycle routes. By providing this information and long term bicycle parking in the parking garage, bicycling will be a viable mode of transportation for residents. Also, the project has provisions to include an on-site business center on the first floor. This business center would enable residents to accomplish business tasks such as copying, scanning, faxing, mailing, etc. This business center would promote telecommuting and reduce residential trips. These TDM strategies and design measures would help the project meet the required 25% reduction in residential trips.

Furthermore, to help the project reduce trips, high-bandwidth internet could be provided to all units, to promote telecommuting. This additional strategy would also help the project meet the required 25% reduction in residential trips.

## 4.

### C/CAG Trip Reductions

---

This chapter describes Transportation Demand Management (TDM) strategies that are applicable to the proposed Hillsdale Terraces mixed-use development project as scored by the City/County Association of Governments (C/CAG). C/CAG requires that new development projects that generate more than 100 peak hour trips limit their impact on regional roadway facilities. To accomplish this, C/CAG provides a list of potential TDM measures that developments may use to reduce their net peak hour trip generation. Each measure has an associated peak hour trip reduction, which is also known as a trip credit. Using the C/CAG credits, each new development must demonstrate that its net increase in peak hour trips can be reduced to zero.

The project's *Transportation Impact Analysis* estimated that, without reductions, the proposed project would generate 184 AM peak hour trips and 175 PM peak hour trips. However, during the AM peak hour approximately 57%, and during the PM peak hour approximately 54%, of these trips are already on the roadway in the form of pass-by and diverted-linked trips. Thus, the project would add approximately 80 new trips during both the AM and PM peak hours. Based on these 80 trips, the following TDM analysis was prepared to score the project using the C/CAG guidelines.

Table 3 provides a summary of the proposed measures for the Hillsdale Terrance mixed-use development TDM program for which the project can receive credit in accordance with the C/CAG TDM guidelines. The C/CAG measures are specifically tailored toward employment and residential developments. The table shows that the measures proposed by the Hillsdale Terrance mixed-use development project would provide 131 trips credit, thus offsetting the project's trip generation to less than zero. A summary of the measures provided as well as the rationale for applying them, is provided as follows:

- **Bike Parking.** The C/CAG allows for a trip credit of 1 trip per 3 bike parking spaces located within 100 feet of a building entrance. The proposed project plans have provisions for 128 bicycle spaces.
- **Design Roads/Streets to Encourage Pedestrian and Bicycle Access.** For residential uses, C/CAG allows for 5 trip credits for each design element that encourages pedestrian and bicycle access. Specific project improvements that encourage walking include: (1) upgraded crosswalk on 27<sup>th</sup> Avenue, (2) new landscaping on El Camino Real, (3) new crosswalk on 28<sup>th</sup> Avenue, and (4) building entrances along El Camino Real directly adjacent to the sidewalk.

- **Proximity to Rail.** For residential uses, C/CAG allows all trips from a residential development within one-third mile of a fixed rail passenger station to be credited due to the location of the development. The project site is located within a one-quarter mile radius of the Hillsdale Station, which qualifies it for this trip credit.
- **Participate in a Transportation Management Association.** The C/CAG allows five peak hour trip credits for participation in a transportation management association. The project would earn this credit by joining the San Mateo Rail Corridor Transportation Management Agency.

**Table 3**  
**Summary of C/CAG Trip Credits**

Proposed TDM Measure	Rate	Size/Amount	Trip Credits
Secure Bicycle Storage	1 trip per 3 spaces	128 Bicycle Parking Spaces	42
Design Streets/Roads that Encourage Pedestrian and Bicycle Access and Discourage Automobile Access	5 trips per feature	Upgraded Crosswalk on 27th Avenue New Landscaping on El Camino Real New Crosswalk on 28th Avenue Commercial Area with Front Facing Entrances	20
Locate Residential Development within one-third mile of a fixed rail passenger station	All Trips (See Discussion)	The project site is located within a 1/4 mile radius of Hillsdale Station.	64
Participate in a Transportation Management Association	5 trips for participation	Participant in the San Mateo Rail Corridor Transportation Management Agency	5
<b>Total Credits:</b>			<b>131</b>
<b>Target Number of Trips:</b>			<b>81</b>

In conclusion, the project's *Transportation Impact Analysis* estimated that, without reductions, the proposed redevelopment would generate 184 AM peak hour trips and 175 new PM peak hour trip. However, accounting for pass by trips and diverted-linked trips, a reasonable starting point for scoring the C/CAG's trip credits was determined to be 80 trips. The project site design proposes the following TDM measures to comply with the C/CAG requirements: bike storage, upgrades to pedestrian facilities, upgrade to landscaping, proximity to rail, fuel efficient vehicle parking, unbundling of residential parking, and participation in the Rail Corridor TMA. Adapting C/CAG's TDM measures for employment and residential uses to the proposed project, it was determined that the TMP for the Hillsdale Terrace mixed-use development project would receive 131 trip credits, thus offsetting the project's net trip generation to less than zero.