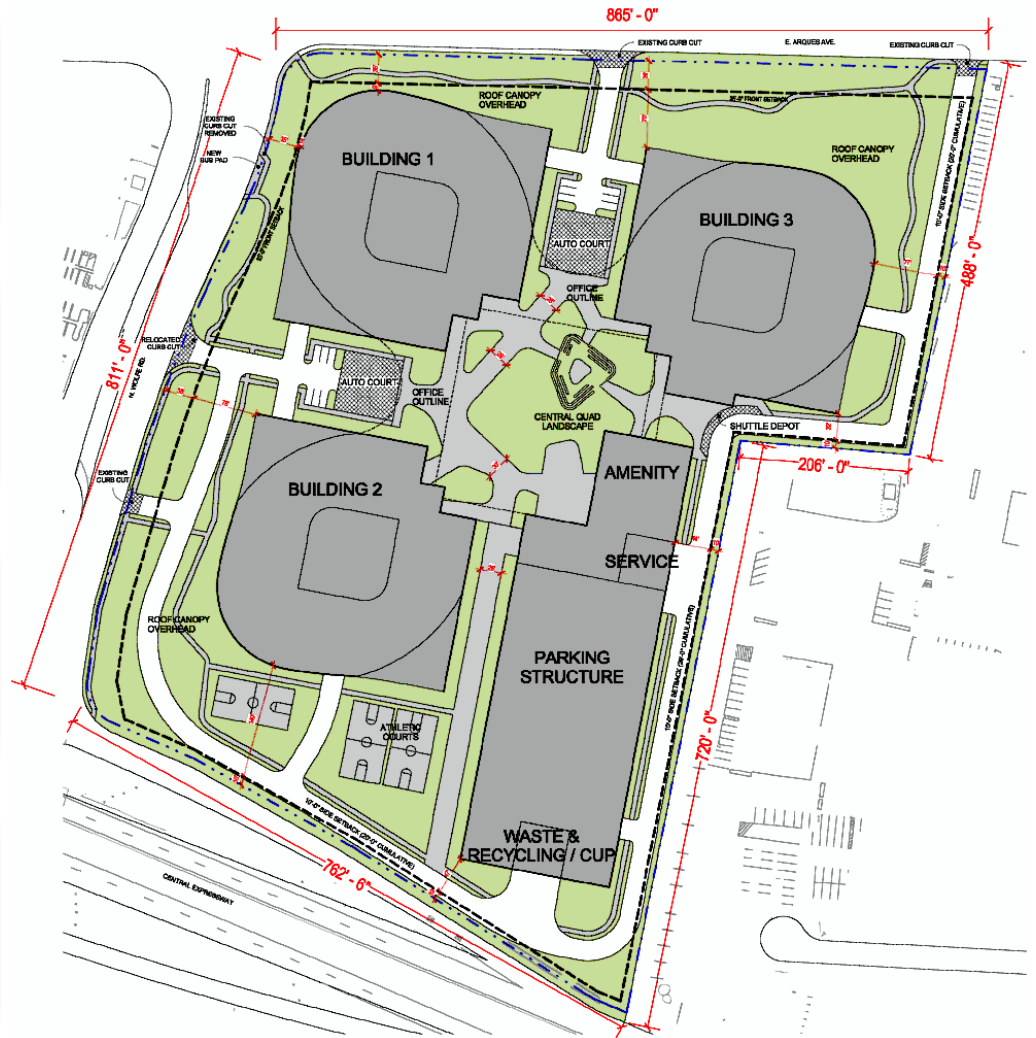


Report:

Central Sunnyvale Campus Master Plan Transportation Demand Management (TDM) Program



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Central Sunnyvale Campus Master Plan Transportation Demand Management (TDM) Program

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February 5, 2014

SJ12-1415

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TABLE OF CONTENTS

1. INTRODUCTION	1
Project Description.....	1
2. AREA TRANSPORTATION SYSTEM	3
Existing Transit Service	3
VTA Local Bus Routes	7
VTA Express and Limited Stop Bus Routes.....	7
VTA Community Bus Routes.....	8
Caltrain Shuttle Bus Routes.....	8
ACE Shuttle Bus Routes.....	8
Pedestrian Facilities.....	9
Bicycle Facilities	9
3. TDM MEASURES AND STRATEGIES	13
Sunnyvale TDM Toolkit.....	13
Other TDM measures	17
4. SELECTED TDM MEASURES AND STRATEGIES.....	18
Developer-Provided – Planning and Design Measures.....	18
Building Design & Layout	18
Transit Design Elements	18
Parking Design Measures.....	19
Pedestrian Design Measures.....	19
Bicycle Design Measures	20
Potential On-Site Amenities.....	20
Property Management-Provided Measures.....	21
Tenant-Provided Measures.....	24

LIST OF FIGURES

Figure 1 Site Plan.....2
Figure 2 Existing Transit Service.....5
Figure 3 Bicycle Facilities..... 12

LIST OF TABLES

Table 1: Existing Transit Service Summary6
Table 2: Sunnyvale TDM Tool Kit Measures: Planning and Design 13
Table 3: Sunnyvale TDM Tool Kit Measures: Programs and Services..... 15
Table 4: Other TDM Measures 17

1. INTRODUCTION

The purpose of a Transportation Demand Management (TDM) program is to reduce the amount of vehicle traffic generated by a development by creating measures, strategies, incentives, and policies to shift employees from driving alone to using other modes including transit, carpooling, cycling, and walking. This report presents a comprehensive TDM program for the Central Sunnyvale Campus development in Sunnyvale, California with a goal of reducing peak-hour drive-alone trips by 20 percent (20%). It first describes the existing and planned transit, bicycle, and pedestrian facilities near the project site that could be used by employees as an alternative to driving alone. It then presents a wide range of TDM measures to show the universe of options. Measures that would be most successful at the site are then described in more detail.

PROJECT DESCRIPTION

The project site is bounded by E. Arques Avenue on the north, N. Wolfe Road on the west, Central Expressway on the south, and adjacent buildings to the east. The project includes razing the buildings on the site (nine buildings comprising 258,279 square feet) and constructing new buildings totaling 777,170 square feet (FAR of 1.0), including 747,170 square feet of office space and 30,000 square feet of amenity space. The site plan is shown on **Figure 1**.

There will be three office buildings located in the northeast, northwest, and southwest corners of the site, a parking garage in the southeast corner, and an amenity building adjacent to and north of the parking garage. Best practices were used regarding building placement near the roadways along the site edges.

Sidewalks will be provided around the perimeter of the site. Numerous pedestrian pathways will be provided on the site connecting adjacent roadways to the buildings and connecting the buildings to each other to create a walkable campus. A new bus pad will be provided on the east side of N. Wolfe Road, just south of E. Arques Avenue. Additionally, a shuttle depot will be provided near Building 3. The bus pad and shuttle depot will support employees using transit to reach the site.

Parking for the new development will be provided in parking podiums below each building (total of 1,029 spaces), in a standalone structure (1,500 spaces), and in surface spaces in the auto courts (total of 12 spaces). The parking supply for the site will be 2,541 spaces.





Source:
h+k

Figure 1.
Conceptual Site Plan

2. AREA TRANSPORTATION SYSTEM

The transportation system serving the site includes roadway facilities, pedestrian and bicycle facilities, and transit service. The existing transit, bicycle, and pedestrian facilities and services and planned improvements that will support travel to the site by modes of transportation other than driving alone are described below.

EXISTING TRANSIT SERVICE

Existing transit service to the project site and vicinity includes VTA bus routes and Caltrain commuter rail service. There are two transit stops adjacent to the project site: southbound 822 Ace Gray Line Shuttle stop on the west side of N. Wolfe Road, and a westbound 822 Ace Gray Line Shuttle and VTA Route 304 stop on the northeast corner of E. Arques Avenue and N. Wolfe Road. More information about these and other nearby transit routes are described below.

The Santa Clara Valley Transportation Authority (VTA) provides bus, light rail, and paratransit services to Santa Clara County. Five VTA bus routes operate in the project vicinity: two limited stop bus routes (Routes 304 and 328), two local bus routes (Routes 26 and 55) and one community bus route (Route 32). VTA Route 304 connects to the Sunnyvale Caltrain Station and has three bus stops near the project site: one on the northwest corner of the N. Wolfe Road and E. Arques Avenue intersection, one on the north side of E. Arques Avenue west of Deguigne Drive, and one on the south side of E. Arques Avenue just east of Commercial Street.



Caltrain is a commuter heavy rail service that runs from downtown San Francisco (4th and King Streets) to downtown San Jose (Diridon Station), with a limited number of commute period trains running farther south to Gilroy. During commute periods, Caltrain offers express service ("Baby Bullet") between downtown San Jose and San Francisco, which allows the trip between San Francisco and San Jose to be made in one hour. This service stops at a limited number of stations including the Sunnyvale Station. The project site is located equidistant between the Sunnyvale Station and the Lawrence Station. The Sunnyvale Station is located near the intersection of Sunnyvale Avenue and West Evelyn Avenue and is about a 1.3-mile walking distance from the site. The Lawrence Station located near the intersection of San Zeno Way and Sonora Court and is about a 1.4-mile walking distance from the site.



Caltrain has two shuttles that serve destinations near the project site. The Lawrence Station Duane Avenue Shuttle route serves the Lawrence Caltrain station and loops up the Lawrence Expressway to Stewart Drive and E. Arques Avenue. The 999 E. Arques Avenue stop is the closest shuttle stop to the project site on the Lawrence Station Duane Avenue Shuttle route. The project includes provisions for a new on-site shuttle stop that may be used by this route. The second shuttle route is the Mountain View Duane Avenue Shuttle route, which serves the Mountain View Caltrain station, plus points along E. Wolfe Road, Stewart Drive, and E. Arques Avenue.

There are no Caltrain shuttles that serve the site and the Sunnyvale Caltrain station. Commuters can use VTA Route 32 and 26 or Route 304 to travel between the site and the Sunnyvale Caltrain station.

The *Caltrain Modernization Program* will electrify the Caltrain system and, in turn, improve the performance, operating efficiency, capacity, safety, and reliability of Caltrain's rail service. Electrification will help meet increasing ridership and is scheduled to be complete by 2019.

Altamont Commuter Express (ACE) is a commuter heavy rail service that runs from Stockton to downtown San Jose (Diridon Station) via Livermore and Fremont and provides an alternative



to driving over the Sunol Grade (I-680). ACE has a stop located at the Great America rail station in the City of Santa Clara. Service on ACE is only offered during commute periods, with three trains inbound to San Jose during the AM peak period and three trains outbound to Stockton during the PM peak period. ACE also provides shuttles which connect to ACE stations. The 822 Ace Gray Line Shuttle has a stop on N. Wolfe Road, across the street from the project site, and a stop on the north side of E. Arques Avenue, just west of Deguigne Drive.

Figure 2 shows the existing transit services near the project site, which are described in more detail below and summarized in **Table 1**. Included in the table are the origin and destination, the operating hours, the headways, and the average peak load factor for each bus route and rail line. The average peak load factor is a measure of resource utilization. It compares the average peak number of passengers aboard at any time during the peak period to the supply of seats on each bus. For all-day service, the average peak load factor for the entire day for those bus stops that serve the project site is reported.



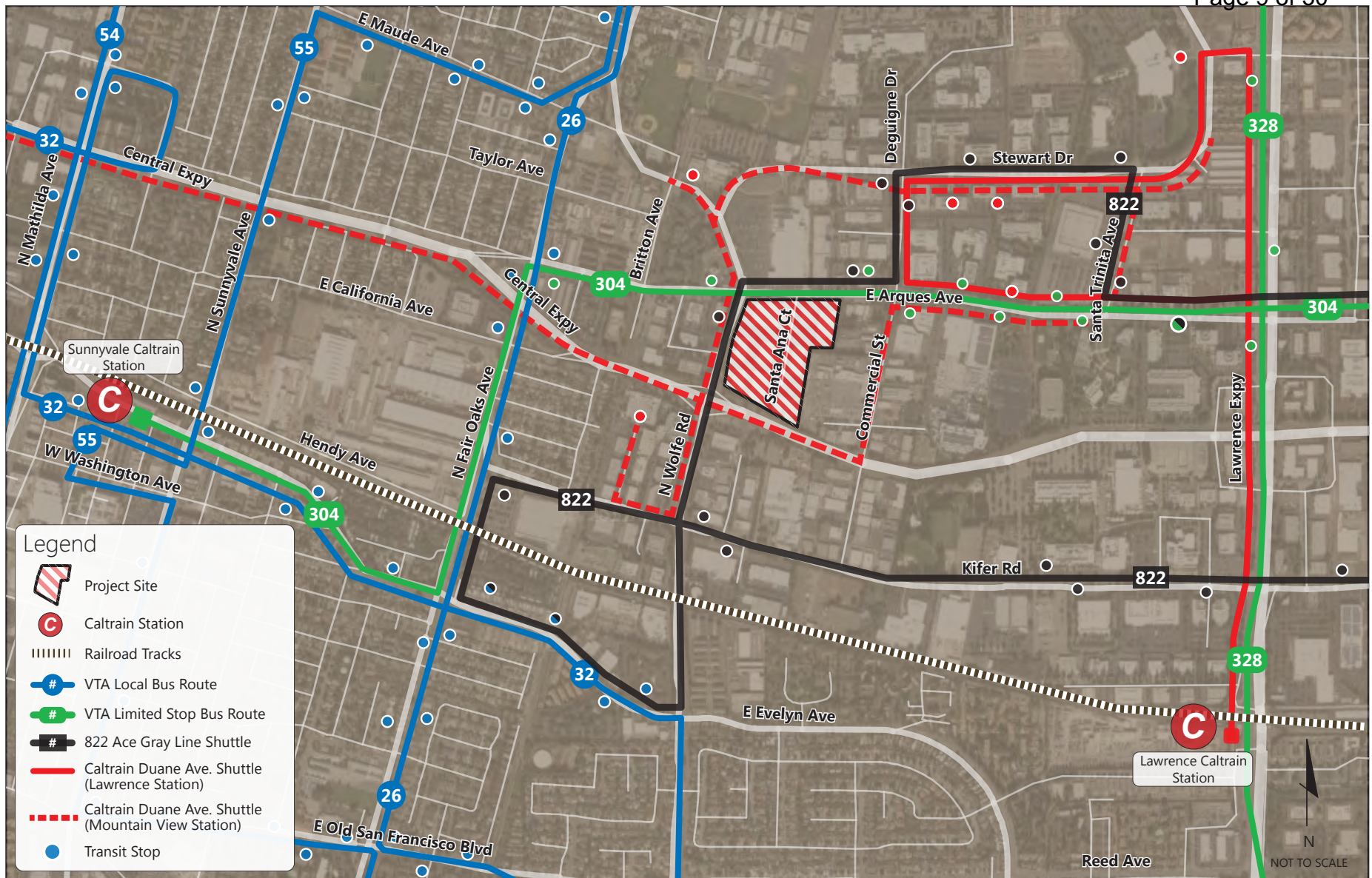


Figure 2.
Existing Transit Routes and Facilities

TABLE 1: EXISTING TRANSIT SERVICE SUMMARY

Route	From	To	Weekdays			Saturdays	
			Average Peak Load Factor ¹	Operating Hours	Peak Headway ² (minutes)	Operating Hours	Headway ² (minutes)
Bus Service (VTA)							
26	Eastridge Transit Center	Lockheed Transit Center	0.27	5:23 a – 11:49 p	30	6:28 a – 10:53 p	30
32	San Antonio Shopping Center	Santa Clara Transit Center	N/A	6:00 a – 8:00 p	30	9:00 a – 5:47 p	60
55	De Anza College	Great America	0.16	5:37 a – 11:08 p	15	7:53 a – 9:05 p	30 - 60
304	South San Jose	Sunnyvale Transit Center	N/A	5:56 a – 8:42 a 3:34 p – 6:56 p	4 NB Runs – AM 4 SB Runs – PM	No Service	
328	Almaden Expwy and Camden	Lockheed Transit Center	0.09	6:00 a – 7:02 a 5:06 p – 6:09 p	1 NB Run – AM 1 SB Run – PM	No Service	
Commuter Rail Service							
Caltrain	San Francisco	San Jose – Diridon	N/A	4:30 a – 1:30 a	35 (local) / 30 (express)	7:00 a – 1:30 a	60
Shuttle Service							
Duane Avenue Shuttle	Mountain View Caltrain Station	Duane Area Office Buildings	N/A	7:50 a – 10:06 a 4:27 p – 7:05 p	3 Runs – AM 4 Runs – PM	No Service	
Duane Avenue Shuttle	Lawrence Caltrain Station	Duane Area Office Buildings	N/A	7:15 a – 8:42 a 3:13 p – 5:54 p	2 Runs – AM 3 Runs – PM	No Service	
ACE 822	Great America Station	South Sunnyvale	N/A	6:16 a – 9:52 a 3:13 p – 6:39 p	4 SB Runs – AM 4 NB Runs – PM	No Service	

Notes:

1. Average peak load factor is the ratio of the average peak number of on-board passengers aboard during the peak period to supply of seats.

2. Headways are defined as the time interval between two transit vehicles traveling in the same direction over the same route.

AM = morning commuter period

PM = evening commute period

Source: VTA, August 2011, Caltrain February 2013



VTA LOCAL BUS ROUTES

Bus Route 26 operates between the Eastridge Mall and Lockheed Martin/Moffett Park transit centers. Route 26 follows major arterials and travels through Sunnyvale, Cupertino, San Jose, and Campbell including E. Wolfe Road near the site. The closest Route 26 stop is located at E. Arques Avenue/N. Fair Oaks Avenue, approximately 1/3 mile west of the project site. Other bus stops for Route 26 in the project vicinity are located at Bryan Avenue/N. Fair Oaks Avenue, Kifer Road/N. Fair Oaks Avenue, E. California Avenue/N. Fair Oaks Avenue, Maude Avenue/N. Fair Oaks Avenue.



Bus Route 55 operates on De Anza Boulevard and Sunnyvale-Saratoga Road between De Anza College and Great America. This route provides direct access to the Sunnyvale Caltrain station. With a short transfer along VTA Light Rail at Great America, the route provides access to the Altamont Commuter Express (ACE) train service, as well as Amtrak Capitol Corridor service. The closest Route 55 stop is located at Maude Avenue/N. Fair Oaks Avenue, approximately half of a mile northwest of the project site.

VTA EXPRESS AND LIMITED STOP BUS ROUTES

Bus Route 304 is a limited stop bus route that runs from South San Jose to the Sunnyvale Transit Center via E. Arques Avenue. Route 304 has four northbound runs during the AM peak period and four southbound runs during the PM peak period on weekdays. Route 304 makes several stops along E. Arques Avenue including bus stops at E. Arques Avenue/Lawrence Expressway, E. Arques Avenue/Santa Trinita Avenue, E. Arques Avenue/Commercial Street, and E. Arques Avenue/N. Wolfe Road.

Bus Route 328 is a limited stop bus route that operates on Lawrence Expressway near the project site; it connects south San Jose (near Almaden Expressway) to the Lockheed Martin Transit Center. One Route 328 run occurs during each weekday peak period (northbound in the morning, southbound in the afternoon). The closest stop is located at E. Arques Avenue/Lawrence Expressway, along the eastern border of the project site. Route 328 bus stops are also located at Duane Avenue/Lawrence Expressway and Kifer Road/Lawrence Expressway.



VTA COMMUNITY BUS ROUTES

Bus Route 32 is a community bus route which runs from the San Antonio Shopping Center to the Santa Clara Transit Center. The closest Route 32 bus stop is located at E. Wolfe Road/Evelyn Avenue, approximately half of a mile south of the project site.

CALTRAIN SHUTTLE BUS ROUTES

Caltrain Duane Avenue Shuttle is a shuttle service that takes passengers between Mountain View and Lawrence Caltrain Stations and the Duane Avenue area office buildings during commute hours. There are two Duane Avenue shuttle routes: one serves the Mountain View Caltrain Station and the second serves the Lawrence Caltrain Station. The Lawrence Caltrain Station route has two runs in the morning commute hours and three runs in the evening. The Mountain View Station route has three runs in the morning commute hours and four runs in the evening commute hours.

Shuttle route information is summarized below:

- The most recent shuttle planning has been conducted in response to calls for projects and the availability of shuttle funding.
- VTA is the principal entity managing allocation and distribution of shuttle funding.
- Historically, employers and/or cities provided 25% of BART/Caltrain shuttle costs; however employer funding can reach as high as 90%.

ACE SHUTTLE BUS ROUTES

ACE 822 Gray Line South Sunnyvale Shuttle is a shuttle service provided by ACE which connects the ACE Great America Station to South Sunnyvale. The route has four southbound runs during the AM peak period and four northbound runs during the PM peak period. Route 822 makes several stops along E. Arques Avenue, along the northern border of the project area including at E. Arques Avenue/Lawrence Expressway, E. Arques Avenue/Commercial Street, and E. Arques Avenue/N. Wolfe Road.



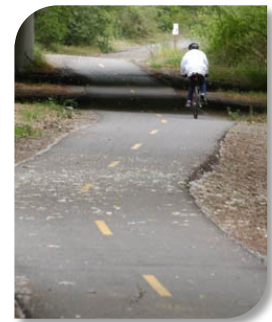
PEDESTRIAN FACILITIES

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals. Adjacent to and within the project site, sidewalks are provided on both sides of N. Wolfe Road, along the northern side of E. Arques Avenue, along portions of the western side of Commercial Street, and along portions of the northern side of E. California Avenue. No sidewalks are provided along Santa Ana Court or on Central Expressway. Crosswalks and pedestrian signals are provided at all signalized intersections within the project area.

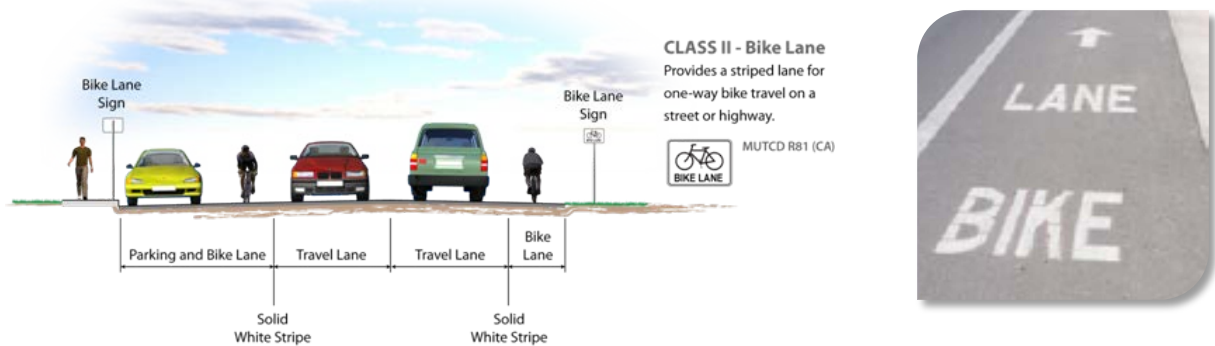
BICYCLE FACILITIES

Bikeway planning and design in California typically relies on guidelines and design standards established by the California Department of Transportation (Caltrans) in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design). There are three types of bikeway facilities, as described below and shown on the accompanying figures.

- *Class I Bikeway (Bike Path)* provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors not served by streets and highways or where sufficient right-of-way exists to allow such facilities to be constructed away from the influence of parallel streets and numerous vehicle conflicts.



- Class II Bikeways (Bike Lanes) are lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are generally five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- Class III Bikeway (Bike Route) are designated by signs or pavement markings for shared use with pedestrians or motor vehicles, but have no separated bike right-of-way or lane striping. Bike routes serve either to: a) provide continuity to other bicycle facilities, or b) designate preferred routes through high demand corridors.



The *VTA Bicycle Technical Guidelines* (December 2007) recommends that Caltrans standards regarding bicycle facility dimensions be used as a minimum and provides supplemental information and guidance on when and how to better accommodate the many types of bicyclists.

VTA adopted the *Santa Clara Countywide Bicycle Plan* (CBP). The CBP guides the development of major bicycle facilities in the county by identifying Cross County Bicycle Corridors and other bicycle projects of countywide or intercity significance. Two of the Cross County Bicycle Corridors travel through the study area, along E. Wolfe Road and E. Arques Avenue.



The City of Sunnyvale adopted the *City of Sunnyvale 2006 Bicycle Plan*, which updates the goals, policies, and action statements that guide bicycling improvements throughout the City. The 2006 Bicycle Plan map identifies existing and future planned bicycle facilities throughout the City. The *2006 Bicycle Plan* included a planned bike lane for Evelyn Avenue, which has since been installed. No other facilities are planned near the site.

Figure 3 shows the location of the existing bicycle facilities within the project study area. Near the project site, bicycle lanes (Class II) are provided on E. Arques Avenue, E. Wolfe Road, Commercial Street, and Kifer Road. West of the project site, a Class II bike lane is provided along N. Fair Oaks Avenue from Kifer Road to E. Maude Avenue. North of the project site, a Class II bike lane is provided on Stewart Drive. East of the project site, a Class II bike lane is provided on Lakeside Drive and on Oakmead Parkway between Lawrence Expressway and Central Expressway.



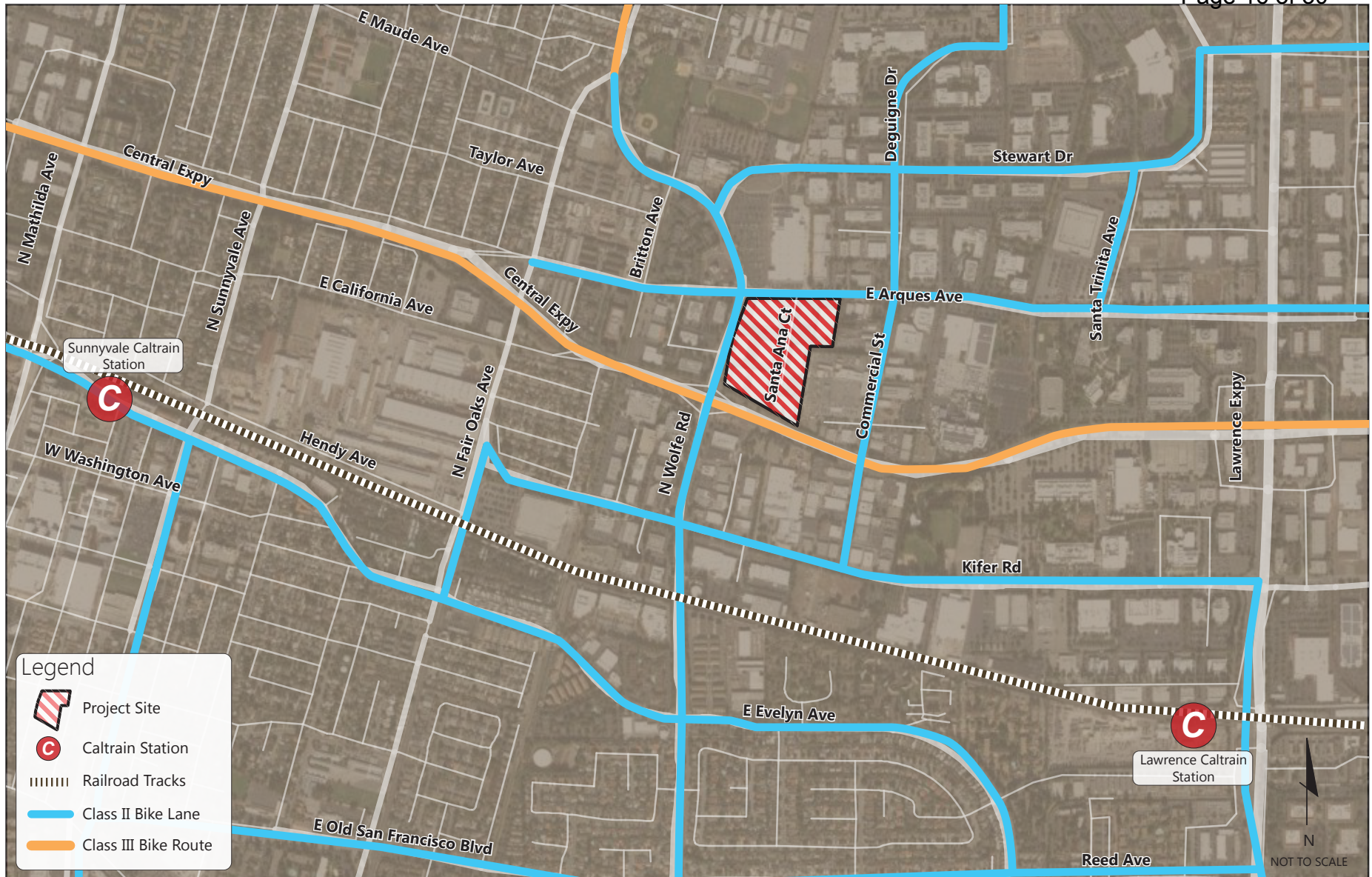


Figure 3.
Existing Bicycle Facilities

3. TDM MEASURES AND STRATEGIES

The City of Sunnyvale has a long list of TDM measures and strategies that are described in *Transportation Demand Management (TDM) Tool Kit*, prepared by The Hoyt Company in December 1999. Since that time new measures and strategies have been developed due to the emergence of web-based tools. The list of measures from the toolkit is summarized in Tables 2 and 3. Measures from this list plus more recent measures that are included in the TDM program for the Central Sunnyvale Campus development are described in the next chapter.

SUNNYVALE TDM TOOLKIT

The Sunnyvale TDM Tool Kit Measures can be divided into two sets of strategies: Planning and Design, and Programs and Services. The Planning and Design strategies, presented in **Table 2**, are part of the initial planning of the development to ensure that multiple modes of travel will be supported by a project's design, including sidewalks, bicycle parking, and urban design features. Further, these provisions help connect the project to its surrounding environment and transportation networks.

**TABLE 2:
SUNNYVALE TDM TOOL KIT MEASURES: PLANNING AND DESIGN**

TDM Measure	Description
<i>Building Design & Layout</i>	
Building entries	Building entries located towards pedestrian-oriented activities and transit stops
Building setbacks	Reduced setbacks provide closer access to sidewalks and transit stops
Passenger loading zones	Passenger loading zones near building entrances provide accessible locations for drop-off and pick-up of carpool, vanpool, and transit/shuttle passengers
Building wiring	Wiring with fiber optics facilitates teleworking
<i>Transit Design Elements</i>	
Intersection geometrics	Streets and intersections designed to accommodate transit vehicle turning radii
Street design	Streets designed to structurally support the weight of transit vehicles
Land dedication for transit facilities	Land dedicated for construction of a future rail station or bus stop



**TABLE 2:
SUNNYVALE TDM TOOL KIT MEASURES: PLANNING AND DESIGN**

TDM Measure	Description
Transit passenger shelter/bus stop	Transit passenger amenities provided for on-site
Bus/rail station subsidy	Payment for the cost of constructing a bus stop or rail station
<i>Parking Design Measures</i>	
Off-street parking	Parking located on the side or rear of the building; not between building entrance and transit service
Parking configuration	Parking lot layout conducive to pedestrian access and circulation
Preferential parking	Designated parking spaces for carpools and vanpools near building entrances
Reduced parking	Reducing the number of parking spaces (with a strong TDM program) to shift people to alternative modes of transportation
Reduced parking fees	Free parking or reduced fees for preferential spaces (for sites that have paid parking)
<i>Pedestrian Design Measures</i>	
Minimize walking distances	Design pedestrian access with minimum walking distance and/or the most direct route to transit stops
Pedestrian connections	Safe, convenient pedestrian connections between buildings and surrounding streets
Internal pedestrian access	Safe, convenient pedestrian connections between buildings on the site
<i>Bicycle Design Measures</i>	
Showers/clothes lockers	Shower facilities and clothes lockers for those who walk and bike to work
Bicycle parking (short + long term)	Secure bicycle parking including racks, lockers, and enclosed locked limited access areas
<i>On-Site Amenities</i>	
Cafeteria with hot food service, ATM, exercise facilities, convenience retail, childcare, valet service, post office/stamps, onsite transit pass sales, etc.	On-site amenities provide services that would otherwise require a separate trip before, during, or after work hours

Source: *Transportation Demand Management (TDM) Tool Kit*, prepared for the City of Sunnyvale by The Hoyt Company, December 1999.

Fehr & Peers, 2013.



The Program and Service TDM measures are typically property management and employer-implemented strategies that support employee specific commuting options. These programmatic measures are often dependent on the design measures. For example, bicycle parking at the project site will be necessary for an effective employee bicycle program. The program and service measures are listed and described in **Table 3**.

**TABLE 3:
SUNNYVALE TDM TOOL KIT MEASURES: PROGRAMS AND SERVICES**

TDM Measure	Description
Information Board	
Information board	Permanent locations for updated TDM information
Transportation Coordinator	
Transportation coordinator	Transportation coordinators are responsible for developing, marketing, implementing, and evaluating TDM programs
Carpool Programs	
Carpool programs	Carpool programs help carpools to form by matching drivers and passengers
Vanpool Programs	
Vanpool programs	Vanpool programs help vanpools to form by matching drivers and passengers and by providing or subsidizing vans
Transit Programs	
Transit subsidies	Employers subsidize transit passes through programs such as Commuter Check or by purchasing passes
Onsite pass outlet	Providing transit passes for sale onsite as a convenience for employees
Shuttle programs	Operation of a shuttle service to nearby rail and transit stations and possibly to midday destinations
Parking Programs	
Preferential parking	Designated parking spaces for carpools and vanpools near building entrances
Paid parking	Free parking or reduced fees for preferential spaces (for sites that have paid parking)



**TABLE 3:
SUNNYVALE TDM TOOL KIT MEASURES: PROGRAMS AND SERVICES**

TDM Measure	Description
Parking cashout	Employees receive the cash equivalent of employer-provided parking if they elect to forgo parking
<i>Pedestrian Programs</i>	
Pedestrian programs	Walking programs encourage employees to walk to work and may include mapping walking routes, creating walking groups or buddies, and providing incentives
<i>Bicycle Programs</i>	
Bicycle programs	Bicycle programs encourage employees to bike to work and may include mapping routes, creating biking groups or buddies, and providing incentives
<i>Promotional Programs</i>	
New employee orientation	Introduces new employees to the TDM program
Flyers, posters, emails	Ways to keep the TDM message in front of employees on a regular basis
Transportation fairs	Transportation fairs provide alternative mode information in a fun event
Newsletter articles	Articles about TDM in company newsletters
Commuter information center	An on-site, one-stop shop for transit and commute alternatives information
Transit field trips	Orient new transit riders by showing them the local routes, fare collection method, transfer points, and other operational features
Free trial rides	Free transit tickets for employees interested in using transit
Transit riders guide	A guide with transit routes and schedules to the site
Bike-to-work day	A regional event to introduce bicycle commuting
Bicycle riders guide	A guide with bicycle routes, lanes, and paths to the site and bicycle parking facilities on the site
Guaranteed Ride Home Program	Employees who use transit, carpools, or vanpools are guaranteed a ride home in case of emergency or if they need to work late
Car share	Employees who bike or walk or use transit, carpools, or vanpools can utilize a car share vehicle located on site for errands or meetings



**TABLE 3:
SUNNYVALE TDM TOOL KIT MEASURES: PROGRAMS AND SERVICES**

TDM Measure	Description
Telecommuting	
Telecommuting	Telecommuting allows employees to work from home or from neighborhood telecenters via telecommunications
Alternative work schedule	
Flextime	Employees set or modify their arrival and departure times
Staggered Work Hours	Work units or groups select or are assigned different starting and ending times for their work day
Compressed Work Week	Employees work more hours in a single day, but fewer days of the week

Source: *Transportation Demand Management (TDM) Tool Kit*, prepared for the City of Sunnyvale by The Hoyt Company, December 1999.

Fehr & Peers, 2013.

OTHER TDM MEASURES

Other measures that may be included but that are not on the toolkit list are presented in **Table 4**.

**TABLE 4:
OTHER TDM MEASURES**

Measure	Description
On-Site Shuttle Stop	Shuttle stops on site making shuttle use convenient
Bike Share Program	Program provides employees with campus bicycles and free bicycle helmets
Tax Incentives	Passing employer tax benefits to employees who use non drive alone modes
Transit App	Downloadable smart phone application providing schedule and stop information for private shuttles and public transit
Financial Incentives	Employees who use alternative modes are provided financial incentives
Electric Bicycle Charging Station	Charging stations for electric bicycle could be located throughout the site which can be used for longer trips than standard bicycles



4. SELECTED TDM MEASURES AND STRATEGIES

The TDM measures and strategies for Central Sunnyvale Campus are divided into three general categories: (1) developer provided, including site planning and design measures based on the physical attributes of the site and the proposed buildings, plus the transportation facilities and services currently near the site, (2) those provided by the property manager and that could be used by multiple tenants, and (3) measures provided by the tenants. The last category of measures may need to be included in lease agreements or some other instrument to ensure their implementation if it is determined that they are mandatory.

DEVELOPER-PROVIDED – PLANNING AND DESIGN MEASURES

BUILDING DESIGN & LAYOUT

Building Setbacks

The buildings are located close to both N. Wolfe Road and E. Arques Avenue. Only Building 2 is slightly separated from the adjacent roadway by an internal circulation roadway. Locating the buildings near pedestrian and transit facilities encourages walking and transit use. Alternatively, having seas of parking between a roadway and a building would encourage driving.

Passenger Loading Zones

Passenger loading zones are located in the auto courts near the main entries to each building. They are convenient for carpools and vanpools dropping off passengers.

Building Wiring

The building will be wired with fiber optics for fast internet access which will facilitate telecommuting (employees working at home or other off-site location).

TRANSIT DESIGN ELEMENTS

Transit Passenger Shelter/Bus Stop

A new bus pad will be constructed for the bus stop on the east side of N. Wolfe Road, south of E. Arques Avenue as part of the site frontage improvements. The



new bus pad will accommodate transit buses stopping near the site facilitating transit as an access mode.

On-Site Shuttle Stop

An added site design measure that is not included in the Sunnyvale list is an on-site shuttle depot – or shuttle passenger loading and unloading zone - located on-site near Building 3. The depot could be used as a new stop on the ACE 822 Gray Line South Sunnyvale Shuttle route, the Caltrain Duane Avenue Shuttle route, which serves the Mountain View and Lawrence Caltrain Stations, or by a new shuttle serving downtown Sunnyvale and the Sunnyvale Caltrain Station. The shuttle depot provides a dedicated on-site area for shuttle riders thus supporting shuttle use.

PARKING DESIGN MEASURES

Off-Street Parking

Parking is located beneath the office space and in a standalone garage located behind the buildings. Therefore it is not located between the building entrances and transit service, which would increase the distance transit riders and pedestrian would need to walk. The short walking distances make the site more appealing for transit and pedestrian access.

Parking Configuration

The parking location supports pedestrian access and circulation. The building entrances are a short distance from the street sidewalks with clearly defined pedestrian walkways and crossings. Replacing surface parking with safe, secure, and covered podium and structured parking garages creates convenient walking distances for employees and visitors.

Preferential Parking

Parking spaces in the parking podiums near the building entrances could be designated as carpool and vanpool spaces. These spaces would be located in premium and convenient locations to incentivize carpooling. These spaces could be made available for other vehicles after 10:00 am.

PEDESTRIAN DESIGN MEASURES

Minimize Walking Distances

As described under Building Setbacks, the buildings are located on the site such that pedestrian walking distances to the sidewalks on the adjacent streets are minimized.



Pedestrian Connections and Internal Pedestrian Access

The site is designed with numerous pedestrian walkways and connections. Sidewalks are located around the perimeter of the site with connections to the internal pedestrian circulation system and to the central landscape quad. These walkways create a pedestrian-friendly environment on the site and provide safe and convenient connections between the buildings and to the surrounding streets. One hundred percent of employees are within a 2.5-minute walk (or less) from the center of the campus quad.

BICYCLE DESIGN MEASURES

Showers and Lockers

The buildings will have shower facilities and lockers and/or changing rooms. Shower and changing rooms will help promote bicycling (and walking) as an alternative commute option for interested employees.

Bicycle Parking

The site will contain bicycle lockers and/or a secure, limited access room for bicycle storage. The number and placement of bicycle facilities will meet the City of Sunnyvale municipal code. The City follows the VTA Bicycle Technical Guidelines when determining the required amount of Class I and Class II bicycle parking.



Electric Bicycle Charging Stations

Electric bicycle charging stations could be added to support the use of electric bicycles. Electric bicycles can be used by employees for whom a standard bicycle is not practical due to the length of their commute or other physical/health limitations.

POTENTIAL ON-SITE AMENITIES

Amenities will be provided on-site as a convenience for all employees, especially those who travel to the site by walking, bicycling, carpooling/vanpooling, or riding transit. The amenities on the Central Sunnyvale Campus site may include a cafeteria, a fitness facility, coffee bar, grab-and-go meals, general store, an ATM, a barbershop, sport courts, banking, dry cleaning pick-up, health and wellness, and a bicycle repair station. Food truck access may also be provided in and around the central quad.



PROPERTY MANAGEMENT-PROVIDED MEASURES

In addition to the Planning and Design attributes that contribute to alternative mode use, the property manager of the building can provide additional measures to meet the TDM goal. (Some of these measures can be provided by the property manager and/or by individual tenants.) These measures include a Transportation Coordinator and various components that together create a Commute Trip Reduction Program.

Commuter Information Center/Information Board

Information kiosks/boards can be located in the building lobbies. The kiosks contain information on shuttles, Caltrain, ACE, VTA bus and LRT service, carpool and vanpool organizations, bicycle routes, and other transportation options information. Alternatively, this information could be provided on a website. The Transportation Coordinator would be in charge of updating information. (Individual tenants may also post commuter information in their employee break rooms or other common gathering areas.)

Transportation Coordinator

A Transportation Coordinator will be hired by the property manager to promote the TDM Program, activities, and features to employees of all or some of the tenants. (Larger tenants may elect to have their own Transportation Coordinator.) The Transportation Coordinator would develop an on-site transportation information center or website as discussed above. The Transportation Coordinator may provide information via new employee orientation packets, flyers, posters, email, and/or educational programs. The Transportation Coordinator's role also includes actively marketing alternative mode use, administering a carpool and vanpool matching program, developing pedestrian and bicycle programs, and promoting special programs such as Bike-to-Work Day or Carpool Week. The Transportation Coordinator can notify employees of Spare the Air days (as declared for the Bay Area region) and associated transit promotions. Prizes may be offered for non-SOV travel on these days to encourage participation. The Transportation Coordinator may offer prizes as incentives for ridesharing, using transit, bicycling, and walking.



Carpool/Vanpool Programs

Carpools in the Bay Area consist of two or more people riding in one vehicle for commute purposes. Vanpools provide similar commuting benefits as carpools, though a vanpool consists of seven to 15 passengers, including the driver, and the vehicle is either owned by one of the vanpoolers or leased from



a vanpool rental company. The Transportation Coordinator can provide an Internet link to the 511.org Rideshare website to access ride matching services. The Transportation Coordinator can also administer an on-site carpool and vanpool matching service for employees or via peer-to-peer matching programs such as ZimRide and RideSpring. A list of available vanpools that provide service between the project site and various points in the Bay Area can also be provided.

Shuttle Programs

Two Caltrain Duane Avenue shuttle routes are located near or adjacent to the project site location, however, neither of them have a stop near the project site. The property manager can consider requesting additional stops on the routes, which originate from the Mountain View and Lawrence Caltrain Stations. Caltrain will consider adding shuttle stops to an existing route after determining the impact on the existing route's schedule, capacity, and funding. The VTA is the principal entity managing the allocation and distribution of shuttle funding, however, most shuttles receive between 25-90% of their funding from employers. The property manager/lead employer may be responsible for all additional service costs beyond those budgeted.

Pedestrian Programs

The purpose of pedestrian programs is to encourage employees to walk to work. They include maps showing the most pedestrian-friendly routes in the area, programs that describes the health benefits of walking, and creating walking buddies for people who choose to walk together to and from work. Another way to encourage walking is to have periodic pedometer challenges with prizes for the most steps in a selected time period. Pedestrian programs would be administered by the Transportation Coordinator.

Bicycle Programs

Similar to pedestrian programs, the purpose of bicycle programs is to encourage employees to cycle to work. Bicycle program include maps of bicycle facilities in the area, which can be annotated to describe the cycling conditions, bicycling buddies (bike commuters with common bike routes), and bicycle support



items such as water bottles and tire patch kits. Bicycle programs would be administered by the Transportation Coordinator.

Promotional Programs

There are many items that can be categorized as general promotional programs that are used to provide information regarding non-solo driving modes and to create excitement around using alternative modes. These programs would be administered by the Transportation Coordinator.

Transportation Fairs – Usually include booths/tables sponsored by transit agencies and bicycle advocacy groups with information on commute options, and can include demonstrations on bicycle riding tips and bicycle repairs, and raffles for bus tickets, transit passes, water bottles, bike helmets, etc.

Flyers and Posters – That advertise commute options and special activities such as Bike-to-Work Day

Free Trial Rides – Free bus or train passes provided to employees so that they can try riding transit

Transit Riders Guide – An informational guide on how transit pay systems work, bus routes and stop locations, etc. to make riding transit more familiar

Bicycle Riders Guide – An informational guide with bicycle safety and riding tips to encourage bicycle riding

Car Share

Car sharing provides an on-demand access to shared vehicles on-site on an as-needed basis, providing alternative mode commuters a means for day trips. A car share program can be created through a local partnership or an existing car share company.

Bike Share

Bicycles and bike helmets can be provided on-site for use by tenants during the day. This allows employees who use transit or walk to work with a way to run errands during the day.



TENANT-PROVIDED MEASURES



The tenant (individual employers) can provide measures that directly affect the commute mode choices of their employees such as financial incentives, accommodating telecommuting and alternative work schedules and programs tailored to their employees' needs.

Promotional Programs

In addition to the promotional programs listed under the measures provided by Property Managers, tenants can also create promotional programs tailored to their employees. These include:

New employee orientation – New employee orientation packets outlining alternative transportation options and an orientation program, which explains the importance and benefits of using alternative transportation modes, and incentives provided by the company, such as commuter checks, ECO Passes, etc.

Newsletter Articles – The tenant may include articles about commute options, including highlighting staff who primarily use commute options, in their internal newsletters and websites

Transit Field Trips – Employees may be offered a transit field trip as a way to become more familiar with travel on buses, Caltrain, or ACE

Subsidized Transit Passes

All employees who use transit can be provided with subsidized transit passes, such as VTA's Eco Pass, through the Commuter Check (<http://www.commutercheck.com/>) or other similar program, which provides vouchers that can be redeemed online for transit passes and tickets, vanpool fares, or park and ride lot costs at Caltrain stations. The Commuter Check credit can be provided tax-free to employees that ride transit to work in amounts up to \$240 per month (amount determined by the IRS (IRS Tax Code Section 132(f) - Qualified Transportation Fringe)). Tenants may also elect to fully subsidize Commuter Checks as an employee benefit. 511.org has an outreach program to help employers get started.

On-Site Transit Pass Sales

Commuter Checks can be made available online through Commuter Check Direct, a service that will deliver the transit passes directly to the employee's home or office.



Guaranteed Ride Home Program

A common reason that employees do not use alternative modes (i.e., carpool, vanpool, or transit) is the inability to leave work unexpectedly for a family emergency or the fear of being stranded if they need to work late. One TDM element that allays these fears is a Guaranteed Ride Home program. With this program, employees can use a taxi service, rental car, or other means to get home, and the employer pays for the service. Employees who wish to use the service would contact the Transportation Coordinator or other designated person to make the travel arrangements.

Telecommuting

Allowing employees to work off-site and providing them with the necessary infrastructure, i.e., internet access and internal data access, reduces the number of vehicle trips entering and exiting the site and on the roadway system.

Alternative Work Schedules

Flextime options such as compressed workweeks and alternative work hours can allow employees to make better use of transit and/or reduce the number of days they travel to the office. As noted above, employees arriving after 10:00 am will be eligible to park in available carpool and vanpool preferential parking locations.

Parking Cash-Out

With a parking cash-out program, employees are offered the option of a “free” parking space or a cash equivalent that can be used to offset the cost of commuting by an alternative mode. Typically employers offer their employees a cash payment equivalent to the cost of the parking space to the employer based on their rent payments.

Tax Incentives

Tax benefits are available for employees that opt for transit and bicycle use. Bicycle commuter subsidies are available via the Commuter Check for Bicycling Program (see <http://www.commutercheck.com/mycommutercheck.aspx>). As of January 1, 2009, employees who regularly use their bicycles to get to and from work are eligible for up to a \$20-a-month, tax-free reimbursement from their employers for bicycle-related expenses. Employers will in turn be able to deduct the expense from federal taxes.



Financial Incentives

Tenants can consider offering employees who commute by transit, bicycling or walking financial incentives such as cash payments, gift cards, monthly raffles with prizes, etc.

Transit App

Tenants could adapt smartphone applications regarding transit access for their site.

