



HEXAGON TRANSPORTATION CONSULTANTS, INC.



Applied Materials Arques Campus R&D and Garage 1 Entitlements – Phase I



Transportation Demand Management Plan

Prepared for:

City of Sunnyvale on Behalf of RMW Architecture & Interiors



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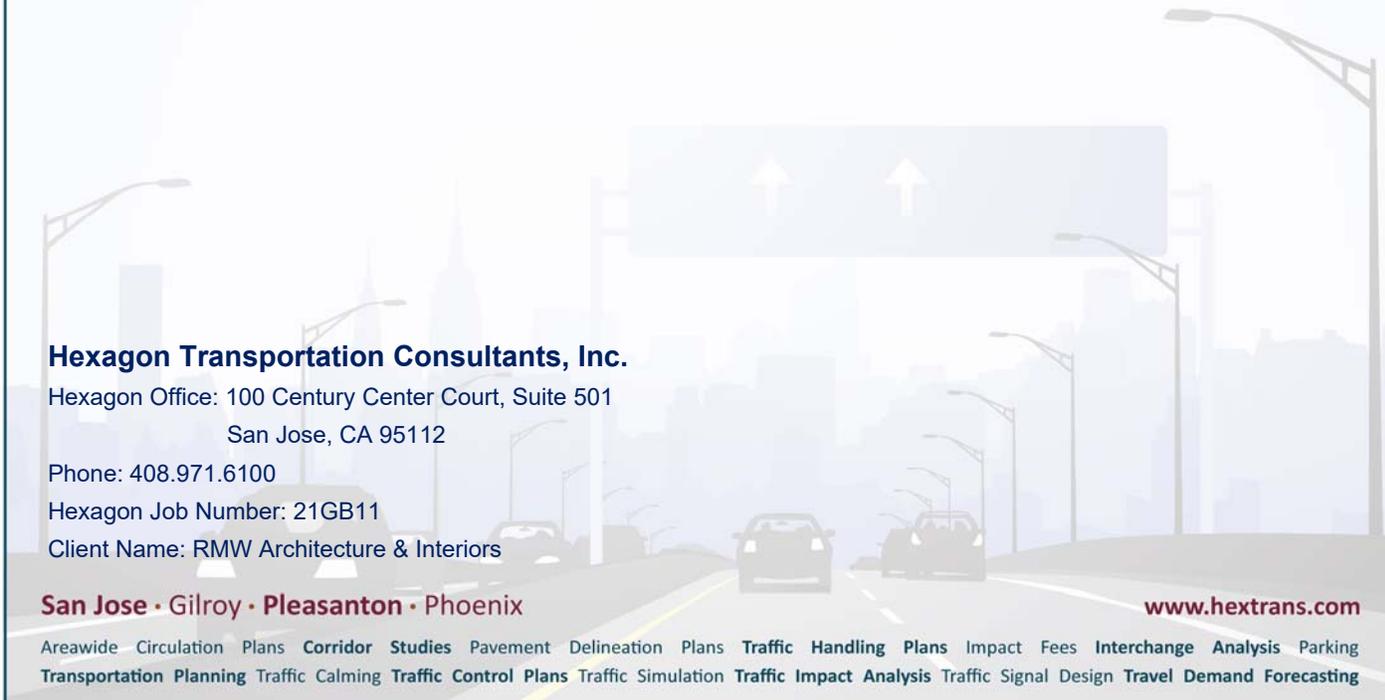


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1. Introduction

This transportation demand management (TDM) plan has been prepared for Phase I of the proposed Applied Materials Arques Campus Master Plan. TDM is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle (SOV) trips to help relieve traffic congestion, parking demand, and air pollution problems. The purpose of a TDM plan is to promote more efficient utilization of existing transportation facilities and ensure that the development is designed to maximize the potential for alternative transportation usage.

According to the Arques Campus Specific Plan and EIR approved in 2019, the project is required to maintain or exceed a 15 percent alternative mode usage. Therefore, this plan was prepared to propose effective and appropriate TDM measures, based on the project's size, location, and land use, and to satisfy the alternative mode share requirement.

Project Description

The Arques Campus is located at 974 E. Arques Avenue in Sunnyvale, California (see Figure 1), generally bounded by Commercial Street to the west, E. Arques Avenue to the north, an office campus at 1070 E. Arques Avenue to the east, and Central Expressway to the south. Phase I development would construct a research and development (R&D) building, a garage, and surface parking lots (see Figure 2), by removing existing office and light industrial buildings, the main parking structure, and surface parking lots within the campus plan area. The existing Building 81 and Maydan Technology Center (Building 85) would remain on the campus.

Trip Reduction Target

According to the City's TDM Program Guidelines, TDM plans are required to set trip reduction goals. Trip reduction goals are outlined in the project conditions of approval. The Arques Campus Specific Plan only requires the project to achieve a 15 percent alternative mode usage, but does not specify a trip reduction goal. It is assumed that every percent of alternative mode share is equivalent to a one percent reduction in peak-hour vehicle trips.

The project trip generation estimates are based on trip generation rates obtained from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition. The average AM and PM peak-hour trip generation rates for General Office Building (Land Use Category 710) and Research and Development Center (Land Use Category 760) were applied to the proposed office/laboratory buildings and R&D (cleanroom) buildings, respectively.

It is expected that Applied Materials is required to implement TDM measures to achieve a 15 percent alternative mode share for both existing and Phase I development within the campus area. Based on the published trip rates and 15 percent TDM trip reduction, the vehicle trips generated by the existing and Phase I buildings within the campus area should not exceed 1,036 trips during the AM peak hour and 985 trips during the PM peak hour (see Table 1).

Table 1
Project Trip Estimates with TDM Reduction

Land Use	Size	Daily		AM Peak Hour			PM Peak Hour				
		Trip Rate	Trips	Trip Rate	Trips		Trip Rate	Trips			
				In	Out	Total	In	Out	Total		
Office (Building 81) ¹	333,000 s.f.	10.84	3,610	1.52	445	61	506	1.44	82	398	480
R&D Center (Building 85 and new R&D building) ²	692,600 s.f.	11.80	8,173	1.03	585	128	713	0.98	109	570	679
- 15% Trip Reduction ³			-1,767		-155	-28	-183		-29	-145	-174
Gross Project Trips			10,016		875	161	1,036		162	823	985

Notes:

All trip rates (in trips per 1,000 s.f.) are from ITE Trip Generation Manual, 11th Edition, 2021.

1. General Office (ITE Land Use 710): average trip rates were used.

2. Research and Development Center (ITE Land Use 760): average trip rates were used. Proposed R&D space includes the existing R&D building to remain. The square footage does not include existing (17,000 s.f.) and proposed (51,000 s.f.) CUB utility and proposed WWT/bulk tanks (21,000 s.f.).

3. TDM trip reduction required for the Applied Materials campus.

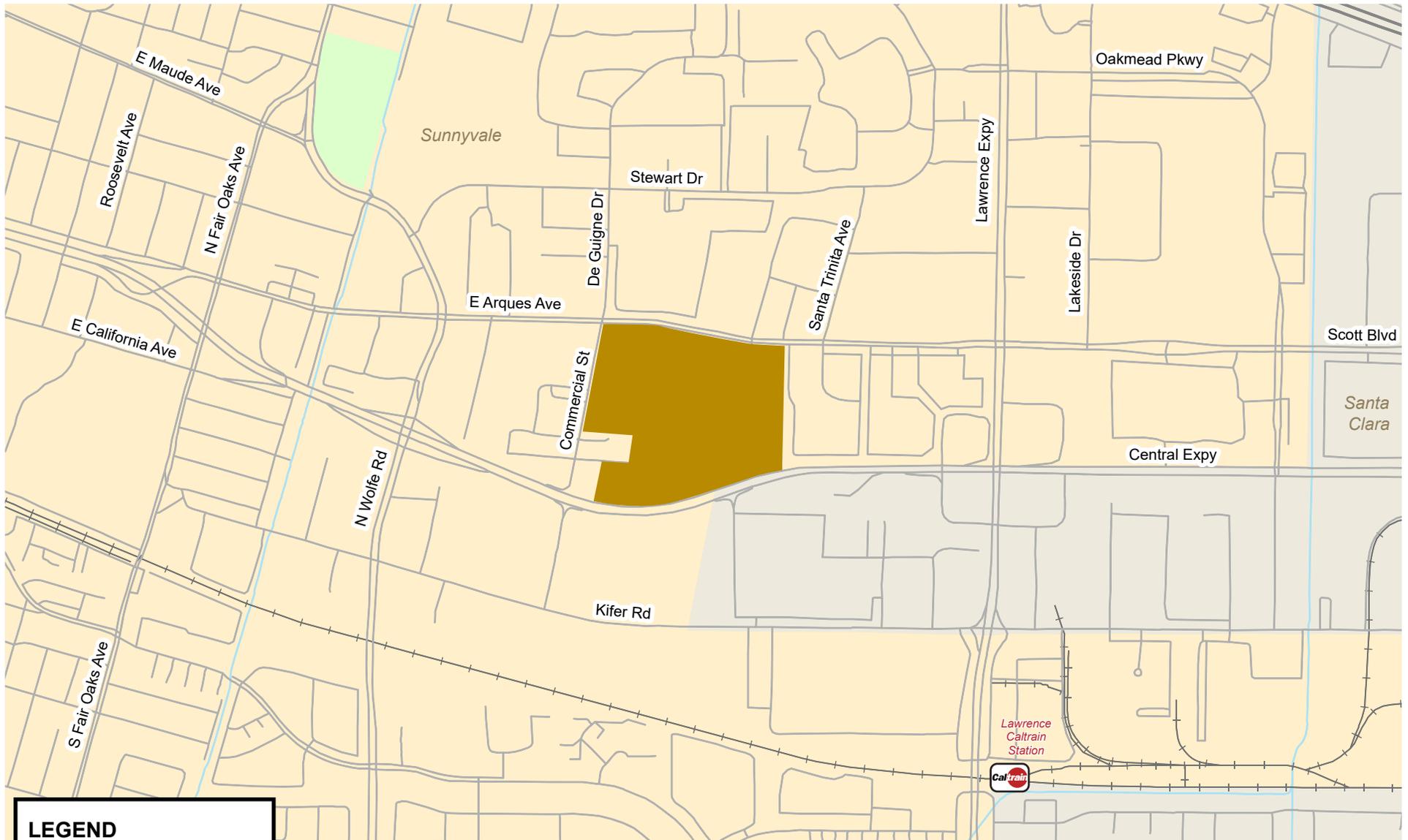


Figure 1
Site Location

Applied Materials Arques Campus Phase I TDM Plan

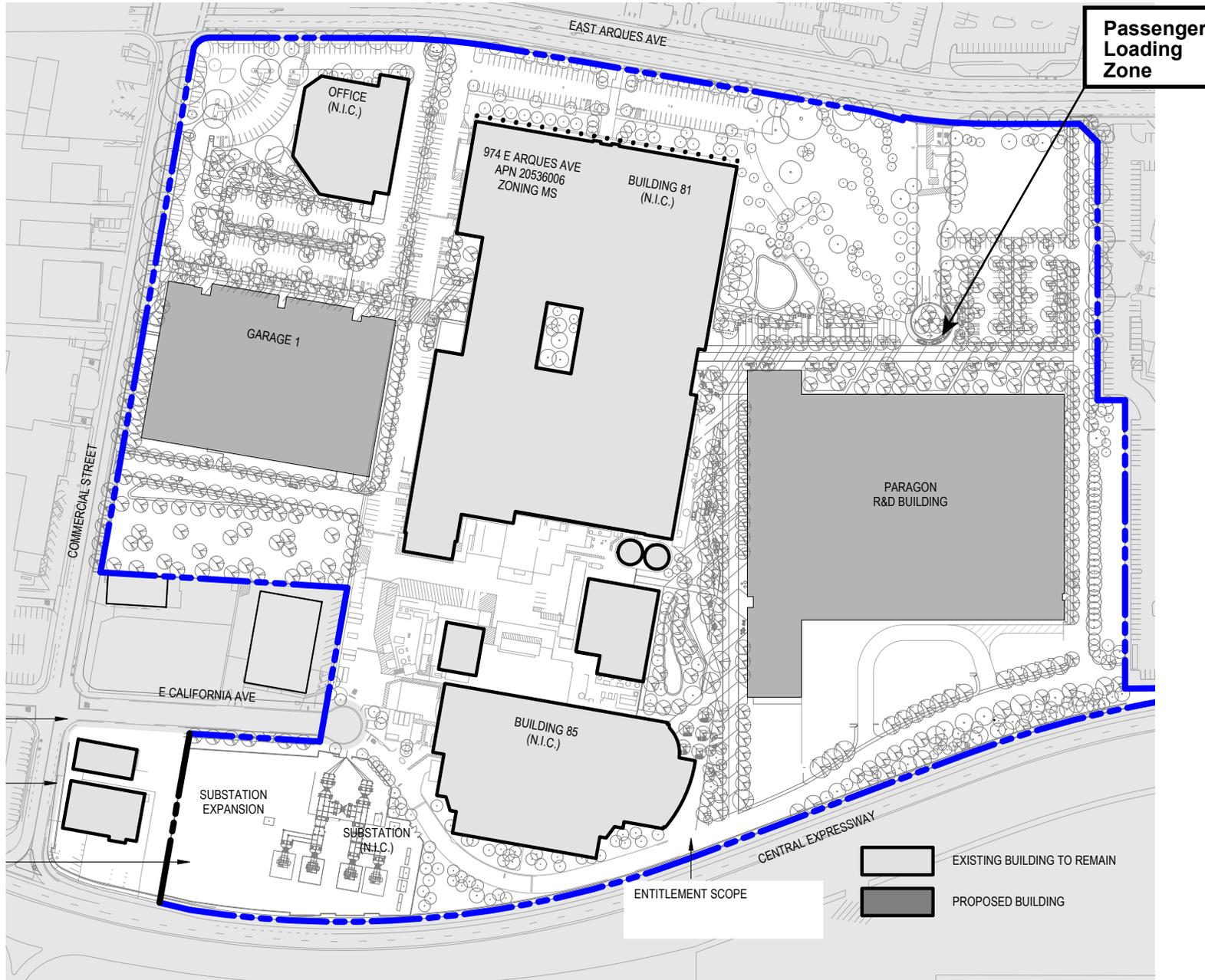


Figure 2
Site Plan

2. Transportation Facilities and Services

This chapter describes the existing transportation facilities and services near the project site that can be utilized to reduce single-occupant vehicle trips.

Transit Services

Existing transit services in the project vicinity are provided by the Santa Clara Valley Transportation Authority (VTA) and Caltrain (see Figure 3). VTA operates bus and light-rail transit services in Santa Clara County. Caltrain provides commuter rail service between Gilroy, San Jose, and San Francisco and shuttle service between the Caltrain stations and nearby business areas.

VTA Bus Service

VTA local bus route 20 and the ACE Gray bus route serve the project vicinity with bus stops located near the project site (see Figure 3). The ACE Gray bus provides service between Sunnyvale and the Altamont Corridor Express (ACE) Great America Station. There are two northbound/eastbound buses during the PM peak hours and two southbound/westbound buses during the AM peak hours. In the project vicinity, bus stops are located on Santa Trinita Avenue north of E. Arques Avenue, approximately 1,300 feet from the proposed R&D building.

Local Route 20 provides bus service from Milpitas BART to the Sunnyvale Transit Center via Mission College. Route 20 operates weekdays from 6:15 AM to 8:05 PM eastbound and westbound, with varying headways throughout the day. During the peak commute periods, the headway is approximately 30 minutes. The closest bus stops for the eastbound and westbound routes are located on E. Arques Avenue west of Santa Trinita Avenue, approximately 800 feet from the proposed R&D building.

Caltrain Rail Service

The project is located 1.2 miles northwest of the Lawrence Caltrain Station and 2 miles northeast of the Sunnyvale Caltrain Station. There is no bus running between Lawrence Station and the project site. However, Applied Materials is running its shuttles to connect employees between the Arques and Bowers campuses and the Lawrence Caltrain Station and the VTA Fair Oaks Light Rail Station. Local Route 20 provides a last-mile connection from the Sunnyvale Caltrain Station to the project site.

The Lawrence Station is served by 6 northbound and 5 southbound trains with headways between 30 and 40 minutes in the AM peak period from 6:00 to 9:00 AM and 6 northbound and 6 southbound trains with headways between 30 and 40 minutes in the PM peak period between 4:00 and 7:00 PM.

The Sunnyvale Station is served by 9 northbound and 9 southbound trains with headways between 20 and 30 minutes in the AM peak period from 6:00 to 9:00 AM and 9 northbound and 9 southbound trains with headways between 20 and 30 minutes in the PM peak period between 4:00 and 7:00 PM.

Bicycle Facilities

Bicycles are allowed on all streets in the City of Sunnyvale except freeways. The City-designated bicycle facilities on streets in the project vicinity include striped bike lanes (Class II bikeway) and shared bike routes (Class III bikeway) (see Figure 4). Bike lanes are lanes on roadways designated for use by bicycles with special lane markings, pavement legends, and signage. Bike routes are signed bike routes where bicyclists share a travel lane with motorists. Bike routes are typically designated only with signs and/or Sharrows (shared-lane markings).

Bike lanes exist on Stewart Drive, Arques Avenue/Scott Boulevard, Kifer Road (west of Uranium Drive), Wolfe Road, Commercial Street/De Guigne Drive, and Santa Trinita Avenue. Bike routes exist on Fair Oaks Avenue. Pedestrian/bicycle paths exist at the Lawrence Expressway/Central Expressway interchange connecting bicycles between Central Expressway and Lawrence Expressway.

Bicycles are also permitted on Central Expressway and Lawrence Expressway. However, due to high speeds and traffic volumes, the expressways are recommended for use only by bicyclists of intermediate to advanced skills.

Pedestrian Facilities

Crosswalks are present along all roadways and at signalized intersections in the project vicinity. Pedestrian signal heads and push buttons are present at all signalized intersections in the project vicinity. Pedestrian facilities are present between the site and the surrounding land uses, including restaurants and retail stores, and bus stops in the area.

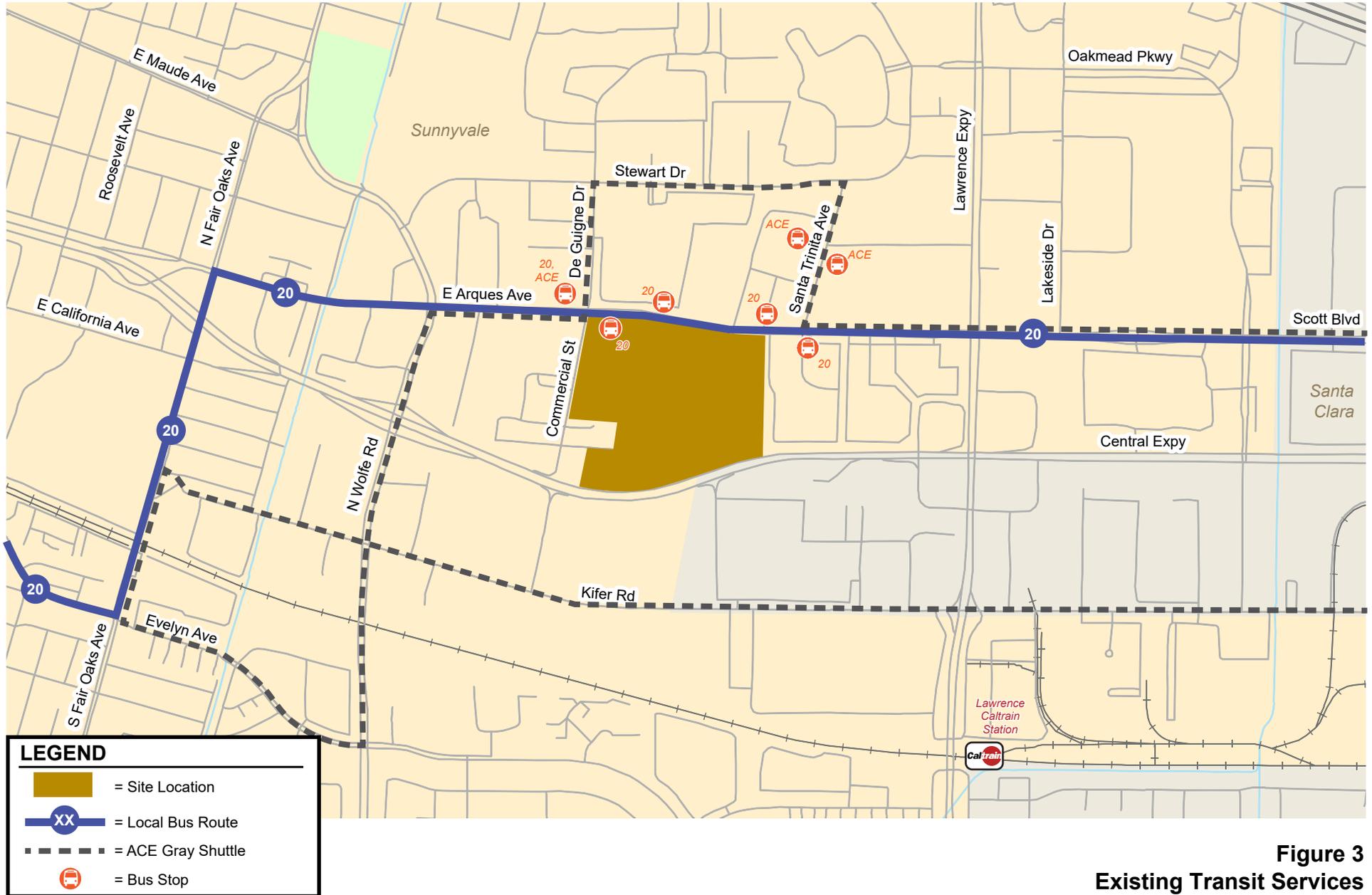


Figure 3
Existing Transit Services

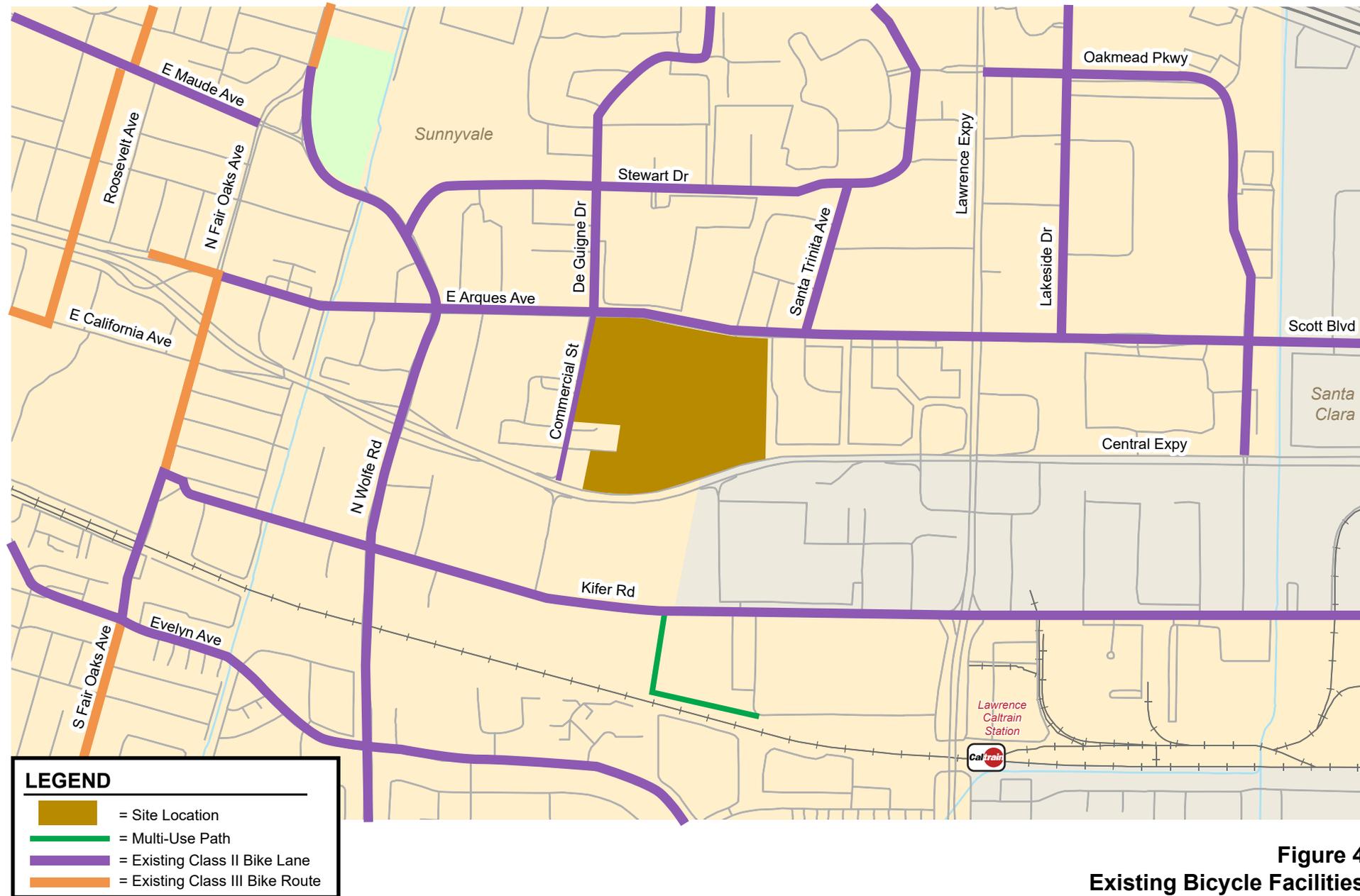


Figure 4
Existing Bicycle Facilities

3.

Proposed TDM Measures

The TDM measures proposed by the project include design features, programs, and services that promote sustainable modes of transportation and reduce the vehicular demand that would be generated by the project. The goal of this TDM plan is to meet the peak-hour vehicle trip reduction target. TDM programs encourage employees to take other modes of transportation through benefits and assistance in trip planning.

Some of the proposed measures already are being implemented by Applied Materials at the current buildings, which include the following measures.

- Bicycle facilities (storage, lockers, and showers)
- Commute trip reduction marketing/education programs
- Shuttles between the campuses and Caltrain and Light Rail stations
- Subsidized transit program
- Flexible work schedules
- Carpool parking
- Rideshare matching assistance

Project Design Features

The TDM measures to be implemented for the existing and Phase I buildings 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:

- **Bicycle parking and showers.** Applied Materials is providing bicycle facilities (storage, lockers, and showers) in the existing campus buildings. The project proposes to include long-term bicycle storage on the ground floor of the parking garage and short-term bicycle parking spaces surrounding the building. Showers and changing rooms will be included next to the bicycle storage room in the parking garage.
- **Pedestrian facilities.** The internal walkways on the campus will create a pedestrian-friendly environment and will connect to sidewalks on Arques Avenue and Commercial Street. The lighting and landscaping will be designed to enhance pedestrian safety. The parking lot layouts accommodate pedestrian flow.

- **Car pool parking spaces.** The project will reserve 5 percent of the total parking spaces for carpool vehicles or a vehicle-sharing provider, per the City's Zoning, Section 19.46.100. These carpool spaces will be the most conveniently located parking spaces.
- **Passenger loading area.** The site plan shows a passenger loading area located at the southern end of the drive aisle terminating in front of the proposed R&D building. The drop-off and pick-up area will provide greater convenience for employees who carpool/rideshare with people who work at other nearby work locations, as well as those who use on-demand ride services such as Lyft and Uber.
- **On-site amenities.** On-site amenities encourage employees to utilize alternative transportation for their commute trips. Employees can stay on-site to complete errands (getting lunch, going to the gym, or banking) which often require automobile and off-site trips. The project will include amenity space on the ground floor of the parking garage to provide these functions on-site.

TDM Coordinator

The project will appoint a TDM coordinator who will be the primary contact with the City and will be responsible for implementing and managing the TDM plan. The TDM coordinator will be a point of contact for employees if TDM-related questions arise and will be responsible for ensuring that employees are aware of all transportation options and how to fully utilize the TDM programs. The TDM coordinator will provide the following services and functions to ensure the TDM plan runs smoothly:

- Provide transportation information brochures to new employees.
- Provide trip planning assistance and/or ride-matching assistance to employees who are considering an alternative mode.
- Provide information about transit passes.
- Audit and review building transportation needs.
- Manage travel surveys to track trends and develop new commute programs.

TDM Marketing

Applied Materials has been implementing TDM marketing through Luum, a commute management platform. Applied Materials will continue to work implement TDM marketing to its employees.

“Online Kiosk”: An Online Information Center

A key element of this TDM plan is to set up an attractive, up-to-date “online kiosk” with site-specific information about the transportation resources available to employees. The project’s website will include information about transit maps/schedules (Caltrain, VTA, ACE Shuttle), locations of bus stops and Caltrain stations, and all the measures, services, and facilities discussed in this plan.

Information Brochure for Employees

In addition to the online information center, the TDM coordinator will provide “hard copy” information brochures to all employees when they first occupy the building. The new employee brochure will provide a quick easy-to-read announcement of the most important features of the TDM program for employees to know about immediately.

In addition, the brochure will send a message to workers that their employer values alternative modes of transportation and takes their commitment to supporting alternative transportation options seriously.

Transit Passes

Subsidized transit passes are an effective means of encouraging employees to use transit rather than drive to work. Transit passes allow employees to save money and avoid the stress of driving during commuting periods. One element of this TDM plan is to provide employees with financial incentives to utilize public transit when commuting to and from the project site.

The project will provide free or subsidized transit passes (Caltrain or VTA) for their employees. There are a number of ways to structure a financial incentive for transit. Employers can cover the total monthly cost of transit for those employees who take transit through a pre-tax benefit, or purchase transit passes themselves and distribute them to employees, or offer a universal transit pass program.

Employers may consider universal transit pass programs, in which an employer purchases a pass for all employees, regardless of whether they currently ride transit or not. These passes typically provide unlimited transit rides on local or regional transit providers for a low monthly fee; a fee that is lower than the individual cost to purchase a pass, since a bulk discount is given. Such programs can be a more cost-effective option for employers to reduce vehicle trips as compared to purchasing individual passes.

Applied Materials is providing an \$80/month subsidy for employees who use transit. Applied Materials will continue to implement the transit subsidy program for the new development.

Rideshare Matching Services

One of the greatest impediments to carpool and vanpool formation can be finding suitable riders with similar work schedules, origins, and destinations. Facilitated rideshare matching can overcome this obstacle by enabling commuters who are interested in ridesharing to enter their travel preferences into a database and receive a list of potential rideshare partners. The success of these programs is largely determined by the number of participants and, in turn, the number of potential matches that can be made.

The TDM coordinator will provide employees with information on 511.org's ridematching service (Merge) and other ridematching services. For example, ridematching assistance is available through a number of peer-to-peer matching programs, such as Scoop and Waze Carpool, which utilize mobile apps to match commuters.

The TDM coordinator will also distribute a carpool matching application to all employees as part of the welcome brochure. The application will match employees who live in the same area who may be able to carpool together. Some employees who may be reluctant to reach out to find carpool partners via the 511 Merge service or Waze Carpool may be more likely to fill out a form that will be administered by their TDM coordinator. Furthermore, employees may be more likely to try ridesharing with a coworker than with an unknown person who lives nearby.

Applied Materials is providing rideshare matching assistance via Luum. Applied Materials will continue to implement the program for the new development.

Vanpool/Carpool Incentives

The TDM coordinator will provide employees with information on 511.org's carpool/vanpool subsidy program. The Bay Area Carpool Program and Vanpool Program offer a number of incentive programs to encourage people to try carpooling and vanpooling. Most of these programs are designed to reward someone for forming or trying a carpool or vanpool and provide an award or subsidy after the first three to six months of use.

Guaranteed Ride Home Program

Employees are more likely to use transit, walk, or bike as their primary mode of travel if they are assured that they can get a ride (or reimbursement for the cost of a ride) to their home and/or to other locations in the event of an emergency. Covered locations shall include the employee's home, an employee's child's school, and/or medical/emergency service facilities.

The project will reimburse emergency rides to employees who use alternative modes of transportation for taxi, Lyft, or Uber rides. Employees would need to provide an explanation of the emergency and the receipt from the taxi service or on-demand ride service for reimbursement. A limit on the number of rides that will be provided per employee per year would be reasonable.

Telecommuting and Flexible Work Schedules

Flexible working schedules whereby employees work a 40-hour week in 4 days or 80 hours in 9 days are another way of reducing trips. Applied Materials has initiated a hybrid work environment for all employees and will continue to implement the telecommute/flexible work schedule policy so that their employees can work from home or travel outside the peak travel periods.

Shuttle Program

The project will continue to provide its own shuttles to nearby Caltrain and Light Rail stations.

4. TDM Plan Monitoring and Reporting

This chapter describes the requirements for monitoring and reporting the effectiveness of the TDM plan and the process for dealing with non-compliance according to the City's TDM Program Guidelines.

The specific plan requires Applied Materials to submit a TDM monitoring plan indicating the number of on-site employees using alternative transportation modes and demonstrate whether it meets the alternative mode share requirement. Applied Materials has been submitting annual TDM monitoring reports to the City and will continue to do so.

Monitoring

The TDM plan will be evaluated annually to assess the actual AM and PM peak-hour vehicle trips generated by the development and to identify any adjustments to the programs necessary to ensure the TDM plan is successful in achieving the vehicle trip reduction requirement. The annual TDM plan monitoring will be administered by the TDM coordinator. The monitoring will include vehicle trip generation counts at the project driveways and an employee mode-share survey.

In order to evaluate whether or not the project has met the 15 percent peak-hour trip reduction requirement for the Phase I development area, annual driveway counts will be conducted. A count of the number of vehicles entering and exiting the project's driveways on a typical weekday during the AM and PM peak periods will be conducted annually by an independent third party to determine the number of vehicle trips being generated by the project.

The driveway counts will be used to determine the actual peak-hour trip generation of the project. The TDM coordinator will provide the results of the driveway counts to the City of Sunnyvale, along with a statement as to whether the 15 percent peak-hour trip reduction goal for the Phase I development area was met.

The TDM coordinator will also conduct an annual employee survey to determine the mode shares among employees, whether the existing TDM measures are effective, and whether employees prefer different TDM measures. The survey will be constructed as a general survey with questions such as work environment satisfaction to promote survey responses.

Reporting

The results of the trip generation counts and mode-share survey will be reported to the City of Sunnyvale annually, along with an assessment of whether the TDM measures implemented during the preceding year are effective at achieving the vehicle trip reduction requirement. The annual report to

the City will also include a brief summary of the TDM measures that were in place during the preceding year, with an explanation of any changes or new programs.

Non-Compliance

Upon review of the annual status report, the development will be deemed to be in compliance or non-compliant. A development that is in compliance with the goals will continue with the monitoring as scheduled. The development may keep their TDM plan as it is or make modifications in hopes of improving it further.

If a development is non-compliant with the goals, that is, if it has not achieved its trip reduction goals, there are two possible outcomes, depending on whether it's a new development. For a new development that was found to be non-compliant after its first year of occupancy, as reported in its first annual status report, a six-month grace period will be granted during which the development will be able to try other TDM measures to increase their trip reduction to meet their goal. After the six-month grace period, new trip generation surveys will be conducted. The site-derived vehicle trip generation estimates will again be compared to the trip targets to see if the trip reduction goals have been met. If the development is compliant, then the development will continue with its annual monitoring with no penalty for that year.

If a development is non-compliant with its trip reduction goals and it is either not in its first year of occupancy or it has already passed the aforementioned grace period, then it is subject to a non-compliance penalty. The penalty for non-compliance is intended to be greater than the estimated cost of implementing the TDM program. The non-compliance penalty is determined by the level of deficiency of the program. Per the City's TDM Program Guidelines, a \$3,000 per trip fee was established as the penalty to be assessed based on the surveyed trip generation. The compliance determination is based on the maximum allowable AM and PM peak hour trips as identified in the conditions of approval. The penalty is based on the highest deficiency of the two (AM or PM). A detailed explanation and sample calculation is provided in the City's TDM Program Guidelines.