DATE:	April 21, 2022
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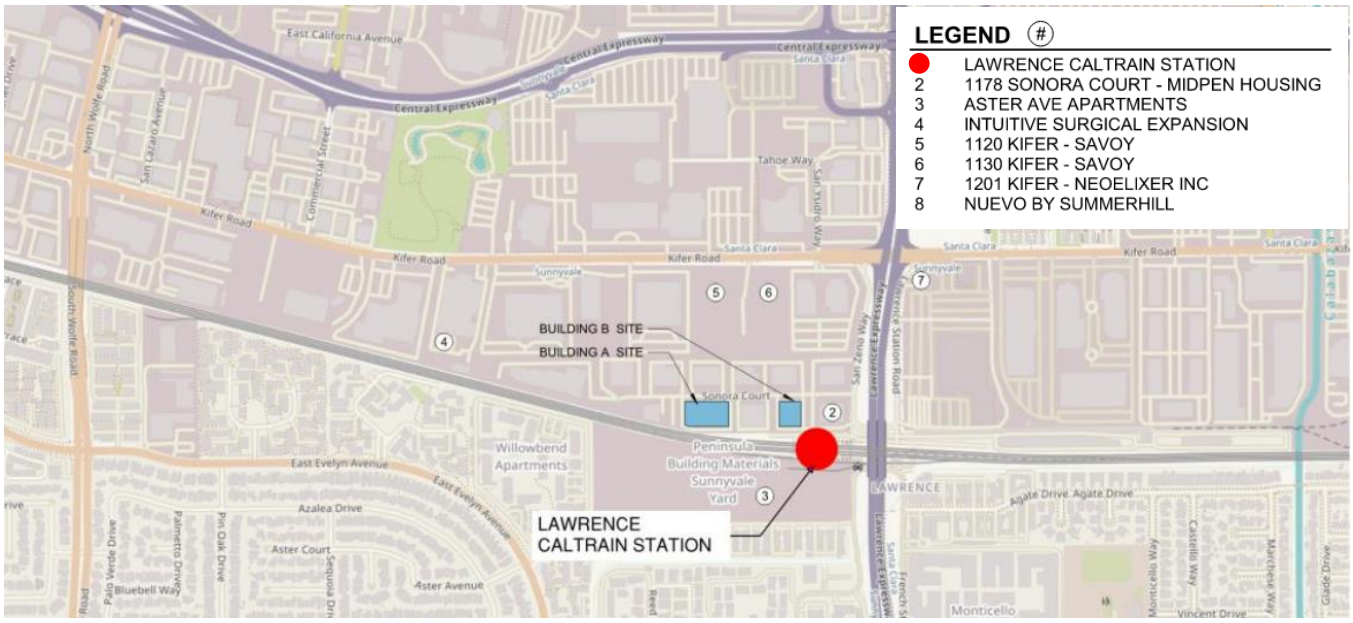
PROJECT NAME:	Sonora Court Transportation Demand Management Plan
PROJECT NUMBER:	33-002347.00

SKS Partners engaged Walker Consultants ("Walker") to conduct a transportation demand management (TDM) plan for the proposed Sonora Court mixed-use development located at 1154 and 1170 Sonora Court in Sunnyvale, CA. The proposed project is located within the City's Lawrence Station Area Plan (LSAP). The LSAP requires the preparation of a TDM plan. As outlined in this report, The TDM measures proposed for the project will reduce travel by single occupancy vehicles (SOV), thereby reducing vehicle trips and parking demand to and at the site.

Project Description

The project site (shown in Figure 1) consists of two parcels: one at 1154 Sonora Court and one at 1170 Sonora Court. The parcels are located just north of the Lawrence Caltrain Station. Each of the existing properties currently have a single-story building and surface parking lot, which are proposed to be demolished and redeveloped as part of the proposed project. The project site is surrounded by primarily office and multi-family residential uses.

Figure 1: Sonora Court Project Site



Source: Sonora Court Planning Pre-Application, September 7, 2021. WRNS Studio.

The proposed projects consist of a new mixed-use development that will be delivered in two buildings with a total of 219,531 square feet of office and 278 residential units. Table 1 summarizes the land use program for the project.

Table 1: Sonora Court Land Use Program

Land Use	Building A	Building B	Total
Office (square feet)	142,282	77,249	219,531
Residential units – studio	52	32	84
Residential units – 1 bedroom	68	44	112
Residential units – 2 bedrooms	52	30	82

Source: Sonora Court Planning Pre-Application, September 7, 2021. WRNS Studio.

Figure 2 shows a rendering of the proposed Sonora Court development.

Figure 2: Proposed Sonora Court Mixed-Use Development

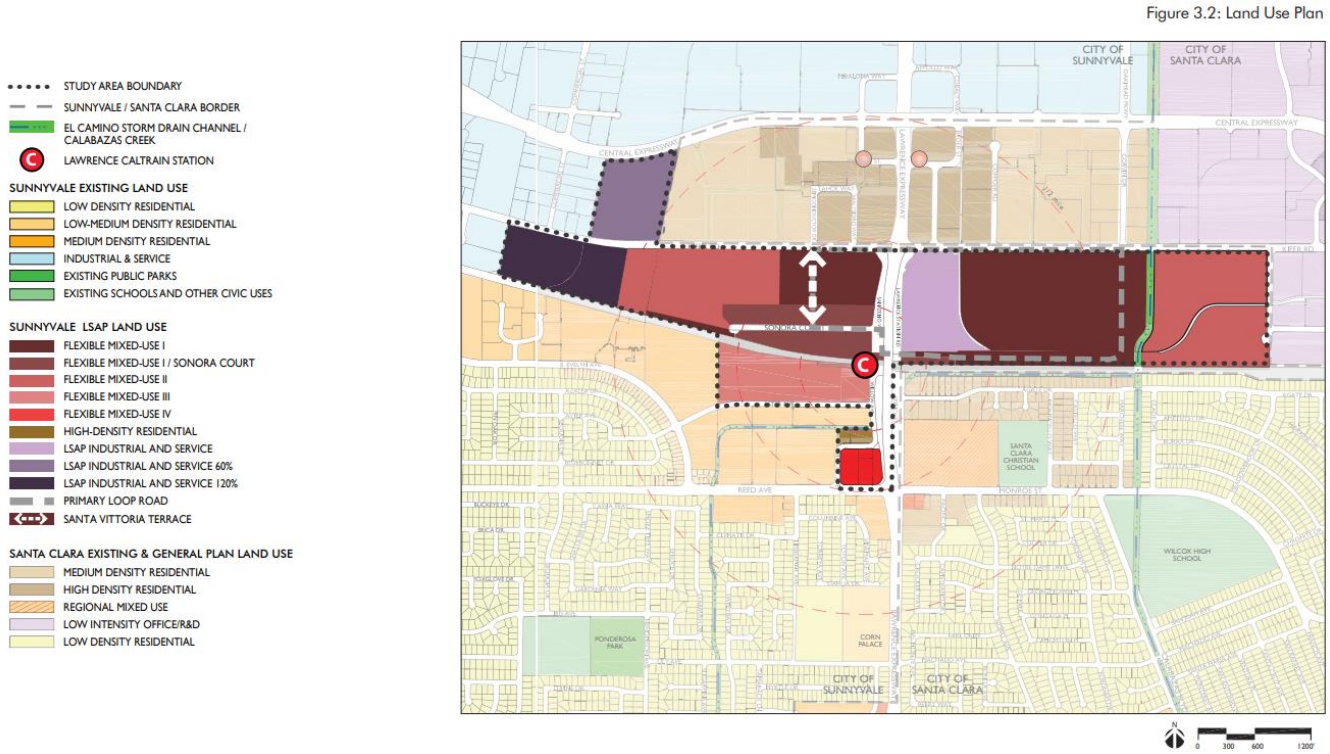
Source: Sonora Court Planning Pre-Application, September 7, 2021. WRNS Studio.

Land Use and Mobility Conditions

Land Use

The project site is located within the City of Sunnyvale Lawrence Station Area Plan (LSAP). The project site is designated as Flexible Mixed-Use I/Sonora Court in the Plan, as shown in Figure 3.

Figure 3: Lawrence Station Area Plan



Source: Lawrence Station Area Plan, City of Sunnyvale, Updated 2021.

Mobility Conditions

Transit Services

Caltrain

Building B is adjacent to the Lawrence Caltrain Station and Building A is approximately 0.2 miles from the station (an approximately 4-minute walk). Caltrain provides commuter rail service at the Lawrence Station providing local and limited stop services between Gilroy and San Francisco.

Santa Clara Valley Transportation Authority (VTA)

Bus service is provided in Sunnyvale by the Santa Clara Valley Transportation Authority (VTA). However, VTA buses do not serve Sonora Court directly. The closest bus routes are Routes 20 and 21. Figure 4 shows the VTA bus routes in context of the Lawrence Caltrain station.

Figure 4: Santa Clara Valley Transportation Authority Bus Routes

Source: Santa Clara Valley Transportation Authority, Updated February 14, 2022.

Vehicle Access

The project site is located on Sonora Court, which is accessible to the Lawrence Expressway (to the east) via San Zemo Way and Kifer Road.

Micro mobility

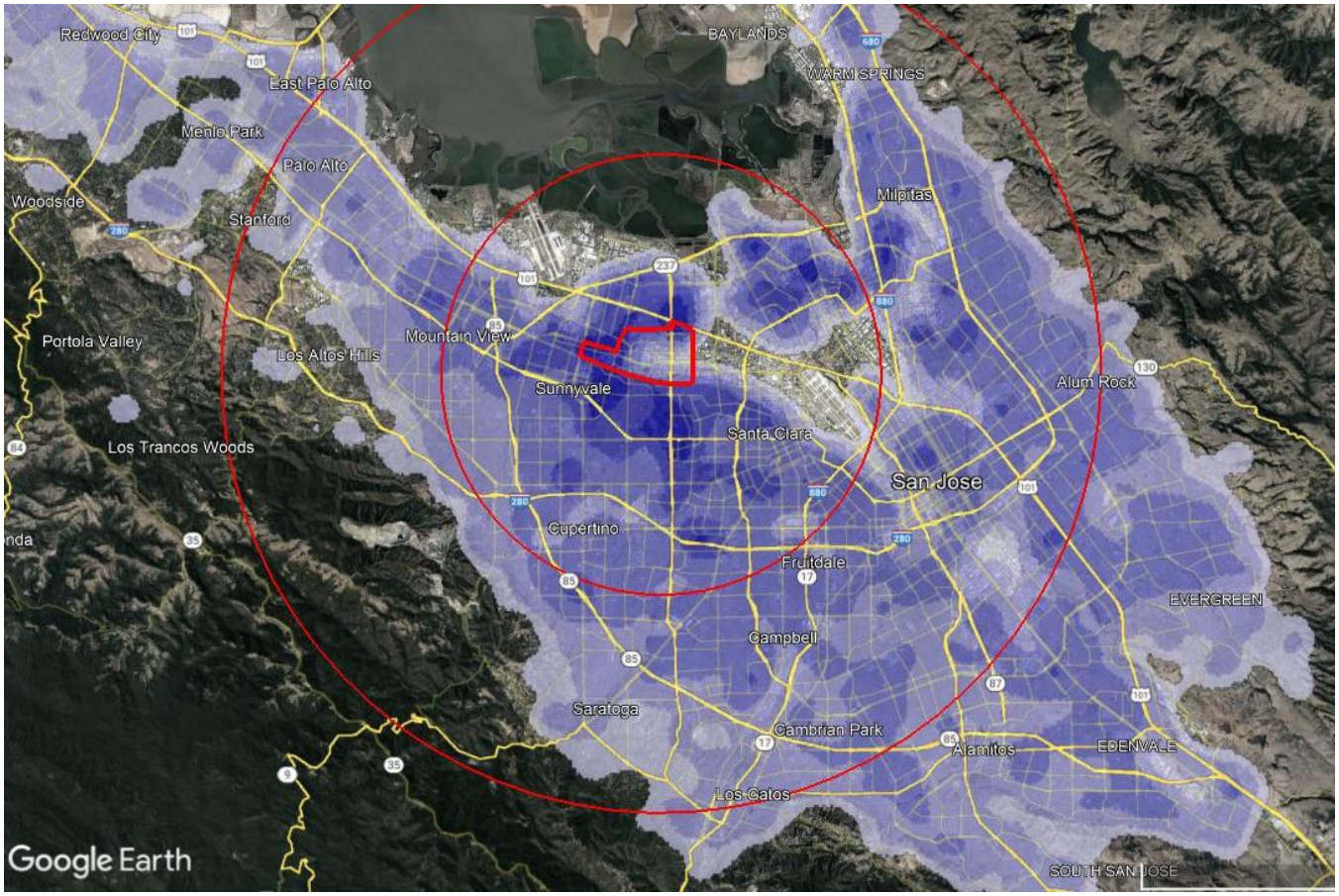
The City of Sunnyvale began a bike share pilot program in 2018, which ended in 2019. The City does not allow e-scooter companies to operate within its City limits, although personal e-scooters are allowed.

Commuter Origin

There are approximately 24,000 jobs within the census tract that the project is located. Figure 5 on page 5 displays the origin of the project area commuters. Almost half, 46 percent, of commuters live within 10 miles of the project site, 27 percent live within 10-25 miles, and 27 percent live beyond 25 miles. The relatively short commutes to the

project census tract indicate a higher propensity for workers to take alternative forms of transportation, other than driving alone, such as bicycle commuting, transit, or rideshare services.

Figure 5: Project Area Commute Origin



Source: United States Census Bureau LEHD 2019

Proposed Mobility Measures

Vehicle Parking

The project is proposing a total of 564 parking spaces (360 spaces in Building A and 204 spaces in Building B).

Proposed TDM and Parking Plan

As part of the Lawrence Station Area Plan (LSAP), any new non-residential development in the Plan area is required to implement a TDM program to meet trip reduction goals with robust monitoring measures. Common TDM strategies specified in the LSAP include shuttle service, bicycle parking, "end of trip" facilities, marketing campaigns, transit passes, carpool/vanpool, charging for parking, and parking cash-out. The LSAP also encourages businesses and property owners to collaborate on area-wide TDM strategies for the Plan area.

The LSAP encourages parking to be shared among uses, such as residential and office, as well as between developments. The LSAP encourages provision of carsharing spaces, electric vehicle charging stations, and disabled parking spaces.

The proposed TDM plan for Sonora Court includes physical and programmatic TDM measures and parking strategies. Some of the measures and strategies listed below are already captured in the proposed project. Additional measures have been included to ensure that the project maximizes its opportunity to reduce single occupancy vehicle trips generated by the project.

Residential uses consisting of ten (10) or more units are also required to meet the adopted Multi-Family Residential TDM program per the City of Sunnyvale Municipal Code (Section 19.45.040). The project is required 10 points from the menu of strategies, and the proposed project has 12 points. The proposed TDM strategies are included below (per the City of Sunnyvale Multi-Family Residential Transportation Demand Management (TDM) Program (full checklist provided as an Attachment):

- Proximity to Transit – less than 0.5 miles to Caltrain/Light Rail Station – 8 points
- Affordable Housing – 20% affordable housing project – 1 point
- Access Improvements – close gaps: bicycle, pedestrian, and/or transit access improvements (e.g. bike lanes) – 3 points
- Total = 12 points

Trip Reduction Goal

As required by the LSAP, new office developments are required to meet a daily trip reduction target of at least 20 percent and a peak hour trip reduction target of at least 35 percent.

Proposed TDM and Parking Measures

The proposed TDM measures were selected, in part, based on guidance from the publication *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* by the California Air Pollution Control Officers Association (CAPCOA), December 2021. This document is an update to the 2010 CAPCOA publication *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emissions Reductions from Greenhouse Gas Mitigation Measures*, a widely used document for TDM and VMT analysis. The TDM measures are research-based and are proven effective in reducing vehicle

miles traveled (VMT). There are TDM measures included in the following section that are not quantified by CAPCOA and are also expected to result in fewer VMT.

The TDM and parking measures proposed will support reducing the number of trips that the site generates and therefore reduce parking demand. The project inherently includes many land uses, design and physical elements that will reduce single occupancy vehicle (SOV) trips such as increased density, location next to a mass transit line, and bicycle end of trip facilities, as well as programmatic trip reduction programs. The proposed TDM and parking measures for Sonora Court are as follows:

Increased Residential Density

The project will be built with higher residential density compared to the average residential density in the United States. Increased residential density results in shorter and fewer trips using SOVs by lowering the distances people travel and providing greater travel mode options.

Increased Job Density

The project will be built with higher density of jobs compared to the average job density in the United States. Increased job density results in shorter and fewer trips using SOVs by lowering the distances people travel and providing greater travel mode options.

Provide Transit Oriented Development

The project will be a transit oriented development (TOD), which refers to projects built in compact, walkable areas that have easy access to public transit, ideally in a location with a mix of uses.

Integrate Affordable Housing and Below Market Rate Housing

Income has a significant effect on probability that resident or commuter will use an alternative commute mode. Below market rate (BMR) housing near transit provides greater opportunity to residents to live closer to jobs centers and direct access to retail and job opportunities and reduce the transportation expenses related to owning a vehicle. In total, 24 percent of the project's residential units will be affordable.

Price Workplace Parking

Directly charging for parking (or pricing) is also a primary strategy to reduce demand for parking. It can provide numerous benefits, including a more efficient use of parking resources and reduced vehicle trips.

Limit Parking Supply

Limiting the amount of parking available to building tenants encourages the use traveling other than parking and helps reduce the impacts of traffic at and around the project site. The project is proposing to provide parking at a lower rate than required by City of Sunnyvale Municipal.

Parking Unbundling

The proposed project will separate or "unbundle" the cost of parking in residential and office leases. Unbundling the cost of parking from office and residential leases is a primary strategy to limit supply of parking and reduce its demand. By separating the cost of parking from leases, tenants can lease or purchase the amount of parking they need. It also reduces the cost of housing, because parking costs are not automatically included in rents, making it more affordable. Unbundling is most effective in districts that have access to multi-modal transportation options, such as walking, biking and transit.

Shared Parking

Designing development with shared parking among project land uses (residential and office) reduces the amount of space dedicated to parking that may remain empty during non-business hours (for office workers) or during the work day (for residents) and allows design of buildings to face the street and increase accessibility from sidewalk and alternative modes of travel.

Valet Parking Operation

Parking at the site will include a valet operation. Operating all parking areas in the development as shared parking and through valet parking introduces efficiency in parking operations and use of space. It also creates a disincentive for some residents/office workers to own cars or to drive to work, as some people will refuse to leave their vehicle with a valet, especially if there is limited on-street parking supply.

Designated Area for Passenger Pick-up and Drop-Off

Use of ride-hailing services can be supported in two ways: by providing an adequate zone or area to pick up and drop off passengers (an area that can accommodate efficient operations and that is close to the main entrance), and by partnering with ride-hailing companies to stage vehicles near the development or subsidize first/last mile trips to transit up to an established distance or dollar value. The project applicant would like to work with the City to design an appropriate location for passenger pick-up and drop-off on Sonora Court, in front of the building to facilitate the use of ride-hailing for residents and workers, which could in return reduce parking demand.

TDM Effectiveness and Trip Mitigation

In order to quantify the effectiveness of the TDM measures, Walker used research and methodology from the publication *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* by the California Air Pollution Control Officers Association (CAPCOA), December 2021.

Table 2 on page 10 provides the list of recommended TDM strategies for the proposed project and summarizes the potential impacts TDM measures will have on reducing Greenhouse Gas Emissions (GHG) as a result of vehicles miles traveled (VMT). The CAPCOA document assumes a 1:1 relationship between reductions in VMT and GHG emissions for the TDM measures listed in the table. That is a 1 percent reduction in GHG emissions is roughly equal to a 1 percent reduction in VMT. VMT reduction is a result of any or a combination of the following three (3) variables: fewer vehicle trips, less vehicle ownership (resulting in fewer trips), and shorter vehicle trips.

While shorter vehicle trips alone do reduce VMT, the trip still occurs. However, none of the proposed TDM measures for Sonora Court reduce VMT by only shortening trips, therefore all TDM measures at Sonora Court reduce trips. Therefore, Walker assumes that the percent reduction in VMT and reduction in trip generation is also roughly a 1:1 ratio.

The CAPCOA document includes case studies for each proposed TDM measure and a methodology to calculate GHG emission reductions. Walker calculated the GHG emission reductions based on the methodology specified in each individual case study.

Each measure is within one (1) of six (6) CAPCOA subsectors:

- Land Use
- Trip Reduction Program
- Parking or Road Pricing/Management
- Neighborhood Design
- Transit
- Clean Vehicles and Fuels

GHG emission reduction percentages from each TDM measure are multiplied up to a maximum GHG reduction for each TDM subsector, as shown in Table 2. In terms of overall GHG impact across subsectors, there is limited research directly analyzing the combined VMT impact on a project from implementation of the non-mutually exclusive TDM measures. However, the document specifies a maximum impact of a TDM program (with multiple subsectors) of 70 percent based on a University of California, Davis study which compared household VMT across different place types in California and found that the average VMT in single-family suburban neighborhoods and central city neighborhoods was approximately 70 percent. Because central city neighborhoods are more likely to have implemented the TDM measures suggested in the CAPCOA document, the document adopts a 70 percent maximum from four subsectors: land use, neighborhood design, parking or road pricing/management, and transit. Trip reduction program measures is excluded from the maximum calculation because trip reduction program measures are not as directly correlated with place type as the other subsectors. GHG emission reductions from each subsector are multiplied up to a maximum overall GHG reduction of 70 percent.

The subsector calculation in Table 2 shows the estimated GHG emission reductions in each subsector and the total multi-subsector reduction (63-67 percent), based on CAPCOA methodology. The quantification of the percent GHG emission reductions (assumed to be a 1:1 ratio with trip reduction) is intended to be illustrative and demonstrate that the project will meet the trip reduction goal of 35 percent of peak hour trips. Based on the proposed TDM measures, and the advantages associated with the project site's location, density and mix of land uses, the project is expected to exceed the goal of reducing at least 20 percent of daily vehicle trips and 35 percent of peak hour trips.

Table 2: Effectiveness of Proposed TDM Measures

TDM Measure	GHG Emission Potential as defined by CAPCOA	GHG Mitigation Estimate as calculated for the project (based on CAPCOA methodology)	CAPCOA Reference	Subsector GHG Emission Reduction Calculation
Land Use Subsector (Maximum Reduction 65%)				
Increase Residential Density	up to 30%	30%	T-1	57%
Increase Job Density	up to 30%	5%	T-2	
Provide Transit-Oriented Development	up to 31%	30%	T-3	
Integrate Affordable Housing	up to 28.6%	7%	T-4	
Trip Reduction Programs Subsector (Maximum Reduction 45%)				
Price Workplace Parking	up to 20%	Up to 20%[1]	T-12	Up to 20%[4]
Parking or Road Pricing/Management Subsector (Maximum Reduction 35%)				
Limit Parking Supply	up to 12.5%[2]	12.5%[2]	PDT-1[2]	14.8-23.9%
Parking Unbundling	2.6-13%[2]	2.6-13%[1,2]	PD-2[2]	
Shared Parking	N/A[3]	N/A[3]	N/A[3]	
Valet Parking Operations	N/A[3]	N/A[3]	N/A[3]	
Passenger Pick-up/Drop-off Area	N/A[3]	N/A[3]	N/A[3]	
Multi-Subsector Reduction				**63-67%**

[1] To calculate the GHG emission reduction, the exact parking rates that will be charged at the facility are required. Since the exact parking rates have not yet been determined, this measure could not be quantified.
[2] 2010 CAPCOA guidance was used since the project is a mixed-use project (residential and office). The 2021 guidance only accounts for residential for these measures.
[3] The TDM measure is not included in the CAPCOA guidance document.
[4] The Trip Reduction Program subsector is excluded from the overall reduction calculation per CAPCOA guidance.
Source: Walker Consultants, 2022.

Table 3 on page 11 summarizes the target user for each TDM measure (office workers and/or residents) and the implementing entity (property management and/or developer).

Table 3: TDM Measure Implementation Recommendations

TDM Measure	Target User		Who Implements	
	Office Workers	*Residents*	*Developer*	*Manager*
Increase Residential Density		X	X	
Increase Job Density	X		X	
Provide Transit-Oriented Development	X	X	X	
Integrate Affordable Housing		X	X	
Price Workplace Parking	X		X	X
Limit Parking Supply	X	X	X	
Parking Unbundling	X	X	X	X
Shared Parking	X	X	X	
Valet Parking Operations	X	X	X	X
Passenger Pick-up/Drop-off Area	X	X	X	

Source: Walker Consultants, 2022.

Optional TDM Measures

It is anticipated that the proposed TDM measures listed in Table 2 and Table 3 will result in the 20 percent reduction in daily trips and 35 percent reduction in peak-hour trips, for office space, that is required by the LSAP. However, if after the first year of occupancy, SOV trip reduction goals and parking demand reductions are lower than anticipated, the following optional TDM measures can be implemented.

Price Parking for Employees Daily

Implementing a daily parking fee for employees, as opposed to a monthly fee and permit, forces users to reassess their mode choice on a daily basis, and disincentivizes the use of SOVs for commuting to work.

Parking Cash Out Program

A parking cash out program is where office works who choose not to park at the parking facility are given a cash incentive. Parking cash out programs help encourage the use of alternative forms of transportation.

Community Ride-Marching Service

Ride matching services facilitate sharing a ride between people who are traveling to the same destination, typically as a carpool or vanpool. Rides can be matched through a ride-matching service application utilizing new cloud-based computing technologies that can reach critical mass and scale multiple users in a highly accessible platform.

Subsidize Regional Transit Passes (Bus and Rail)

Property managers and employers can incentivize transit use by subsidizing the cost of it partially or in full through the purchase of transit passes. Transit agencies generally have highly discounted fare products that provide monthly or annual access to transit service with a pass. The subsidy can be direct or indirect through a pre-tax commuter benefit for employees.

On-Site Carsharing Service

Contracting with a carsharing service on site will provide both residents and employees with access to vehicles for any non-work trips that are necessary during the day. There are providers such as Zipcar, Envoy and AAA's GIG that specialize in providing carsharing service for residential developments.

Guaranteed Ride Home

A free ride home in the event of an emergency, for commuters that do not drive to work is a primary measure to support adoption and use of alternative commute modes. It provides users with the peace of mind that they can get home in case of an emergency. The experience around the country shows that this program is cost effective, as it is seldom used but are critical in convincing SOV users to not drive alone.

Transportation Coordinator

Providing a transportation or mobility coordinator for the developments increases the reach of TDM strategies, promotional campaigns, and incentives. The mobility coordinator can provide personalized travel information in a one-on-one format, and/or be in charge of educating residents and employees about transportation alternatives, services, and facilities.

Incentive Programs, Rewards, and Marketing Campaigns

Promotional campaigns and communications and incentives are important actions that support a TDM program. Users need not only access to good services and infrastructure but also encouragement to try new modes of transportation, as well as incentives and rewards to adopt and maintain new behaviors. Changing behaviors is a long process that goes through different stages. The intention of promotional campaigns, marketing and communications is to support new users in every step of the process.

Shuttle Service to Sunnyvale Caltrain Station

Shuttle service to the Downtown Sunnyvale station will provide a needed connection to a downtown area with multiple services and food opportunities, in addition to increasing access to regional transit opportunities including VTA buses and a direct connection to faster Baby Bullet trains to San Francisco.

Monitoring and Reporting

While not a requirement of the City, we recommend ongoing monitoring of the TDM measures. It is anticipated that the TDM program may need to evolve over time as resident and employee travel behavior changes. The annual monitoring report could include metrics of success related to parking occupancy and drive-alone mode share, as proxies to estimate vehicle trip reductions, and to ensure that both parking occupancy does not exceed shared model estimates for a typical day, and that residents and employees driving ratios meet or exceed model estimates.

Below are methods that can be used to help evaluate the effectiveness of the TDM program based on parking occupancy and drive-alone mode share metrics, on an annual basis:

- Sonora Court Residents
    - Provide a description of the current TDM programs and services offered to residents, number of active users utilizing each program on a quarterly basis, as well as the cost of program operation and subsidies and incentives used, to assess program effectiveness and return on investment.
    - Conduct an annual transportation survey that captures data on how residents travel to and from the site and their attitudes toward alternative commute modes and satisfaction with available mobility options.
- Sonora Court Employees
    - Provide a description of the current TDM programs and services offered to employees, the number of active users utilizing each program on a quarterly basis, as well as the cost of program operation and subsidies and incentives used, to assess program effectiveness and return on investment.
    - Conduct an annual commute survey that captures data on how employees travel to and from the site and their attitudes toward alternative commute modes and satisfaction with available mobility options.

If the findings in the report show that the TDM reduction goals have not been met, the owner and future property manager/tenants would work with City staff to identify if there are additional TDM measures (such as the Optional TDM measures listed in this memo) that could feasibly be implemented to further reduce trip generation from the project.

Sunnyvale

City of Sunnyvale
Multi-Family Residential Transportation Demand Management (TDM) Program

Multi-family Residential TDM Program

All multi-family development projects consisting of 10 or more residential units shall participate in the Multi-family Residential TDM Program.

TDM Points Required

Number of Residential Units	Minimum Number of Points Required
100 or more residential units	10 points from the menu of TDM strategies
Between 10 and 99 residential units	Proportionate Percentage of 10 points (rounded to the nearest half or whole number) from the menu of TDM strategies Ex: 94 units/10 points = 9.4 rounded to 9.5 points 62 units/10 points = 6.2 rounded to 6 points

Menu of TDM Strategies

Transportation Demand Management Strategies		Points Obtained*
Proximity to Transit	Less than .5 miles to a major transit route (15-min headway)	1
	Less than .5 miles to a major transit stop (2 routes @ 15-min headway)	5
	Less than .5 miles to Caltrain/Light Rail Station	8
Affordable Housing	20% Affordable Housing Project	1
	40% Affordable Housing Project	2
	60% Affordable Housing Project	3
	80% Affordable Housing Project	4
	100% Affordable Housing Project	5

Proximity to Commercial Uses	Less than .5 miles from: 1. A shopping center consisting of at least three tenant spaces, or 2. Three separate retail/restaurant/service/recreational uses	1
	Less than .25 miles from: 1. A shopping center consisting of at least three tenant spaces, or 2. Three separate retail/restaurant/service/recreational uses	3
Access Improvements	Close Gaps: Bicycle, Pedestrian, and/or transit access improvements (e.g. bike lanes)	3
Bicycle Facilities	Provide an on-site bicycle repair station and secured bicycle parking	0.5
Wayfinding Station	On-site kiosk or information center with multi-modal wayfinding information and transit information	0.5
TDM Coordination	On-site TDM Coordinator (can be property manager) offering: multi-modal and wayfinding information, rideshare matching, walking/biking group coordination	0.5
TDM Communication	Distribution of transit, wayfinding and other TDM informational materials to new residents as they move in and annually to all residents	0.5
Transit Pass Programs	Provide VTA EcoPass (or a comparable program) membership to all residents for the first ten years following project completion	5
	Provide Caltrain Go Pass (or a comparable program) membership to all residents for the first ten years following project completion	10
	Offer discounted transit passes (VTA or Caltrain) to residents for the first ten years following project completion	2
Bicycle Share Program	Providing private or public bicycle share memberships to on-site residents	0.5
Proximity to Bicycle Share	Site is less than .5 miles from a bicycle share hub with bicycles available to on-site residents	0.5
Car Share Program	Providing private or public car share memberships to on-site residents	0.5
Proximity to Car Share	Less than .5 miles from a car share hub with cars available to on-site residents	0.5

* If a TDM category has multiple options, only one option/point value can be used.

Definitions of TDM Terms Used in the TDM Menu

Affordable Housing Project – a development project consisting of below market rate housing units.

Multi-Family Residential – for the purpose of this program, multi-family residential includes all medium, high and very high density residential developments, including the residential component of a mixed-use project.

Multi-modal Information – may consist of information on transit schedules, transit and bike maps, important service change information, real time transit information, biking or walking group organization, rideshare matching, etc.

Shopping Center – a group of retail, restaurant, commercial service or recreational uses that are planned, constructed and managed as a total entity.

Secured Bicycle Parking - means lockable facilities such as individual lockers or enclosed, locked, limited-access areas for parking of bicycles. Secured bicycle parking may also be known as Class 1 bicycle parking. For residential uses, an enclosed garage assigned to one residential unit meeting the minimum area requirements for a two-car garage is considered one secured bicycle parking space.

Wayfinding Information - provide signage for clear directions and walk/bike time to key destinations such as major transit stops, downtown, shops, and major employers.

Note: Additional information and explanation on the TDM strategies described in this program can be found in the *Sunnyvale Multi-Family Residential TDM Toolkit*.