



WILTON COURT AFFORDABLE HOUSING
Transportation Demand Management Plan
DRAFT

November 2018



INTRODUCTION

The following TDM Plan has been prepared for Palo Alto Housing as part of the City of Palo Alto’s TDM requirement for new projects. As an affordable housing development, the project is subject to the Affordable Housing Combining District regulations.

PROJECT AND SITE DESCRIPTION

Project

The proposed affordable housing development is located along the northern side of El Camino Real between Wilton Avenue and Curtner Avenue. The project is a 100% affordable development that will include 59 residential units, comprised of 56 single-room occupancy (SRO) units and three one-bedroom units.

The proposed project meets or exceeds vehicle and bike parking requirements with 41 vehicle parking spaces, a bike room with capacity for 70 bikes, and guest bike parking for 8 bikes near the main entry.¹

Area Context

Transit Service

The site of the proposed project is along El Camino Real, the main arterial road serving the east side of the San Francisco Peninsula. The site is accessible to a number of bus services including 24-hour frequent local service, express service and a local community shopper shuttle.

The site is also immediately adjacent to northbound buses running along the El Camino Real Corridor. Transit services available on site include the following:

Figure 1 Existing Transit Service within 1/2 Mile of Site

Transit Agency	Route Number	Destinations	Service Hours	Bus Frequency Range	Walking Distance to nearest stop
Stanford University Marguerite	Shopping Express (SE)	Palo Alto Transit Center to San Antonio Shopping Center	Academic Year ² Weekdays (3:15 pm – 10:35), Academic Year Weekends (9:35 am – 11:08 pm)	50 to 60 minutes (Regular Academic Year Service)	0.3 miles at Hansen Way and El Camino Real
			Summer weekends and Academic holidays ³ (9:45 am – 11:08 pm)	2 hours (Summer/Holidays)	

¹ Palo Alto Municipal Code 18.52, Table 1

² Approximately from mid-September to mid-June.

³ Approximately from mid-June to mid-September, and 10 federal holidays

WILTON COURT AFFORDABLE HOUSING TDM PLAN - DRAFT
Palo Alto Housing

Transit Agency	Route Number	Destinations	Service Hours	Bus Frequency Range	Walking Distance to nearest stop
VTA	22 (Local)	Palo Alto Transit Center to Eastridge Transit Center	24 hours a day, 7 days a week	10 to 60 minutes (Weekdays)	250 feet at Curtner and El Camino Real
				15 to 80 minutes (Weekends/Holidays)	
VTA	101 (Express)	Camden & Highway 85 to Palo Alto	Weekdays (Southbound departure at 4:10 pm and 5:10pm; Northbound arrival at 6:17am and 7:05am)	N/A (Two runs in each direction)	0.5 Miles at Hansen & Curve
VTA	102 (Express)	South San Jose to Palo Alto	Weekdays (Northbound 6:44-9:01 am; Southbound 3:15-5:33 pm)	10 to 30 minutes	0.5 Miles at Hansen & Curve
VTA	104 (Express)	Penitencia Creek Transit Center to Palo Alto	Weekdays (Westbound 6:47 & 7:35 am; Eastbound 4:22 & 4:51 pm)	N/A (Two runs in each direction)	0.5 Miles at Hansen & Curve

Bicycle/Pedestrian Facilities

There are two Class III and three Class II bicycle facilities, headed multiple directions, within a ½ mile of the site.

Figure 2 Bike Facilities within 1/2 Mile of Site

Class of Bike Facility	Facility Name	Description of Corridor	Destinations	Distance from Site
Class III	Matadero Ave	Shared Lane Markers	Bol Park Bike Path to Park Bike Boulevard	0.08 Miles
Class III	Park Blvd	Bicycle Boulevard	Palo Alto School Campus to San Antonio Shopping Center.	0.25 Miles
Class II	Los Robles Ave	Unbuffered Bike Lanes and Shared Lane Markers	El Camino Real to Bol Park Bike Path	0.3 Miles
Class II	Hansen Way	Buffered and Unbuffered Bike lanes	Page Mill to El Camino Real	0.35 Miles
Class II	W. Meadow Dr.	Unbuffered Bike Lanes	El Camino Way to E. Meadow Circle	0.45 Miles

Future Improvements

The City of Palo Alto and the California Department of Transportation will be installing a Pedestrian Hybrid Beacon (HAWK) System at El Camino Real and Baron Avenue to enhance pedestrian crossing safety at the un-signalized intersection.

Access to Amenities

The site of the proposed project is located on El Camino Real, with restaurants and coffee shops in close walking proximity. Additionally, the site is an approximate 15 minute walk to a Grocery Outlet on Alma Street. However, there are other major amenities and shopping centers less than 10 minute transit trip away, including San Antonio Center. Other major destinations, such as downtown Palo Alto, are easily accessible by transit or bicycle.

Figure 3 Shopping Areas within Three Miles of Site

Shopping Area	Distance from Proposed Site (Miles)	Estimated Travel Time by Mode, minutes			Major Amenities
		Bike	Walking	Transit	
California Ave. Business District	0.9	6	18	7	Country Sun Natural Foods, Caltrain
San Antonio Center	1.8	7	36	10	Trader Joes, Walmart, Safeway, Target, CVS, Sprouts Farmers Market
Embarcadero Rd.	2	13	40	16	Trader Joes, CVS
Downtown Palo Alto	2.8	16	55	20	Whole Foods, CVS, Caltrain

Baseline Vehicle Trip Generation

The baseline figure was informed by the Institute of Transportation Engineers (ITE) *Trip Generation (10th Edition)* report. The average rate of total weekday trips per dwelling unit for mid-rise apartments⁴ is 5.44. Therefore, the baseline estimation of this site’s weekday trip generation totals 321 daily trips. The highest peak hour baseline estimation is in the afternoon, with 26 trips. It should be noted that the affordable housing proposed for the site, which currently contains retail, will only net a total of 11 new trips per day.

Figure 4 Baseline Vehicle Trip Generation Estimates

Land Use	Size	Total Weekday Rate	Total Weekday Trips	AM Peak Rate	AM Peak Hour Trips	PM Peak Rate	PM Peak Hour Trips
Affordable Housing (Proposed Use)	59 units	5.44	321	0.36	21	0.44	26
Retail (Existing Use)	8,200 square feet	37.75	310	0.94	16	3.81	21
<i>Net Trips</i>	--	--	<i>11</i>	--	<i>5</i>	--	<i>5</i>

Source: Project Trip Generation Estimates by Hexagon, using Rates from ITE Trip Generation, 10th Edition, 2017

Note: Above numbers may not add up due to rounding

⁴ ITE Code 221

TDM PROGRAM

A TDM program can encourage the site’s residents to use the most environmentally friendly and spatially efficient mode possible for each trip, with an emphasis on transit, bicycling, walking, and shared rides.

Proposed TDM Strategies

The strategies outlined below are designed to work together to affect site users’ travel habits. Targeted programs strengthen the benefits of investments in bicycle and pedestrian infrastructure and the site’s proximity to major transit nodes by reinforcing awareness of these options, breaking down barriers to incorporating them in travel routines, and incentivizing habitual use.

Figure 5 TDM Strategy Summary

TDM Strategy	Description
Caltrain Go Pass provision	Provide unlimited Caltrain rides for all residents.
VTA SmartPass provision	Provide unlimited VTA local and express bus rides for all residents.
Emergency Mobility Subsidy	Tenants who commit to not owning a motor vehicle will receive an annual stipend of \$100 per household for emergency rides to be used towards a transportation network company (TNC) (e.g. Lyft, Uber), taxi and/or scooter share in order to reduce parking demand.
Bike Share	Provide shared bicycles onsite for the use of residents.
Carpool Ride-Matching Services	Tenant ride-matching services allows residents to easily be paired with potential carpool partners.
Information Boards/Kiosks	TDM information boards, kiosk, and hotline/online access to transportation information and coordinators.
Improved Bus Shelter	Upgrades to on-street bus shelter to encourage transit ridership
Improved Pedestrian and Bicycle Access to Site	Improvements to crossing along El Camino Real
Shuttle to Caltrain Station and Neighborhood Amenities/Shopping Centers	Provide timed connections to Caltrain stations during peak travel hours, shopping shuttles to area shopping centers during evenings and weekends, and demand-response services during off-hours.
Promotional Programs	Promotion and organization of events for the following programs: new tenant orientation packets on transportation alternatives; flyers, posters, brochures, and emails on commute alternatives; transportation fairs; Bike to Work Day, Spare the Air; Rideshare Week; trip planning assistance routes and maps.
On-site Transportation Coordinator	On-site property management staff will provide a welcome package for new tenants, distribute Go Passes and other memberships, and additional information.
Monitoring program	By annually monitoring the TDM and parking program, the owner/management can adjust the strategies etc. in order to meet requirements, parking ratio, mode split, etc.
Unbundling parking	Pricing separately for all parking makes the rent more affordable to those who do not want a car while placing a premium on those who want guaranteed parking in a dense and transit-oriented environment. Based on a monthly fee of \$200.

Impact of Proposed TDM Program

Trip Generation (URBEMIS)

The URBEMIS model⁵ is used in this analysis to estimate an appropriate and conservative potential trip percentage reduction impact from the stated baseline. Based on the proposed site's existing context in the urban environment and regional transportation network, along with the TDM program as described in Figure 5, the model estimates a 59% reduction in daily trips from the Hexagon baseline of 321 trips. This reduction would result in the project creating 131 daily trips and may help justify a proportionate reduction in the parking requirement.

Peak hour motor vehicle trips, which are the standard set by the Transportation Element of the Palo Alto Comprehensive Plan⁶, are estimated to be a maximum of 11 trips during the afternoon peak hour, a 58% reduction from the Hexagon baseline of 26 trips. This estimate **exceeds the minimum 30% reduction** required for new projects along the El Camino Real Corridor.

Parking Demand (GreenTRIP Connect)

To estimate parking demand for the project, the GreenTRIP Connect Parking Model was used. The GreenTRIP Connect Parking Model was developed by the Center for Neighborhood Technology (CNT), a national nonprofit organization focused on developing research and modeling tools for city planning. The model's equations were developed and calibrated using parking demand data from 71 transit-oriented developments throughout the Bay Area.⁷ The model is similar to those produced by CNT for King County, Washington State (RightSizeParking.org) and Washington, D.C. (ParkRightDC.org).

The model's calculations are based on local data and include several variables such as parking supply, average rent, parking price, average bedrooms per unit, presence of transit passes or carshare memberships, availability of affordable units, and neighborhood variables (walkability, job density and frequency of transit). Due to the local variables used in it, the GreenTRIP model only applies in the San Francisco Bay Area.

These variables demonstrate the critical relationship between parking and vehicle trip generation. Parking supply and parking pricing are two of the most important factors to consider when determining ultimate vehicle trip generation. They are also the primary reasons why there is such a strong nexus between reductions in parking demand and vehicle trip generation – by limiting the former, lower vehicle trip generation naturally follows (whereas having TDM programs such as transit passes with free and abundant parking oftentimes has limited success in reducing vehicle trips).

For transit-oriented developments in particular, the model is more appropriate than relying on more generic parking demand data from sources such as the *ITE Parking Generation (4th Edition)* report, which provides data gathered at isolated suburban sites around the United States with free parking and little or no transit. While data from the *ITE Parking Generation* report is valuable for estimating demand at conventional auto-oriented sites, it is inappropriate for sites such as 3709 El Camino Real, unless substantial adjustments are made to account for factors such

⁵ Urban Emissions Model

⁶ p. 78

⁷ <http://www.transformca.org/GreenTRIP-Connect/Methodology>.
<http://www.transformca.org/sites/default/files/Parking%20Model%20July%202016.pdf>

as transit service levels, neighborhood character, area parking prices, and other factors that affect parking demand.

When factoring in the site, context, and proposed strategies (including unbundled parking, resident transit passes, and bike share programs), the GreenTRIP model estimates a predicted rate of 0.5 parking spaces per dwelling unit, which, is substantially less than the recommendation for a generic location in Santa Clara County on average (0.99 spaces per unit). This 0.5 rate equates to a demand for approximately 30 parking spaces⁸. Therefore, **the proposed supply of 41 parking spaces is sufficient** for this site.

IMPLEMENTATION AND MONITORING

Per the Transportation Element of the Palo Alto Comprehensive Plan new developments are expected to regularly monitor the success of their TDM measures. Success in TDM programs comes with meeting or surpassing measurable benchmarks that relate directly to the implementing entity's overarching goals. With regular and rigorous monitoring, the developer can ensure that its investments in TDM programs are as cost-effective as possible, and it can enable staff to adjust the proposed TDM framework over time in response to changing resident needs.

The number of vehicle trips associated with the project will be tracked using an annual hose count through the first five-year evaluation period. The trip count will be managed and overseen by the site-wide TDM coordinator. The purpose of the hose count is to determine how many vehicles are entering and exiting the site during the peak hour. The hose count will be conducted over a 3-day period; Tuesday, Wednesday, and Thursday during a normal business week. Data on vehicle entries and exits will be collected at all entry and exit points to the site continuously over the 3-day period. An average of the peak hour data for the three days will be taken to determine the number of peak hour vehicle trips. The count will be conducted during the same month each year and the initial count should commence within a year of the certificate of occupancy. The target of 30% trip reduction, as required by the Comprehensive Plan, will be measured using a baseline of 26 afternoon peak hour vehicle trips.

A manual count and/or a limited timeframe may be necessary if cost is a prohibitive factor. If the TDM project is not achieving the trip reduction target, changes may be made to the TDM program to assure objectives will be met.

⁸ <http://connect.greentrip.org/>