DATE:	May 12, 2023
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PROJECT NAME:	Promenade Transportation Demand Management Plan - DRAFT
PROJECT NUMBER:	33-002353.00

Cunningham Engineering Corporation engaged Walker Consultants ("Walker") to prepare a transportation demand management (TDM) plan for the proposed Promenade residential development located on a triangular shaped parcel bound by Union Pacific Railroad tracks to the north/west, Putah Creek to the east, and Interstate 80 to the south. The site is adjacent to the University of California-Davis campus and is within the City of Davis's sphere of influence. According to Mitigation Measure 4.14-5, the applicant is required to prepare a transportation demand management (TDM) program. As outlined in this report, the TDM measures proposed for the project will reduce travel by single occupancy vehicles (SOV), thereby reducing vehicle miles traveled to and from the site.

Project Description

The project site location is shown in Figure 1. The project site is currently undeveloped and is located next to I-80, southeast of the University of California, Davis campus.

Figure 1: Promenade Project Site

Source: Walker Consultants, 2023.

The proposed projects consist of a new residential development delivered in 52 buildings. Table 1 summarizes the land use program for the project. There are also two small cantinas proposed and food trucks planned for the site. However, the cantinas and food trucks are expected to serve residents only, and not generate demand from external land uses.

Table 1: Promenade Residential Land Use Program

Residential Unit Size	Number of Units
Studio	128
2-bedroom	288
4-bedroom	288
Total	*704*

Source: Studio T-Square
Note: Up to four of the units will be available for 24 hour staff

Figure 2 shows the site plan of the proposed Promenade residential development.

Figure 2: Proposed Promenade Residential Development

Source: Cunningham Engineering.

Mobility Conditions

Bus Service

The project site will be served by Unitrans bus service. In consultation with UC Davis, the developer is proposing to locate two bus stops at the project site, in which the W line will serve. The W line provides service approximately every 15-40 minutes from approximately 7:00 a.m. to 11:00 p.m. with service ending at approximately 8:40 p.m. Friday through Sunday.

The project site is within one-half mile of the M line. The M line provides service approximately every 20 minutes from 6:55 a.m. to 8:40 p.m. Weekday and weekend service is provided. UC Davis undergraduate students can ride transit free of charge if they show their student ID.

Vehicle Access

Vehicles coming to Promenade include residents, visitors, staff, service workers, deliveries, buses, ride share, and emergency vehicles. The main vehicle access to the site will be provided off Old Davis Road via railroad overpass access road. The intent is to provide gateless access to Promenade that allows the capture of vehicle information in a manner that allows enforcement of permitted versus non-permitted parkers, allows exceptions for short-term vehicles such as deliveries and ride share, provides the ability to offer appropriate long-term guest parking passes, provides the ability to charge a "TDM fee" for peak hour entrances/exits, and captures historical entry, exit and duration of stay information for future TDM/parking planning. A second access is provided off Olive Drive. This secondary access will provide gated access to Promenade only for authorized UC Davis/City buses and for emergency vehicles.

Vehicle Parking

The project is proposing a total of 915 on-site parking spaces, in line with the parking requirements for the site.

Table 2: Proposed Parking Supply

Category	Quantity	Parking Ratio	Parking Required	Parking Provided
Multi-Family Dwelling Units	700 dwelling units	1 space per unit	700	700
Onsite Residential Managers	4 dwelling units	1 space per unit	4	4
Common-Use Guest Parking	N/A	Flexible	191	191
Employee Parking	20 employees	1 space per employee	20	20
		Total	915	915

Source: Walker Consultants, 2023.

Proposed TDM and Parking Plan

Trip Reduction Goal

As required by Mitigation Measure 4.14-5: Before issuance of the first building permit, the applicant shall prepare a transportation demand management (TDM) program, including any anticipated phasing, and submit it to the City Department of Public Works for review and approval. The TDM program must be designed to achieve the following:

1. Reduce trips to achieve one and five-tenths (1.5) average vehicle ridership (AVR) in accordance with Davis Municipal Code Section 22.15.060.
2. Reduce daily and peak hour vehicle trips, as forecast for the project in the transportation impact assessment, by 10 percent for every project phase.
3. Reduce daily VMT by a minimum of 20 percent.

Proposed TDM and Parking Management 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 vehicle miles traveled (VMT) analysis. The TDM measures are research-based and are proven effective in reducing VMT. There are TDM measures included in the following section that are not quantified by CAPCOA that are also expected to result in VMT reductions.

The two user groups that the TDM and parking management measure will target are:

- Residents of the 700 residential units
- Employees of the development (a portion of which will be available for 24-hour staff, up to 4 units)

The TDM and parking management measures proposed will support reducing the number of trips that the site generates and therefore reduce parking demand. Additionally, the project inherently includes land use and design characteristics that result in fewer VMT. The proposed TDM and parking measures for the Promenade are as follows:

Measures Quantified per CAPCOA

This section describes measures that are quantified per the *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. The "TDM Effectiveness and Trip Mitigation" section displays the estimated VMT reduction for each of these measures.

Increase 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 single occupancy vehicles (SOVs) by lowering the distances people travel and providing greater travel mode options.

Integrate Affordable Housing and Below Market Rate Housing

Income has a significant effect on the probability that a 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 other major destinations, such as the UC-Davis campus, direct access to retail and job opportunities, and reduced transportation expenses related to owning a vehicle. In total, 15 percent of the project's residential beds/units will be affordable.

Limit Parking Supply

Limiting the amount of parking available to residents encourages the use of other modes that do not require a parking space, reduces vehicle ownership at a specific property, and helps reduce the impacts of traffic at and around the project site.

Unbundle Parking

The proposed project will separate or "unbundle" the cost of parking in residential leases. Unbundling the cost of parking from residential leases is a primary strategy to limit the supply of parking and reduce parking 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.

Measures not Quantified per CAPCOA

The project applicant is also proposing a number of TDM measure that do not have a quantification methodology listed in the CAPCOA guidelines. However, these measures are still expected to result in a reduction in VMT and are important to note for this TDM plan.

Charging a TDM Fee for Vehicles

The project is proposing to limit vehicle access through a gateless solution and charge a "TDM fee" for peak hour entry/exit from the property by residents. This tool is anticipated to be very effective in limiting peak hour trips to and from the project site.

On-Site Bus Stops

The Promenade promotes transit use by providing two new bus stops at the project site. This measure will make it easier for residents to access transit services and take them to UC Davis and to other commercial uses.

Bike Parking

The applicant is proposing to develop at least one bike parking space per bed, which will result in the provision of a bike space for each resident. Of the bike parking spaces provided, 75 percent will be long-term space, providing a secure bike parking option for residents, making it easier and more appealing for residents to own a bike.

Locate Project in area with High Destination Accessibility

By virtue of Promenade's proximity to Downtown Davis and UC Davis, the development already achieves location efficiency and is more likely to result in increased walking, biking, transit usage, and shorter vehicle trips, all of which contribute to lower VMT.

Providing On-Site Food Options

The project will include on-site food options including two cantinas and on-site food trucks. These amenities will provide residents with dining options without needing to leave the project site, resulting in decreased VMT.

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 3 on page 7 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.

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 five (5) CAPCOA subsectors:

- Land Use
- Trip Reduction Program
- Parking or Road Pricing/Management
- Neighborhood Design
- Transit

GHG emission reduction percentages from each TDM measure are multiplied up to a maximum GHG reduction for each TDM subsector, as shown in Table 3. 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 are 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 3 shows the estimated GHG emission reductions in each subsector and the total multi-subsector reduction (27% percent), based on CAPCOA methodology. The quantification of the percent GHG emission reductions (assumed to be a 1:1 ratio with VMT) is intended to be illustrative and demonstrate that the project will meet the trip reduction goal of 20 percent of daily VMT. Based on the proposed TDM measures, and the advantages associated with the project site's land use programming and parking management strategies, the project is expected to exceed the goal of reducing at least 20 percent of daily VMT.

Table 3: 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%	15.0%	T-1	20%
Integrate Affordable Housing	up to 28.6%	4.2%	T-4	
Parking or Road Pricing/Management Subsector (Maximum Reduction 35%)				
Limit Residential Parking Supply	up to 12.5%	1.7%	T-15	7%
Unbundle Parking	up to 15.7%	5.2%	T-16	
Multi-Subsector Reduction				**27%**

Source: Walker Consultants, 2023.

Table 3 on page 8 summarizes the target user for each TDM measure (residents and/or employees) and the implementing entity (property management and/or developer).

Table 4: TDM Measure Implementation Recommendations

TDM Measure	Target User		Who Implements	
	Employees	*Residents*	*Developer*	*Manager*
Increase Residential Density		X	X	
Integrate Affordable Housing		X	X	
Limit Parking Supply	X	X	X	
Unbundle Parking	X	X	X	X

Source: Walker Consultants, 2023.

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 VMT that is required by Mitigation Measure 4.14-5. 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.

New Resident Orientation Package

People are more inclined to try new options when they are going through important changes in their routine, such as moving to a new home or a new job. Providing users with information during this critical period is a proven and effective strategy to get people to try new transportation modes and behaviors.

Transportation Information Center or Screen

Providing users with information about all mobility options that are available near the development can help raise awareness about transit and other mobility options. This can be provided through a "transit screen" that aggregates information in real time for all modes including rail, bus, and shuttle, as well as ride-hailing, car sharing, bike and scooter sharing services.

Incentive Programs, Rewards, and Marketing Campaigns

Promotional campaigns, 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 good 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.

Transportation Coordinator

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

On-Site Bike Share Station

The City of Davis previously had a contract with Jump to provide bike share service. The service was suspended during the Covid-19 pandemic, and subsequently Lime has taken over operation of Jump bike share services. The Davis City Council voted in July 2022 to bring back e-bike and e-scooter sharing services via a pilot program, subject to the approval of UC Davis. To date, e-bike and scooter sharing have not returned to the City. If and when these services return to the City and UC Davis, the project applicant would be interested in providing a bike share docking stations at the project site to encourage the use of shared mobility services to/from the site.

Subsidized Bike Share Membership

If an on-site bike share station is included in the project, it is recommended that bike share membership is subsidized to encourage its use.

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.

Create a Transportation Management Association (TMA) or Expand Yolo TMA Services

One way to coordinate TDM efforts is to create and/or participate in a management district or TMA. Traffic congestion, non-motorized facilities and alternative mobility options can be better managed through a coordinated district-wide approach. TMAs often create strategic plans and action plans that can be supported by the City, UC Davis and/or have shared responsibility in their implementation.

On-site Bicycle Repair Facilities or Service

Bicycles often need minor repair and maintenance. One way of easing the use of bicycles is to provide a repair station or space to work on bikes and the tools necessary to do the work. Providing access to a room or facility or providing access to a service that can be provided by an outside contractor inside or outside the development would provide cyclists with confidence to ride their bikes and be sure they can resolve any mechanical problems that may arise.

On-site Bicycle Workshops

Help residents ease into bicycling again or for the first time through bicycle workshops to provide general knowledge such as appreciate bicycle gear, safety lights, bicycle rules, and basic bicycle maintenance.

Monitoring and Reporting

Mitigation Measure 4.14-5 requires single-phase development projects to achieve TDM AVR objectives within five (5) years of issuance of a certificate of occupancy. Multi-phased projects shall achieve the objectives for each phase within three (3) years of the issuance of any certificate of occupancy.

Mitigation Measure 4.14-5 requires the preparation of an annual TDM report beginning a year after the issuance of any certificate of occupancy. The reports should focus on the trip reduction incentives offered by the project, their effectiveness, and the estimated GHG emissions generated by the project, and the methods by which Carbon Neutrality will be achieved. The report shall:

- Report the AVR levels attained;
- Verify the TDM plan incentives that have been offered;
- Describe the use of those incentives offered by employers;
- Evaluate why the plan did or did not work to achieve the AVR targets and explain why the revised plan is more likely to achieve the AVR target levels;
- List additional incentives that can be reasonably expected to correct deficiencies;
- Evaluate the feasibility and effectiveness of trip reduction/TDM program and strategies, as implemented;
- Estimate the greenhouse gas emission generated by Project transportation operations; and
- Identify off-setting GHG credits to be secured by the Project to achieve carbon neutrality.

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:

- Promenade 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.
- Promenade 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.
- Sitewide
    - Utilize the data from the gateless entry system at the site's primary access to determine the site's typical AM and PM peak hour trip generation and compare to the goals set forth in its traffic assessment and this plan.

If the findings in the monitoring 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 to/from the project.