

Development Exaction for Transportation Impacts

Review of Park & Ride Program & Related Transportation Demand Management Strategies

Prepared for:
City of Stockton

April 2025

WC21-2797

FEHR  PEERS

Table of Contents

Introduction	1
Background & Relevant Plans	2
Types of Park and Ride Lots.....	2
Funding	3
Lot Usage & Demand.....	3
Quantifying the Benefits of TDM Strategies	5
Recommendations	7
Evaluation Criteria	9
Next Steps.....	12

Appendices

Attachment A: CAPCOA VMT Reduction Strategies

List of Tables

Table 1: Park & Ride Lot Usage Data, 2005-2016	4
Table 2: Select VMT Mitigation Strategies	7
Table 3: Evaluation Criteria	10
Table 4: Project Scoring Results.....	11

Introduction

The City of Stockton has collected proportionate share funds with the intent of planning and constructing park and ride lots over many years, as a strategy to offset development-related impacts on air quality and the transportation system. While the construction of park and ride lots was once a common mitigation strategy for such impacts, current research on best practices indicate that other, comparable strategies may better encourage mode shift away from single-occupancy vehicles, reduce vehicle miles travelled, and reduce greenhouse gas emissions generated by new development. In addition, travel demand management (TDM) strategies other than park and ride may be more in line with current City mobility and sustainability goals.

As such, the City has expressed interest in reviewing the efficacy of park and ride lots, and whether these funds could be applied to strategies and projects that would better meet transportation and air quality goals. Per conversation with the City Attorney's office, supportive evidence to justify the need and benefit of this change can assist in determining whether funds should be reallocated to other project purposes. This document provides an overview of the current state of park and ride lots in the Stockton area and summarizes research on additional TDM strategies, with the intent of providing guidance on how collected funds could be applied and leveraged for greater benefit.

Background & Relevant Plans

Senate Bill 743, passed in 2013, updates the way transportation impacts are measured in California for new development projects. SB 743 required the California Governor's Office of Planning and Research (OPR) to develop new guidelines for specific metrics under the California Environmental Quality Act (CEQA). In 2018, OPR published the Technical Advisory on Evaluating Transportation Impacts in CEQA which includes guidance on implementing SB 743. Under this guidance, Vehicle Miles Traveled (VMT) is now the primary metric used to identify transportation impacts. This has resulted in a renewed focus on quantifiable strategies to mitigate project impacts, to attain a more appropriate balance between the need for congestion management with statewide goals related to promotion of public health through active transportation and reduction of greenhouse gas emissions.

On-road vehicle travel generated by each proposed residential project within the City of Stockton results in Ozone Precursor Emissions. Each project pays an Air Quality mitigation fee as partial mitigation for the air quality impacts of ozone precursor emission. Historically, this fee has been intended for the construction of Park and Ride lots.

Park and Ride lots are publicly accessible locations for users to transfer from a single-occupancy vehicle to a carpool, vanpool, or transit service. As a TDM strategy, park and ride is generally considered a supportive strategy to encourage mode shift and reduce the associated vehicle miles travelled and greenhouse gas emissions, in conjunction with the provision of additional transportation services and bicycle/pedestrian facilities.

Types of Park and Ride Lots

Park and Ride lots were constructed to primarily satisfy strategies and goals of the Travel Demand Model. Three primary lot types are supplied in San Joaquin County. The first are capitol lots, which are constructed and maintained as dedicated park and ride facilities. Capitol lots within the region are commonly constructed near major freeway interchanges, the most recent of which is located at Mariposa Road near SR-99. Caltrans is often a partner in the construction of these lots.

Lease lots are the more common form of park and ride within the region, in which a share of a lot with excess vacancy is leased from the lot owner. Churches and large shopping centers, which frequently have excess parking during the work week, are common participants. Within Stockton, lots that have been leased or had a share of spaces set aside as a condition of development include Calvary First Church on Kelley Drive, Lifesong Church on Michigan Avenue, and the Hammer Crossings Shopping Center off Hammer Lane and Sampson Road. All three of these locations are currently served by San Joaquin Regional Transit District (RTD) commuter bus routes.

Developer lots are those in which a number of spaces have been set aside as part of a condition of development, typically at large commercial developments. These locations vary in whether they provide signage, striping, or other indicators of which spaces are dedicated as park and ride. The Morada Ranch Shopping Center is one example which has signed and dedicated park and ride spaces, including electric vehicle charging, but is not currently served by transit.

Funding

The funding and construction of park and ride lots in the area has historically been guided by the San Joaquin Council of Government's Park and Ride Lot Master Plan, which was last updated in 2007. The plan is intended to provide guidance for the share of Measure K funding eligible for park and ride, under the Passenger Rail, Bus, and Bicycle/Pedestrian Improvements category. Within the City's 2040 General Plan, **Action TR-3.2D** speaks to this plan:

"Continue to coordinate with the San Joaquin Council of Governments to increase opportunities for additional park and ride facilities, consistent with the San Joaquin County Regional Park and Ride Lot Master Plan."

Within the City of Stockton, as identified in the environmental documentation of large development projects such as residential communities, funding for local park and ride lots has been collected for many years as proportionate share of funds, to offset the transportation network and associated air quality impacts of these projects. These exactions were made on a subregional basis, in specific geographic regions of the city where growth was concentrated. A set dollar amount was collected per residential unit of development. These regions were generally located on the outer corners of the city, in anticipation of the need to improve transportation options as development occurred. Research of records revealed that these exactions were collected as part of the conditions of approval for the project to mitigate air quality impacts. At that time Council Resolution specifically for the Park and Ride exaction was not required since the environmental documentation was certified through Council action and conditions of approval was approved by Planning Commission.

Drawing from the intended of use for these funds in addressing environmental impacts, funds collected for Park and Ride may also be used for other projects co-benefitting from the same strategy to offset development-related impacts on air quality and the transportation system.

Lot Usage & Demand

SJCOG has historically conducted a lot usage survey every two years, which indicates the relative need or demand for spaces at each lot. Data from 2005 to 2016 is publicly available, and shown in **Table 1**. Historic usage surveys have generally shown that existing supply is sufficient to meet demand, with occupancy rates highest at those lots with RTD Commuter Bus service, such as Calvary Church and Lifesong Church.

Recent survey data is not available due to the suspension of usage surveys during Covid-19, which significantly impacted local commute travel and led to the temporary reduction of commuter bus service by RTD. Anecdotal evidence and observations by staff indicate that lot usage has substantially decreased over the last two years, in parallel with reductions in travel and transit ridership. To date, ridership has not recovered to pre-pandemic levels, which parallels an overall shift in mode choice and an increase in flexible work arrangements.

Table 1: Park & Ride Lot Usage Data, 2005-2016

Lot Name	Lot Type	Spaces	Data Collection Year					
			2005	2007	2009	2012	2014	2016
Calvary Church* (I-5/Kelley Drive)	Lease	40	78%	158%	50%	23%	66%	93%
Marina Center (I-5/Benjamin Holt Drive) - <i>discontinued</i>	Lease	35	96%	142%	100%	35%	33%	84%
Morada Ranch* (SR99/Morada Lane)	Developer	35	n/a	n/a	New	49%	14%	n/a
Walmart (SR99/Hammer Lane) - <i>discontinued</i>	Developer	56	81%	20%	100%	n/a	n/a	n/a
Lifesong Church* (I-5/Michigan Avenue)	Lease	45	60%	60%	50%	62%	66%	78%
Mariposa and SR-99*	Capitol	101	n/a	n/a	n/a	n/a	n/a	New
Hammer Crossings* (Hammer Lane/Holman Road)	Lease	No data available (RTD Commuter Bus location)						

Source: SJCOG

* Lot currently promoted by SJCOG and/or SJRTD

Quantifying the Benefits of TDM Strategies

As discussed above, the collection of proportionate share fees for park and ride lots has been implemented as a transportation demand management (TDM) strategy to mitigate transportation and air quality impacts of projects. The California Air Pollution Control Officers Association (CAPCOA) produces research and best practice guidance on reducing greenhouse gas emissions and improving air quality through such TDM strategies. In 2022, an update to the CAPCOA *Quantifying Greenhouse Gas Mitigation Measures (2010)* was published, titled *Handbook for Local Governments, Communities, and Project Developers for Assessing Greenhouse Gas Emissions Reductions, Climate Vulnerabilities, and Health and Equity*¹ – commonly referred to as the CAPCOA Handbook.

The CAPCOA Handbook is a key reference document for developing VMT and emissions reduction measures based on quantifiable evidence. These measures aim to reduce emissions by reducing Vehicle Miles Traveled (VMT), through encouraging mode shift from single-occupancy vehicles to shared (e.g., transit) or active modes of transportation (e.g., bicycle). Per the Handbook, coordinating trip reduction or incentive programs; optimizing the land use of the project study area; enhancing road, bike and pedestrian networks; implementing parking policies; or improving transit systems are all methods through which this can be accomplished. Quantified Green House Gas (GHG) reduction measures in the transportation category are shown in **Figure 1**, along with information about the appropriate context and scale for strategy application and potential VMT reduction². Further descriptions of each strategy are provided in Attachment A.

Park and ride lots are identified as a “supporting or non-quantified GHG reduction measure” in the Handbook. These measures are those that may provide co-benefits to the primary strategies identified in the Handbook and shown in Figure 1. In the previous CAPCOA guidance, park and ride lots are determined to be most effective when they are co-located with transit stops or near High Occupancy Vehicle (HOV) lanes, with only minimal benefits as a standalone strategy.

As noted, strategies are also identified by the appropriate context: rural or urban/suburban, and as a community-scale or project-level improvement. Park and ride is appropriate within suburban communities, and as a community-scale improvement, rather than at the individual project level. This is consistent with how the City has previously collected funds, in aggregate, as a mitigation measure across multiple projects with identified transportation impacts.

¹ https://www.caleemod.com/handbook/full_handbook.html

² VMT reduction potential is specific to an affected population and may only apply to select types of VMT such as commute trips.

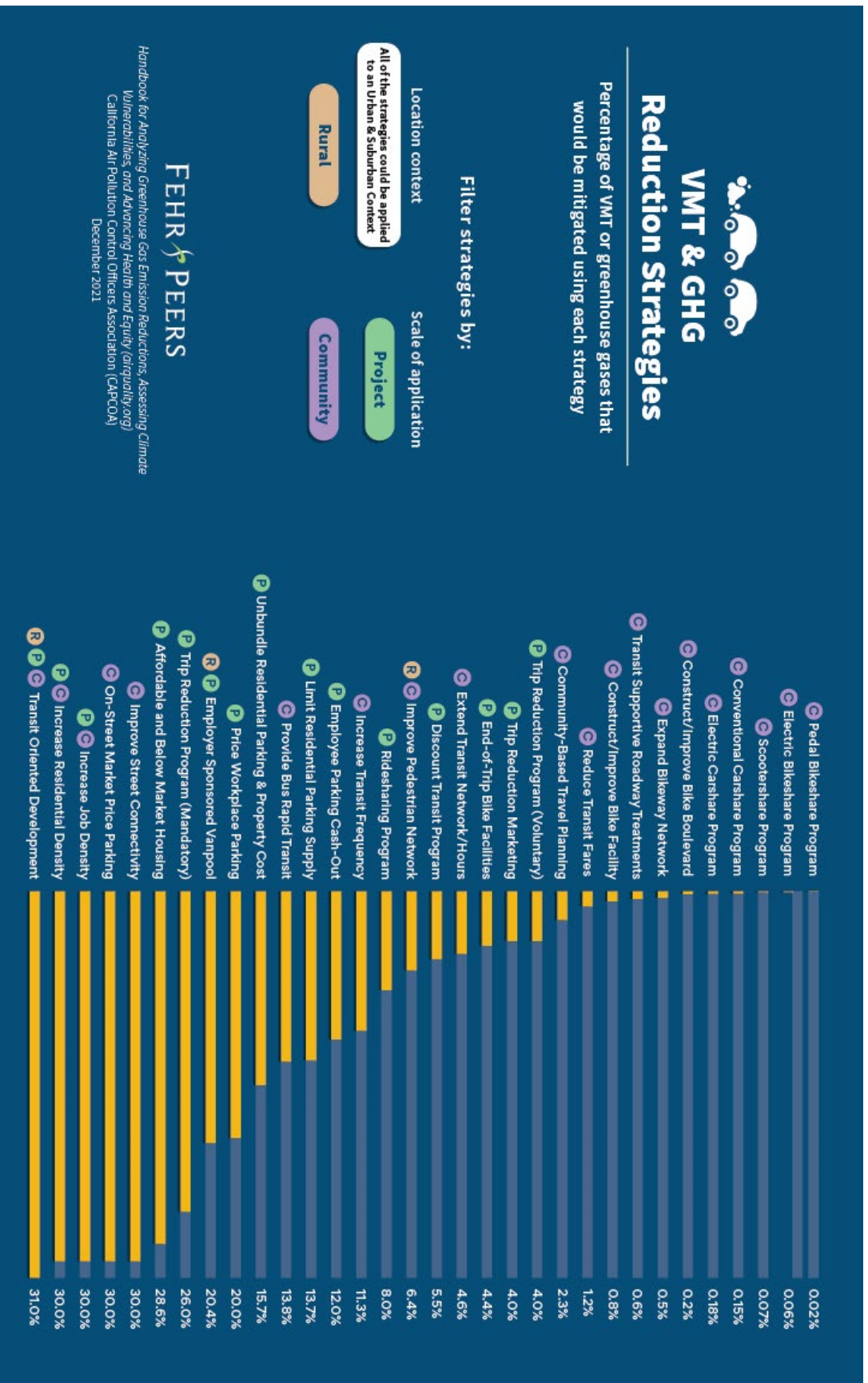


Figure 1 – CAPCOA Handbook VMT Reduction Strategies Summary

Recommendations

The research above indicates several ways in which park and ride funds could be repurposed to meet City adopted goals for transportation and air quality.

Consider reallocating funds to TDM strategies with more substantial evidence of benefits.

As the City looks to expand its options for mitigating VMT and greenhouse gas emissions beyond park and ride lots, the CAPCOA Handbook provides a variety of strategies to consider that may offer greater efficacy in meeting City goals. **Table 2** provides a list of targeted strategies, supported by quantifiable evidence, that are applicable at the community scale. Additional strategies not included in the Handbook may also be considered, provided that they are supported with sufficient evidence to quantify their effectiveness. One example would be investments and policies to support telecommuting, which has shown the potential to reduce VMT under specific circumstances³.

Table 2: Select VMT Mitigation Strategies

Strategy	Name	Efficacy	Context
T-22-B	Implement Electric Bikeshare Program	0.06%	Community
T-21-B	Electric Carshare Program	0.18%	Community
T-19-B	Construct/Improve Bike Boulevard	0.2%	Community
T-20	Expand Bikeway Network	0.5%	Community
T-27	Transit Supportive Roadway Treatments	0.6%	Community
T-19-A	Construct/Improve Bike Facility	0.8%	Community
T-18	Improve Pedestrian Network	6.4%	Community
T-17	Improve Street Connectivity ¹	30%	Community

Source: CAPCOA Handbook, 2021.

¹Applies only to projects that increase intersection density by building a new street network within a subdivision, or the retrofitting of an existing street network (e.g., converting cul-de-sacs or dead-end streets to grid streets).

Due to the regional structure of the Park and Ride program, improvements under the above categories may need to be applied to benefit the general geographic area in which exactions were collected.

Strategically invest in lease lots over capitol lots, if need is identified.

While recent year data is not available, trends indicate a declining demand for park and ride spaces. Should the need for additional lots be identified in the future (through coordination with SJCOG), implementing lease lots rather than capitol lots will provide a more nimble and cost-effective approach. As stated earlier in this memo, lots are more likely to be effective when implemented in close coordination

³ <https://www.fehrandpeers.com/telework-and-vmt/>

with other transportation amenities like high quality transit service, vanpool and ridesharing services, or HOV or high-occupancy toll (HOT) lanes. Leasing available parking spaces for this purpose, rather than constructing new dedicated lots, creates the opportunity for park and ride to be situated where people already travel or are already served by transit, and provides a more cost-effective approach, as dedicating funds to construction and land acquisition costs is not necessary. It also allows for the easy relocation of lots without the loss of funds invested as travel patterns shift and development in new areas of the city occurs.

Use existing funds as leverage for matching requirements on grant applications.

Many local, state, and federal grant funding sources are available to support the types of community scale improvements identified in Table 2, above, and included in multiple adopted City planning documents. As grant funding sources often require a local match, the park and ride funds could be leveraged to secure funding for grants that would larger support network-scale improvements.

The City may initiate process to allow for the flexibility to transfer funds between projects within Public Works and the Budget Office to maximize efficient use of the Park and Ride funds, as well as consider renaming the program to better reflect this intent to address development-related impacts on air quality and the transportation system. Example titles to consider could include:

- City of Stockton - Active Transportation Enhancement Projects
- Bikes – Pedestrian – Park and Ride Projects
- Multimodal Transportation Project Funds
- Alternate Modes of Transportation Projects

After careful consideration of the above titles, it was decided that Multimodal Transportation Project would best identify this exaction. Since funds are primarily collected to address air quality impacts as disclosed in the environmental documentation of development projects, future exactions should continue as new development occurs.

The Multimodal Transportation Project is administered by the Department of Public Works, therefore projects pertinent to the strategies identified in Table 2 mainly focus on roadway, pedestrian, bicycle, and street connectivity improvements.

Evaluation Criteria

This section presents the results of the application of a set of evaluation criteria to a series of projects, along with recommendations for next steps and the future application of funds to support multimodal mobility projects within the City of Stockton.

The evaluation process was established with four categories of evaluation criteria (Table 3) and reviewed by City staff for applicability to the proposed reuse of Park & Ride funds. These criteria include:

- **Air Quality:** does the project have proven and quantifiable air quality benefits, as described in the CAPCOA Handbook or other defensible research?
- **Connectivity and Mode Shift:** does the project encourage mode shift by providing connected, high-quality active transportation facilities?
- **Leveraging Funds:** can the funds support project delivery or maximize funding available to the City?
- **Geographic Location in City:** does the project directly benefit one of the original fund collection quadrants; or, does the project focus benefits in an underserved neighborhood?

Following the establishment of these criteria, Public Works staff identified nine projects for a pilot evaluation. All projects are captured in the City's 2022-2027 Capital Improvement Program (CIP), have received some amount of grant funding, and are in the current design or construction pipeline. Each project was given a rating of Not Applicable, Good, Better, or Best, for how well it met each scoring criteria, with a corresponding value of 0-3 points based on the ranking, for a maximum of 12 points. The results of this process are shown in Table 4.

To ensure project funds are used appropriately to the intent, it is recommended that a minimum eligibility score of 7 points be required. Based on the above results, 6 of the 9 candidate projects would be eligible for use of the funds.

Table 3: Evaluation Criteria

	Mode Shift and Connectivity		Air Quality	Funding	Geographic Location
	Bicycle	Pedestrian			
Good	Project installs a local neighborhood-serving facility (such as a bicycle boulevard).	Project closes critical gaps in existing sidewalk network.	Project components are identified as supporting or non-quantified GHG reduction measures in the CAPCOA Handbook*.	Project has identified programs to apply to for funding (21-50% of overall project cost).	Project directly connects to or serves one of the 4 collection areas.
Better	Project is identified as a priority in Bicycle Master Plan or Greater Downtown Active Transportation Plan.	Project adds additional uncontrolled crossing improvements per FHWA guidance.	Project includes strategies from the CAPCOA Handbook* that reduce GHG emissions by up to 1%.	Project is currently applying or has applied for funding. Funds can be used for matching (10-20% of overall project cost).	Project is located within and serves a disadvantaged community.
Best	Project meets all ages/abilities criteria from FHWA facility selection guidance.	Project installs a new controlled crossing that reduces the distance between crossings to 600 feet or less.	Project includes strategies from the CAPCOA Handbook* that reduce GHG emissions by greater than 1%.	Project has been awarded funds but a shortfall to project completion. Funds would allow for project completion using existing money (less than 10% of total cost).	Project directly connects to or serves one of the 4 collection areas AND is within or serves a disadvantaged community (90th percentile or above CES 4.0)
Disqualifiers	<i>Project does not improve hazardous conditions for people walking, biking, or using transit.</i>		<i>Project would increase roadway capacity.</i>	<i>Project has no funding strategy, and/or funds would constitute more than 50% of overall project cost.</i>	<i>Project is outside of fund collection area and does not serve a disadvantaged community.</i>

This report provides guidelines on how to score future projects to they may fall into this category of priority. The projects that are done will naturally be removed and new ones placed in.

Table 4: Project Scoring Results

CIP Number	Name	Description	Mode Shift	Air Quality	Funding	Geographic Location	Total Score
WT23040	Hammer Lane Traffic Safety	Add edge line, lane striping, pavement markings, speed feedback signs and pedestrian-scale lighting, install reflective signal backplates, and convert the existing Class II bike lanes to 7-ft protected bike lanes.	Best	Better	Best*	Good	9
WT22053	Channel Street Improvements - Grandview Village	Install landscaping, sidewalks, bicycle lanes, curb and gutter, ADA curb ramps, and bulb outs on Channel Street, Hunter Street, and San Joaquin Street surrounding the Grandview Village Housing project	Better	Better	Best	Better	9
WT22048	S. Stockton Pedestrian HAWK Improvement	Install 8 HAWK pedestrian hybrid signals and other crossing improvements and intersection lighting to improve the safety of pedestrian travel in the south Stockton area.	Best	Good	Good	Best	8
WT22050	Downtown East-West Connection	Construct bicycle facilities and pedestrian improvements including 6 miles of bicycle facilities to improve bicycle and pedestrian safety on City streets. Safety elements such as bike lanes, flashing beacons, sidewalks, high visibility crosswalks, and speed cushions will be implemented.	Best	Better	Good	Better	8
WT19013	Safe Routes to School - Sidewalk Gap Closure	Install sidewalks and ADA compliance ramps at various locations near schools.	Good	Better or Best	Good*	Best	8
WT18011	Central Stockton Road Diet & Striping Connections	Multiple bicycle facilities on Monte Diablo Ave./Acacia St., Madison St. and Fremont St.	Best	Better	N/A	Better	7
WT22044	Enhanced Pedestrian Safety on Madison Street	Install High-visibility crosswalks, pavement markings, ADA ramps, sight triangles and rapid-flashing beacons.	Good	Good	Better*	Better	6
WT23041	Systemic Pedestrian Safety Enhancements	Install a leading pedestrian interval, high visibility crosswalk, left-turn phasing, curb extensions, raised median, curb ramps, and left turn lanes at three intersections	Good or N/A	Good	Best*	NA	5
WT22046	Pacific-Harding/Lincoln Left Turn Pockets	Install left turn pockets with left turn phasing, upgrade signals, cabinet & appurtenances, install pedestrian countdown signal heads, and install High Friction Surface Treatment (HFST) through approaches.	NA	NA	Good	NA	1

Notes:

1. Funding was evaluated based on project cost estimates completed at the 30-50% PS&E level where available, with the exception of project WT22048 which is at 100% PS&E
2. Projects denoted with an asterisk indicate current estimates were not available, and the original project cost as listed for the grant funding application was used to calculate funding shortfalls.

Next Steps

As discussed in the above, there are several opportunities for the City to rethink the Park & Ride program to more directly align with current mobility needs and best practices in reducing vehicle miles travelled.

- Initiate the process to allow for the flexibility to transfer funds between projects within Public Work and the Budget Office. As collected exactions currently reside in Community Development, Council action may be required to transfer these funds to Public Works.
- Rename the program to the *Multimodal Transportation Project Fund* to better reflect its intent to address development-related impacts on air quality and the transportation system.
- Prioritize the use of existing funds on those projects which best meet the proposed eligibility and scoring criteria, and those with time-sensitive funding considerations (such as the potential loss of awarded grant funds).
- Continue to monitor best practices in addressing the impacts of development on air quality, vehicle miles travelled, mobility, and transportation safety, and update scoring criteria as necessary to reflect best practices.
- The City currently collects \$375 per residential unit for development. Continue future exactions as new development occurs, and consider reevaluating the necessary exaction amount as part of any future changes to fee structures.

Attachment A:

CAPCOA VMT Reduction Strategies

The following strategies, as identified in the CAPCOA Handbook, have sufficient supporting evidence to quantify potential VMT reduction from their implementation.

T-1: Increase Residential Density

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of dwelling units (du) compared to the average residential density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions. This measure is best quantified when applied to larger developments and developments where the density is somewhat similar to the surrounding area due to the underlying research being founded in data from the neighborhood level.

T-2: Increase Job Density

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of jobs compared to the average job density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing job density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions.

T-3: Provide Transit-Oriented Development

This measure would reduce project VMT in the study area relative to the same project sited in a non-transit-oriented development (TOD) location. TOD refers to projects built in compact, walkable areas that have easy access to public transit, ideally in a location with a mix of uses, including housing, retail offices, and community facilities. Project site residents, employees, and visitors would have easy access to high-quality public transit, thereby encouraging transit ridership and reducing the number of single occupancy vehicle trips and associated GHG emissions.

T-4: Integrate Affordable and Below Market Rate Housing

This measure requires below market rate (BMR) housing. BMR housing provides greater opportunity for lower income families to live closer to job centers and achieve a jobs/housing match near transit. It is also an important strategy to address the limited availability of affordable housing that might force residents to live far away from jobs or school, requiring longer commutes. The quantification method for this measure accounts for VMT reductions achieved for multifamily residential projects that are deed restricted or otherwise permanently dedicated as affordable housing.

T-5: Implement Commute Trip Reduction Program (Voluntary)

This measure will implement a voluntary commute trip reduction (CTR) program with employers. CTR programs discourage single occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

T-6: Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)

This measure will implement a mandatory CTR program with employers. CTR programs discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

T-7: Implement Commute Trip Reduction Marketing

This measure will implement a marketing strategy to promote the project site employer's CTR program. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

T-8: Provide Ridesharing Program

This measure will implement a ridesharing program and establish a permanent transportation management association with funding requirements for employers. Ridesharing encourages carpooled vehicle trips in place of single-occupied vehicle trips, thereby reducing the number of trips, VMT, and GHG emissions.

T-9: Implement Subsidized or Discounted Transit Program

This measure will provide subsidized or discounted, or free transit passes for employees and/or residents. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions.

T-10: Provide End-of-Trip Bicycle Facilities

This measure will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions.

T-11: Provide Employer-Sponsored Vanpool

This measure will implement an employer-sponsored vanpool service. Vanpooling is a flexible form of public transportation that provides groups of 5 to 15 people with a cost-effective and convenient rideshare option for commuting. The mode shift from long-distance, single-occupied vehicles to shared vehicles reduces overall commute VMT, thereby reducing GHG emissions.

T-12: Price Workplace Parking

This measure will price onsite parking at workplaces. Because free employee parking is a common benefit, charging employees to park onsite increases the cost of choosing to drive to work. This is expected to reduce single-occupancy vehicle commute trips, resulting in decreased VMT, thereby reducing associated GHG emissions.

T-13: Implement Employee Parking Cash-Out

This measure will require project employers to offer employee parking cash-out. Cash-out is when employers provide employees with a choice of forgoing their current subsidized/free parking for a cash payment equivalent to or greater than the cost of the parking space. This encourages employees to use other modes of travel instead of single occupancy vehicles. This mode shift results in people driving less and thereby reduces VMT and GHG emissions.

T-14: Provide Electric Vehicle Charging Infrastructure

Install onsite electric vehicle chargers in an amount beyond what is required by the 2019 California Green Building Standards (CALGreen) at buildings with designated parking areas (e.g., commercial, educational, retail, multifamily). This will enable drivers of PHEVs to drive a larger share of miles in electric mode (eVMT), as opposed to gasoline-powered mode, thereby displacing GHG emissions from gasoline consumption with a lesser amount of indirect emissions from electricity. Most PHEVs owners charge their vehicles at home overnight. When making trips during the day, the vehicle will switch to gasoline mode if/when it reaches its maximum all-electric range.

T-15: Limit Residential Parking Supply

This measure will reduce the total parking supply available at a residential project or site. Limiting the amount of parking available creates scarcity and adds additional time and inconvenience to trips made by private auto, thus disincentivizing driving as a mode of travel. Reducing the convenience of driving results in a shift to other modes and decreased VMT and thus a reduction in GHG emissions. Evidence of the effects of reduced parking supply is strongest for residential developments.

T-16: Unbundle Residential Parking Costs from Property Cost

This measure will unbundle, or separate, a residential project's parking costs from property costs, requiring those who wish to purchase parking spaces to do so at an additional cost. On the assumption that parking costs are passed through to the vehicle owners/drivers utilizing the parking spaces, this measure results in decreased vehicle ownership and, therefore, a reduction in VMT and GHG emissions. Unbundling may not be available to all residential developments, depending on funding sources.

T-17: Improve Street Connectivity

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of vehicle intersections compared to the average intersection density in the U.S. Increased vehicle intersection density is a proxy for street connectivity improvements, which help to facilitate a greater number of shorter trips and thus a reduction in GHG emissions.

T-18: Provide Pedestrian Network Improvement

This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions.

T-19-A: Construct or Improve Bike Facility

This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When constructing or improving a bicycle facility, a best practice is to consider local or state bike lane width standards. A variation of this measure is provided as T-19-B, Construct or Improve Bike Boulevard.

T-19-B: Construct or Improve Bike Boulevard

Construct or improve a single bicycle boulevard that connects to a larger existing bikeway network. Bicycle boulevards are a designation within Class III Bikeway that create safe, low-stress connections for people biking and walking on streets. This encourages a mode shift from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. A variation of this measure is provided as T-19-A, Construct or Improve Bike Facility, which is for Class I, II, or IV bicycle infrastructure.

T-20: Expand Bikeway Network

This measure will increase the length of a city or community bikeway network. A bicycle network is an interconnected system of bike lanes, bike paths, bike routes, and cycle tracks. Providing bicycle infrastructure with markings and signage on appropriately sized roads with vehicle traffic traveling at safe speeds helps to improve biking conditions (e.g., safety and convenience). In addition, expanded bikeway networks can increase access to and from transit hubs, thereby expanding the “catchment area” of the transit stop or station and increasing ridership. This encourages a mode shift from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When expanding a bicycle network, a best practice is to consider bike lane width standards from local agencies, state agencies, or the National Association of City Transportation Officials’ Urban Bikeway Design Guide.

T-21-A: Implement Conventional Carshare Program

This measure will increase carshare access in the user’s community by deploying conventional carshare vehicles. Carsharing offers people convenient access to a vehicle for personal or commuting purposes. This helps encourage transportation alternatives and reduces vehicle ownership, thereby avoiding VMT and associated GHG emissions. A variation of this measure, electric carsharing, is described in Measure T-21-B, Implement Electric Carshare Program.

T-21-B: Implement Electric Carshare Program

This measure will increase carshare access in the user's community by deploying electric carshare vehicles. Carsharing offers people convenient access to a vehicle for personal or commuting purposes. This helps encourage transportation alternatives and reduces vehicle ownership, thereby avoiding VMT and associated GHG emissions. This also encourages a mode shift from internal combustion engine vehicles to electric vehicles, displacing the emissions-intensive fossil fuel energy with less emissions-intensive electricity. Electric carshare vehicles require more staffing support compared to conventional carshare programs for shuttling electric vehicles to and from charging points. A variation of this measure, conventional carsharing, is described in Measure T-21-A, Implement Conventional Carshare Program.

T-22-A: Implement Pedal (Non-Electric) Bikeshare Program

This measure will establish a bikeshare program. Bikeshare programs provide users with on-demand access to bikes for short term rentals. This encourages a mode shift from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. Variations of this measure are described in Measure T-22-B, Implement Electric Bikeshare Program, and Measure T-22-C, Implement Scootershare Program.

T-22-B: Implement Electric Bikeshare Program

This measure will establish an electric bikeshare program. Electric bikeshare programs provide users with on-demand access to electric pedal assist bikes for short-term rentals. This encourages a mode shift from vehicles to electric bicycles, displacing VMT and reducing GHG emissions. Variations of this measure are described in Measure T-22-A, Implement Pedal (Non-Electric) Bikeshare Program, and Measure T-22-C, Implement Scootershare Program.

T-22-C: Implement Scootershare Program

This measure will establish a scootershare program. Scootershare programs provide users with on-demand access to electric scooters for short-term rentals. This encourages a mode shift from vehicles to scooters, displacing VMT and thus reducing GHG emissions. Variations of this measure are described in Measure T-22-A, Implement Pedal (Non-Electric) Bikeshare Program, and Measure T-22-B, Implement Electric Bikeshare Program.

T-23: Provide Community-Based Travel Planning

This measure will target residences in the plan/community with community-based travel planning (CBTP). CBTP is a residential based approach to outreach that provides households with customized information, incentives, and support to encourage the use of transportation alternatives in place of single occupancy vehicles, thereby reducing household VMT and associated GHG emissions.

T-24: Implement Market Price Public Parking (On-Street)

This measure will price all on-street parking in a given community, with a focus on parking near central business districts, employment centers, and retail centers. Increasing the cost of parking increases the

total cost of driving to a location, incentivizing shifts to other modes and thus decreasing total VMT to and from the priced areas. This VMT reduction results in a corresponding reduction in GHG emissions.

T-25: Extend Transit Network Coverage or Hours

This measure will expand the local transit network by either adding or modifying existing transit service or extending the operation hours to enhance the service near the project site. Starting services earlier in the morning and/or extending services to late-night hours can accommodate the commuting times of alternative-shift workers. This will encourage the use of transit and therefore reduce VMT and associated GHG emissions.

T-26: Increase Transit Service Frequency

This measure will increase transit frequency on one or more transit lines serving the plan/community. Increased transit frequency reduces waiting and overall travel times, which improves the user experience and increases the attractiveness of transit service. This results in a mode shift from single occupancy vehicles to transit, which reduces VMT and associated GHG emissions.

T-27: Implement Transit-Supportive Roadway Treatments

This measure will implement transit-supportive treatments on the transit routes serving the plan/community. Transit-supportive treatments incorporate a mix of roadway infrastructure improvements and/or traffic signal modifications to improve transit travel times and reliability. This results in a mode shift from single occupancy vehicles to transit, which reduces VMT and the associated GHG emissions.

T-28: Provide Bus Rapid Transit

This measure will convert an existing bus route to a bus rapid transit (BRT) system. BRT includes the following additional components, compared to traditional bus service: exclusive right-of-way (e.g., busways, queue jumping lanes) at congested intersections, increased limited-stop service (e.g., express service), intelligent transportation technology (e.g., transit signal priority, automatic vehicle location systems), advanced technology vehicles (e.g., articulated buses, low-floor buses), enhanced station design, efficient fare-payment smart cards or smartphone apps, branding of the system, and use of vehicle guidance systems. BRT can increase the transit mode share in a community due to improved travel times, service frequencies, and the unique components of the BRT system. This mode shift reduces VMT and the associated GHG emissions.

T-29: Reduce Transit Fares

This measure will reduce transit fares on the transit lines serving the plan/community. A reduction in transit fares creates incentives to shift travel to transit from single-occupancy vehicles and other traveling modes, which reduces VMT and associated GHG emissions. This measure differs from Measure T-8, Implement Subsidized or Discounted Transit Program, which can be offered through employer-based benefits programs in which the employer fully or partially pays the employee's cost of transit.