Vehicle Miles Traveled (VMT) Mitigation Program

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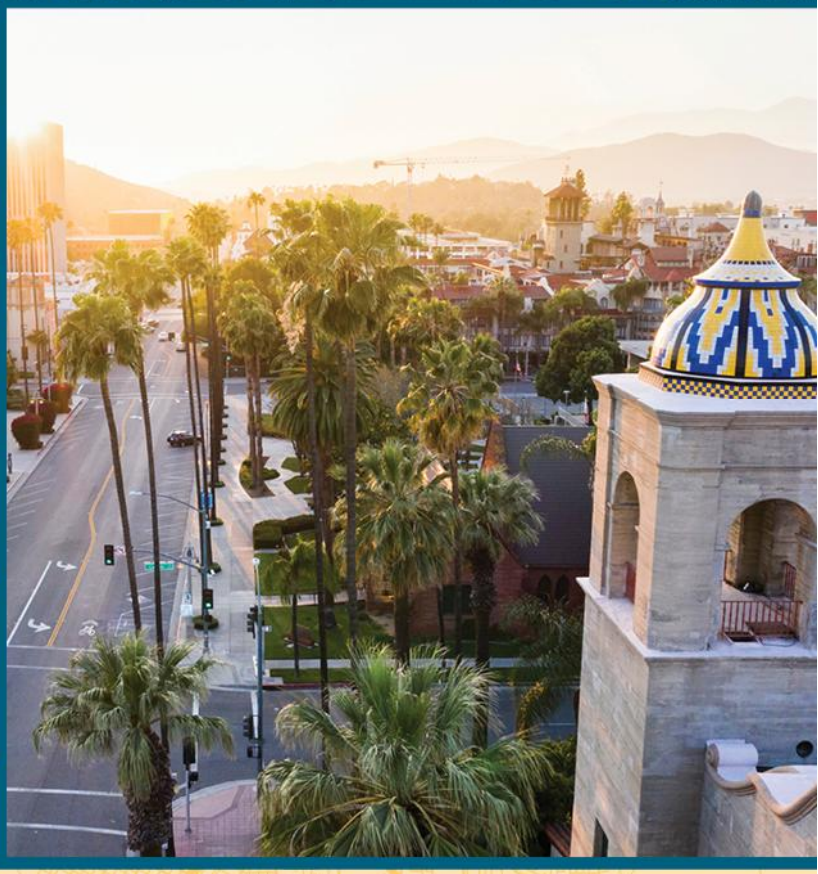

THE CITY OF RIVERSIDE
VMT MITIGATION PROGRAM

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Expect More. Experience Better.

Acknowledgements

The City of Riverside, along with stakeholders and partner agencies, worked to complete a study that evaluates programmatic options that mitigate Vehicle Miles Traveled (VMT) to meet the requirements of the California Environmental Quality Act (CEQA) for the City of Riverside. The study was managed by Philip Nitollama, PE, TE, and Vital Patel of the City's Department of Public Works, Traffic Engineering Division, in coordination with a Stakeholder Advisory Committee. A consulting team led by Kimley-Horn and Associates assisted the City of Riverside and the SAC in completing the study.

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Abbreviations

BRT – Bus Rapid Transit

CAPCOA – California Air Pollution Control Officers Association

CBO – Community Based Organization(s)

CEQA – California Environmental Quality Act

EIR – Environmental Impact Report

HCM – Highway Capacity Manual

LOS – Level of Service

LRSP – Local Roadway Safety Program

NCHRP – National Cooperative Highway Research Program

RCTC – Riverside County Transportation Commission

RIVCOM – Riverside County Model

Riverside PACT – Program consisting of a Pedestrian Target Safeguarding Plan (PTS), an Active Transportation Plan (AT Plan), a Complete Streets Ordinance (CSO), and a Trails Master Plan (TMP)

RTA – Riverside Transit Agency

RTP/SCS – Regional Transportation Plan/Sustainable Communities Strategy

SAC – Stakeholder Advisory Committee

SB – Senate Bill

SEIR – Supplemental Environmental Impact Report

SS4A – Safe Streets for All

TAZ – Traffic Analysis Zone

TDM – Transportation Demand Measure(s)

TPA – Transit Priority Area

UCR – University of California, Riverside

VMT – Vehicle Miles Traveled

WFH – Work-from-Home

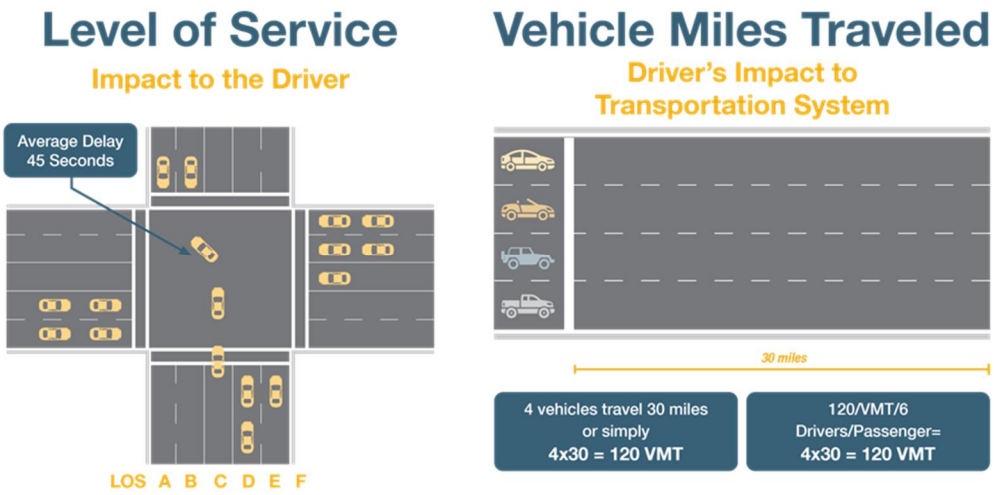
WRCOG – Western Riverside Council of Governments

Executive Summary

This study evaluates program options that mitigate Vehicle Miles Traveled (VMT) to meet the requirements of the California Environmental Quality Act (CEQA) for the City of Riverside. Entities such as the California Department of Transportation (Caltrans) and the University of California Riverside (UCR), could also potentially use the program to mitigate VMT impacts. The goal of the study is to establish a framework for offsite mitigation of VMT for development projects that are not able to mitigate the entirety of their impacts onsite. The VMT mitigation program would fund active transportation, transit, and other VMT reducing measures such as transportation demand management (TDM) programs throughout the City that decrease VMT and greenhouse gas (GHG) emissions, improve safety, combat climate change, and improve the quality of infrastructure within disadvantaged communities.

California's Senate Bill (SB) 743 represents a significant shift in evaluating transportation impacts under the California Environmental Quality Act (CEQA), moving from congestion measures to vehicle miles traveled (VMT) for assessing land use projects and transportation improvements. Historically, transportation impacts were measured using Level of Service (LOS), a concept established in the Highway Capacity Manual (HCM), which evaluated impacts based on drivers' experiences and assigned grades from "A" to "F." However, focusing on LOS has led to unintended consequences such as urban sprawl, increased vehicular travel (induced demand), and negative impacts on active transportation, public transit, and public health. SB 743 shifts the metric to VMT, a more holistic measure considering the total miles traveled by vehicles due to a project, encouraging urban infill development, and promoting active transportation and transit use. This shift aims to foster sustainable development patterns, reduce greenhouse gas emissions, and mitigate environmental impacts associated with vehicular travel. By focusing on VMT, SB 743 aligns with California's broader sustainability goals, creating more sustainable and livable communities through integrated transportation and land use planning. Exhibit ES-1 provides a summary of the differences between LOS and VMT.

Exhibit ES-1 – Level of Service vs. Vehicle Miles Traveled



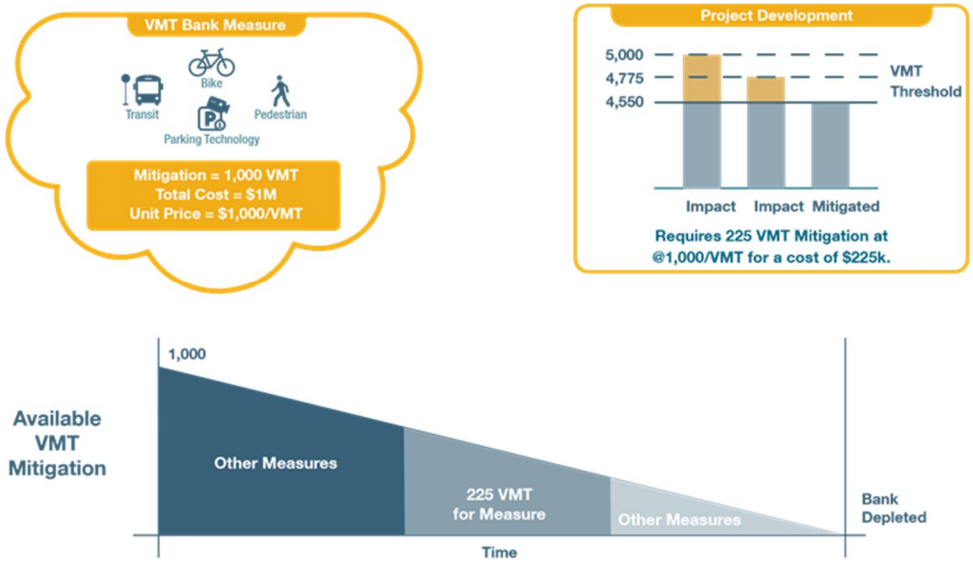
With the change to VMT as the primary transportation performance metric, new types of mitigations have become necessary, as solutions addressing LOS impacts often differ from those that address VMT impacts.

For example, adding a new left-turn lane at an intersection to reduce delay and improve LOS would not help mitigate a VMT impact. Initially, agencies across the state have relied on site-specific improvements, land use solutions, and transportation demand measures (TDM) to mitigate VMT impacts. However, these solutions have often been insufficient to address significant transportation impacts for new projects. Consequently, there is growing interest in identifying new solutions to meet the increasing need for VMT mitigation. This study evaluates the feasibility and implementation of a VMT mitigation program, which seeks to monetize VMT mitigation measures so that projects can obtain VMT mitigation proportional to their need. These programs aim to make various VMT mitigation measures available to projects that would otherwise not be feasible to develop or could not otherwise obtain mitigation. By monetizing the mitigation process, these programs provide a more flexible and comprehensive approach to reducing vehicle miles traveled and promoting sustainable transportation development.

Recommended VMT Mitigation Program and Mitigation Measures

The study resulted in a recommendation for a VMT mitigation bank as the preferred mitigation program framework. A VMT bank is designed to offer project applicants an opportunity to offset their VMT impacts by purchasing credits from a central repository of VMT mitigation measures. In the region, the VMT bank would function as a central entity collecting fees from project applicants whose projects have a significant transportation impact as defined by the member agency's CEQA guidance and have not otherwise implemented sufficient VMT mitigation measures. These funds would be used by the program the City of Riverside to implement various VMT mitigation measures across the City. A graphical illustration of a VMT bank is shown in Exhibit ES-2.

Exhibit ES-2 – VMT Bank Framework



Various VMT mitigation measures are available for land use and transportation projects that need to reduce their VMT impacts. Several types of these measures can be considered for inclusion in the City's VMT mitigation program, including those summarized in Exhibit ES-3.

Exhibit ES-3 – VMT Mitigation Measures

VMT Mitigation Measures		Examples
	Pedestrian	Adding sidewalks or filling in sidewalk gaps
	Bike	New lane miles of Class I - Class IV bike lanes, filling in gaps in bike infrastructre, or bike share
	Transit	New transit lines, extension of existing service, or adding new service types such as BRT
	Road Diet	Reducing capacity and providing non-auto infrastructure such as protected bike lanes or bus pull outs
	ITS/ TSM	Providing parking wayfinding, optimizing signal systems, providing trip planning services
	Mobility Hub	Provide infrastructure to link multiple types of transportation modes
	Affordable Housing	Providing affordable housing in dense areas, transit-oriented development, or other affordable housing supportive needs
	Vanpool/Carpool	Implement regionwide vanpool and carpool programs or expand existing programs
	Park-and-Ride	Construct park-and-ride lots to increase trip occupancy

This study analyzed the specific mitigation measures that could be included in the City's VMT mitigation program. This involved the identification of mitigation categories that would undergo review before individual mitigation measures were selected for evaluation. Understanding a need for a diverse set of mitigation measures, both in terms of geographic location, as well as mitigation measure type, several different sources were used to develop potential mitigation measures. Potential mitigation measures were solicited from the Stakeholder Advisory Committee (SAC), existing City plans and documents such as the Riverside PACT[1], the City's Bicycle Master Plan[2], the Northside Specific Plan[3], and several one-on-one agency meetings. Mitigation measure categories in which individual mitigation measures were selected from included active transportation, transit, and TDMs.

Study Activities and Results

This summary highlights the critical actions taken during the study, focusing on the existing programs, stakeholder involvement, equity concerns, and CEQA considerations.

1. Literature Review:
    - The literature review provided a comprehensive overview of Vehicle Miles Traveled (VMT) mitigation programs implemented across jurisdictions in California under SB 743.

[1] *The City of Riverside PACT: Pedestrian Target Safeguarding Plan (PTS), Active Transportation Plan (AT Plan), a Complete Streets Ordinance (CSO), and a Trails Master Plan (TMP)*. City of Riverside. https://riversideca.gov/pact.
[2] *City of Riverside Bicycle Master Plan*. City of Riverside and Alta Planning + Design. Adopted May 22, 2007.
[3] *Northside Neighborhood & Pellissier Ranch Specific Plan*. City of Riverside. Adopted November 17, 2020.

2. Outreach:
    - The major components of the Outreach Plan included a Stakeholder Advisory Committee (SAC), targeted stakeholder outreach, a public meeting, a study website and online survey, social media posts, and branding.
3. VMT Mitigation Needs Assessment:
    - Through 2045, it is estimated that 191,800 residential VMT and 299,000 employment VMT will need to be mitigated.
4. VMT Evaluation Tool:
    - An online VMT Evaluation Tool for estimating development project VMT impacts was developed and tested with multiple example development projects, providing a practical demonstration of its capabilities to the SAC.
5. Evaluation Criteria and Program Framework:
    - Criteria for VMT mitigation measures and program frameworks were established.
6. Mitigation Measure Assessment
    - A variety of mitigation measures, identified by the SAC or contained within the Riverside PACT and the Northside Specific Plan, were identified for consideration including active transportation, transit, TDM, and other categories.
    - 29 bicycle and 11 pedestrian improvements were identified with all bicycle improvements and three pedestrian improvements evaluated for inclusion in the City's program. The evaluation resulted in sixteen bicycle improvements achieving a cost per VMT reduction of less than $2,000. The pedestrian improvements ranged in a cost per VMT reduction between $22,222 and $41,667.
    - Six transit projects were evaluated, with a cost per VMT reduction ranging between $1,396 and $2,582.
    - Two TDM programs, both work-from-home programs, were evaluated resulting in a cost per VMT reduction ranging between $221 and $1,106.
7. Recommendations:
    - Three options of mitigation measure combinations were developed to be recommended for inclusion in the City's VMT mitigation program. Option A resulted in the lowest cost per VMT reduction at $98 but contains the least amount of VMT available and only contains bicycle measures. Option B includes all bicycle measures from Option A, but also includes six additional transit measures resulting in a cost per VMT reduction of $1,192. Option C builds on Option B by adding two pedestrian measures achieving the highest amount of VMT available and the highest cost per VMT reduction at $1,287.

8. CEQA Considerations:
    - A VMT Bank is exempt from CEQA as per CEQA Guidelines Section 15378, but specific mitigation measures implemented as part of a VMT bank will still require environmental review.
    - The City will consider a program EIR for the upcoming General Plan update to address economic feasibility and allow for tiering of individual projects that are consistent with the General Plan.

Study Findings and Recommendations

Findings and recommendations that have resulted from the study include:

- Project Uncertainty Without a VMT Mitigation Solution: Without a clearly defined VMT mitigation program, many projects will face significant uncertainty, potentially stalling progress, even if they align with other plans and programs.
- VMT Mitigation Program as a Solution: A VMT mitigation program offers a new, viable option for addressing VMT impacts that cannot be mitigated through other methods. A VMT bank program is recommended as the most suitable approach for implementation of the City's VMT mitigation program.
- Selectivity in Mitigation Measures: It is crucial to carefully select VMT-reducing mitigation measures to ensure financial and practical feasibility. These measures should be evaluated for alternative funding sources and compliance with additionality requirements.
- Ongoing Process: Developing mitigation measures for the City's program will be an ongoing process, necessitating accurate methods of VMT analysis in line with best analysis practices to ensure robust outcomes. This study's established framework should serve as the basis for future analysis.
- Voluntary Pilot Program: It is recommended that the City's VMT mitigation program initially be structured as a voluntary pilot program rather than fully implemented at the onset. A voluntary pilot program will allow the City an opportunity to evaluate the program and make a determination as to whether it meets the City's objectives and/or whether additional program modifications may be appropriate. A voluntary pilot program can also be conducted with a less formal structure that can provide for needed flexibility during its initial evaluation.
- Support and Participation from Everyone: The program's success hinges on support from decision-makers, agencies, the community, and participants in the City's VMT mitigation program.
- Periodic Price Changes: If the City's VMT mitigation program is ultimately implemented the price per VMT reduced may change periodically as the composition of the program and additional funding measures are identified. The prices are current as of publication of this document but should be considered the current price of the program and not the price per VMT reduced in perpetuity.
- Set VMT Threshold at Regional Average: it is recommended that the City of Riverside set its VMT significance thresholds for VMT per capita and VMT per employee at the regional average rather than 15-percent below the regional average. Implementing this change would bring the City's VMT analysis methodology in line with the methodology of neighboring jurisdictions such as the City of San Bernardino, Riverside County, and the City of Jurupa Valley.

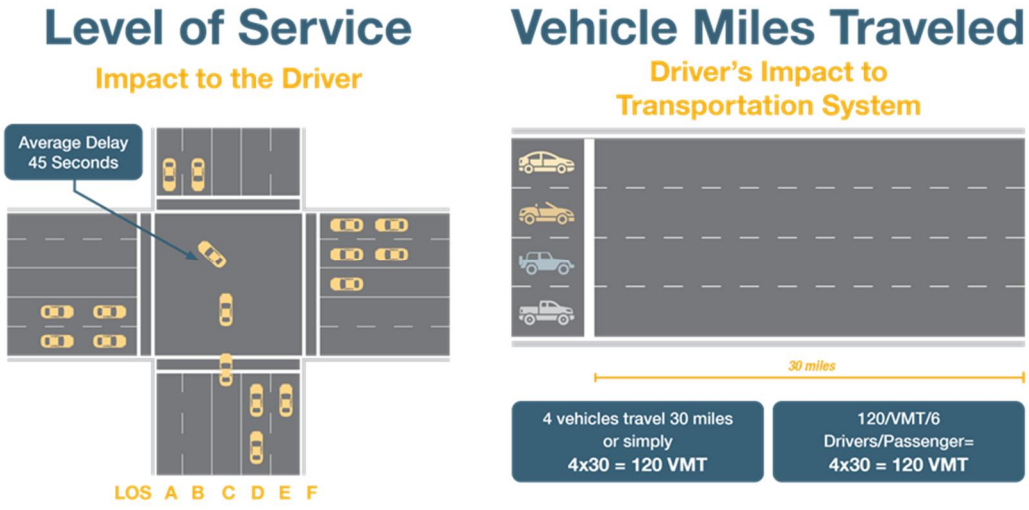
Introduction

California's Senate Bill (SB) 743 is a legislative bill that alters the approach to reviewing transportation impacts under the California Environmental Quality Act (CEQA) for both land use projects, such as housing developments, and transportation improvements, such as road widenings. The bill shifts the focus away from congestion measures to vehicle miles traveled (VMT) generated by a project.

Prior to SB 743's enactment, transportation impacts were evaluated based on Level of Service (LOS), a standard in the transportation sector since the first Highway Capacity Manual (HCM) was released in 1950. LOS measures the driver's experience in terms of delay or similar metrics and assigns a letter grade between "A" and "F" to suggest the need for further improvements. One of the unanticipated consequences of LOS, due to efforts to reduce delay and the cost of required transportation improvements resulting from new development, has been the construction of new housing and employment in less populated areas, leading to sprawl and greenfield development. Some transportation improvements aimed at improving LOS by reducing congestion have also resulted in a phenomenon called "induced demand," wherein existing users begin making more trips due to the resulting reductions in travel time. Consequently, transportation improvements to accommodate growth have not always resulted in improved LOS, as the increase in existing user travel, along with accommodating anticipated travel from new development, has often left LOS no better than before the improvement. In addition to urban sprawl and induced demand challenges, LOS-influenced decision-making has led to other undesirable outcomes, including negative impacts on active transportation (bikes, pedestrians), public transit, and public health.

SB 743 aims to reverse these trends by adopting VMT as a more holistic measure of impact on transportation systems. This shift from LOS to VMT encourages urban infill development, the use of active transportation and transit facilities, and reduces the environmental impacts associated with vehicular travel. Where VMT is typically lower, this approach seeks to promote sustainability and reduce greenhouse gas emissions. Exhibit 1 provides a summary of the differences between LOS and VMT.

Exhibit 1 – Level of Service vs. Vehicle Miles Traveled



With the change to VMT as the primary transportation performance metric, there has also been a need to identify new types of mitigations, as the solutions that work to address LOS impacts are often different from those that address VMT impacts. For instance, adding a new left-turn lane at an intersection to address a long delay adversely affecting LOS would not help address a VMT impact. Initially, most agencies across the state have relied on site-specific improvements, land use solutions, and transportation demand measures (TDM). However, in many instances, these solutions have not been sufficient to address significant transportation impacts for new projects.

Accordingly, there has been a growing interest in identifying new solutions to meet the increasing need for VMT mitigation. This study has been undertaken to evaluate the feasibility of a fee-based VMT mitigation program. Fee-based VMT mitigation programs seek to monetize VMT mitigation measures so that a project can obtain VMT mitigation proportional to its need. These programs have the potential to make various VMT mitigation measures available to projects that would otherwise not be feasible to develop or could not otherwise obtain mitigation from. By monetizing the mitigation process, these programs aim to provide a more flexible and comprehensive approach to reducing vehicle miles traveled and promoting sustainable transportation development.

Major efforts undertaken by the study include:

- A literature review of VMT mitigation programs across California and relevant existing case law (Appendix B)
- An evaluation of the state of the practice for fee-based VMT mitigation programs (Appendix B)
- Establishing the evaluation criteria for VMT reducing projects
- Establishing the evaluation criteria for the VMT mitigation program
- Conducting outreach to members of the Stakeholder Committee and the general public for input on the development of the City's VMT mitigation program, which included soliciting VMT reducing mitigation measures for evaluation and inclusion in the City's program (materials are found in Appendix C)
- Develop a tool to evaluate VMT impacts and mitigation measures (Appendix D)
- VMT Mitigation Bank Program and CEQA Clearance white paper (Appendix E)
- Developing a CEQA document (Categorical Exemption) to environmentally clear the City's VMT mitigation program (Appendix F)
- Establishing the City's VMT mitigation program

Existing City of Riverside SB 743 Policy

The City of Riverside's Transportation Impact Analysis Guidelines[4] include policies for evaluating the transportation impacts of a land use project for both Level of Service (LOS) and Vehicle Miles Traveled (VMT). Specifically, for VMT and SB 743, the City's Guidelines provide the methodology for assessing a development project's VMT impact on the surrounding roadway network. The guidelines offer two methods for determining a development project's impact:

1. Screening the project from a qualitative standpoint based on criteria that provide, assuming specific criteria are met, for a presumption of a less-than-significant transportation impact.
2. Using the RIVCOM travel demand model to quantitatively determine the project's VMT efficiency or net change in regional VMT, as applicable. In lieu of the full application of the RIVCOM model, the City also allows for the use of the WRCOG online tool to evaluate impacts for applicable land use projects that are not of regional significance.

There are three types of screening criteria that the City uses to screen development projects from project-level analyses. The steps for the screening process includes:

1. Projects located in a Transit Priority Area (TPA)
2. Projects located in a low-VMT generating area
3. Project land uses presumed to have a less than significant impact absent substantial evidence to the contrary including the following:
    - Local-serving retail projects less than 50,000 square-feet in size
    - Local-serving K-12 schools and day care centers
    - Local parks
    - Day care centers
    - Local-serving gas stations, banks, hotels (e.g., non-destination hotels)
    - Student housing projects
    - Local-serving community colleges consistent with the assumptions noted in the RTP/SCS
    - Projects consisting of 100% affordable housing
    - Projects generating fewer than 110 daily vehicle trips
4. Projects located in Housing Element Opportunity Sites
5. Redevelopment Projects

If a development project cannot be screened from a quantitative analysis based on the above criteria, the project must be assessed using the RIVCOM travel demand model to determine whether the addition of the project results in a significant impact. A project would result in a significant project-generated VMT impact if the one of the following conditions are satisfied:

- For residential projects: the baseline or cumulative project-generated VMT per capita exceeds 15 percent below the current jurisdictional baseline VMT per capita.
- For office and industrial projects: the baseline or cumulative project-generated VMT per employee exceeds 15 percent below the current jurisdictional baseline VMT per employee.
- For new retail and other land use projects: the project results in an increase in regional VMT based on a threshold consistent with the net total VMT of the jurisdiction.

[4] *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*. City of Riverside. July 2020.

The City of Riverside Guidelines allow for a wide variety of VMT mitigation. However, mitigating VMT impacts has proven to be more difficult than under the former LOS approach for analyzing traffic impacts. As a practical matter, the new VMT methodology establishes a very restrictive approach to identifying transportation impacts both because of the basis for setting an impact threshold and limited mitigation opportunities. In terms of the threshold of significance, the City of Riverside recommends, consistent with state guidelines, that projects consisting of residential or general employment category land uses effectively need to be in an area where they are 15-percent less than the current jurisdictional baseline VMT efficiency for similar uses. This means that to avoid a VMT impact, new projects must be in an area where they are more efficient than similar uses from a VMT standpoint, otherwise they will have to identify enough mitigation to adequately address their impact. The need to identify additional mitigation options results in a growing need for feasible mitigation measures to address VMT impacts.

In terms of mitigation, the City of Riverside has relied on site-specific improvements, land use solutions, and transportation demand measures (TDM) to mitigate VMT impacts. The most recent version of the CAPCOA Guidebook[5] on mitigating VMT impacts is the primary resource available for evaluating the effectiveness of TDM mitigation measures in California. However, the CAPCOA guidebook is limited in its ability to reduce impacts within the City for several reasons, including:

- Many of the measures can be costly, particularly for smaller developments.
- The context of a mitigation measure matters, and many TDM measures are most effective in dense urban areas.
- Many of the TDM measures are intended to be used by employers rather than for residential projects, and even ones that are able to be implemented by residential projects are still more effective for employment uses.
- The most effective TDM measures for residential projects are ones that can only be implemented via a significant program (very large developments).

Establishing a fee-based VMT mitigation program will allow the City of Riverside to do more to reduce VMT and its associated negative externalities by providing an additional funding mechanism for active transportation, transit, and other trip-reducing projects. Ideally, a fee-based VMT mitigation program does not discourage good design practices and instead is intended to meet VMT mitigation requirements that otherwise could not be met. Establishing the program will also have the added benefit of facilitating new development in the City and provide much-needed housing and other service needs.

[5] *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.* California Air Pollution Control Officers Association (CAPCOA). December 2021.

Outreach Summary

A key component of the development of the City of Riverside's VMT Mitigation Program was input from stakeholders and the public to help inform the selection of a recommended VMT program and its related VMT mitigation measures. At the onset of the study, an Outreach Plan was developed to serve as the basis for engaging and obtaining feedback from stakeholders and interested community members. The major components of the Outreach Plan included a Stakeholder Advisory Committee (SAC), targeted stakeholder outreach, a public meeting, a study website and online survey, social media posts, and branding. The Outreach Plan, summary memos of each meeting held, the presentation from each SAC meeting and the public meeting, and the online survey results can be found in Appendix B. Exhibit 2 below summarizes the key outreach efforts completed as a part of the study.

Exhibit 2 – Key Outreach Efforts Completed

Six SAC meetings were held throughout the lifecycle of the study. The SAC included a variety of individuals and organizations that represent the diverse nature of the City of Riverside both on the residential and business side of the City. As the VMT mitigation program would provide benefits to the entire City and provide feasible mitigation options to the business community looking to develop in the City, as varied a group as possible was solicited to participate. Those invited to participate in the SAC included:

- Neighborhood groups within the City of Riverside such as the Riverside Neighborhood Partnership, the Eastside Neighborhood Form, the Magnolia Area Neighborhood Alliance, and the University Neighborhood Association
- Business groups such as the Riverside Downtown Partnership, the County of Riverside Black Chamber of Commerce, the Riverside Chamber of Commerce, the Riverside Building Industry Association, and the Asian Business Association Inland Empire
- Representatives of educational institutions, both K-12 and higher education institutions, such as the University of California Riverside, La Sierra University, Riverside Community College, and the Riverside Unified School District
- Local advocacy groups such as the Riverside Bike Club
- Community Based Organizations (CBOs) such as the Latino Network

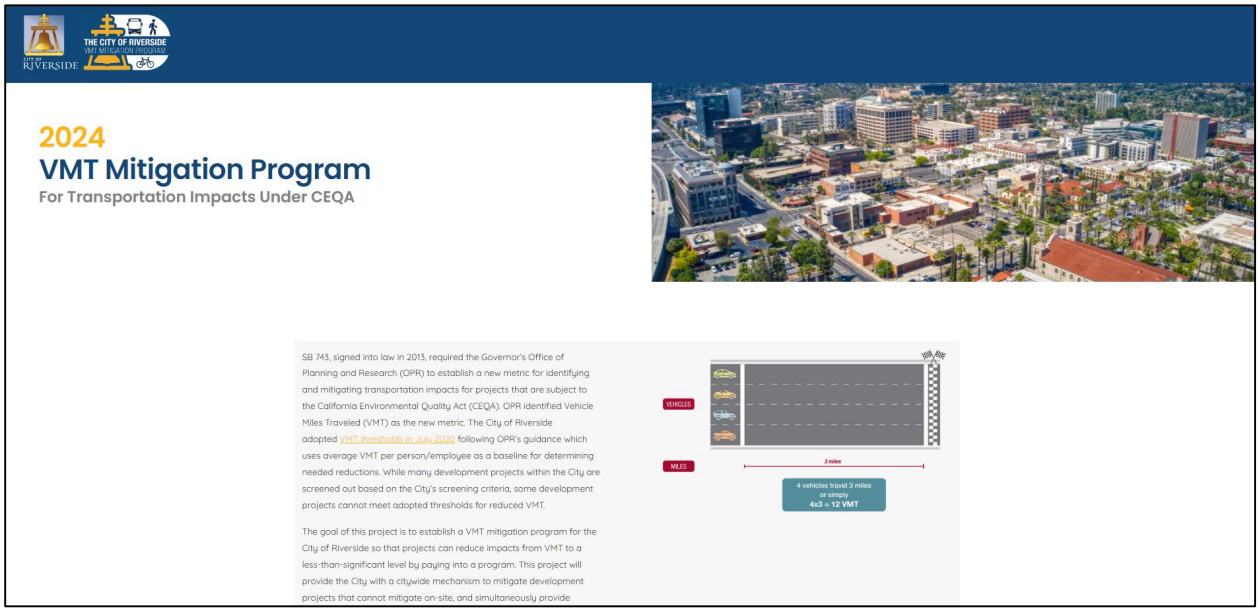
In total, 45 different organizations were invited to participate in the SAC. The SAC meetings provided an opportunity to educate stakeholders, obtain input to inform study recommendations, and provide updates on the study's progress. The SAC's input was solicited to inform both the selection of the recommended VMT mitigation program and its underlying VMT mitigation measures.

In addition to the six SAC meetings, the project team completed multiple targeted stakeholder meetings. This included meetings with the Western Riverside Council of Governments (WRCOG), Riverside County, the Riverside Transit Authority (RTA), and the University of California at Riverside (UCR). These meetings provided an opportunity for these key agency partners to ask questions, provide recommendations, and suggest potential VMT mitigation measures.

One public meeting was held to solicit feedback on the study from members of the public with notices provided to the public in both English and Spanish. The public meeting took place at the Riverside Main Library on December 14, 2023, from 5:30 to 7:00 PM and Spanish speaking translators were available during the meeting. The meeting included a presentation by the project team and an open forum with boards showcasing the types of VMT-reducing mitigation measures being considered for the City's VMT Mitigation Program and their respective locations throughout the City. Eight members of the public attended the meeting and were encouraged to ask questions about the program during the presentation. The project team was also available to answer additional questions or discuss topics with the public after the presentation concluded.

In conjunction with the public meetings and the six SAC meetings, a dedicated project website was established at https://riversidevmt.com/. This website served as a central hub for information, allowing the public to stay informed about the program's developments, access meeting materials, and provide feedback. Exhibit 3 below is a screen capture of the project website.

Exhibit 3 – City of Riverside VMT Mitigation Program Project Website



In addition to the project website, a public survey was drafted with a link posted on the website and distributed to the public via social media to solicit direct feedback on the study. Background information was provided along with the survey that included a short video on VMT and VMT mitigation programs. The survey contained eight questions including the following:

1. Are you a Riverside resident, business owner, or both?
2. Have you heard of Vehicle Miles Traveled (VMT) before?
3. How do you feel about a fee program being introduced to provide additional options for development applicants to pay to reduce their Vehicle Miles Traveled (VMT) impacts?
4. Would you prefer a program where fees are charged based on the project size (e.g., number of dwelling units for residential project or total square-feet for non-residential projects) or by the size of their VMT impact (i.e., fees based on a project's total VMT above the City's threshold)? Note that in the first program type, fees are charged whether or not a project has a VMT environmental impact.
5. Which types of mitigation projects are you most excited about implementing? Please rank the following options: Transit, Bicycle/Pedestrian, Land use (affordable housing/transit-oriented development, Reduced demand (e.g., road diets, lane restrictions, and traffic calming), and Transportation Demand Management (e.g., telecommuting programs, carpooling programs, vanpool programs, or charging for on-street parking).
6. Which types of Transportation Demand Management measures do you prefer most to implement?
7. Do you prefer a VMT reduction program where a portion of fees generated are required to be spent locally (i.e., spent in the general area in which the project is located), or one where funds are spent on projects located throughout the region regardless of where projects are located?
8. Concerns have been raised about implementing a fee-based VMT mitigation program. Please rank the concerns below from most concerning to least concerning in your option: Project selection (i.e., identifying feasible or cost-effective projects), Equity (i.e., ensuring the costs and benefits of a program are shared equally throughout the region), The potential for increasing the cost of development, Gathering enough community or decision-maker support to implement the program, and The potential legal issues or complexity of the program.

The results of the survey resulted in the following conclusions that heled shape the formation of the City's VMT mitigation program:

- All respondents to the survey indicated that they were residents of the City
- All but one respondent indicated that they would prefer a program where a portion of fees generated are required to be spent locally
- Few respondents indicated that they were familiar with VMT state requirements
- 60-percent of respondents indicated that they do not support a developer fee program
- 70-percent of respondents indicated they preferred a program in which fees are charged based on the size of a project's impact
- Bicycle and transit improvements were the preferred types of mitigation measures
- Telecommuting programs were the preferred types of transportation demand management measures by over 70-percent of respondents
- Identifying feasible or cost-effective mitigation measures for the program was the highest concern for the respondents while the potential legal issues or complexity of the program was the lowest concern

To ensure wide-reaching engagement and accessibility, social media posts were crafted to spread awareness about the study and the public meetings. These posts were designed to reach a diverse range of individuals, drive interest, and encourage participation in the study.

The study also established branding for the program consistent with other existing City of Riverside programs. With input from City staff and the SAC, the logo in Exhibit 4 was established for use in future efforts surrounding branding of a fee-based VMT mitigation program.

Exhibit 4 – City of Riverside VMT Mitigation Program Logo

Establishing Mitigation Need

Future development locations, development quantity, and the corresponding mitigation requirements play a crucial role in assessing the necessity of a fee-based VMT mitigation program and its potential scope. To accomplish this, a dataset was created by utilizing data from the RIVCOM travel demand model. This dataset estimates the VMT mitigation needs for the City. This data analysis assisted in evaluating the overall feasibility of different program options and determining the scale of VMT mitigation measures that would be needed to mitigate the City's VMT. This dataset holds significance in understanding the potential cost magnitude that individual development projects may need to bear to fully mitigate their VMT impacts. It also provides insights into how these costs may influence policy considerations concerning the definition of feasible mitigation under CEQA.

By leveraging the RIVCOM model and using the City's VMT thresholds, the total potential VMT to be mitigated was determined by calculating the difference between the VMT per capita and VMT per employee for each Traffic Analysis Zone (TAZ) that was over the established thresholds. The difference was then multiplied by the population and total employees for each TAZ to develop a total VMT per TAZ to be mitigated, which then allowed for a citywide total to be calculated.

Based on the analysis, it is anticipated that based on the households and jobs that will be constructed or created between 2018 and 2045 in locations that are currently above the City's VMT threshold, the total VMT needing to be mitigated is 191,803 VMT for residential land uses and 299,003 VMT for employment land uses. This equates to a mitigation need of 7,104 VMT per year for residential land uses and 11,074 VMT per year for the employment land uses for the 27-year period between 2018 and 2045, as shown in Table 1.

Table 1 – Potential Land Use Growth and VMT to Mitigate, 2018 to 2045

Community Type	Future VMT to Mitigate		
	Residential	Employment	Total
Total VMT (Thru 2045)	191,803	299,003	490,806
Total VMT per Year	7,104	11,074	18,178

Exhibit 5 and Exhibit 6 visually show total VMT needing to be mitigated by 2045 for residential and employment land uses.

Exhibit 5 – Residential VMT Mitigation Need by TAZ

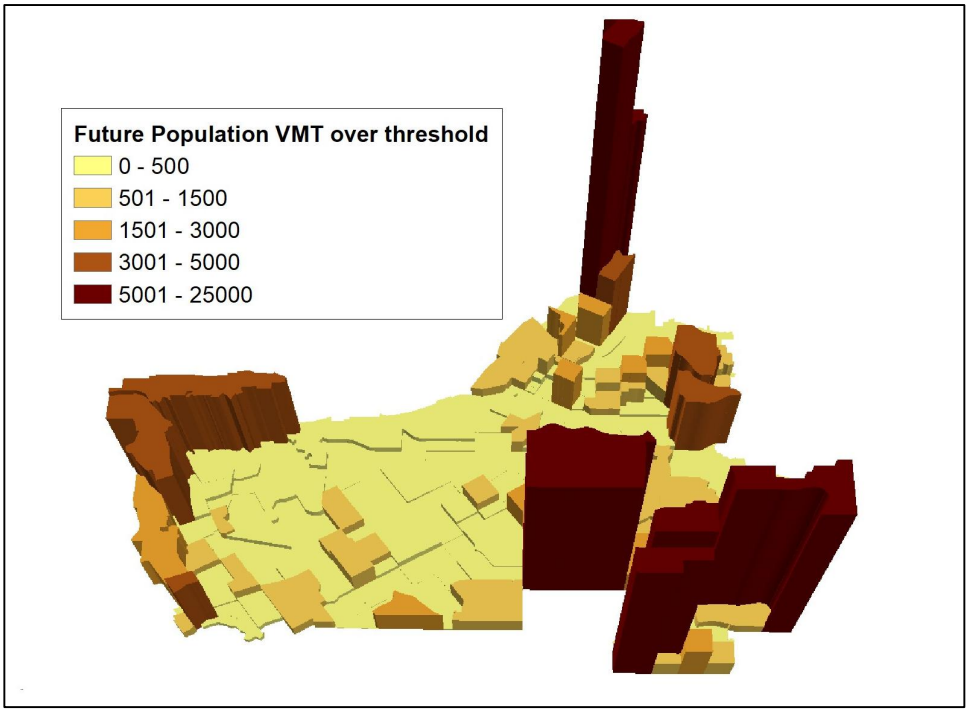
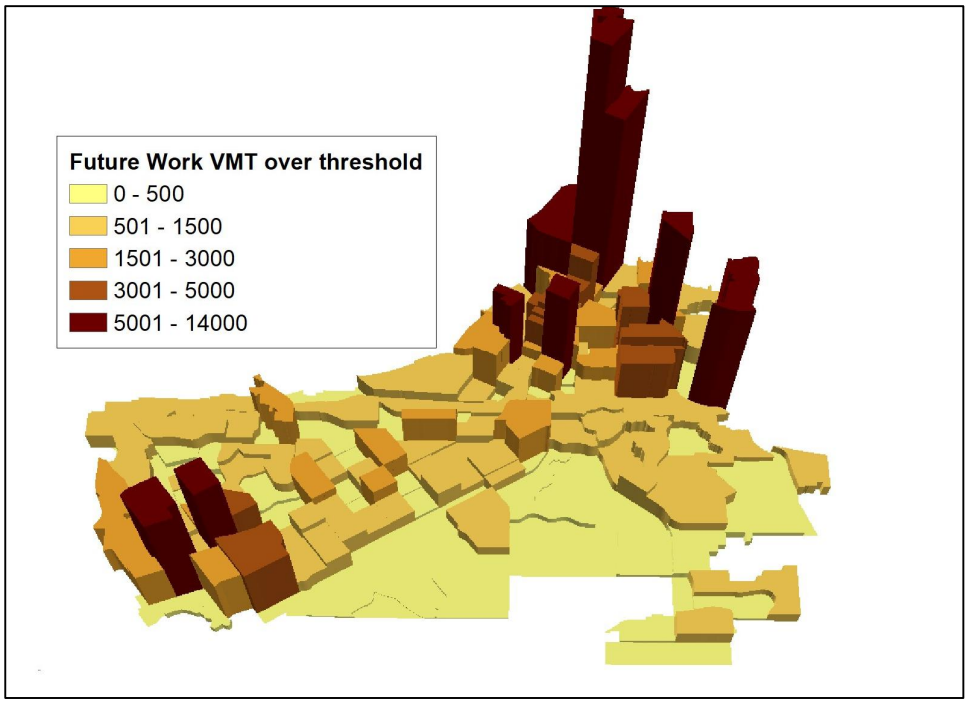


Exhibit 6 – Employment VMT Mitigation Need by TAZ



VMT Evaluation Tool

As part of this study, the project team developed an online VMT evaluation tool, an application designed to estimate the VMT impact of development projects. The use of sketch models, or VMT estimation tools to conduct SB 743 compliant evaluation of VMT impacts and mitigation evaluation is a well-established practice in many locations throughout California. In OPR's 2018 guidance documentation[6] evaluating CEQA transportation impacts under SB 743, it specifically states "Travel demand models, sketch models, spreadsheet models, research, and data can all be used to calculate and estimate VMT…". This tool enables the user (City staff or others that staff deems appropriate to use the tool) to select parcels corresponding to the location of a proposed project, input specific project information, and execute the evaluation process. The tool then performs detailed VMT calculations, providing the user with impact results including total VMT generated, VMT per capita, VMT per employee, the VMT per unit threshold specific to the relevant agency in which the project is located, the percentage by which the development project exceeds or falls below this threshold, supplementary data including planning level estimates of greenhouse gas emissions associated with the implementation of the project, and options to mitigate identified VMT impacts.

A beta version of the VMT estimation tool, based on the project team's TREDLite VMT product, along with a user guide (provided in Appendix D), was presented to the SAC. During the presentation to the SAC, the VMT estimation was tested with multiple example development projects, providing a practical demonstration of its capabilities.

[6] California Governor's Office of Planning and Research (OPR). (2018). Technical Advisory on Evaluating Transportation Impacts in CEQA, Page 30

VMT Mitigation Measures

Various VMT mitigation measures are available for projects that need to reduce their VMT impacts. Exhibit 7 below highlights examples of measures that can reduce VMT in the City. As shown, there are a variety of VMT mitigation measures that can be used to mitigate project VMT impacts. However, it can be difficult for a single project applicant to implement these VMT mitigation measures for a variety of reasons, including:

1. Legal Jurisdiction
    - Issue: Many VMT mitigation measures fall under the jurisdiction of the City, which must sponsor, fund, and oversee their implementation.
    - Solution: City-led initiatives with clear roles and responsibilities for project sponsors.
2. Cost Prohibitive Nature
    - Issue: High costs associated with VMT mitigation measures may be unaffordable for individual applicants, and coordination among multiple applicants for joint funding is complex.
    - Solution: Establish a fee-based VMT mitigation program managed by the City to pool resources and fund large-scale VMT reduction projects.
3. Management and Construction Capabilities
    - Issue: Individual applicants often lack the expertise to manage and construct public works improvements, especially those involving complex policy and planning elements.
    - Solution: Centralized management by the City to ensure proper implementation and oversight of VMT mitigation measures.

Given these challenges, it is not practical for individual project applicants to undertake many VMT mitigation measures alone. A City-led, fee-based VMT mitigation program is necessary to facilitate the implementation of these mitigation measures, leveraging the City's legal jurisdiction, financial resources, and technical expertise to achieve the desired VMT reductions comprehensively.

Exhibit 7 – VMT Mitigation Measures

VMT Mitigation Measures		Examples
	Pedestrian	Adding sidewalks or filling in sidewalk gaps
	Bike	New lane miles of Class I - Class IV bike lanes, filling in gaps in bike infrastructre, or bike share
	Transit	New transit lines, extension of existing service, or adding new service types such as BRT
	Road Diet	Reducing capacity and providing non-auto infrastructure such as protected bike lanes or bus pull outs
	ITS/ TSM	Providing parking wayfinding, optimizing signal systems, providing trip planning services
	Mobility Hub	Provide infrastructure to link multiple types of transportation modes
	Affordable Housing	Providing affordable housing in dense areas, transit-oriented development, or other affordable housing supportive needs
	Vanpool/Carpool	Implement regionwide vanpool and carpool programs or expand existing programs
	Park-and-Ride	Construct park-and-ride lots to increase trip occupancy

Prior to choosing mitigation measures for evaluation, the measures must first meet the criteria of additionality, a requirement set by CEQA where the need for mitigation must be caused by a project impact. In addition, Caltrans defines additionality as "a critical step in asserting such mitigation is to assure that the investment provides additional resources that otherwise would not have been provided or providing the additional resources substantially earlier than they otherwise would have been available." Put simply, a mitigation measure would not have happened were it not for the additional funding from the fee-based VMT mitigation program.

Once it was determined which mitigation measures meet the criteria of additionality, mitigation measures were selected for further evaluation based on the following considerations:

1. High non-single occupancy or active transportation trip rate potential: improvements with higher usage (i.e., high bike ridership).
2. Located in a denser area: mitigation measures located in existing infill areas are favorable.
3. Shorter trip lengths: shorter trips tend to favor active transportation and transit usage.
4. Financial need: the mitigation measure has financial need sufficient to meet additionality requirements. Note that this can also be accomplished by advancing a mitigation measure that would not otherwise be constructed in the near term.
5. Measure feasibility: other than financial needs, the measure is likely to be constructed in the near term.

Once VMT mitigation measures were chosen for evaluation, the measures were ranked according to criteria summarized in Exhibit 8.

Exhibit 8 – VMT Mitigation Measure Ranking Criteria

High VMT Reduction per $	Identified mitigation solutions need to be financially viable and feasible
Reliability of Other Funding Sources	Likelihood of other funding sources
Immediacy	Constructable in a short timeline
Readiness	No issues that may impede its implementation
Geographic Distribution	Consideration of project distribution across the City
Transportation Disadvantaged	Provides mobility options to those with reduced car ownership
Community Value Alignment	Supports ongoing planning efforts
Distribution of Project Type	Consideration of project types and modes in terms of distribution

Caltrans has also provided some additional clarity on the claiming of VMT mitigation for mitigation measures that are only partially funded by a fee-based VMT mitigation program. Its most recent guidance[7], suggests that a fee-based VMT mitigation program does not need to be the sole funder to claim the full mitigation credit. This applies to models like in-lieu fee payments or mitigation programs where the sponsor transacts with another party for mitigation. According to Caltrans, as long as the mitigation is enforceable, feasible, not deferred, and mechanisms are in place to avoid double counting, a sponsor can claim full mitigation credit.

This interpretation allows the City of Riverside to calculate the unit cost per VMT for VMT-reducing measures by dividing the proportional cost by the full VMT credit. If the funding from a fee-based VMT mitigation program does not fully cover the project, additional funding must be secured. This approach enables the inclusion of a wide array of VMT-reducing measures in the program but could pose difficulties securing extra funding to fill any financial shortfall if the program does not fully fund the mitigation measure.

Fee-Based VMT Mitigation Program Framework Options

To broaden the scope of VMT mitigation options, VMT mitigation programs, like those under consideration in this study, are being explored for implementation across California. These programs have the potential to provide a range of land use and transportation projects, irrespective of size or type, with the ability to participate in VMT mitigation measures at a level commensurate with their impact.

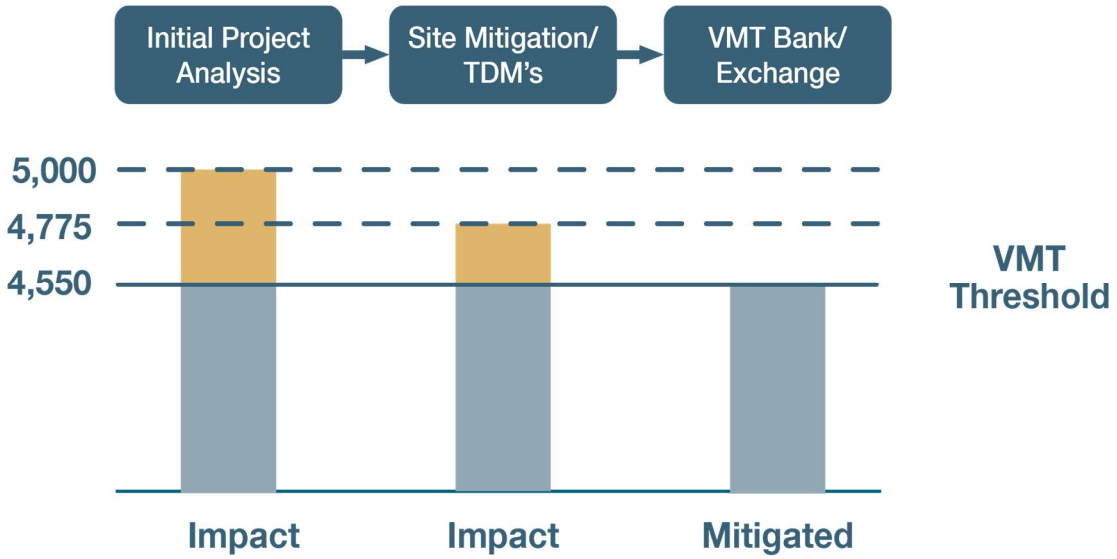
Exhibit 9 visually illustrates the process of mitigating transportation impacts in areas with a fee-based VMT mitigation program. As shown, fee-based VMT mitigation programs are typically intended to be secondary to site-specific improvements, land use solutions, and transportation demand measures (TDM)

[7] Caltrans, Housing and VMT Mitigation https://dot.ca.gov/programs/esta/sb-743/resources/housing, accessed on 3/6/2024

that may be implemented by a project applicant. As noted previously, a fee-based VMT mitigation program ideally does not discourage good design practices and instead is intended to meet VMT mitigation requirements that otherwise could not be met.

In the example project from Exhibit 9, the initial calculation shows that the project exceeds its VMT threshold by 450 VMT, with a threshold set at 4,550 VMT and an initial project generated VMT of 5,000 VMT. To address this excess, the project implements various on-site TDM measures, successfully reducing the VMT by 225 VMT, thereby lowering the excess VMT to 225 VMT (from the initial 450 VMT). To further mitigate this remaining VMT, the project pays into a fee-based VMT mitigation program, thus reducing the final 225 VMT. This combination of on-site TDM measures and contributions to a fee program ensures that the project complies with the VMT threshold requirements resulting in a project's transportation impact being fully mitigated.

Exhibit 9 – Application of a VMT Mitigation Program



Although fee-based VMT mitigation programs can take multiple forms, the three most common program types, and the primary focus of this study, are discussed below.

VMT Bank

A VMT mitigation bank is a structured program designed to help project applicants offset their VMT impacts by purchasing credits from a central repository of VMT mitigation measures. In the City of Riverside, the VMT bank would function as a central entity collecting fees from project applicants whose projects have a significant transportation impact as defined by the City's CEQA guidance and have not otherwise implemented sufficient VMT mitigation measures. These funds would be used by the City to implement various VMT mitigation measures across Riverside.

Managed by the City, the VMT bank ensures efficient and effective planning, funding, and implementation of VMT mitigation measures. When a new development project is proposed, its expected VMT impact is assessed, and the project applicant would pay a fee to the VMT mitigation bank based on the extent of the VMT impact that needs to be offset, considering other VMT mitigation measures the applicant may

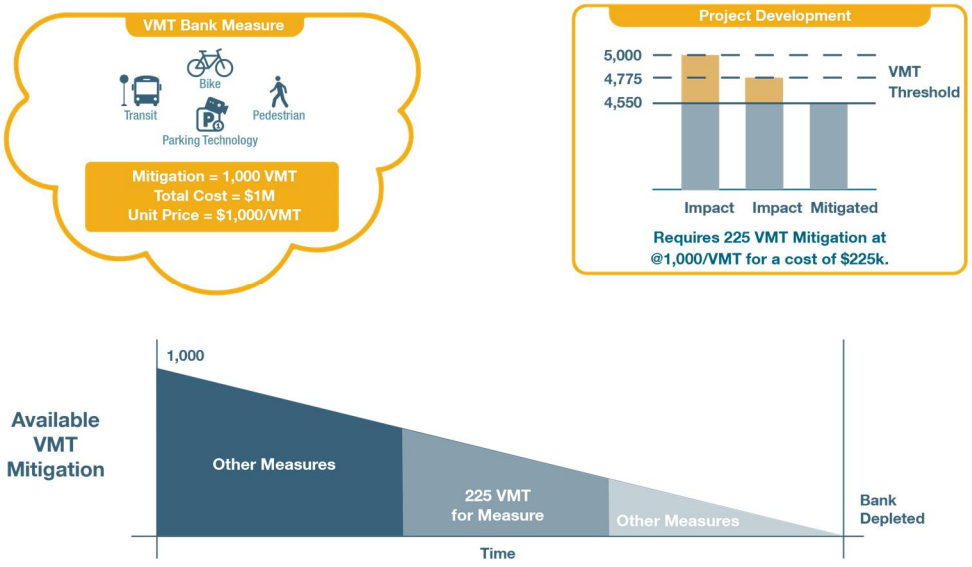
have implemented. Collected funds are allocated to pre-approved mitigation measures, chosen for their potential to reduce VMT and align with existing City transportation goals. The VMT bank oversees the implementation and monitoring of these mitigation measures to ensure their effectiveness. The VMT mitigation bank offers developers flexibility and a simplified compliance process, providing a straightforward fee payment to meet VMT mitigation requirements while achieving significant overall VMT reductions.

To establish a VMT mitigation bank, the following steps are undertaken, as shown in Exhibit 10:

1. Identify VMT-reducing mitigation measures, such as bicycling facilities, pedestrian infrastructure, and public transit.
2. Evaluate these mitigation measures to determine the extent of VMT reduction.
3. Combine the VMT reductions from all mitigation measures to calculate the total mitigated VMT (e.g., 1,000 VMT).
4. Sum the costs associated with all mitigation measures (e.g., $1 million).
5. Calculate the cost per VMT reduced by dividing the total mitigation measure cost by the total VMT reduction (e.g., $1,000 per VMT).

Once the cost per VMT is established and the VMT bank is operational, a project can offset its VMT impact by paying a per VMT fee to the bank. For instance, if a project needs to reduce its VMT impact by 225 VMT to meet the City's VMT threshold requirements, the total fee would be $225,000, calculated by multiplying the cost per VMT reduced ($1,000/VMT) by the total VMT needing to be reduced (225 VMT). Once the available VMT is used up by development projects purchasing VMT from the bank, new VMT mitigation measures would need to be identified to replenish the VMT bank.

Exhibit 10 – VMT Bank Example

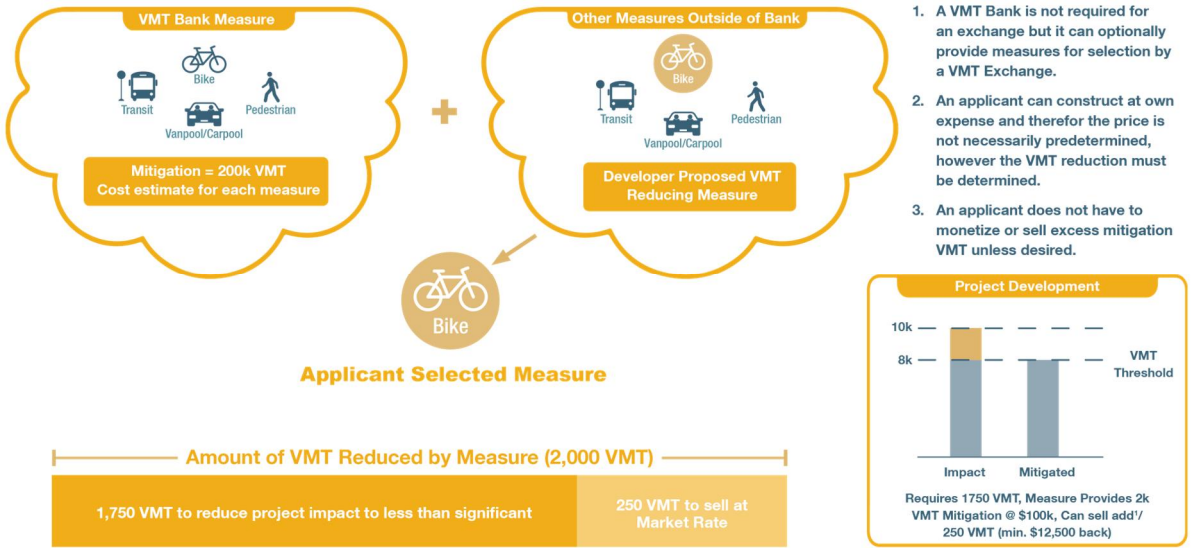


VMT Exchange

VMT exchanges function similarly to VMT banks, with the primary difference being that in a typical VMT exchange, project applicants have the flexibility to select a single VMT mitigation measure from an existing list or program of VMT mitigation measures or propose a new VMT mitigation measure that may not be listed. Unlike VMT banks, it is not necessary to monetize the selected VMT mitigation measure unless the project applicant wishes to make excess VMT mitigation available to others for purchase as credits.

For instance, as illustrated in Exhibit 11, an applicant develops a bicycle improvement that reduces VMT by 300 VMT. However, if the applicant only needs to reduce their VMT impact to the VMT threshold by 225 VMT, they would have 75 surplus VMT available to sell to others at a market rate. The market rate can be determined by the City to be based on the cost per VMT reduced of the measure constructed/implemented by the applicant or based on the demand for that VMT from other project applicants. This flexibility allows project applicants to directly contribute to the City's ability to offer VMT mitigation while also potentially benefiting financially from their excess VMT mitigation credits. The VMT exchange model provides a dynamic and flexible approach to VMT mitigation, enabling tailored solutions and encouraging innovative VMT-reducing mitigation measures.

Exhibit 11 – VMT Exchange Example



VMT Impact Fee

Under a VMT Impact Fee program, a new development project would be required to pay a fee to offset its VMT impact, determined by factors such as the total number of planned dwelling units or the total square footage of planned building construction. This program would function similarly to existing development fee programs but would exclusively fund mitigation measures that reduce VMT. Notably, if an applicant project is located in an area that does not result in a significant transportation impact as defined by the City's VMT guidance, it would not incur a fee.

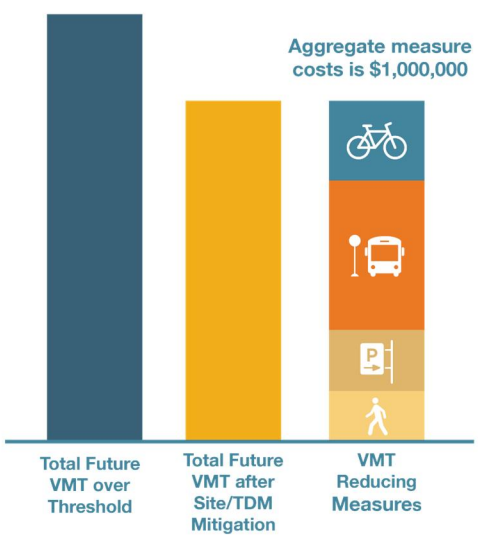
As illustrated in Exhibit 12, the fees are calculated by land use types based on the projected VMT generation from planned developments over a 10-20 year timeframe, focusing on offsetting the VMT mitigation requirement. Like the VMT bank, fees are computed by dividing the total VMT needed to be

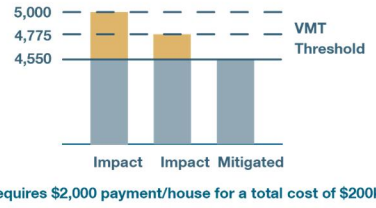
mitigated by future projects by the cumulative cost of VMT mitigation measures. However, unlike a VMT bank, this calculation is performed separately for each land use type rather than being assigned to projects based on their unique VMT mitigation requirements.

The fee for each land use type is determined by first quantifying the VMT that needs to be mitigated for each land use type, calculating the share of the total VMT requiring mitigation, multiplying that percentage share by the total cost of the VMT-reducing mitigation measures, and then dividing the land-use specific cost by the growth for each land use (either dwelling units or square feet). For example, if the residential land use accounts for 50-percent of all future VMT mitigation needs and the total cost of VMT-reducing mitigation measures is $1 million, then the residential land use would have a total mitigation cost of $500,000 (50-percent of $1 million). If the anticipated number of houses to be constructed in the future is 250 houses, the fee would be calculated by dividing $500,000 by 250 homes, resulting in a fee of $2,000 per home.

This fee-based VMT mitigation program would streamline the process for developers by providing a clear and predictable cost structure while ensuring that funds are directed toward effective VMT-reducing mitigation measures. By aligning the fees with specific land use types and their associated VMT impacts, the program ensures that mitigation efforts are proportionate and targeted, ultimately contributing to the reduction of overall VMT in the City.

Exhibit 12 – VMT Impact Fee Example





Requires $2,000 payment/house for a total cost of $200k.

VMT Impact Fee Schedule

Land Use Type	Amount	Units	Fee/Unit	Total
Residential	250	Houses	$2,000	$500,000
Industrial	2,500,000	S.F.	$0.10	$250,000
Office	1,000,000	S.F.	$0.13	$125,000
Regional Commercial	250,000	S.F.	$0.20	$125,000
			Total	$1,000,000

If implemented, to enhance the effectiveness of a VMT impact fee framework, it would be beneficial to divide the City into multiple benefit areas. This allows for fees to be assessed based on the VMT efficiency of a benefit zone in terms of overall VMT performance. Such an approach can incentivize projects to locate in VMT-efficient areas within the City.

As shown in Exhibit 13, the areas forming Zone 1 all fall below the VMT threshold for both residential and non-residential uses, resulting in no fees being administered for projects in that zone. Conversely, Zone 2 has the worst VMT performance and thus contains the highest fees charged for the City. This zonal approach ensures that the VMT impact fee framework not only promotes development in areas with

lower VMT but also directs mitigation efforts and funds toward areas with higher VMT impacts, thereby optimizing the overall reduction in VMT across the City.

Exhibit 13 – VMT Impact Fee Program with Multiple Benefit Areas

Zone		Units	Fees/Unit
1	Residential	Houses	0
	Industrial	S.F.	0
	Office	S.F.	0
	Regional Commercial	S.F.	0
2	Residential	Houses	$2,200
	Industrial	S.F.	$0.12
	Office	S.F.	$0.15
	Regional Commercial	S.F.	$0.22
3	Residential	Houses	$1,500
	Industrial	S.F.	$0.08
	Office	S.F.	$0.11
	Regional Commercial	S.F.	$0.17

Program Evaluation

Exhibit 14 below provides a summary of how each type of VMT mitigation program was evaluated against the six program evaluation criteria established during the study. White dots indicate a "concern" that the complexity of a specific program criterion or the lack of practical experience with it may represent a challenge to its implementation. While all program types are believed to be ultimately implementable, these designations highlight areas that will require additional evaluation before their respective programs can be considered for implementation. Following is a description of the program evaluation criteria:

- Legal – The program meets CEQA and statutory requirements including additionality.
- Effective – The program has potential to achieve significant VMT reductions.
- Geography – The program is able to scale to meet the City's needs.
- Administration – The program is able to fund oversight and management of the program, including technical analyses.
- Equitable – The program avoids disproportionate impacts and encourages equitably distributing benefits.
- Alignment – The program aligns with community values and plans and supports good project design.
- Timeliness – The program includes mitigation measures that can be implemented in a timely manner.
- Feasibility – The program includes mitigation measures that do not have major obstacles to implementation.

As shown in Exhibit 14, only the VMT bank framework does not have any concerns for the designated evaluation criteria.

Exhibit 14 – VMT Mitigation Program Evaluation

	VMT Bank	VMT Exchange	VMT Impact Fee
Legal	●	○	●
Effective	●	●	●
Geography	●	●	○
Administration	●	○	○
Equitable	●	○	●
Alignment	●	○	●
Timeliness	●	○	●
Feasibility	●	○	○

● Feasible ○ Concern

The VMT mitigation exchange option could raise concerns about nexus and proportionality if a project applicant undertakes mitigation measures that are disproportionate to the VMT impact being mitigated

and is subsequently unable to sell their excess VMT mitigation at market value. Additionally, administering a program where unknown mitigation measures are proposed raises questions about the predictability of VMT mitigation measure availability to the City. Since a VMT exchange allows for mitigation measures that may not otherwise be considered by the City, there are questions regarding whether the proposed mitigation measures would align with the City's goals as established in its existing plans. Lastly, such mitigation measures could be implemented indiscriminately around the City and/or with a bias towards certain areas, raising concerns about the equitable distribution of mitigation measures.

While a VMT mitigation impact fee address some of the concerns raised by the VMT exchange model, it is fixed with regard to geographic implementation and does not allow for as much flexibility to respond to development mitigation needs. Most concerning is that an individual project applicant would not get credit for mitigation measures implemented on-site, and as such, a VMT impact fee program would not necessarily incentivize good design choices. The way impact fees are calculated also adds more complexity to their administration, and impact fee programs must comply with numerous state laws, requiring more staff time from the City compared to other program options.

After discussions with the Stakeholder Committee, it was decided that any program with a VMT exchange should be removed due to these concerns and that an impact fee approach was not a good fit for the City given its complexity to administer. This left the VMT banking option as the only framework for consideration that was not associated with any major obstacles or concerns. Ultimately, it was the recommendation of the Stakeholder Committee, City staff, and the project team that a VMT bank be considered as the preferred framework for the City's future program to reduce complexity and address concerns around equity by the public agencies implementing the program.

Identifying and Evaluating VMT Mitigation Measures

This study analyzed the specific mitigation measures that could be included in the City's fee-based VMT mitigation program. The initial phase involved the identification of mitigation measure categories that would undergo review before individual mitigation measures were selected for evaluation. These categories included active transportation (bicycle and pedestrian), transit, transportation demand measures, land use (affordable housing), and others.

Understanding a need for a diverse set of mitigation measures, both in terms of geographic location as well as mitigation measure type, several different sources were used to develop potential mitigation measures. Potential mitigation measures were solicited from the SAC during the third meeting with the Stakeholders, existing City plans and documents, and four one-on-one agency meetings with WRCOG, Riverside County, RTA, and UCR.

Below is a description of the methodology used to evaluate each mitigation measure type, as well as a summary of the evaluation results for each mitigation measure.

Bicycle Mitigation Measures Evaluation

Twenty-nine bicycle improvements located throughout the City were evaluated to determine their feasibility for inclusion in the City's fee-based VMT mitigation program. These improvements were sourced from the Riverside PACT[8], which includes the City's Bicycle Master Plan[9], and the Northside Specific Plan[10]. Note that several improvements listed in the PACT were identified for evaluation but were subsequently noted as being constructed or otherwise funded and were removed from consideration. In addition, modifications have been made to the extents of the improvements based on improvements since the City's Bicycle Master Plan has been published.

The approach to calculate VMT reductions for bicycle mitigation measures involved a multi-step process that integrates various data inputs and modeling techniques. The approach used in this study to analyze bicycle improvements includes:

- Estimates for future ridership were based on the National Cooperative Highway Research Program (NCHRP) 552[11] methodology
- Transportation analytics data (Replica) was used to determine the average trip distance along the improvement's alignment
- To better isolate the effects of the mitigation measures, the change in VMT was calculated for areas within 0.5, 1.0, and 1.5 miles of the improvement

[8] *The City of Riverside PACT: Pedestrian Target Safeguarding Plan (PTS), Active Transportation Plan (AT Plan), a Complete Streets Ordinance (CSO), and a Trails Master Plan (TMP)*. City of Riverside. https://riversideca.gov/pact.
[9] *City of Riverside Bicycle Master Plan*. City of Riverside and Alta Planning + Design. Adopted May 22, 2007.
[10] *Northside Neighborhood & Pellissier Ranch Specific Plan*. City of Riverside. Adopted November 17, 2020.
[11] NCHRP Report 552, produced under the auspices of the Transportation Research Board (TRB), offers a framework for evaluating bicycle infrastructure investments, guiding planners in assessing economic, social, and environmental impacts. It provides methods to quantify benefits like accessibility, reduced congestion, health, and environmental gains, supporting informed decisions on bike facilities. The NCHRP itself is a program funded by member states of the American Association of State Highway and Transportation Officials (AASHTO), in cooperation with the Federal Highway Administration (FHWA).

- Transportation analytics was also used to calibrate bicycle ridership levels along the recommended alignment using existing mode split and bicycle ridership along the improvement's alignment
- The number of trips generated by the implementation of the improvement were further filtered to remove trips not associated with replacing vehicle trips such as exercise trips
- The factored ridership was multiplied by the average trip distance to determine the total VMT reduced by implementation of the improvement

The results of the VMT reduction analysis for the VMT mitigation measures are summarized in Table 2 below with costs per VMT reduced ranging from $10 to $32,827. The costs for each project shown in Table 2 were obtained from the source documents such as the Riverside PACT's Active Transportation Plan [8] and detailed cost estimates developed by the City.

The types of bicycle improvements evaluated included a bike path (Class I), bike lanes (Class II), buffered bike lanes (Class IIB), bicycle routes (Class III), bicycle boulevards (Class IIIB), and separated bikeways (Class IV). Exhibit 15 below provides an illustrative example of the types of bicycle improvements evaluated as a part of this study.

Exhibit 15 – Types of Bicycle Improvements Evaluated for the City of Riverside

Table 2 – Summary of Bike Mitigation Measure Evaluation

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
1	Dufferin Avenue*	5	Stripe bicycle boulevard between Van Buren Blvd and Jefferson St	$ 4,672,260	142	$32,827
2	Victoria Avenue*	3,4,5	Construct buffered bike lane between Washington St and Central Ave	$4,900,730	251	$19,556
3	14th Street*	2	Stripe buffered bike lane between Chicago Ave and Brockton Ave	$1,132,716	102	$11,075
4	Gramercy Place*	6,7	Stripe bike lane between La Sierra Ave and Tyler St	$1,048,552	115	$9,101
5	Gramercy Place*	7	Stripe bicycle route between Tyler St and Crest Ave	$527,763	78	$6,766

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
6	Streeter Avenue*	3	Construct buffered bike lane between Arlington Ave and Jurupa Ave	$1,752,162	281	$6,246
7	Hole Avenue*	6	Construct buffered bike lane between Wells Ave and Collett Ave	$1,123,805	195	$5,755
8	Madison Street*	3,4	Stripe bike lane, buffered bike lane, and bike boulevard between Indiana Ave and Victoria Ave	$627,192	131	$4,792
9	Maude Street*	3	Stripe bicycle boulevard between Victoria Ave and Arlington Ave	$1,215,000	305	$3,989
10	Kansas Avenue*	2	Stripe bicycle boulevard between University Ave and 3rd St	$1,516,086	386	$3,931
11	Jurupa Avenue*	3	Construct buffered bike lane between Van Buren Blvd and Wilderness Ave	$1,248,773	326	$3,834
12	Lemon Street*	1	Construct separated bikeway between 14th St and 3rd St	$1,912,658	636	$3,009
13	Arlington Avenue*	3	Stripe bike lane between Indiana Ave and Magnolia Ave	$1,174,689	432	$2,719
14	Columbia Avenue***	1	Stripe bike lane between American Dr and Salmon River Rd	$41,719	90	$462
15	Cypress Avenue**	6,7	Stripe bike lane between La Sierra Ave and Crest Ave	$38,800	145	$267
16	Orange Street***	1	Construct separated bikeway between 14th St and 3rd St	$176,239	733	$240
17	Hole Avenue**	6	Stripe buffered bike lane between Collett Ave and Magnolia Ave	$ 63,360	322	$197
18	Tyler Street**	6,7	Stripe bike lane between Diana Ave and Arlington Ave	$110,000	571	$193
19	University Avenue***	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$133,358	750	$178
20	Jackson Street**	5	Construct bike path between Diana Ave and Magnolia Ave	$54,600	310	$176
21	Adams Street**	5	Strip buffered bike lane between Diana Ave and Arlington Ave	$83,200	738	$113

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
22	Brockton Avenue*	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$62,605	593	$106
23	California Avenue**	5	Stripe buffered bike lane between Van Buren Blvd and Adams St	$76,800	801	$96
24	Van Buren Boulevard**	5,6	Stripe buffered bike lane between SR 91 and Arlington Ave	$161,600	1,904	$85
25	Monroe Street**	5	Stripe buffered bike lane between Diana Ave and Arlington Ave	$90,400	1,308	$69
26	Gramercy Place**	6	Strip bike boulevard between Crest Ave and Rutland Ave	$4,400	129	$34
27	Colorado Avenue**	5	Stripe bike boulevard between Van Buren Blvd and Adams St	$25,944	1,606	$16
28	Rutland Avenue**	6	Stripe bike boulevard between Wells Ave and Arlington Ave	$15,072	1,058	$14
29	Wells Avenue**	6	Stripe bicycle route between Tyler St and Crest Ave	$5,960	614	$10

Improvements denoted with a single asterisk (*) had their costs taken directly from the Riverside PACT's Active Transportation Plan[8], improvements denoted with two asterisks (**) had their costs developed by City staff as part of the City's fiscal year 2024 Safe Streets for All (SS4A) Grant applications[12], and improvements denoted with three asterisks (***) had their costs estimated using the average cost per mile per facility type (e.g., buffered bike lane or bike boulevard) developed during the 2024 SS4A Grant applications. In addition, for the twelve improvements for which the City was awarded an SS4A Grant, the grant will cover 80-percent of the total project cost, with the City responsible for the remaining 20-percent. Since the City has not yet allocated funds for these improvements (the grant application indicated that the funding source was to be determined), incorporating these improvements into the City's program at the City's responsibility level of 20-percent complies with the previously discussed additionality requirement.

After evaluating the 29 bicycle improvements using the methodology outlined above, 16 were identified as resulting in a cost per VMT reduced less than $2,000. Exhibit 16 visually shows the location of the sixteen bicycle improvements recommended for inclusion in the City's program while Table 3 summarizes the change in VMT for the sixteen bicycle improvements selected. Note that due to high costs per VMT reduced for individual improvements, the sixteen improvements selected do not include improvements in Ward 4.

[12] *Safe Streets and Roads for All (SS4A) Program*. California Department of Transportation (Caltrans). Fiscal Year (FY) 2024. https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/safe-streets-and-roads. Accessed October 15, 2024.

The bike improvements along Wells Avenue, Rutland Avenue, and Colorado Avenue stand out as the most cost-effective, with all three having a cost per VMT reduced between $10 and $16, reducing a total of 3,278 VMT daily.

Exhibit 16 – Location of Bicycle Improvements Resulting in a Cost Less than $2,000/VMT Reduced

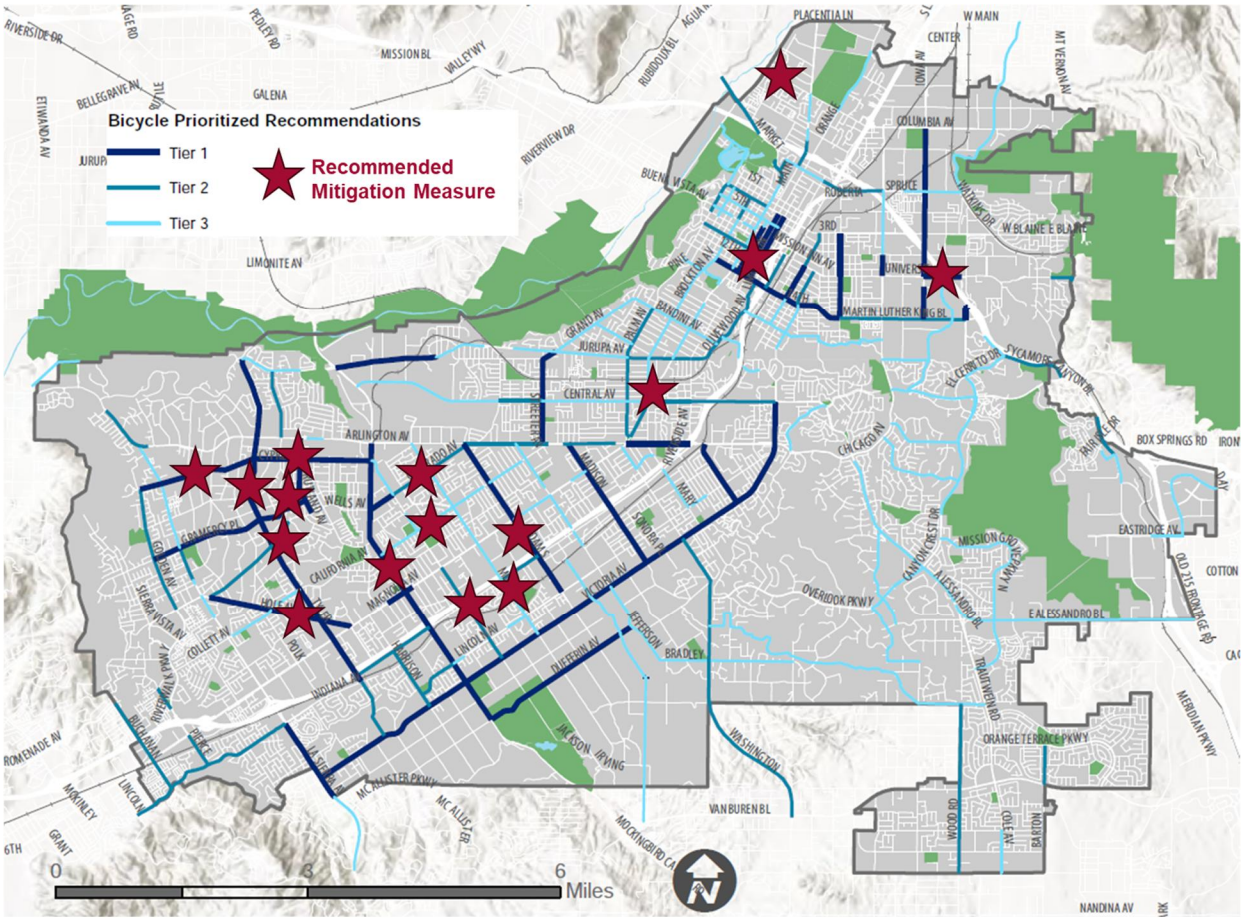


Table 3 – Bike Mitigation Measures with Cost/VMT Reduced less than $2,000

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
14	Columbia Avenue	1	Stripe bike lane between American Dr and Salmon River Rd	$41,719	90	$462
15	Cypress Avenue	6,7	Stripe bike lane between La Sierra Ave and Crest Ave	$38,800	145	$267
16	Orange Street	1	Construct separated bikeway between 14th St and 3rd St	$176,239	733	$240
17	Hole Avenue	6	Stripe buffered bike lane between Collett Ave and Magnolia Ave	$ 63,360	322	$197

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
18	Tyler Street	6,7	Stripe bike lane between Diana Ave and Arlington Ave	$110,000	571	$193
19	University Avenue	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$133,358	750	$178
20	Jackson Street	5	Construct bike path between Diana Ave and Magnolia Ave	$54,600	310	$176
21	Adams Street	5	Strip buffered bike lane between Diana Ave and Arlington Ave	$83,200	738	$113
22	Brockton Avenue	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$62,605	593	$106
23	California Avenue	5	Stripe buffered bike lane between Van Buren Blvd and Adams St	$76,800	801	$96
24	Van Buren Boulevard	5,6	Stripe buffered bike lane between SR 91 and Arlington Ave	$161,600	1,904	$85
25	Monroe Street	5	Stripe buffered bike lane between Diana Ave and Arlington Ave	$90,400	1,308	$69
26	Gramercy Place	6	Strip bike boulevard between Crest Ave and Rutland Ave	$4,400	129	$34
27	Colorado Avenue	5	Stripe bike boulevard between Van Buren Blvd and Adams St	$25,944	1,606	$16
28	Rutland Avenue	6	Stripe bike boulevard between Wells Ave and Arlington Ave	$15,072	1,058	$14
29	Wells Avenue	6	Stripe bicycle route between Tyler St and Crest Ave	$5,960	614	$10

Pedestrian Mitigation Measure Evaluation

Pedestrian mitigation measures can be challenging to include in a fee-based VMT mitigation program given that the vehicle trips that they replace are typically very short, thus limiting their effectiveness. Further complicating the evaluation is that a large majority of the improvements considered, including those included in the Riverside PACT, are improvements at intersections rather than along corridors. Pedestrian improvements included in the Northside Specific Plan and the City's Local Roadway Safety Plan[13] (LRSP) were also reviewed, but due to an estimate of a cost above $1 million, and/or a VMT reduction of less than 50 VMT, were deemed infeasible. Note that similar to the bicycle improvements, pedestrian improvements that were identified in either document, but have since been constructed or otherwise funded were removed from consideration.

[13] *City of Riverside Local Roadway Safety Plan*. City of Riverside. 2022.

Intersection improvements don't typically result in a decrease in vehicle trips unless they are combined with improvements along the corridors to ensure that walking is a viable replacement to driving. Thus, while eleven pedestrian mitigation measures were identified for further evaluation (five from the Riverside PACT, five from the Northside Specific Plan, and one from the City's LRSP), none of the improvements were identified as being viable for inclusion in the City's VMT mitigation program due to their high cost and low VMT reduction. The thirteen projects considered are summarized in Table 4 below.

Table 4 – Summary of Pedestrian Mitigation Measures Considered for Evaluation

Project ID	Roadway	Description	Cost	Distance
30	Main St	Complete street improvement with two 5 - 8-foot sidewalks between Columbia Ave and Garner Rd	≥ $1 Million	0.56
31	Main St	Complete street improvement with 5 - 8-foot sidewalk between Columbia Ave and the Santa Ana River	≥ $1 Million	0.63
32	Center St	Complete street improvements between Main St and I-215	≥ $1 Million	1.2
33	Columbia Ave	Complete street improvement with 5 - 9-foot sidewalk between Main St and Orange St	≥ $1 Million	0.38
34	Orange St	Complete street improvement with 5.5-foot sidewalk between SR-60 and Center St	≥ $1 Million	1.12
35	Iowa Ave	Improve intersection at W Linden St using high visibility crosswalks, leading pedestrian intervals, pedestrian scrambles, advance limit lines, and/or restricting right turns on red	$620,000	-
36	Jurupa Ave	Add leading pedestrian interval at intersection with Magnolia Ave	$85,000	-
37	Wood Rd	Improve intersection with Van Buren Blvd using curb extensions, restricting right turns on red, high visibility crosswalks, and/or adding a pedestrian scramble	$447,000	-
38	Indiana Ave	Improve intersection with La Sierra Ave by adding leading pedestrian interval and other improvements such as adding curb ramps or restricting right turns on red	$590,000	-
39	Western Ave	Improve intersection with Arlington Ave by adding leading pedestrian interval and other improvements such as adding curb ramps or advance limit lines	$205,250	-
40	14th St	Install leading pedestrian interval at intersection with Olivewood Ave	$50,000	-

Table 5 below provides a summary of four pedestrian mitigation measures that were evaluated to show the difficulty in including them within a fee-based VMT mitigation program. The VMT reduction was determined based on the number of vehicle trips estimated to be removed based on the existing pedestrian mode share within the City of Riverside, as well as the average pedestrian trip distance, obtained from Replica as 0.6-miles. As shown in Table 5, the cost per VMT reduced ranged between $41,667 and $120,370 per VMT reduced. When compared to limit of $2,000 per VMT threshold used for the bicycle improvements evaluated, the pedestrian improvements far exceeded this value. Note that while pedestrian mitigation measures are not well suited for a fee-based VMT mitigation program due to the low amount of VMT reduced for the cost to construct, they should continue to be prioritized for implementation because they confer a host of other benefits outside of VMT reduction such as increased safety for people walking along roadways.

Table 5 – Summary of Pedestrian Mitigation Measure Evaluation

Project ID	Roadway	Description	Cost	VMT Reduced	Cost/VMT
34	Orange St	Complete street improvement with 5.5-foot sidewalk between SR-60 and Center St	$1,000,000	24	$41,667
31	Main St	Complete street improvement with 5 - 8-foot sidewalk between Columbia Ave and the Santa Ana River	$1,000,000	30	$33,333
33	Columbia Ave	Complete street improvement with 5 - 9-foot sidewalk between Main St and Orange St	$1,000,000	45	$22,222

Transit Mitigation Measure Evaluation

Transit mitigation measures can provide a large reduction in VMT as they can move large numbers of riders from their homes to non-residential locations such as places of employment or shopping and eating establishments. These mitigation measures can include brand new transit routes to connect different locations within the City that are not currently served by a transit service or can include additional buses along existing routes to reduce headways and provide reliable alternatives to driving. Transit mitigation measures can be costly, particularly if they include the capital costs required to purchase a new bus and the operating costs to pay a driver over a long time period. So, while transit improvements can provide some of the largest amounts of VMT reduction, their cost per VMT reduced is not always attractive without including other funding sources.

The methodology used to calculate VMT reductions for transit mitigation measures consider for inclusion in the City's program includes the following:

- The BRT Practitioner's Guide[14] was used to determine ridership increases based on headway reductions
    - The existing ridership was estimated based on data obtained from Replica

[14] *Bus Rapid Transit Practitioner's Guide*. Transportation Research Board of the National Academies. 2007.

  - The BRT Practitioner's Guide notes that the elasticity of ridership based on headway reduction is roughly 40-percent. This means that for every 100-percent increase in frequency or halving of headway, the ridership increases by 40-percent
- The average transit trip length for Riverside residents was determined to be 10.5 miles based on Replica data
- The VMT reduction for each transit trip was determined by multiplying additional ridership by average transit trip length

Note that the VMT reduction estimates summarized below may be modified prior to the program's implementation based on additional ridership data obtained from RTA.

Table 6 below summarizes the change in VMT for the transit mitigation measures evaluated for the program. Note that additional transit routes were under consideration for headway reductions, but the existing ridership was so low that this was determined to be infeasible. Specifically, Route 56 that serves UCR and the surrounding area was initially thought to be the perfect candidate for adding an additional bus during peak commute times to increase ridership and reduce vehicle travel. However, after discussions with UCR and RTA, the ridership was deemed too low to show a demand for an additional bus without further route expansion. However, further route expansion would require an additional bus to maintain the existing headway, further increasing the cost of the mitigation measure.

As shown in Table 6 below, Route 15 emerged as the most cost-effective transit mitigation measure with a cost of $1,396 per daily VMT reduced, based on an estimated 3,553 VMT daily reduction. In comparison, Route 10 was found to be the most expensive at $2,582 per daily VMT reduced. The remaining mitigation measures span the range between Route 15 and Route 10 showing a potential for inclusion in the city's future program.

Table 6 – Summary of Transit Mitigation Measure Evaluation

Project ID	Route	Route Name	Cost	VMT Reduced	Cost/VMT
41	10	Riverside/Watkins-Galleria	$5,900,000	2,285	$2,582
42	22	Riverside - Perris	$5,900,000	2,797	$2,109
43	13	Hunter Park Metro-Galleria	$5,900,000	2,990	$1,973
44	14	Galleria-Loma Linda VA	$5,900,000	3,142	$1,878
45	12	Corona Hills Plaza/Riverside/La Cadena-Merced	$5,900,000	3,553	$1,660
46	15	Riverside/Downtown-Merced	$5,900,000	4,227	$1,396

Transportation Demand Management (TDM) Mitigation Measures

When defining TDM mitigation measures for the City's VMT mitigation program, mitigation measures that focused on reducing car trips in the city either by increasing occupancy (carpools and vanpools) or incentivizing individual trip reduction (telework or commuter programs) were included. Other types of mitigation measures that may commonly be referred to as TDM mitigation measures for VMT mitigation prior to the advent of VMT Mitigation Programs were not defined as TDM mitigation measures for the purposes of the City's program as they could be difficult to address or quantify.

For the City's program, two types of trip reduction mitigation measures were evaluated under the TDM umbrella. Theses mitigation measures demonstrate that increasing the work-from-home (WFH) rate, either daily or once a week, is a cost-effective strategy for reducing VMT, with daily WFH providing the highest cost efficiency. Note that implementing a full telecommute program where workers work from home every day is difficult to implement so while this option is presented, only the work-from-home one day a week, a much more common practice, was considered for inclusion in the City's program.

Telecommute: Work-From-Home (WFH) Every Day

The analysis of telecommuting as a strategy for reducing Vehicle Miles Traveled (VMT) involves modeling the impact of increased work-from-home rates. Using the Replica big data platform, it was determined that the average commute distance for workers who drive to work and live in the City of Riverside is 16.0 miles. In addition, Census data shows that 63.9-percent of Riverside residents are in the labor force, but that the total number of people employed within the City (can live in Riverside or elsewhere) is approximately 147,000 as of 2021. Replica data shows that 10.0-percent of the City's workforce, or 14,700 employees, already work from home in some capacity. By increasing the WFH rate by an additional 0.5-percent, equivalent to 735 workers, the daily Citywide VMT can be reduced by 20,801 VMT. The cost of implementing this WFH increase by developing and operating a program to encourage Riverside employers to allow employees to WFH is estimated at $230,000 annually, amounting to $4,600,000 over a 20-year period. This results in a cost efficiency of $221 per VMT reduced.

Telecommute: Work-From-Home (WFH) Once a Week

Similarly, promoting WFH once a week rather than full time also shows potential for VMT reduction, as shown in Table 7. Maintaining the average commute distance of 16.0 miles and the current WFH rate of 10-percent, an additional 0.5-percent WFH once a week for 735 workers could result in a reduction of 4,160 VMT per day. The cost remains at $230,000 per year, totaling $4,600,000 over 20 years, leading to a higher cost per VMT reduction of $1,106.

Table 7 – Summary of TDM Mitigation Measure Evaluation

Project ID	Description	Cost (20-years)	VMT Reduced	Cost/VMT
47	WFH Program (Every Day)	$4,600,000	20,801	$221
48	WFH Program (One Day)	$4,600,000	4,160	$1,106

Recommended VMT Mitigation Measures

The VMT mitigation measures recommended to be included in the City's VMT Mitigation Program are provided in Table 8 below, known as Option A. As the transit and pedestrian mitigation measures evaluated resulted in high costs per VMT mitigated, the measures summarized in Table 8 are all bicycle mitigation measures. These mitigation measures were chosen based on the criteria established for evaluating potential mitigation measures and their relatively low cost per VMT reduced. Note that the costs included in Table 8 for improvements not submitted for SS4A grants were provided as planning level costs and prior to implementing the City's VMT Mitigation Program, their costs should be updated with detailed engineering costs. This may result in a change in the overall cost per VMT reduced but is necessary to ensure that adequate funding is provided to enable their construction and implementation.

Table 8 – Recommended VMT Mitigation Measures (Option A)

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
14	Columbia Avenue	1	Stripe bike lane between American Dr and Salmon River Rd	$41,719	90	$462
15	Cypress Avenue	6,7	Stripe bike lane between La Sierra Ave and Crest Ave	$38,800	145	$267
16	Orange Street	1	Construct separated bikeway between 14th St and 3rd St	$176,239	733	$240
17	Hole Avenue	6	Stripe buffered bike lane between Collett Ave and Magnolia Ave	$ 63,360	322	$197
18	Tyler Street	6,7	Stripe bike lane between Diana Ave and Arlington Ave	$110,000	571	$193
19	University Avenue	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$133,358	750	$178
20	Jackson Street	5	Construct bike path between Diana Ave and Magnolia Ave	$54,600	310	$176
21	Adams Street	5	Strip buffered bike lane between Diana Ave and Arlington Ave	$83,200	738	$113
22	Brockton Avenue	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$62,605	593	$106
23	California Avenue	5	Stripe buffered bike lane between Van Buren Blvd and Adams St	$76,800	801	$96

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
24	Van Buren Boulevard	5,6	Stripe buffered bike lane between SR 91 and Arlington Ave	$161,600	1,904	$85
25	Monroe Street	5	Stripe buffered bike lane between Diana Ave and Arlington Ave	$90,400	1,308	$69
26	Gramercy Place	6	Strip bike boulevard between Crest Ave and Rutland Ave	$4,400	129	$34
27	Colorado Avenue	5	Stripe bike boulevard between Van Buren Blvd and Adams St	$25,944	1,606	$16
28	Rutland Avenue	6	Stripe bike boulevard between Wells Ave and Arlington Ave	$15,072	1,058	$14
29	Wells Avenue	6	Stripe bicycle route between Tyler St and Crest Ave	$5,960	614	$10
Total				$1,144,057	11,672	$98

While Option A is the most cost-effective option and is the recommended mix of mitigation measures for the City's program, two other options were developed with higher costs per VMT reduced that include mitigation measures that are not solely bicycle measures. Option B, shown in Table 9 below, includes transit mitigation measures centered around reducing headways along existing routes. The headways would be reduced by purchasing an additional bus for each route and hiring an additional driver for that bus to provide increased service during the commute periods. Note that the cost per VMT reduced is about twelve times higher than the amount shown in Table 8 and the VMT available for the program is almost three times the amount provided in Option A.

Table 9 – Recommended VMT Mitigation Measures (Option B)

Project ID	Roadway/Route	Ward	From/To or Route Name	Cost	VMT Reduced	Cost/VMT
14	Columbia Avenue	1	Stripe bike lane between American Dr and Salmon River Rd	$41,719	90	$462
15	Cypress Avenue	6,7	Stripe bike lane between La Sierra Ave and Crest Ave	$38,800	145	$267
16	Orange Street	1	Construct separated bikeway between 14th St and 3rd St	$176,239	733	$240

Project ID	Roadway/Route	Ward	From/To or Route Name	Cost	VMT Reduced	Cost/VMT
17	Hole Avenue	6	Stripe buffered bike lane between Collett Ave and Magnolia Ave	$ 63,360	322	$197
18	Tyler Street	6,7	Stripe bike lane between Diana Ave and Arlington Ave	$110,000	571	$193
19	University Avenue	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$133,358	750	$178
20	Jackson Street	5	Construct bike path between Diana Ave and Magnolia Ave	$54,600	310	$176
21	Adams Street	5	Strip buffered bike lane between Diana Ave and Arlington Ave	$83,200	738	$113
22	Brockton Avenue	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$62,605	593	$106
23	California Avenue	5	Stripe buffered bike lane between Van Buren Blvd and Adams St	$76,800	801	$96
24	Van Buren Boulevard	5,6	Stripe buffered bike lane between SR 91 and Arlington Ave	$161,600	1,904	$85
25	Monroe Street	5	Stripe buffered bike lane between Diana Ave and Arlington Ave	$90,400	1,308	$69
26	Gramercy Place	6	Strip bike boulevard between Crest Ave and Rutland Ave	$4,400	129	$34
27	Colorado Avenue	5	Stripe bike boulevard between Van Buren Blvd and Adams St	$25,944	1,606	$16
28	Rutland Avenue	6	Stripe bike boulevard between Wells Ave and Arlington Ave	$15,072	1,058	$14
29	Wells Avenue	6	Stripe bicycle route between Tyler St and Crest Ave	$5,960	614	$10
32	10	N/A	Riverside/Watkins-Galleria	$5,900,000	2,285	$2,582
33	22	N/A	Riverside - Perris	$5,900,000	2,797	$2,109
34	13	N/A	Hunter Park Metro-Galleria	$5,900,000	2,990	$1,973

Project ID	Roadway/Route	Ward	From/To or Route Name	Cost	VMT Reduced	Cost/VMT
35	14	N/A	Galleria-Loma Linda VA	$5,900,000	3,142	$1,878
36	12	N/A	Corona Hills Plaza/Riverside/La Cadena-Merced	$5,900,000	3,553	$1,660
37	15	N/A	Riverside/Downtown-Merced	$5,900,000	4,227	$1,396
Total				$36,544,057	30,666	$1,192

Option C, shown in Table 10 below, includes both transit and pedestrian mitigation measures that would provide a variety of mitigation measures to improve non-motorized travel throughout the City. Option C includes all previous mitigation measures shown in Option B but includes three pedestrian improvements as well. Option C is the most expensive of all of the options and the cost per VMT reduced is thirteen more than the amount shown in Table 8 and about $96 more than the amount shown in Table 9 for Option B while only providing 54 additional VMT for the program.

Table 10 – Recommended VMT Mitigation Measures (Option C)

Project ID	Roadway/ Route	Ward	From/To or Route Name	Cost	VMT Reduced	Cost/VMT
14	Columbia Avenue	1	Stripe bike lane between American Dr and Salmon River Rd	$41,719	90	$462
15	Cypress Avenue	6,7	Stripe bike lane between La Sierra Ave and Crest Ave	$38,800	145	$267
16	Orange Street	1	Construct separated bikeway between 14th St and 3rd St	$176,239	733	$240
17	Hole Avenue	6	Stripe buffered bike lane between Collett Ave and Magnolia Ave	$ 63,360	322	$197
18	Tyler Street	6,7	Stripe bike lane between Diana Ave and Arlington Ave	$110,000	571	$193
19	University Avenue	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$133,358	750	$178
20	Jackson Street	5	Construct bike path between Diana Ave and Magnolia Ave	$54,600	310	$176
21	Adams Street	5	Strip buffered bike lane between Diana Ave and Arlington Ave	$83,200	738	$113

Project ID	Roadway/ Route	Ward	From/To or Route Name	Cost	VMT Reduced	Cost/VMT
22	Brockton Avenue	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$62,605	593	$106
23	California Avenue	5	Stripe buffered bike lane between Van Buren Blvd and Adams St	$76,800	801	$96
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26	Gramercy Place	6	Strip bike boulevard between Crest Ave and Rutland Ave	$4,400	129	$34
27	Colorado Avenue	5	Stripe bike boulevard between Van Buren Blvd and Adams St	$25,944	1,606	$16
28	Rutland Avenue	6	Stripe bike boulevard between Wells Ave and Arlington Ave	$15,072	1,058	$14
29	Wells Avenue	6	Stripe bicycle route between Tyler St and Crest Ave	$5,960	614	$10
32	10	N/A	Riverside/Watkins-Galleria	$5,900,000	2,285	$2,582
33	22	N/A	Riverside - Perris	$5,900,000	2,797	$2,109
34	13	N/A	Hunter Park Metro-Galleria	$5,900,000	2,990	$1,973
35	14	N/A	Galleria-Loma Linda VA	$5,900,000	3,142	$1,878
36	12	N/A	Corona Hills Plaza/Riverside/La Cadena-Merced	$5,900,000	3,553	$1,660
37	15	N/A	Riverside/Downtown-Merced	$5,900,000	4,227	$1,396
25	Orange Street	1	Complete street with 5.5-foot sidewalks between SR-60 and Center Street	$1,000,000	24	$41,667
22	Main St	1	Complete street with 5-8-foot sidewalks between Columbia Ave and Santa Ana River	$1,000,000	30	$33,333
Total				$39,544,057	30,720	$1,287

CEQA/Nexus Considerations

Lead agencies are pursuing a range of California Environmental Quality Act (CEQA) strategies to implement VMT mitigation programs based on their selected program's requirements, other existing CEQA programmatic documentation, the underlying mitigation measures, and preference. The simplest approach is for a lead agency to determine that that the VMT bank is not a "project" under CEQA and is therefore exempt pursuant to CEQA Guidelines Section 15378. This approach centers around the fact that a VMT banking framework, the framework being recommended by this study, does not have a specific commitment to implement any particular mitigation measure. CEQA Guidelines Section 15378 defines a project as an action that has the potential for resulting in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. Section 15378(b)(4) further clarifies that a project does not include the creation of government funding mechanisms or other government fiscal activities that do not involve any commitment to a specific project which may result in a potentially significant physical impact on the environment.

Unless cleared through prior CEQA documentation, specific mitigation measures would be subject to environmental review. Individual mitigation measures may or may not be found to be individually exempt from CEQA based on their unique characteristics. Likewise, the projects that would potentially participate in a VMT Bank would still have to complete any required environmental review.

As a part of this study, it was determined that preparing a Categorical Exemption (CE) to environmentally clear the City's VMT mitigation program was the most appropriate path to environmental clearance under CEQA and is provided in Appendix E. As noted in the CE, Section 15262 of CEQA (Feasibility and Planning Studies) states that "a project involving only feasibility or planning studies for possible future actions which the agency, board, or commission has not approved, adopted, or funded does not require the preparation of an EIR or Negative Declaration but does require consideration of environmental factors. Therefore, the VMT mitigation program would be statutorily exempt from CEQA under a Section 15262 Feasibility and Planning Studies.

Beyond the VMT program itself, there are several important considerations which pertain to the concept of feasible mitigation and nexus which are both required to be addressed by CEQA compliant mitigation.

Feasible Mitigation Considerations

Under CEQA, mitigation refers to measures that can be implemented to reduce or eliminate the significant environmental impacts of a project. Key aspects of mitigation under CEQA to be considered during the program's implementation include:

1. Avoid the impact altogether by not taking a certain action or parts of an action.
2. Minimize impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectify the impact by repairing, rehabilitating, or restoring the impacted environment.
4. Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
5. Compensate for the impact by replacing or providing substitute resources or environments.

CEQA Guidelines Section 21061.1, further clarifies that feasible mitigation measures must be capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors. For a VMT bank, 'feasible mitigation' requires particular attention due to the economic viability and timeliness of implementation of the measures within the bank. Depending on the amount of VMT mitigation needed, the cost for development projects using the VMT bank may become financially prohibitive. Additionally, full funding for a mitigation measure may require the participation of multiple projects, which may result in unforeseen delays in implementation given that the timing and need for mitigation payments to a VMT bank are not necessarily under the control of the VMT bank. The City's approach to address considerations of timeliness are discussed under "Mitigation Timing Considerations" while an approach to economic feasibility will be considered as part of the ongoing General Plan update.

A programmatic EIR allows for more general analysis for the overarching plan which projects can then tier off of assuming that the project is consistent with the plan analyzed under the programmatic EIR, that it is consistent with the zoning, and that it does not trigger the need for a supplemental EIR. Using this approach, the programmatic EIR would establish a VMT bank as a required mitigation measure and address both economic feasibility and timeliness of implementation.

There are examples of agencies that have used EIRs to establish that development or transportation projects consistent with their General Plan do not require additional VMT analysis as their VMT impact was already considered as part of the EIR. In addition, these EIRs have stated that under some circumstances, feasible mitigation does not exist to fully mitigate impacts as part of the agency's effort to streamline SB 743 analysis for project applicants. It is possible that a VMT bank could be integrated into such an approach and address concerns regarding feasible mitigation as described below. The City is evaluating this approach as part of their ongoing General Plan update.

Economic Feasibility

In practice, the existence of a VMT bank establishes a feasible mitigation option that must be considered for any project within a participating agency's jurisdiction. Unless the project applicant is able to fully mitigate the project on-site or redefine the project such that there is no need for mitigation, the applicant will be compelled to participate in the VMT bank as it is a feasible mitigation option. However, in the case of projects with higher VMT impacts, payment into the bank to fully mitigate the impact may become financially infeasible for the applicant. The determination of when it becomes infeasible is the point at which the next incremental cost of mitigating an applicant's project through the VMT mitigation program becomes "unaffordable". It does not alleviate the requirement to pay into the bank, rather it is a determination of the extent to which the project can afford to pay into the bank. The existence of a VMT mitigation program without a pre-existing basis for determination of financial feasibility could result in the City of Riverside being asked by project applicants to decide on a case-by-case basis as to whether their claim of unaffordability is appropriate. Any applicant's project that is not fully mitigated through participation in the VMT bank or other VMT mitigation measures would be required to pursue a statement of overriding considerations.

As discussed in the prior section, the City is evaluating an approach to utilize the programmatic EIR for the General Plan update to allow for tiering of individual projects. Under this approach, an objective standard for determining the limits of economic feasibility could be developed to reduce the necessity for the City

to evaluate each project's specific financial circumstance if the project applicant were to claim that the mitigation cost was "unaffordable".

Mitigation Timing Considerations

Unless carefully managed, the timing of VMT mitigation could be a potential issue with CEQA compliance. Understanding this, the City has developed the following approach to assure that mitigation is completed in a reasonable time frame.

The City will offset the cost of mitigation as necessary to ensure its timely completion. This will be accomplished either using general funds, bonds, grants, or other funding sources. Note that because the totality of funding for mitigation will not be provided by the City, the requirement of additionality discussed elsewhere will still apply. As part of this program, the City will assure that a commensurate number of VMT credits purchased will be under development with a planned construction date no greater than 5 years after the certificate of occupancy is issued or 5 years after receiving funds.

As mentioned, the City is evaluating alternative approaches to SB 743 as part of its General Plan update which may alter this approach in the future. A programmatic EIR for the General Plan could allow individual projects to tier and mitigate cumulative impacts by contributing to the bank or through the use of other predefined trip reduction measures.

Nexus Documentation

Any land use-based fee programs must "substantially advance legitimate state interests." This involves creating a nexus between the mitigation fee and the government interest. Furthermore, these fees should be proportional to the adverse impacts of the mitigation measures, meaning that mitigation measures should be appropriately sized to offset the actual impact. Under a VMT bank, where VMT reductions are measured in terms of "vehicle miles" or similar units, developers can purchase mitigation that matches the impact of their development project through a fee program. As such, when appropriately implemented, a VMT bank should meet legal nexus requirements.

Proposed VMT Bank

The proposed VMT bank framework differs from traditional fee programs in several ways:

1. Selection of Mitigation Measures: The mitigation measures within the proposed VMT bank would be selected based on the need to mitigate VMT from anticipated development. Unlike traditional fee programs, the application of the fee is directly tied to the individual applicant project and is not based on a future need but the need for VMT mitigation for that applicant project.

2. Calculation and Purchase of Credits: When an applicant project is proposed, the VMT reduction required for the proposal would be calculated, and the applicant would purchase credits equal to the amount of VMT needed for their project.

3. Timely Implementation: Once those VMT credits are purchased, a VMT-reducing mitigation measure would come online within a reasonable timeframe to mitigate the development proposal.

Existing Case Law

Relevant court decisions regarding VMT mitigation programs were reviewed to identify examples that are cited most often when adopting and implementing mitigation programs through CEQA. Three cases were identified as being relevant to the development of the City's VMT mitigation program and are outlined in detail in Appendix A.

Additional Considerations

Agencies need to be diligent in managing VMT mitigation durations as the nexus between improvements and the successful use of fees can vary. Bank arrangements that receive pooled funds from multiple projects should account for the delay between payment and the deployment of funds. This is crucial as it measures the cost of VMT mitigation and negotiates with developers. Agencies must ensure that the timing of the implementation of mitigation measures aligns closely with the development impact to maintain the essential nexus and proportionality as noted above.

Case Studies

A case study evaluation was conducted using two projects within the City of Riverside that have already completed their environmental analysis. The two projects are the Wood-Lurin Planned Residential Development[15] and the Kaiser Permanente Regional Hospital[16]. These projects both resulted in a VMT impact that required mitigation with the Wood-Lurin project requiring 3,013 VMT to fully mitigate its impact and the Kaiser Hospital requiring 9,316 VMT to mitigate its impact. The following summarizes the findings from a situation in which the projects would participate in the City's VMT bank to mitigate their impacts. Note that these costs represent a worst-case scenario, and the mitigation measures may have some level of cost offset by either City of Riverside funds or outside grants.

- Option A would result in a total mitigation cost of approximately $295,280 for the Wood-Lurin project and approximately $912,970 for the Kaiser Hospital project if the VMT Mitigation Program were used to fully mitigate each project's impact. As the Wood-Lurin project consists of 96 residential units, the mitigation cost would equate to just under $3,080 per unit.
- Option B would result in a total mitigation cost of approximately $3,591,500 for the Wood-Lurin project and approximately $11,104,700 for the Kaiser Hospital project if the VMT Mitigation Program were used to fully mitigate each project's impact. As the Wood-Lurin project consists of 96 residential units, the mitigation cost would equate to $37,410 per unit.
- Option C would result in a total mitigation cost of approximately $3,877,730 for the Wood-Lurin project and approximately $11,989,700 for the Kaiser Hospital project if the VMT Mitigation Program were used to fully mitigate each project's impact. As the Wood-Lurin project consists of 96 residential units, the mitigation cost would equate to more than $40,390 per unit.

From this analysis, the following observation/findings resulted:

- A mitigation bank may not make all projects financially feasible for mitigation. This challenge could be addressed by reducing the unit cost of VMT mitigation, either by selecting mitigation measures that provide effective VMT reduction at a lower cost, or by using the VMT bank to cover funding gaps, where other funding sources reduce overall costs. This would ensure that projects participating in the VMT bank still have access to complete mitigation solutions. However, it is important that all mitigation measures continue to meet additionality requirements, as outlined elsewhere in this document.

SB 743 was not designed to support a business-as-usual approach to development and transportation projects. It is understandable that the program may not be able to fully mitigate the impacts of all projects—especially those that conflict with the goals of SB 743. Given the high bar established for VMT thresholds, this outcome is not unexpected. However, CEQA requires projects to still engage in feasible mitigation efforts to the greatest extent possible, even if full mitigation is not achievable. Therefore, a

[15] *Vehicle Miles Traveled (VMT) Analysis for the Wood and Lurin Residential Project*. Environment Planning Development Solutions Inc., prepared for the City of Riverside. January 27, 2023.
[16] *Vehicle Miles Traveled Analysis for the Kaiser Permanente Riverside Medical Center Expansion.* LSA Associates, Inc. prepared for the City of Riverside. October 2021.

scenario where a project participates in a VMT bank to the extent financially feasible and then seeks a statement of overriding considerations aligns with CEQA's requirements.

Determining the limits of financial feasibility for projects poses a significant challenge for the administration of a VMT bank. In such cases, the lead agency may need to assess when a project's participation in the bank has reached its financial feasibility limit. One possible approach is to establish a minimum participation level that reduces the project's impact by at least 15-percent (or another value based on further research) from its initial estimate. Implementing this approach would require further investigation and likely require an Environmental Impact Report (EIR) to address any potentially significant impacts associated with it.

Implementation

It is recommended that the City's VMT mitigation program initially be structured as a voluntary pilot program rather than fully implemented at the onset. A voluntary pilot program will allow the City an opportunity to evaluate the program and make a determination as to whether it meets the City's objectives and/or whether additional program modifications may be appropriate. A voluntary pilot program can also be conducted with a less formal structure that can provide for needed flexibility during its initial evaluation. Note that the voluntary pilot program will have only a limited availability of VMT credits, assuming the selection of the measures contained within Program Option A, and as such additional VMT mitigation measures will need to be added prior to a full implementation of the program.

Should a full mitigation program be implemented, it would no longer be voluntary for project applicants as it would create a feasible mitigation option. Therefore, project applicants would be required to participate to the extent financially feasible if they are not able to mitigate their VMT impact using other methods. As discussed in the "Feasible Mitigation Considerations" section, a programmatic approach to addressing financial feasibility is being considered as part of the City's ongoing General Plan update.

The VMT mitigation measures, previously identified as Option A, are recommended to be included in the pilot program and are summarized in Table 11 below. These mitigation measures were chosen based on the criteria established for evaluating potential mitigation measures as described previously. As Option A provides the lowest cost per VMT reduced, it was determined to be the best option to populate the measures included in the voluntary pilot program. In addition to the costs of the improvements, administration costs were included to provide funding for City staff to administer the program through the period that the pilot program is running. The administration costs were set at 2-percent of the total cost of improvements, consistent with other programs currently in operation throughout the state. This results in an additional cost per VMT reduced of $2 resulting in an overall pilot program cost per VMT reduced of $100.

Table 11 – Pilot Program VMT Mitigation Measures

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
14	Columbia Avenue	1	Stripe bike lane between American Dr and Salmon River Rd	$41,719	90	$462
15	Cypress Avenue	6,7	Stripe bike lane between La Sierra Ave and Crest Ave	$38,800	145	$267
16	Orange Street	1	Construct separated bikeway between 14th St and 3rd St	$176,239	733	$240
17	Hole Avenue	6	Stripe buffered bike lane between Collett Ave and Magnolia Ave	$ 63,360	322	$197
18	Tyler Street	6,7	Stripe bike lane between Diana Ave and Arlington Ave	$110,000	571	$193
19	University Avenue	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$133,358	750	$178

Project ID	Roadway	Ward	Description	Cost	VMT Reduced	Cost/VMT
20	Jackson Street	5	Construct bike path between Diana Ave and Magnolia Ave	$54,600	310	$176
21	Adams Street	5	Strip buffered bike lane between Diana Ave and Arlington Ave	$83,200	738	$113
22	Brockton Avenue	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$62,605	593	$106
23	California Avenue	5	Stripe buffered bike lane between Van Buren Blvd and Adams St	$76,800	801	$96
24	Van Buren Boulevard	5,6	Stripe buffered bike lane between SR 91 and Arlington Ave	$161,600	1,904	$85
25	Monroe Street	5	Stripe buffered bike lane between Diana Ave and Arlington Ave	$90,400	1,308	$69
26	Gramercy Place	6	Strip bike boulevard between Crest Ave and Rutland Ave	$4,400	129	$34
27	Colorado Avenue	5	Stripe bike boulevard between Van Buren Blvd and Adams St	$25,944	1,606	$16
28	Rutland Avenue	6	Stripe bike boulevard between Wells Ave and Arlington Ave	$15,072	1,058	$14
29	Wells Avenue	6	Stripe bicycle route between Tyler St and Crest Ave	$5,960	614	$10
Subtotal				$1,144,057	11,672	$98
Administrative Costs (2% Subtotal)				$22,881		
Total				$1,166,938	11,672	$100

Study Findings and Recommendations

Additional findings and recommendations that have resulted from the study include:

- Project Uncertainty Without a VMT Mitigation Solution: Without a clearly defined VMT mitigation program, many projects will face significant uncertainty, potentially stalling progress, even if they align with other plans and programs.
- VMT Mitigation Program as a Solution: A VMT mitigation program offers a new, viable option for addressing VMT impacts that cannot be mitigated through other methods. A VMT bank program is recommended as the most suitable approach for implementation of the City's VMT mitigation program.
- Selectivity in Mitigation Measures: It is crucial to carefully select VMT-reducing mitigation measures to ensure financial and practical feasibility. These measures should be evaluated for alternative funding sources and compliance with additionality requirements.
- Ongoing Process: Developing mitigation measures for the City's program will be an ongoing process, necessitating accurate methods of VMT analysis in line with best analysis practices to ensure robust outcomes. This study's established framework should serve as the basis for future analysis.
- Voluntary Pilot Program: It is recommended that the City's VMT mitigation program initially be structured as a voluntary pilot program rather than fully implemented at the onset. A voluntary pilot program will allow the City an opportunity to evaluate the program and make a determination as to whether it meets the City's objectives and/or whether additional program modifications may be appropriate. A voluntary pilot program can also be conducted with a less formal structure that can provide for needed flexibility during its initial evaluation.
- Support and Participation from Everyone: The program's success hinges on support from decision-makers, agencies, the community, and participants in the City's VMT mitigation program.
- Periodic Price Changes: If the City's VMT mitigation program is ultimately implemented the price per VMT reduced may change periodically as the composition of the program and additional funding measures are identified. The prices are current as of publication of this document but should be considered the current price of the program and not the price per VMT reduced in perpetuity.
- Set VMT Threshold at Regional Average: it is recommended that the City of Riverside set its VMT significance thresholds for VMT per capita and VMT per employee at the regional average rather than 15-percent below the regional average. Implementing this change would bring the City's VMT analysis methodology in line with the methodology of neighboring jurisdictions such as the City of San Bernardino, Riverside County, and the City of Jurupa Valley.

Appendix A: Literature Review and Existing Case Law

Literature Review

The literature review completed as a part of this study provides a comprehensive overview of Vehicle Miles Traveled (VMT) mitigation programs implemented across jurisdictions in California under SB 743. The review examines actual programs, relevant initiatives, and current practices, showcasing the diverse approaches employed to address VMT reduction and promote sustainable transportation choices.

The programs reviewed employ a variety of strategies, including active transportation infrastructure investment, transportation analysis policies, VMT monitoring apps, telework incentives, VMT mitigation programs, and fees based on VMT. These strategies aim to reduce VMT impacts, encourage sustainable travel modes, and generate funds for transportation improvements.

By highlighting these programs, the review illuminated the practical implementation of VMT reduction strategies, their community impacts, and the challenges encountered during their execution. Valuable lessons were drawn from the experiences of California jurisdictions, providing a deeper understanding of the evolving landscape of VMT mitigation.

Furthermore, the review explored complementary initiatives and current practices across California, offering a well-rounded perspective on the strategies employed by jurisdictions to reduce VMT and promote sustainable transportation choices.

The review addressed diverse case studies, existing programs in the LA/Riverside region, exemplary initiatives, and noteworthy best practices, showcasing the multifaceted challenges faced and the creative solutions devised by California jurisdictions. These examples underscore their ongoing commitment to sustainable transportation and the pursuit of a greener future. Programs reviewed included those implemented by the City of San Diego, the City of San Jose, the Contra Costa Transportation Authority (CCTA), the San Bernardino County Transportation Authority (SBCTA), and the Tahoe Regional Planning Agency (TRPA).

This literature review was intended to serve as a valuable resource for the City of Riverside, presenting a compendium of experiences and lessons learned from the forefront of VMT mitigation. It equips Riverside with the knowledge and insights necessary to navigate the complexities of VMT reduction effectively, contributing to a greener and more sustainable future.

Existing Case Law

The court decisions that were determined to be relevant to the development of the City's VMT Mitigation Program are summarized in Table 12 below. As shown in Table 12, three cases in particular were found to be relevant, though the most recent case was completed in 1994. As VMT Mitigation Programs are a relatively new type of mitigation program, these cases center more around CEQA mitigation as a whole, rather than VMT mitigation itself.

Table 12 – Existing Case Law Relevant to Developing a VMT Mitigation Program

Case	Decision Summary	VMT Bank	VMT Exchange	VMT Impact Fee
Nollan v. California Coastal Commission, 483 U.S. 825 (1987)	The Court held that a government could, without paying compensation, demand an easement as a condition for granting a development permit the government was entitled to deny, provided that the exaction would substantially advance the same government interest that would furnish a valid ground for denial of the permit, or in other words that there is an appropriate "nexus" between the project's effect and the mitigation. This is known as the "nexus" test.	Relevant	Relevant	Relevant
Dolan v. City of Tigard, 512 U.S. 374 (1994)	The Court further refined the Nollan requirement in *Dolan*, holding that an adjudicative exaction requiring dedication of private property must also be "'roughly proportional' . . . both in nature and extent to the impact of the proposed development." This is known as the "rough proportionality" test.	Relevant	Relevant	Relevant
Sacramento Old City Assoc. V City Council of Sacramento, 229 Cal App 3d 2011 (1991)	In this case, the court established the conditions under which identification of mitigation specifics can be properly deferred beyond the point of CEQA compliance: If the specifics cannot be identified at the time of CEQA compliance, then 1) the agency must commit itself to the mitigation and identify one or more measures for the significant effect and must establish clear performance standards; or 2) alternatively the agency must provide a menu of feasible mitigation options that can be selected to meet the stated performance standards.	Relevant	Relevant	Relevant

Appendix B: State of the Practice

State of the Practice

Table 13 below provides a high-level summary of the current state of the practice in California of fee-based VMT reduction/mitigation programs. As shown in Table 13, there are relatively few fee-based VMT reduction/mitigation programs active in the state. Some of the programs included are not specifically focused on meeting CEQA VMT mitigation needs (they instead are focused on general VMT reductions), however they are still important models that show how specific elements programs being considered by the study could function.

Table 13 – Fee-based VMT Mitigation Program State of the Practice

Agency	VMT Mitigation Program Format	Status	Cost per VMT Reduced ($/VMT Reduced)
City of Escondido	VMT Exchange	Implemented in 2023, with a cost basis varying for each measure	Varies by Measure
City of Fresno	TBD	Ongoing	--
City of Hollister	VMT Bank	Study completed. Pending adoption and implementation.	--
City of Lancaster	VMT Mitigation Fee Optional Program	Implemented in 2023, with a cost basis of $150/VMT	$150/VMT reduced
City of Palmdale	VMT Bank	Implemented 2024, with a cost basis of $261/VMT.	$261/VMT reduced
City of Salinas	VMT Bank	Study completed. Pending adoption and implementation.	--
City of San Diego	Active Transportation In-Lieu Impact Fee	Implemented in 2020, with a cost basis of $1,400/VMT.	$1,400/VMT reduced
City of Tracy	VMT Bank	Study completed. Pending adoption and implementation.	--
City of Watsonville	VMT Bank	Implemented March 2023, with a cost basis of $1,524/VMT	$1,524/VMT reduced (maximum)
Coachella Valley Association of Governments (CVAG)	TBD	Study funded under REAP 2.0. Not yet started.	--
Contra Costa Transportation Authority (CCTA)	TBD	Study completed in 2023. Pilot program under development.	--

Agency	VMT Mitigation Program Format	Status	Cost per VMT Reduced ($/VMT Reduced)
Fresno COG	VMT Bank	Study completed in 2023. An additional study is being considered to define remaining program elements required for implementation.	--
Los Angeles County State Highway System	VMT Bank for State Highway System	Program adopted by Metro Board in 2024. Pilot program under development.	--
San Bernardino County Transportation Authority (SBCTA)	VMT Bank	$2,000,000 in grant funds awarded in 2024 to seed identified mitigation measures. Telework program expected to result in $161/VMT reduced	$161/VMT reduced
San Luis Obispo Council of Governments (SLOCOG)	TBD	Framework development on-going, release expected September 2024	--
Santa Clara Valley Transportation Authority (VTA)	TBD	Ongoing	--
Santa Cruz County and incorporated Cities	VMT Bank	Ongoing	--
Stanislaus Council of Governments (StanCOG)	TBD	Study funded under REAP 2.0. Not yet started.	--
Town of Los Gatos	Not Determined	Study completed. Implementation not planned.	--
Transportation Authority of Marin (TAM)	TBD	Ongoing	--
Various	Non-CEQA VMT Based Impact Fee Programs	There are numerous examples of traditional VMT Impact Fees that define impacts in terms of VMT in lieu of trips.	--
Western Riverside Council of Governments (WRCOG)	VMT Exchange	Program development under consideration.	--

Appendix C: Outreach Materials

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., PTOE, PTP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Plan

Date: May 30, 2023

Introduction

A key component of the development of the City of Riverside's Vehicle Miles Traveled (VMT) Mitigation Program is input from stakeholders and the general public to help inform the framework and implementation of the Program. This Outreach Plan is developed to summarize the efforts to engage and seek feedback from potential stakeholders and interested community members. The following sections will identify several ways to reach all the demographics of the City of Riverside community, including disadvantaged communities to ensure equity in the benefits provided by the implementation of the VMT Mitigation Program.

Outreach Approach

The outreach effort for this project is designed to encourage the active participation of a broad range of stakeholder groups in the planning process. The Program's Outreach Plan has the following two high-level outreach goals:

- Engage the broadest cross section of the City's residents, businesses, and decision makers in developing the VMT Mitigation Programs including the Program's framework (e.g., VMT Mitigation Bank, VMT Exchange, or other options) and types of projects included.
- Make the Program's development process accessible, interactive, and engaging.

To develop the VMT Mitigation Program, Kimley-Horn and the City will engage a variety of audiences that may use the program, be involved in future development within the City, are involved in housing issues within the City, or otherwise benefit by construction or implementation of the VMT mitigation projects that will be included in the Program in the future. This includes organizations advocating or representing disadvantaged communities, business and economic development interests that operate in the City, elected and appointed officials, and the general public.

The communications strategy for the project will include the following key elements, which are discussed in the following sections:

- Stakeholder Advisory Committee (SAC) Meetings
- Agency Consultations
- Project Website
- Public Meeting

Stakeholder Advisory Committee (SAC) Meetings

The primary outreach approach includes monthly or semi-monthly Stakeholders Advisory Committee (SAC) meetings. The first SAC meeting was held on May 3, 2023, and the second meeting is scheduled to be held on June 7, 2023. The SAC includes a variety of interested parties including neighborhood groups within the City of Riverside, representatives of educational institutions within the City including both K-12 and higher education institutions such as the University of California Riverside, Community Based Organizations (CBOs), Chambers of Commerce within the City, members of the development community, and others.

Generally, the purpose of the SAC is to provide direction and make recommendations to Kimley-Horn and the City in its development of the VMT Mitigation Program. Specifically, the purpose of the SAC meetings is to provide education opportunities regarding the project, solicit feedback regarding the development of the Program Framework and other key project components, and provide project updates throughout the project lifecycle.

Agency Consultations

In addition to the community outreach, Kimley-Horn and the City will hold virtual meetings with key agency stakeholders to solicit VMT reduction projects that could be included in the program, as well as feedback on the overall framework of the VMT Mitigation Program. The following organizations have been identified for agency consultation meetings:

- Western Riverside Council of Governments (WRCOG)
- University of California Riverside
- Riverside Transit Agency
- Riverside County Transportation Commission (Metrolink)
- County of Riverside
- Up to three cities adjacent to the City of Riverside

Project Website

A project website will be developed that will include a project instructional video, background information for the video, project updates, and participation opportunities including public meetings and any online surveys developed.

The instructional video included on the website will be a presentation with a voiceover that provides a brief background on VMT, the purpose of the project, and VMT Mitigation Program Framework options. The website will also contain a link to a graphics-heavy document that provides additional information on the topics covered by the instructional video. The purpose of this document is to help inform the reader of all things VMT so they can provide informed feedback at decision points in the project and answer surveys in an informed manner.

The project website will also be structured to provide a timeline of project updates and information on participation opportunities so the reader can easily follow what has already occurred and what is still planned in the future so they can track the project progress throughout the project lifecycle.

Public Meeting

In addition to the SAC meetings, one in person public meeting will be held later in the project lifecycle once the draft VMT Mitigation Program has been developed. This in person meeting will serve to provide an opportunity for City residents to learn about the Program and offer feedback. The public meeting will

be held at the City's library and for those who are unable to attend, a recording of the public meeting will be posted to the project website.

Kimley»Horn

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From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Stakeholder Advisory Committee (SAC) Meeting #1 (May 3, 2023)

This was the first meeting held with the Stakeholder Advisory Meeting (SAC) for the City of Riverside's Vehicle Miles Traveled (VMT) Mitigation Program project. Kimley-Horn worked with the City to develop a list of project stakeholders to invite to the meeting including representatives of the City's neighborhood groups, representatives of the development community, public entities within the City including the University of California at Riverside (UCR), regional public entities such as Riverside County, the Western Riverside Council of Governments (WRCOG), and the Riverside Transit Agency. In total, approximately 40 SAC members were identified and invited to participate in the meeting. The meeting was attended by 15-20 of the invited stakeholders with questions asked throughout the presentation regarding VMT and the VMT Mitigation Program.

Observations

- There was a large range in familiarity with VMT from those who only heard about it once or twice to those who work on policies related to VMT
- Many of the attendees were interested in the purpose of a VMT Mitigation Program

Key Topics of Conversation

- How VMT impacts are determined
- Why the City of Riverside needs a VMT Mitigation Program
- How would a VMT Mitigation Program work

Lessons Learned

- With a wide range of VMT familiarity, it is important to provide a base level of understanding to better inform about the program, but that cannot come of not being able to get through the material that is relevant to all stakeholders

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Stakeholder Advisory Committee (SAC) Meeting #2 (June 7, 2023)

This was the second meeting held with the Stakeholder Advisory Meeting (SAC) for the City of Riverside's Vehicle Miles Traveled (VMT) Mitigation Program project. The meeting was attended by 10-15 of the invited stakeholders with questions asked throughout the presentation regarding VMT and the VMT Mitigation Program. The presentation began with the slides that were not presented at the first meeting before transitioning to the presentation developed for this meeting. The focus of this meeting shifted from introducing the VMT Mitigation Program and how it works to the study itself covering the work plan for the study, highlighting specific tasks and the technical justification for the program, covering the state of the practice for VMT Mitigation Programs, and the study's schedule.

Observations

- VMT Mitigation Programs are very technical in nature and it can be difficult to engage a wide audience on the topic
- The summary of the state of the practice drew significant interest as the topic of VMT Mitigation Programs is very new

Key Topics of Conversation

- The state of the practice for VMT Mitigation Programs
- What is, and is not, covered by the study
- Outreach planned to be completed as a part of the study

Lessons Learned

- Providing specific breaks in the presentation for meeting participants to ask questions allowed the presentation to flow at a reasonable pace
- Providing context for the study and the City's need for the VMT Mitigation Program helped engage the meeting participants

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Stakeholder Advisory Committee (SAC) Meeting #3 (July 19, 2023)

This was the third meeting held with the Stakeholder Advisory Meeting (SAC) for the City of Riverside's Vehicle Miles Traveled (VMT) Mitigation Program project. The meeting was attended by fewer than 10 of the invited stakeholders with few questions asked throughout the presentation. The presentation began by covering the framework options for the VMT Mitigation Program and how the frameworks would be evaluated. The presentation focus then shifted to the administration options for the Program and best practices for administering the program. The concept of additionality, in which a mitigation option must be in addition to other already funded options, was also discussed. The presentation concluded with sample questions intended to be included in the online survey developed as a part of the study.

Observations

- The decrease in stakeholder members attending the meeting has continued since the first SAC meeting
- The topic that garnered the most engagement from the attendees was how the program would be administered

Key Topics of Conversation

- Framework options for the program
- Administration options for the program
- Additionality
- Project online survey

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Stakeholder Advisory Committee (SAC) Meeting #4 (September 28, 2023)

This was the fourth meeting held with the Stakeholder Advisory Meeting (SAC) for the City of Riverside's Vehicle Miles Traveled (VMT) Mitigation Program project. The meeting was attended by 5 of the invited stakeholders with few questions asked throughout the presentation. The presentation began by summarizing the meetings held with the Western Riverside Council of Governments (WRCOG), Riverside County, the Riverside Transit Authority (RTA), and the university of California at Riverside (UCR). The focus of these meetings were to have direct engagement with agencies regarding the program and to solicit VMT reducing project ideas that could be evaluated as a part of the program. The presentation then covered the project evaluations that had been completed to date including 10 bicycle and pedestrian projects, 15 transit projects, and three transportation demand management (TDM) projects. The presentation concluded by summarizing the findings of the project evaluation including what the cost per VMT reduced was determined for each individual project resulted and what still needed to be evaluated.

Observations

- There was real interest in how VMT reducing projects were evaluated and how each project compared to each other in terms of cost per each VMT reduced
- Participants were eager to understand how the overall program would function once VMT reducing projects were chosen for the program and what the cost would be for a typical development project with a VMT impact

Key Topics of Conversation

- VMT mitigation timing
- How VMT reducing projects (bike/ped, transit, and TDM) are evaluated to determine the amount of VMT reduced
- Project cost per VMT reduced

Lessons Learned

- While transit projects can reduce the most VMT, they are also the most costly resulting in a cost per VMT reduced that is difficult to compete with active transportation projects (bike/ped)
- TDM programs, such as a work from home program, are the most efficient but the hardest to implement

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: April 4, 2024

Stakeholder Advisory Committee (SAC) Meeting #5 (March 14, 2024)

This was the fifth meeting held with the Stakeholder Advisory Meeting (SAC) for the City of Riverside's Vehicle Miles Traveled (VMT) Mitigation Program project. The meeting was attended by 5 of the invited stakeholders as shown in the list of attendees is provided below. Several questions were asked throughout the presentation that focused on projects selected for inclusion in the City and the status of VMT Mitigation Programs throughout the State of California.

The presentation began by summarizing the public outreach conducted so far including the online survey released to the public and the public meeting held on December 14, 2023. The presentation continued covering the evaluation of the program frameworks, the recommended framework for the City's program (VMT Bank), the results of the evaluation of the VMT reducing projects selected for inclusion in the City's program, the total VMT reduced and cost per VMT calculated for the City's Program, an overview of implementing the Program and administration considerations, and concluded with some case studies of how past development projects may have interacted with the Program were it implemented when the projects were going through their environmental analyses.

The meeting also summarized the findings and remaining steps with tentative dates for completing the evaluation portion of the Program. In addition, the meeting provided an opportunity for participants to provide input on a logo for the City's Program.

Attendees

1. Mike Schmitt – Kimley-Horn
2. Chris Gregerson – Kimley-Horn
3. Vital Patel – City of Riverside
4. Kevin Tsang – County of Riverside
5. Guoyuan Wu – University of California, Riverside Center for Environmental Research & Technology
6. Lou Monville – Building Industry Association Riverside Chapter
7. Miguel Lujano – Riverside Community Health Foundation
8. Mike Gainor – Southern California Association of Governments

Kimley»Horn

Observations

- There is still some hesitation about the City implementing a VMT Mitigation Program if there are few examples of other programs being implemented throughout California
- Logo #3 was the preferred logo for the Program

Key Topics of Conversation

- Whether the community was used to provide feedback for the projects selected for inclusion in the City's Program
- Whether the projects selected for inclusion in the City's Program were screened to determine whether they were included in other programs
- The status of fully implemented VMT mitigation programs throughout California, as well as the status of programs in development in the region including the one being developed by the Western Riverside Council of Governments (WRCOG)
- The status of environmental clearance requirements for the City's Program
- The remaining schedule for completing the Program

Lessons Learned

- Ongoing community engagement will be key for successfully implementing the City's VMT Mitigation Program
- A VMT Banking framework would be the most appropriate initial program
- Reproducible methods for evaluating VMT mitigation have been established

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: October 17, 2024

Stakeholder Advisory Committee (SAC) Meeting #6 (September 26, 2024)

This was the sixth and final meeting held with the Stakeholder Advisory Meeting (SAC) for the City of Riverside's Vehicle Miles Traveled (VMT) Mitigation Program project. The meeting was attended by 6 of the invited stakeholders as shown in the list of attendees is provided below. Several questions were asked throughout the presentation that focused on implementing the program in the City, how additional mitigation measures can be added into the program, and how General Plan Updates can expedite VMT mitigation in the future.

The presentation began by restating the purpose of the study and summarizing the public outreach conducted so far including the online survey released to the public and the public meeting held on December 14, 2023. The presentation continued covering recommended program framework for the City's program (VMT bank), a summary of the VMT reducing measures evaluated for inclusion in the City's program and those that were ultimately recommended for inclusion, three options for mixtures of VMT reducing measures to include in the program including the total cost, VMT reduced and overall cost per VMT reduced for each option, a comparison table of programs in the state and their respective costs per VMT reduced, two case study examples, a demo of the TREDLite VMT tool, a summary of mitigation timing considerations, and concluded with findings and remaining steps for the City's program. In addition, the meeting provided an opportunity for participants to ask questions about the City's Program.

Attendees

1. Mike Schmitt – Kimley-Horn
2. Chris Gregerson – Kimley-Horn
3. Vital Patel – City of Riverside
4. Kevin Tsang – County of Riverside
5. Lou Monville – Building Industry Association Riverside Chapter
6. Miguel Lujano – Riverside Community Health Foundation
7. Warren Whiteaker – Southern California Association of Governments
8. Janice Penner – Riverside Downtown Partnership
9. Irma Henderson - University of California, Riverside

Observations

- There is support for the City implementing a VMT Mitigation Program, but cost will be a serious factor in the success of the program

Key Topics of Conversation

- Whether other jurisdictions are using TREDLite to estimate VMT impacts
- How other VMT reducing measures can be added to the City's program
- How often the program will be updated with additional measures
- How the program will fit into the overall CEQA mitigation needs for future development projects
- The remaining schedule for completing the Program

Lessons Learned

- Ongoing community engagement will be key for successfully implementing the City's VMT Mitigation Program
- Reproducible methods for evaluating VMT mitigation have been established
- An avenue should be created for the community to submit VMT reducing measures to be considered for inclusion in the City's program

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Agency Meeting with Riverside County (August 31, 2023)

This was the second meeting held with an agency to discuss the City of Riverside's VMT Mitigation Program directly. The meeting was held with the project team (Kimley-Horn and the City of Riverside) and two members of Riverside County. The meeting began by noting that Kimley-Horn developed the County's VMT policy to provide background context for the meeting. The discussion then focused whether Riverside County was planning to develop a VMT Mitigation Program or if not, what their level of involvement would be in other programs in the region. The discussion then focused on VMT reducing projects in the region and how a City of Riverside VMT Mitigation Program would function. The meeting concluded with the City providing the County with a schedule for implementing their VMT Mitigation Program.

Observations

- Riverside County is aware of WRCOG developing a VMT Mitigation Program and noted they do not have a VMT Mitigation Program of their own

Key Topics of Conversation

- The status of VMT Mitigation Programs in the Western Riverside region
- Riverside County's involvement in VMT Mitigation Programs
- How a VMT Mitigation Program would function
- How to ensure that if funding is provided to a VMT Mitigation program, projects included in the program are implemented or constructed

Key Takeaways

- Riverside County is interested in participating in a regional VMT Mitigation Program, but is not interested in developing their own
- VMT reducing projects included in a VMT Mitigation Program would need to be implemented in a timely fashion
- A backstop is needed to sure that VMT reducing projects are constructed if they are included in a VMT Mitigation Program and funds are contributed to the program by projects with VMT impacts

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Agency Meeting with the Riverside Transit Authority (September 13, 2023)

This was the third meeting held with an agency to discuss the City of Riverside's VMT Mitigation Program directly. The meeting was held with the project team (Kimley-Horn and the City of Riverside) and Jennifer Nguyen at RTA. The meeting's focus was on the potential of transit projects to be included in the City's VMT Mitigation Program. The discussion began with the initial transit project evaluations completed by the project team in which the VMT reductions produced by additional buses being added along routes to reduce headways were determined. The discussion then evolved into other types of transit projects and whether they were feasible or had been tested in the past such as reduced/free transit passes for specific populations and micro transit expansion. The discussion concluded with how funding from the City's VMT Mitigation Program would go towards any transit projects included in the program in terms of on-going costs over a 20-year lifecycle.

Observations

- RTA is interested in participating in Stakeholder meetings, but they have been scheduled during RTA board meetings in the past
- RTA is working with WRCOG on their regional VMT Mitigation Program, but nothing has been decided at this time
- Ridership is at 80-percent of pre=COVID levels
- RTA is able to provide ridership data to aid in the evaluation of VMT reducing projects

Key Topics of Conversation

- Initial project evaluations and the associated VMT reductions
- Other potential VMT reducing projects that could be evaluated for inclusion in the City's VMT Mitigation Program
- The effectiveness of reduced for free transit passes
- Which routes would be most effective in increasing ridership if headways were reduced

Key Takeaways

- RTA tracks ridership, passenger miles traveled, and passenger average trip distance
- RTA is willing to share data on a per route basis & guidance on headway reductions
- RTA has conducted several fare reduction promotions
    - These programs could lead to pure VMT reductions

- Route 56 (new route that services the University of California at Riverside and surrounding areas) is still building ridership
    - It started in January 2023 with a 1-hour headway
    - There is a question of whether extending the route to the industrial area to the north would increase ridership, but this extension would also need to include an additional bus along the route which would require additional funding

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Agency Meeting with the University of California at Riverside (September 20, 2023)

This was the fourth meeting held with an agency to discuss the City of Riverside's VMT Mitigation Program directly. The meeting was held with the project team (Kimley-Horn and the City of Riverside) and Irma Henderson at UCR. The meeting's focus was on UCR's relationship with the Riverside Transit Authority (RTA) and the types of projects UCR would like to see funded by the City of Riverside's VMT Mitigation Program. The discussion initially focused on Route 56, a new route that serves UCR and links the campus to Metrolink. The discussion then moved to UCR's initial relationship with RTA regarding Route 51 the history of that route in terms of ridership and funding. Bicycle and vanpool projects connecting and serving UCR were also discussed before the meeting concluded.

Observations

- Route 56 has served a number of challenges UCR has experienced including connecting the campus directly with Metrolink and its partners in the area such as the California Air Resources Board (CARB)
    - UCR is attempting to add an additional stop next to CARB's building
- RTA gives all boarding data to UCR for Route 51 and Route 56
- Route 51 was achieving its farebox revenue pre-COVID
- Route 51 and 56 help solve the campus' ADA needs
- There are gaps between cycle tracks connecting campus to the surrounding areas that the City's VMT Mitigation Program could include as projects to fund

Key Topics of Conversation

- Route 51 and Route 56
- Long-term funding and ridership challenges
- Bicycle projects and vanpool programs

Key Takeaways

- Route 56 (new route that services the University of California at Riverside and surrounding areas) is still building ridership
    - It started in January 2023 with a 1-hour headway
    - There is a question of whether extending the route to the industrial area to the north would increase ridership by serving a larger population, but this extension would also need to include an additional bus along the route which would require additional funding

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Agency Meeting with the Western Riverside Council of Governments (August 30, 2023)

This was the first meeting held with an agency to discuss the City of Riverside's VMT Mitigation Program directly. The meeting was held with the project team (Kimley-Horn and the City of Riverside) and two members of WRCOG. The meeting began by discussing VMT policy in terms of what WRCOG has developed and what WRCOG's member agencies developed. The discussion then focused on the administration and participation of VMT Mitigation Programs, Caltrans' involvement in the development of WRCOG's program (it is not involved), how VMT policy has changed development patterns in western Riverside County and concluded with the timeline for implementation of WRCOG's VMT Mitigation Program.

Observations

- While WRCOG will determine the effectiveness of the VMT reduced by projects being submitted to being included in their program, they don't think that having a program available means everyone needs to participate
- Transportation projects are slowing down or stopping because of VMT mitigation costs
- Fewer retail and office development projects are being submitted, it is mostly single-family residential, multi-family residential, and industrial projects
- VMT Mitigation Programs can help with partial mitigation of impacts

Key Topics of Conversation

- The concept of additionality and how it will impact the administration of VMT Mitigation Programs
- How project applicants will interact with a VMT Mitigation Program
- Types of development projects coming forward compared to before VMT policies were implemented

Key Takeaways

- WRCOG is developing a VMT Mitigation Program that will likely use the Exchange framework
- WRCOG will administer their program and determine the VMT reductions for any VMT reducing projects submitted
- WRCOG is targeting the end of 2024 for implementation
- WRCOG has no issue with the City of Riverside developing its own VMT Mitigation Program in parallel with their own program

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 7, 2024

Public Meeting #1 (December 14, 2023)

This was the first meeting held that was open to the public. It was held at the Riverside Main Library from 5:30 to 7:00 PM and included a presentation held by the project team and an open forum with boards provided that showcased the types of VMT reducing projects being considered for the City's VMT Mitigation Program and their respective location throughout the City. The meeting was attended by eight members of the public who were encouraged to ask questions about the program throughout the presentation. The project team was also available to answer any other questions or discuss topics with the public after the conclusion of the presentation.

Observations

- Most of the input received was about perceived increases to costs/taxes and several members were concerned they were going to see an increase in housing costs and annual fees they were required to pay by the City
- Many clarifying questions about VMT analysis vs VMT mitigation
- Some members of the public were concerned about the types of projects that would be funded by the program and whether they would be effective at reducing as much VMT as was estimated
- The public was not against the implementation of the program, but wanted to make sure only development projects would be required to interact with the City

Key Topics of Conversation

- The need for a VMT Mitigation program and how it would work once implemented
- What work had been completed for the study so far in the project life cycle
- What types of VMT reducing projects were being considered to be funded by the VMT Mitigation Program
- Whether the introduction of the VMT Mitigation Program would lead to an increase of housing costs for residents of the City of Riverside

Lessons Learned

- The presentation should begin by stating that no increase in fees to the public at large was being proposed as a part of the implementation of the VMT Mitigation Program
- The public generally has a limited understanding of VMT policy, but is very concerned about any program that could raise housing costs or costs to the public in general

Kimley»Horn

Memorandum

To: Philip Nitollama, T.E.
Vital Patel
City of Riverside

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP$_1$

Re: ***City of Riverside VMT Mitigation Program***
Outreach Event Summary

Date: March 8, 2024

Public Online Survey (December 2023)

In advance of the public meeting held on December 14, 2023, an eight-question survey was posted online and advertised by the City to solicit input from the public on the City's VMT Mitigation Program. The online survey targeted members of the public who could not make the public meeting, but also was intended to provide information about the City's VMT Mitigation Program in advance of the public meeting for members of the public who planned on attending. Questions covered topics such as the respondent's familiarity with VMT and fee programs, how fees are charged and spent as part of a VMT Mitigation Program, the types of projects that should be included in a VMT Mitigation Program, and any concerns the respondent may have about a VMT Mitigation Program. The online survey was advertised by the City on all its social media accounts and a link to the survey was included in the flier advertising the public meeting. A hard copy of the survey was also provided to attendees of the public meeting.

Observations

- 15 responses were received and all were from residents, no business owners responded
- One person did not respond to two of the questions regarding transportation demand measures and whether a portion of the fees generation should be spent locally
- There was no clear consensus on the types of VMT reducing projects that should be funded by the VMT Mitigation Program

Key Takeaways

- 13% of respondents were familiar with VMT state requirements
- 40% of respondents support a developer fee program
- 70% of respondents were in favor of fees based on amount of VMT vs size of project
- Respondents ranked Bike/ped and telecommute projects highest
- 93% of respondents were in favor of mitigation based on project location

City of Riverside Vehicle Miles Traveled Mitigation Program Project Survey

SB 743, signed into law in 2013, required the Governor's Office of Planning and Research (OPR) to establish a new metric for identifying and mitigating transportation impacts for projects that are subject to the California Environmental Quality Act (CEQA). OPR identified Vehicle Miles Traveled (VMT) as the new metric. The City of Riverside adopted VMT thresholds in July 2020 following OPR's guidance which uses average VMT per person/employee as a baseline for determining needed reductions. While many development projects within the City are screened out based on the City's screening criteria, some development projects cannot meet adopted thresholds for reduced VMT.

The goal of this project is to establish a VMT mitigation program for the City of Riverside so that projects can reduce impacts from VMT to a less-than-significant level by paying into a program. This project will provide the City with a citywide mechanism to mitigate development projects that cannot mitigate on-site, and simultaneously provide additional funding for active transportation and transit projects that help reduce VMT overall via a banking or exchange program. In addition, one of the primary benefits of establishing a VMT Mitigation Program is that it provides the City with the ability to expedite processing projects with identified VMT impacts and minimize or eliminate the need for additional environmental studies.

For more information including a project overview video, please visit the project website: https://riversidevmt.com/. The following document also provides additional information on VMT and the project: Additional Information on VMT

1. Are you a Riverside resident, business owner, or both?

- ◯ Resident
- ◯ Business Owner
- ◯ Both

2. Have you heard of Vehicle Miles Traveled (VMT) before?

- ◯ I have not heard of VMT prior to this survey.
- ◯ I am aware of VMT policy but am not familiar with its overall detailed requirements.
- ◯ I am familiar with VMT state requirements

3. How do you feel about a fee program being introduced to provide additional options for development applicants to pay to reduce their Vehicle Miles Traveled (VMT) impacts?

- ◯ Yes, I support a developer fee program
- ◯ No, I do not support a developer fee program

4. Would you prefer a program where fees are charged based on the project size (e.g., number of dwelling units for residential project or total square-feet for non-residential projects) or by the size of their VMT impact (i.e., fees based on a project's total VMT above the City's threshold)? Note that in the first program type, fees are charged whether or not a project has a VMT environmental impact.

- ◯ Project size
- ◯ Amount of VMT above threshold

5. Which types of mitigation projects are you most excited about implementing? Please rank the following options

- Transit
- Bicycle/Pedestrian
- Land use (i.e., helping fund affordable housing or transit-oriented development)
- Reduced Demand (e.g., road diets, lane restrictions, and traffic calming)

Transportation Demand Management measures (e.g., telecommuting programs, carpooling programs, vanpool programs, or charging for on-street parking)

6. Which types of Transportation Demand Management measures do you prefer most to implement?

- ◯ Vanpooling programs (employer/City provides a van for multiple employees to use at no cost to the employees)
- ◯ Carpooling programs (employer/City sets up a program that enables employees to coordinate carpooling and provides a monetary incentive to the driver of the carpool)
- ◯ Telecommuting programs (City works with employers to provide telecommuting options to employees to enable them to telecommute one day or more per week)

7. Do you prefer a VMT reduction program where a portion of fees generated are required to be spent locally (i.e., spent in the general area in which the project is located), or one where funds are spent on projects located throughout the region regardless of where projects are located?

- ◯ Local component
- ◯ No local component

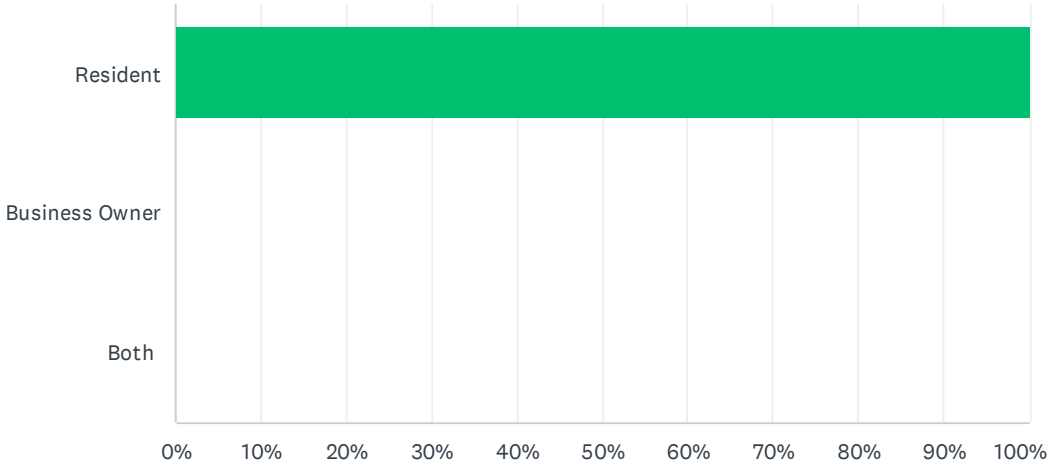
8. Concerns have been raised about implementing a fee-based VMT mitigation program. Please rank the concerns below from most concerning to least concerning in your option.

- Project selection (i.e., identifying feasible or cost-effective projects)
- Equity (i.e., ensuring the costs and benefits of a program are shared equally throughout the region)
- The potential for increasing the cost of development
- Gathering enough community or decision-maker support to implement the program
- The potential legal issues or complexity of the program

Done

Q1 Are you a Riverside resident, business owner, or both?

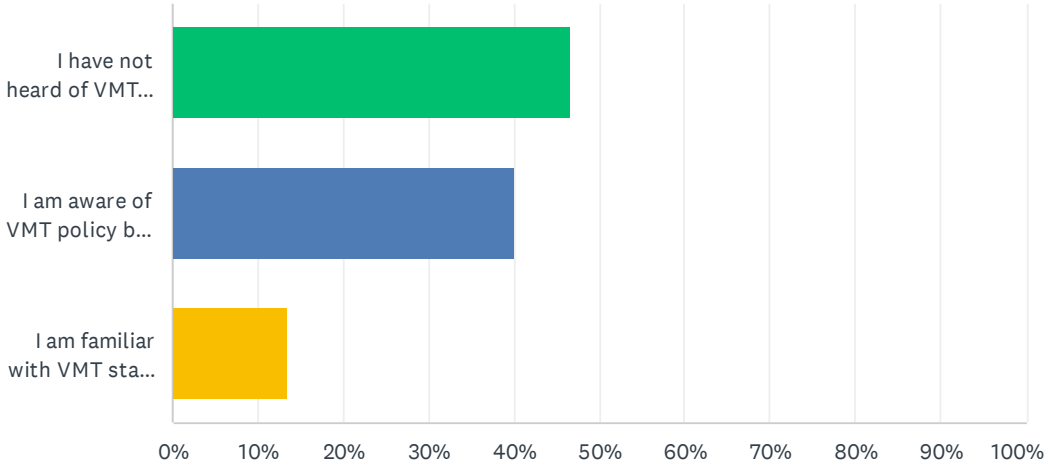
Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
Resident	100.00%	15
Business Owner	0.00%	0
Both	0.00%	0
TOTAL		15

Q2 Have you heard of Vehicle Miles Traveled (VMT) before?

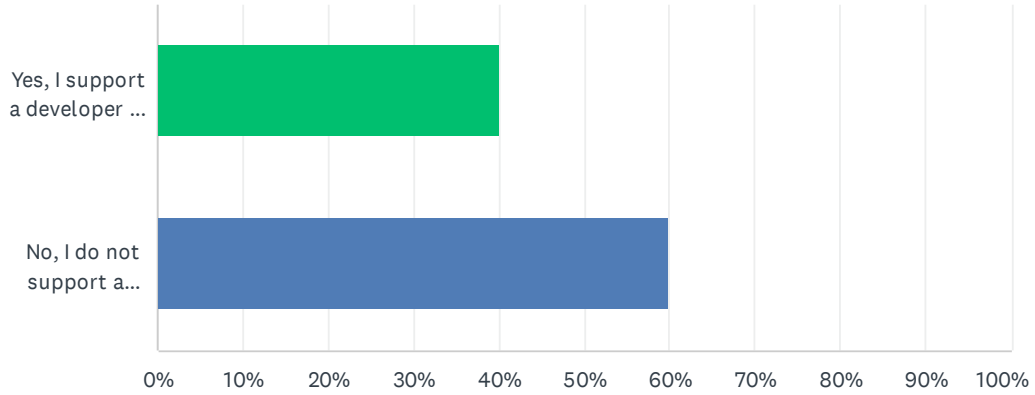
Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
I have not heard of VMT prior to this survey.	46.67%	7
I am aware of VMT policy but am not familiar with its overall detailed requirements.	40.00%	6
I am familiar with VMT state requirements	13.33%	2
TOTAL		15

Q3 How do you feel about a fee program being introduced to provide additional options for development applicants to pay to reduce their Vehicle Miles Traveled (VMT) impacts?

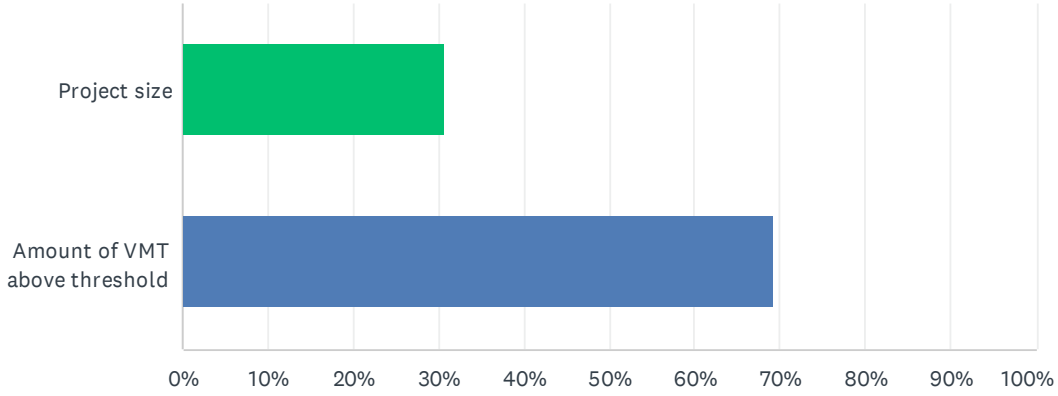
Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, I support a developer fee program	40.00%	6
No, I do not support a developer fee program	60.00%	9
TOTAL		15

Q4 Would you prefer a program where fees are charged based on the project size (e.g., number of dwelling units for residential project or total square-feet for non-residential projects) or by the size of their VMT impact (i.e., fees based on a project's total VMT above the City's threshold)? Note that in the first program type, fees are charged whether or not a project has a VMT environmental impact.

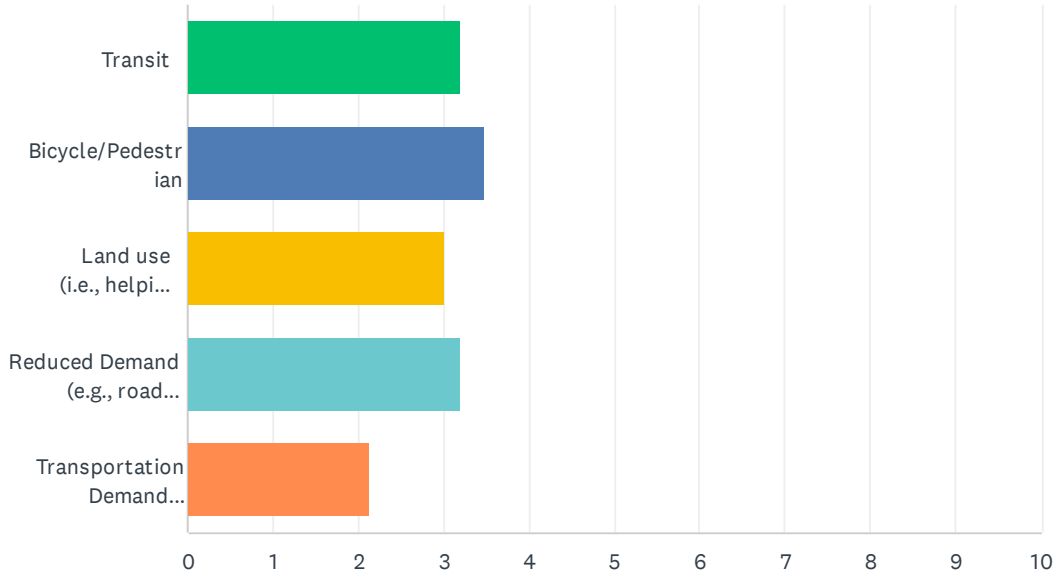
Answered: 13 Skipped: 2



ANSWER CHOICES	RESPONSES	
Project size	30.77%	4
Amount of VMT above threshold	69.23%	9
TOTAL		13

Q5 Which types of mitigation projects are you most excited about implementing? Please rank the following options

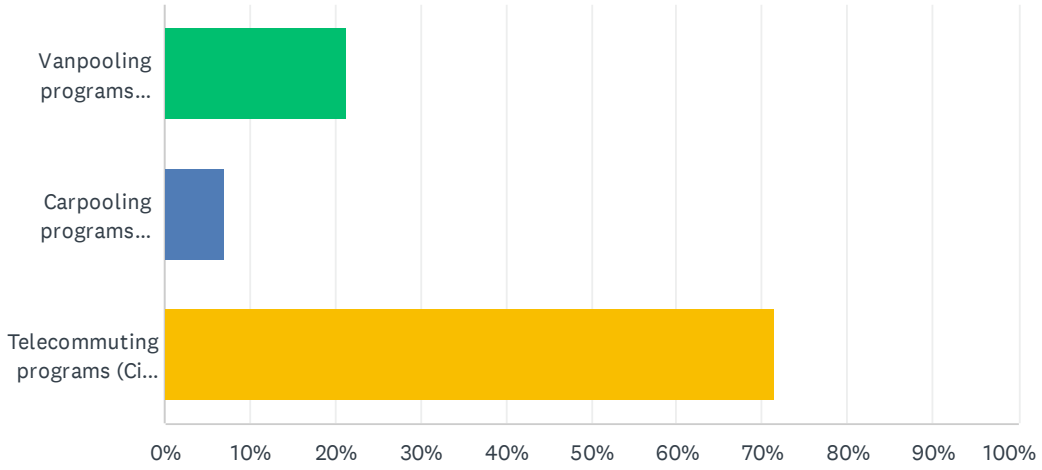
Answered: 15 Skipped: 0



	1	2	3	4	5	TOTAL	SCORE
Transit	13.33% 2	33.33% 5	20.00% 3	26.67% 4	6.67% 1	15	3.20
Bicycle/Pedestrian	33.33% 5	13.33% 2	33.33% 5	6.67% 1	13.33% 2	15	3.47
Land use (i.e., helping fund affordable housing or transit-oriented development)	26.67% 4	13.33% 2	20.00% 3	13.33% 2	26.67% 4	15	3.00
Reduced Demand (e.g., road diets, lane restrictions, and traffic calming)	26.67% 4	20.00% 3	13.33% 2	26.67% 4	13.33% 2	15	3.20
Transportation Demand Management measures (e.g., telecommuting programs, carpooling programs, vanpool programs, or charging for on-street parking)	0.00% 0	20.00% 3	13.33% 2	26.67% 4	40.00% 6	15	2.13

Q6 Which types of Transportation Demand Management measures do you prefer most to implement?

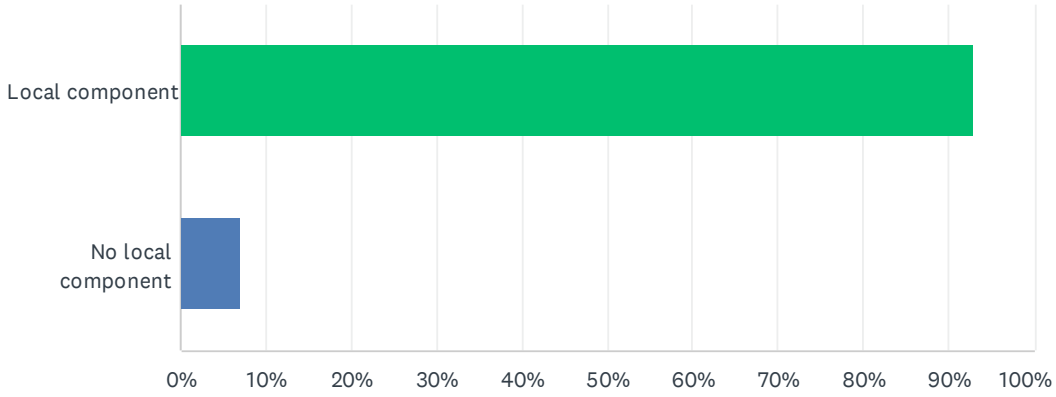
Answered: 14 Skipped: 1



ANSWER CHOICES	RESPONSES	
Vanpooling programs (employer/City provides a van for multiple employees to use at no cost to the employees)	21.43%	3
Carpooling programs (employer/City sets up a program that enables employees to coordinate carpooling and provides a monetary incentive to the driver of the carpool)	7.14%	1
Telecommuting programs (City works with employers to provide telecommuting options to employees to enable them to telecommute one day or more per week)	71.43%	10
TOTAL		14

Q7 Do you prefer a VMT reduction program where a portion of fees generated are required to be spent locally (i.e., spent in the general area in which the project is located), or one where funds are spent on projects located throughout the region regardless of where projects are located?

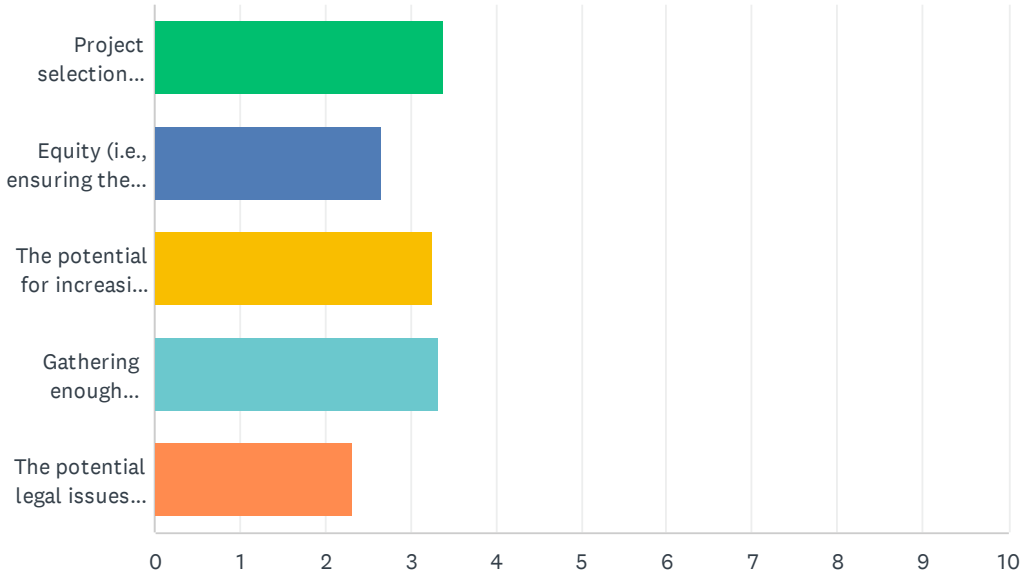
Answered: 14 Skipped: 1



ANSWER CHOICES	RESPONSES	
Local component	92.86%	13
No local component	7.14%	1
TOTAL		14

Q8 Concerns have been raised about implementing a fee-based VMT mitigation program. Please rank the concerns below from most concerning to least concerning in your option.

Answered: 15 Skipped: 0



	1	2	3	4	5	TOTAL	SCORE
Project selection (i.e., identifying feasible or cost-effective projects)	13.33% 2	46.67% 7	20.00% 3	6.67% 1	13.33% 2	15	3.40
Equity (i.e., ensuring the costs and benefits of a program are shared equally throughout the region)	20.00% 3	13.33% 2	13.33% 2	20.00% 3	33.33% 5	15	2.67
The potential for increasing the cost of development	40.00% 6	6.67% 1	6.67% 1	33.33% 5	13.33% 2	15	3.27
Gathering enough community or decision-maker support to implement the program	20.00% 3	26.67% 4	26.67% 4	20.00% 3	6.67% 1	15	3.33
The potential legal issues or complexity of the program	6.67% 1	6.67% 1	33.33% 5	20.00% 3	33.33% 5	15	2.33

Vehicle Miles Traveled (VMT) Mitigation

Through Fees, Banks & Exchanges Program

Stakeholder Advisory Meeting 1

May 3, 2023

Prepared for:

CITY OF RIVERSIDE

Prepared by:

Kimley»Horn

Expect More. Experience Better.

Agenda

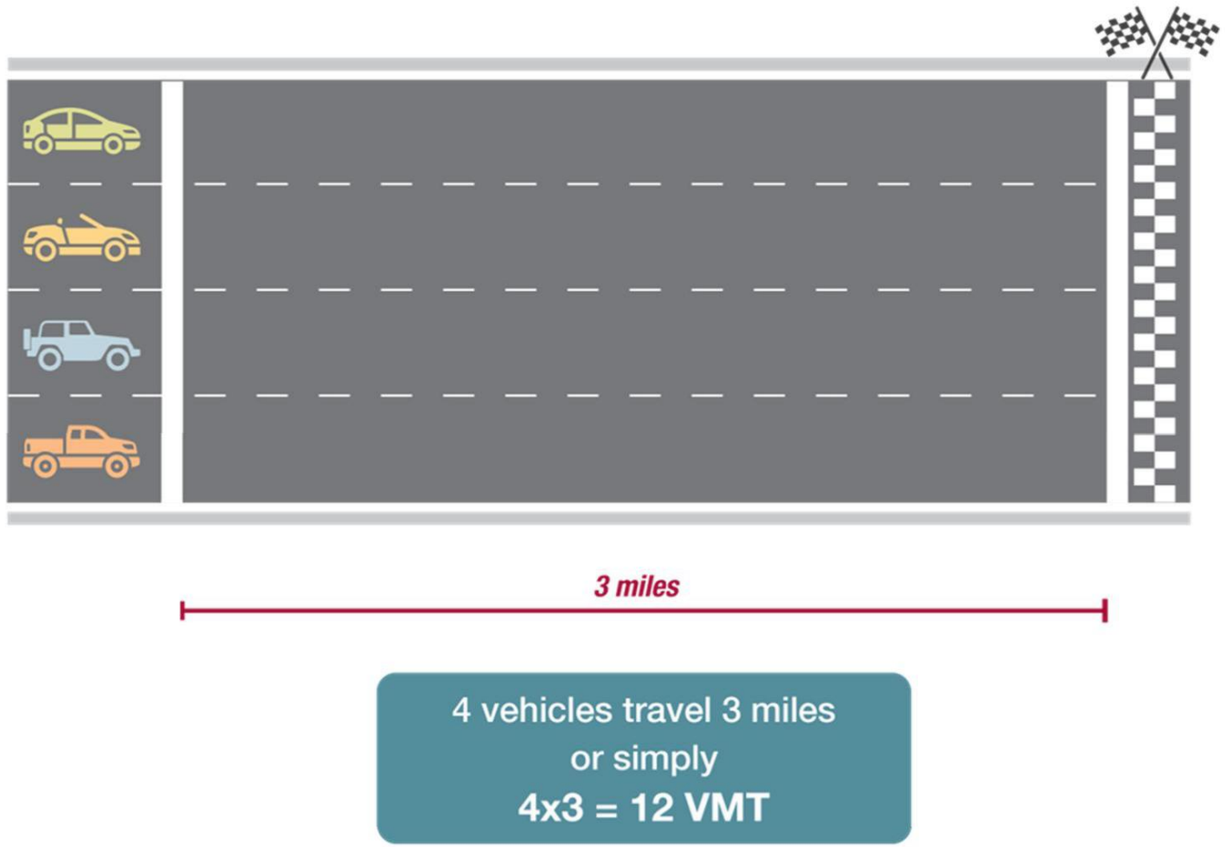
- Background
- Work Plan
- Task Highlights
- Schedule

Introduction to Project

- What is VMT?
- What issue is the City addressing?
- Why have we convened the meeting?

VEHICLES

MILES



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Goals and Objectives

- **Goal:** Develop a program that will successfully implement SB 743 & attainment of the Greenhouse Gas (GHG) reduction goals

- Objectives:
  - *Review other existing VMT Mitigation Programs to determine feasibility with implementing similar program measures*
  - *Substantiate the legal basis of a VMT fees, banks and exchanges program*
  - *Establish a CEQA Nexus Study to reduce VMT impacts through a VMT mitigation exchange, banking program, or alternative program*
  - *Establish a CEQA Nexus Study that determines a VMT Impact Fee per residential dwelling unit*
  - *Demonstrate the legal basis of a VMT exchange program*
  - *Prepare Environmental Impact Report (EIR) document to update the City's General Plan and incorporate the proposed VMT Mitigation Programs*

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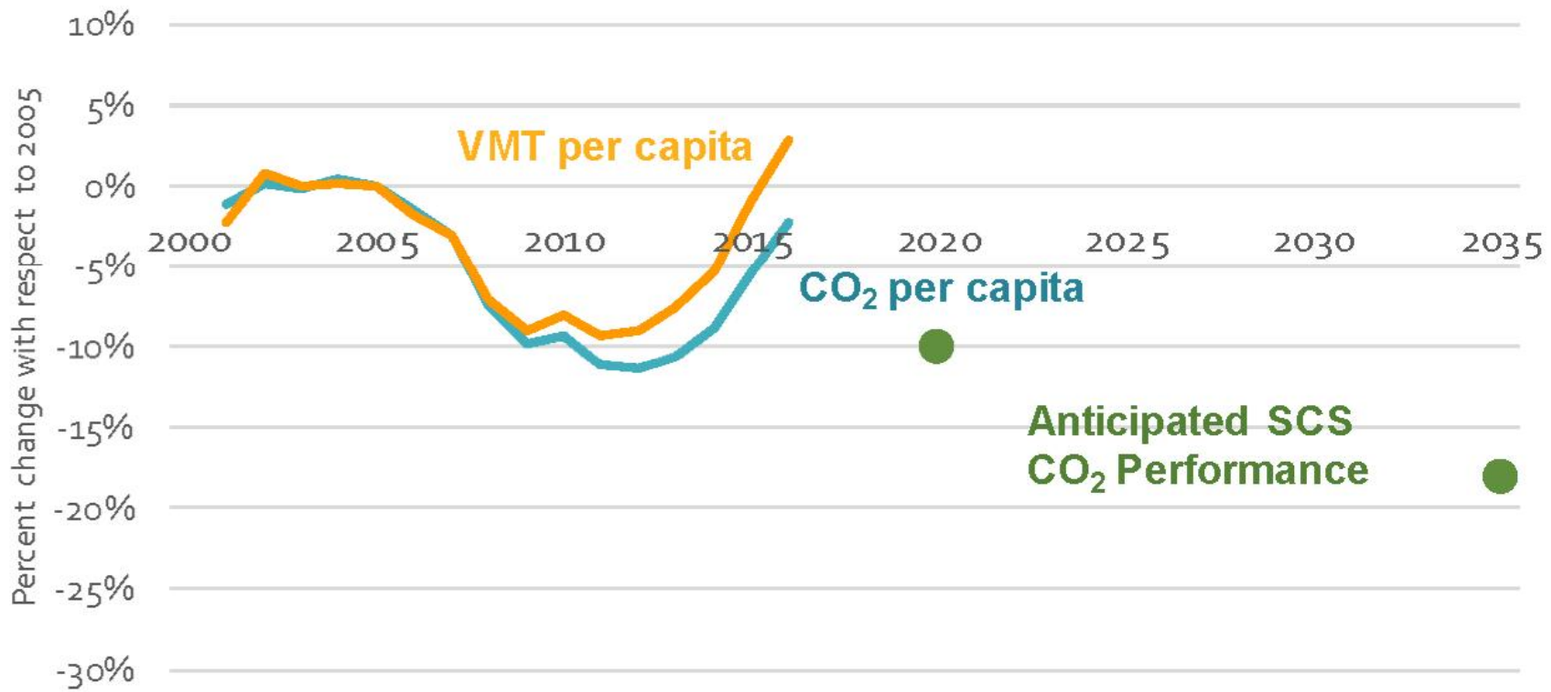
Senate Bill 150 (SB 150) Final Report



VMT = Vehicle Miles Traveled, SCS = Sustainable Communities Strategy

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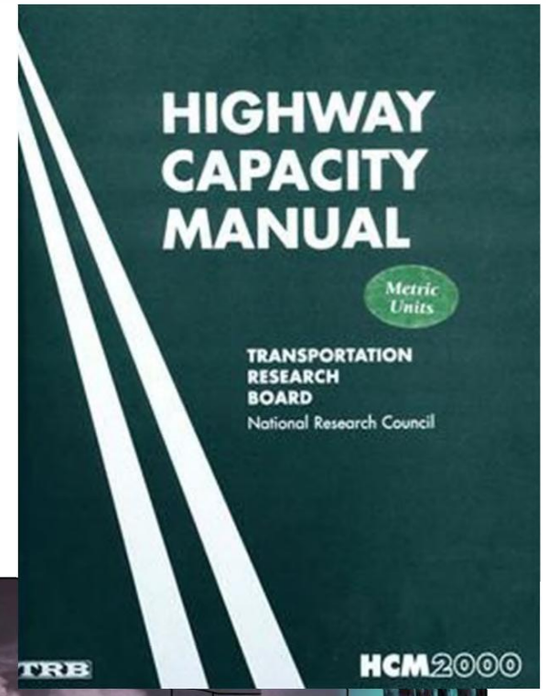
History of Level of Service

- First Edition of HCM published in 1950
- There have been 6 editions
- Significantly guided transportation decision-making
- 70 year later its application has been tied to
  - *Urban Sprawl*
  - *Impacts to active transportation*
  - *Induced demand*
- VMT Analysis is sensitive to these challenges
- We know how LOS affects outcomes



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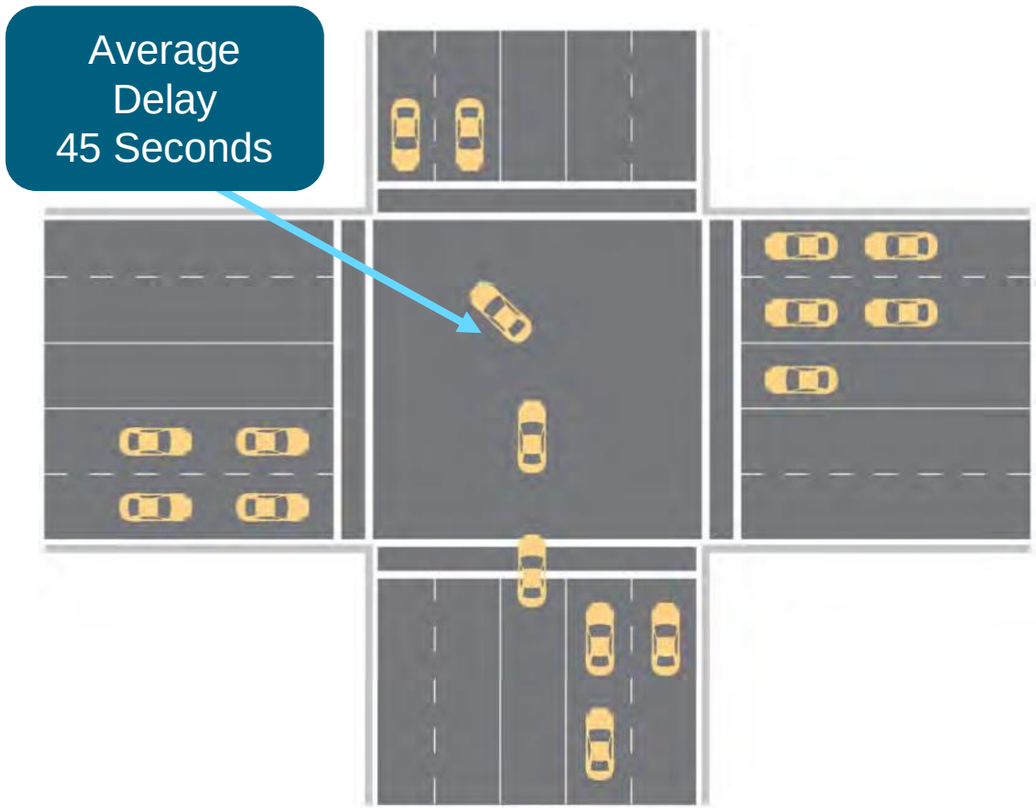
Level of Service

Impact to the Driver

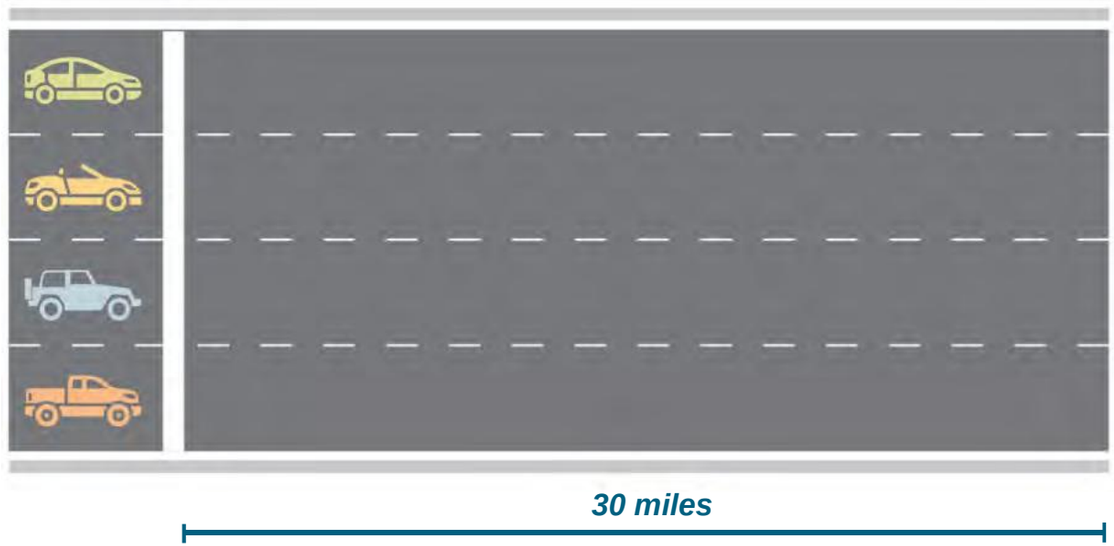


LOS A B C **D** E F

Highway Capacity Manual

Vehicle Miles Traveled

Diver's Impact to Transportation System

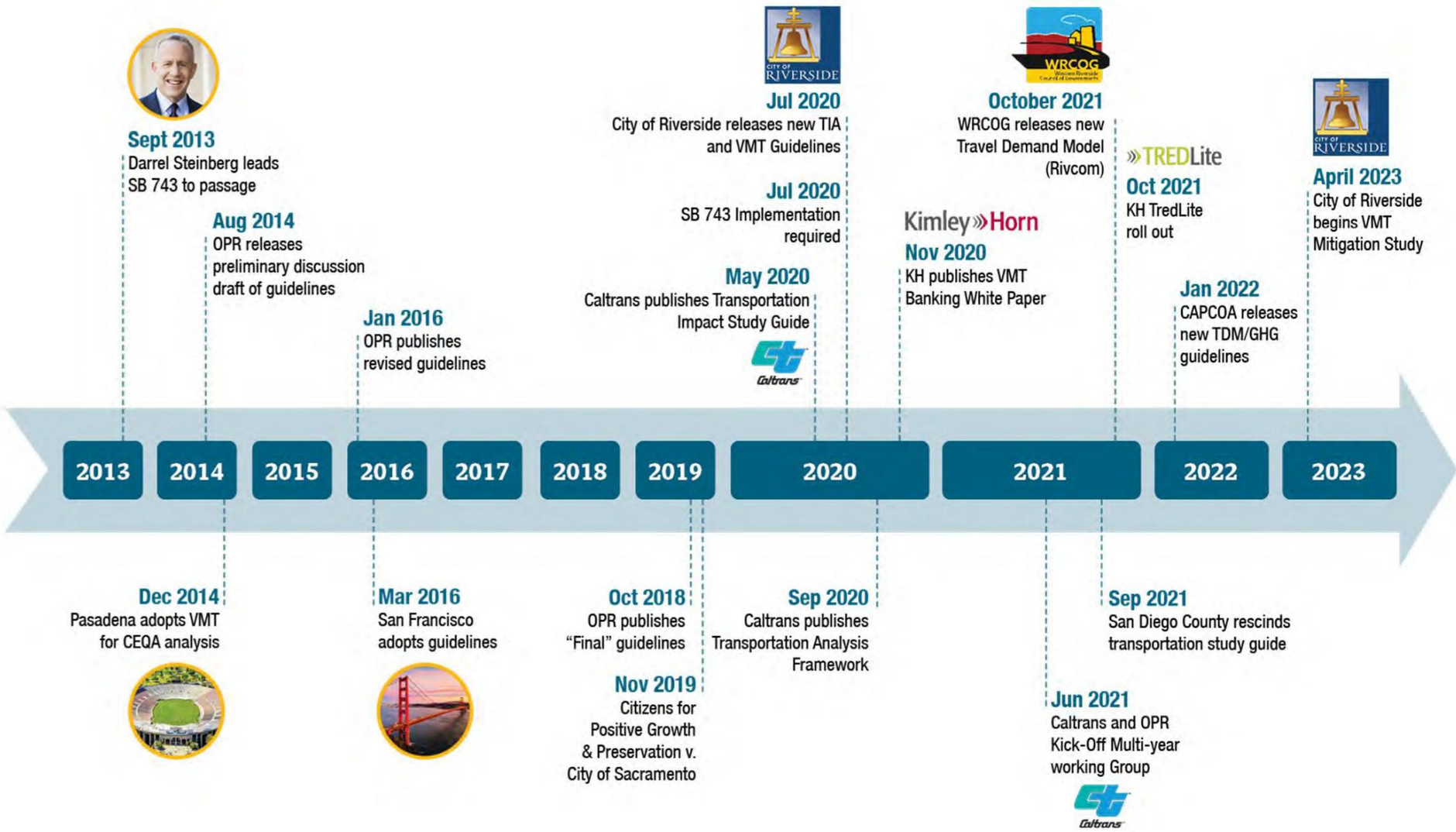


4 vehicles travel 30 miles
or simply
4x30 = 120 VMT

120 VMT / 6
Drivers/Passengers =
20 VMT/Capita

Travel Demand Model

Background



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SB 743 Overview

- State mandate for all local jurisdictions in California
- SB 743 is CEQA Specific
- Basis for a “transportation significant impact” determination
- Sustainability and GHG reduction by
  - *Denser infill development*
  - *Reducing single occupancy vehicles*
  - *Improved mass transit*
- Lead agencies have until July 1, 2020
- Most recent guidance is from December 2018
- Recommends that land uses be split out
- VMT is the principal metric

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Traffic Guidelines and VMT Screening

- VMT Screening Criteria
  - *Projects located in a Transit Priority Areas (TPA)*
  - *Projects located in a low-VMT generating area*
  - *Projects located in Housing element opportunity areas*
  - *Local-serving K-12 schools and day care centers*
  - *Local parks*
  - *Local-serving gas stations, banks, hotels (e.g., non-destination hotels)*
  - *Student housing projects*
  - *Local serving community colleges consistent with the assumptions noted in the RTP /SCS*
  - *Projects generating fewer than 110 daily vehicle trips*
  - *Projects consisting of 100% affordable housing*

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Housing Element Opportunity Areas - Exempt from VMT

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Riverside VMT Mitigation - Examples

- Examples of VMT Mitigation for City Projects
  - *Preferential Parking for Carpool and Vanpool*
  - *Carpooling and Vanpooling Program with Guaranteed Ride Home Program*
  - *Transportation Service/Information Website & Trip Reduction Marketing*
  - *Bus Stop Amenities*
  - *Telecommuting/Alternative Work Schedules*
  - *Transportation Coordinator as part of a Transportation Demand Management (TDM) Program*
  - *Subsidizing Transit Passes*
  - *Project Site Design*
  - *Bicycle Amenities & Active Transportation Improvements*
  - *Wayfinding*

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Mitigation Challenges

- Not all projects can be fully mitigated
- EIR or MND recommended to address VMT impacts **IF**:
  - *Project isn't exempt per the city's VMT screening criteria, **AND***
  - *Unable to use existing VMT mitigation toolbox*
- Causes long delays and expensive costs to applicants
  - *VMT Mitigation Program should expedite application process*

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Riverside is “Prohousing”

- On April 6, Riverside was designated as “Prohousing” by the State
  - *One of only 22 communities in State with designation*
  - *Designation allows City to apply for $26 million Prohousing Incentive Program*
  - *City will receive preference in seeking state funding for programs designed to speed the production of housing*
  - *Provides priority processing or funding points when applying for housing grants*
    - City has had success with housing grants in past with tens of millions already won

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Potential Project Mitigation Solutions

	Bike/Ped	New lane miles or filling in gaps
	Transit	New lanes miles, service types, or filing in gaps
	Land Use	Examples include Affordable Housing, Transit Oriented Development, or other Intuitional Needs
TDM	**TDM**	Transportation Demand Measures (CAPCOA)
$	**VMT Pricing Solutions**	Toll Lanes, Cordon Pricing, Pricing per Mile
	Reduced Demand	Road Diets, Lane Restrictions, Traffic Calming

Note: CAPCOA = California Air Pollution Control Officers Association

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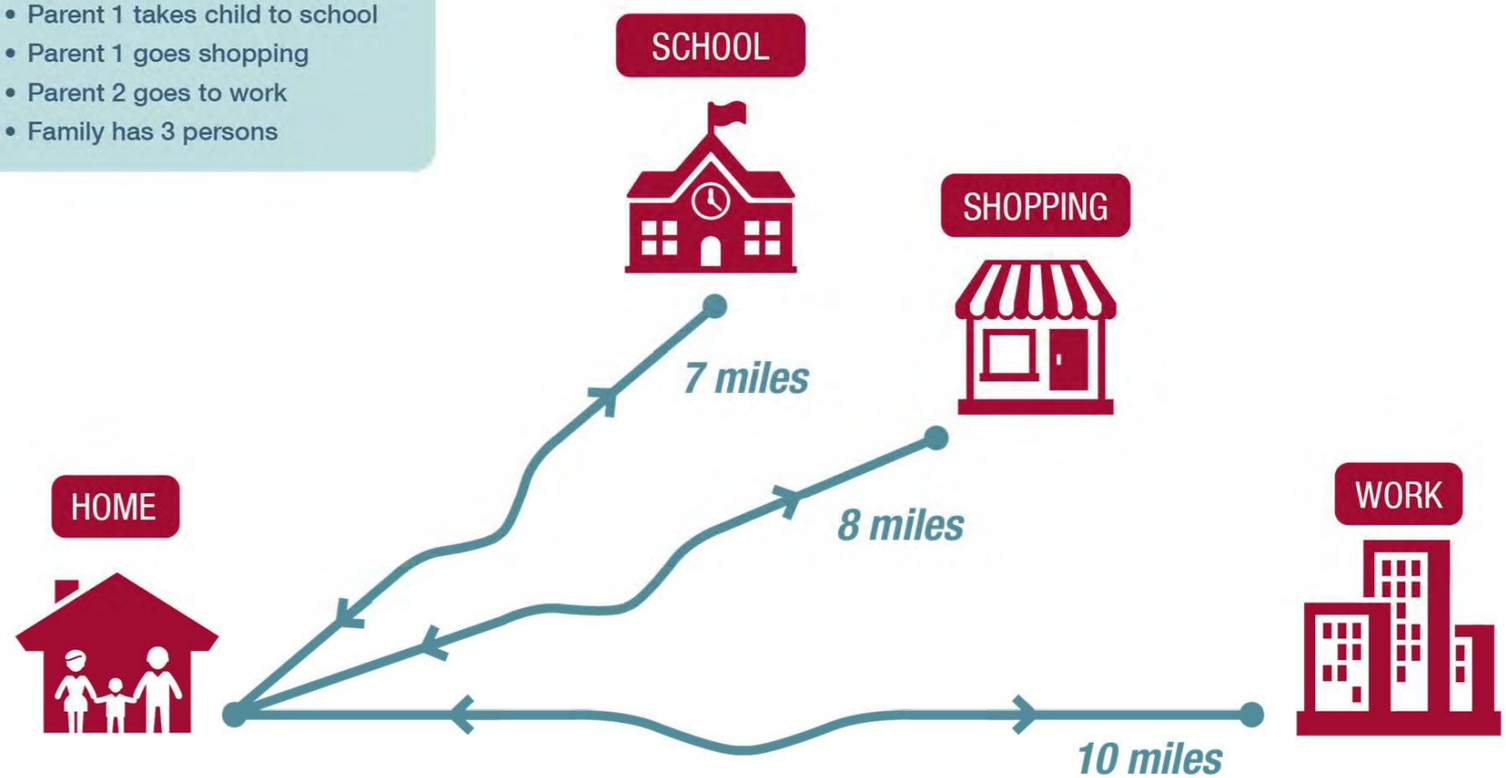
Applicant Project Example

FACTS:

- Parent 1 takes child to school
- Parent 1 goes shopping
- Parent 2 goes to work
- Family has 3 persons



VMT ESTIMATE

School Trip	2 trips x 7 miles	=	14 VMT
Shopping Trip	2 trips x 8 miles	=	16 VMT
Work Trip	2 trips x 10 miles	=	20 VMT
Total VMT per Household			50 VMT
Number of Households			100 Households
Total VMT			5,000 VMT

VMT THRESHOLD ANALYSIS

People/Household	3 People
VMT Per Person	16.5 VMT
VMT Threshold per Person	15.0 VMT
VMT per Person Over Threshold	1.5 VMT/Person

VMT MITIGATION NEED

VMT per Person Over Threshold	1.5 VMT
Number of Households	100 Households
Persons per Household	3 Persons
Total VMT Mitigation Needed	450 VMT

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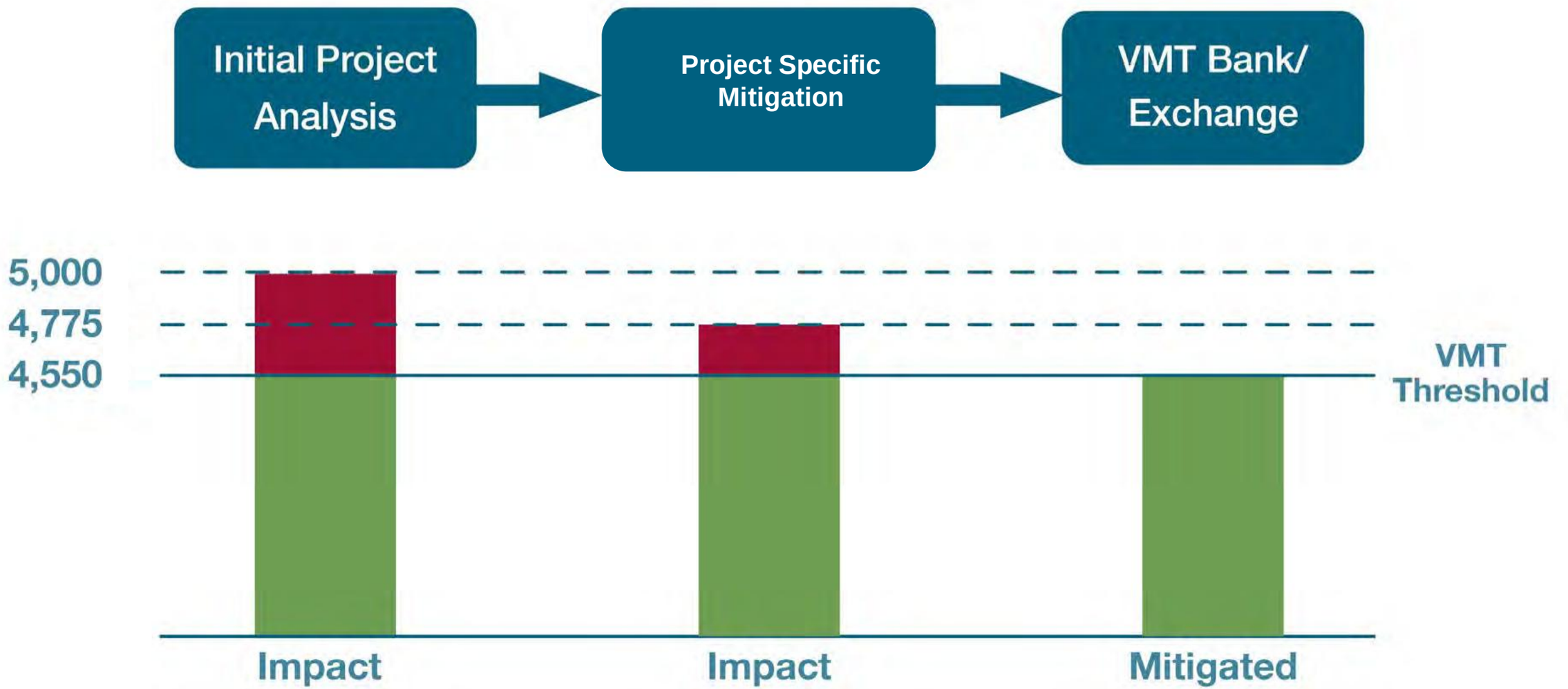
Example Project



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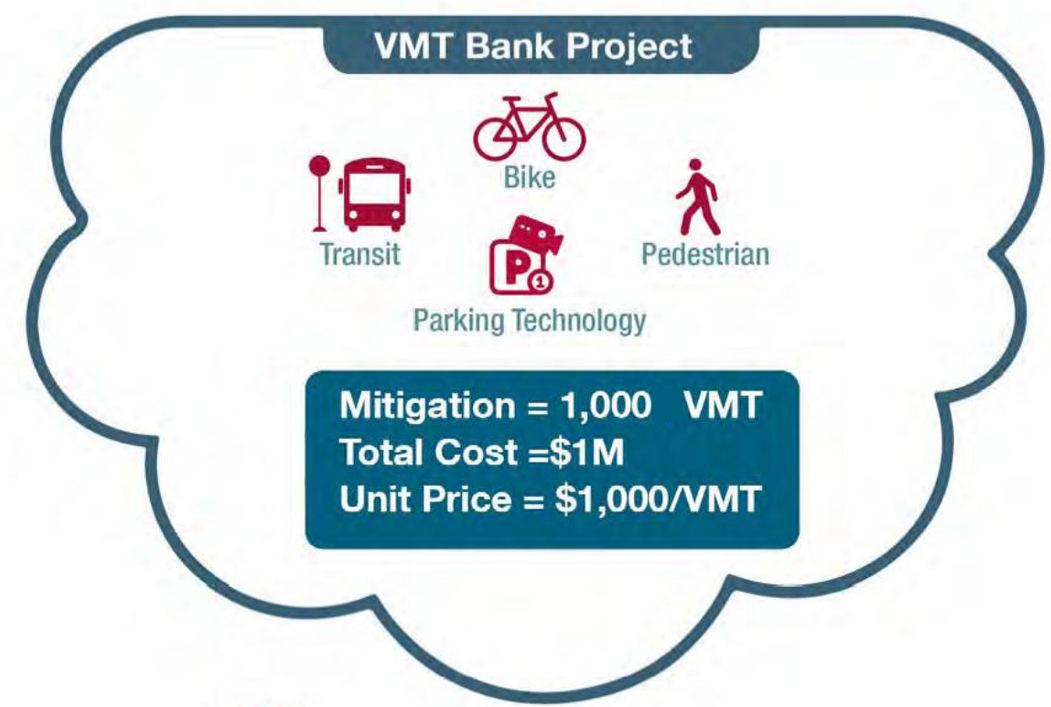
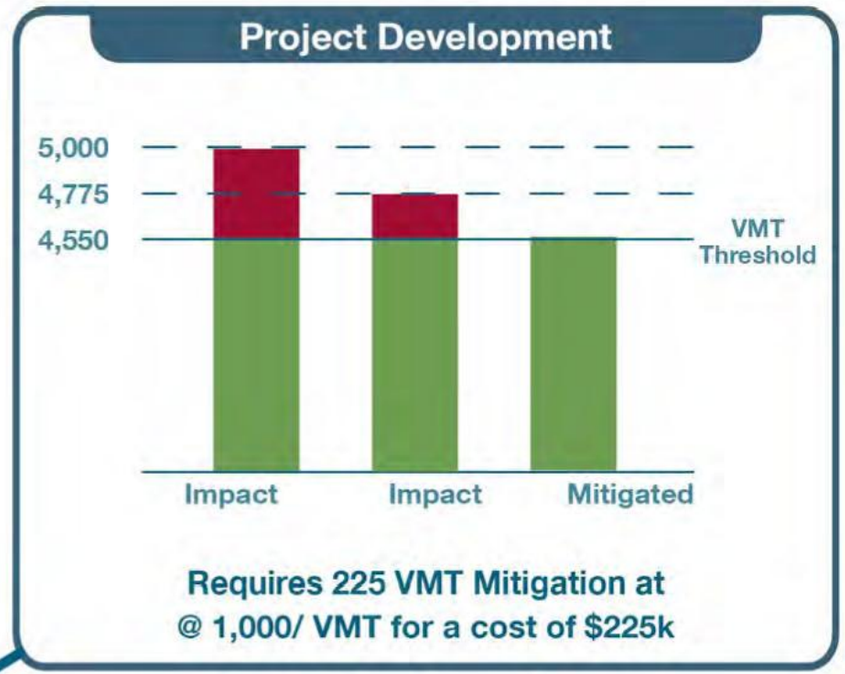
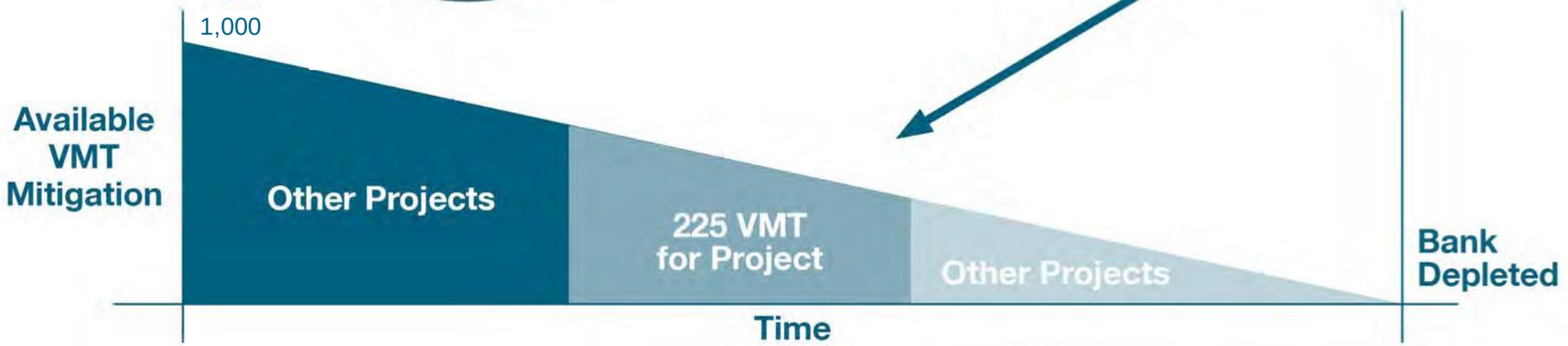
How a VMT Banking Works







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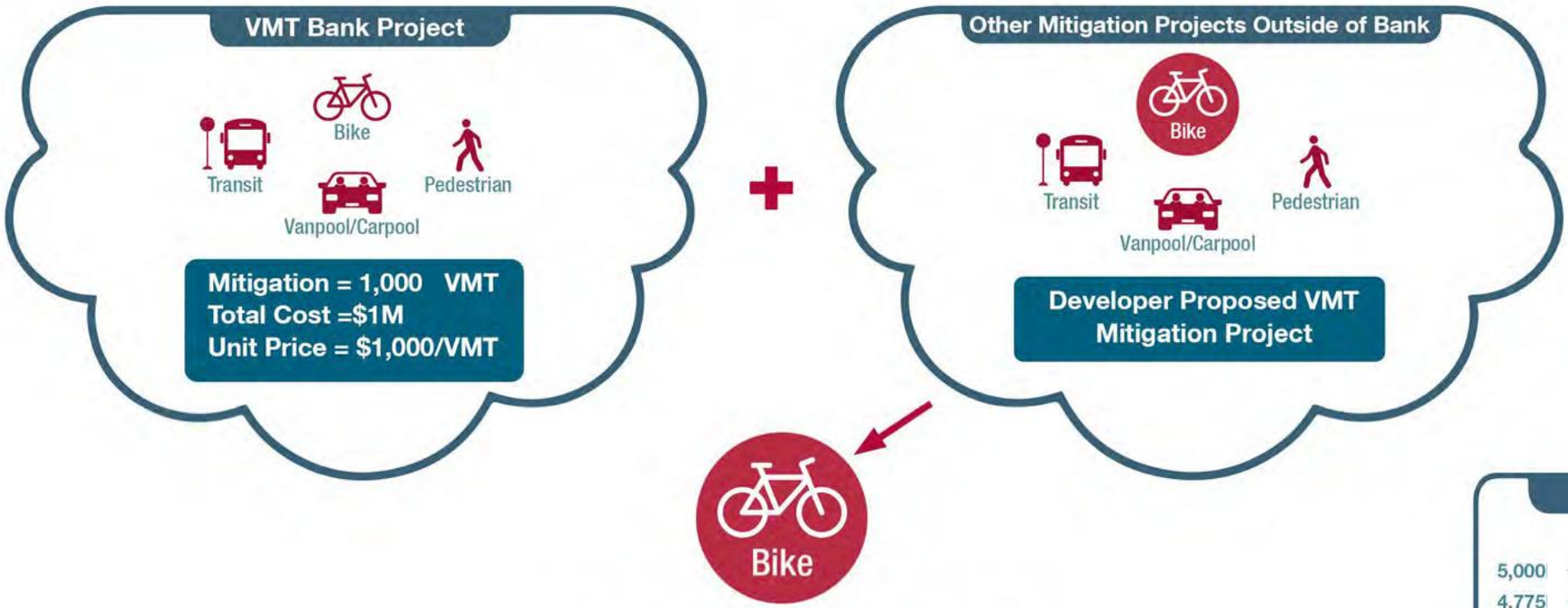
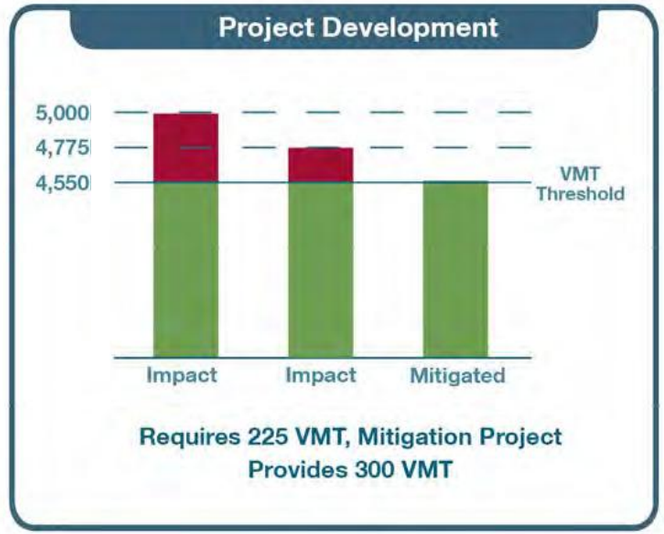
How a VMT Exchange Works



1. A VMT Bank is not required for an exchange but it can optionally provide projects for selection by a VMT Exchange.
2. An applicant can construct at own expense and therefor the price is not necessarily predetermined, however the VMT reduction must be determined.
3. An applicant does not have to monetize or sell excess mitigation VMT unless desired.



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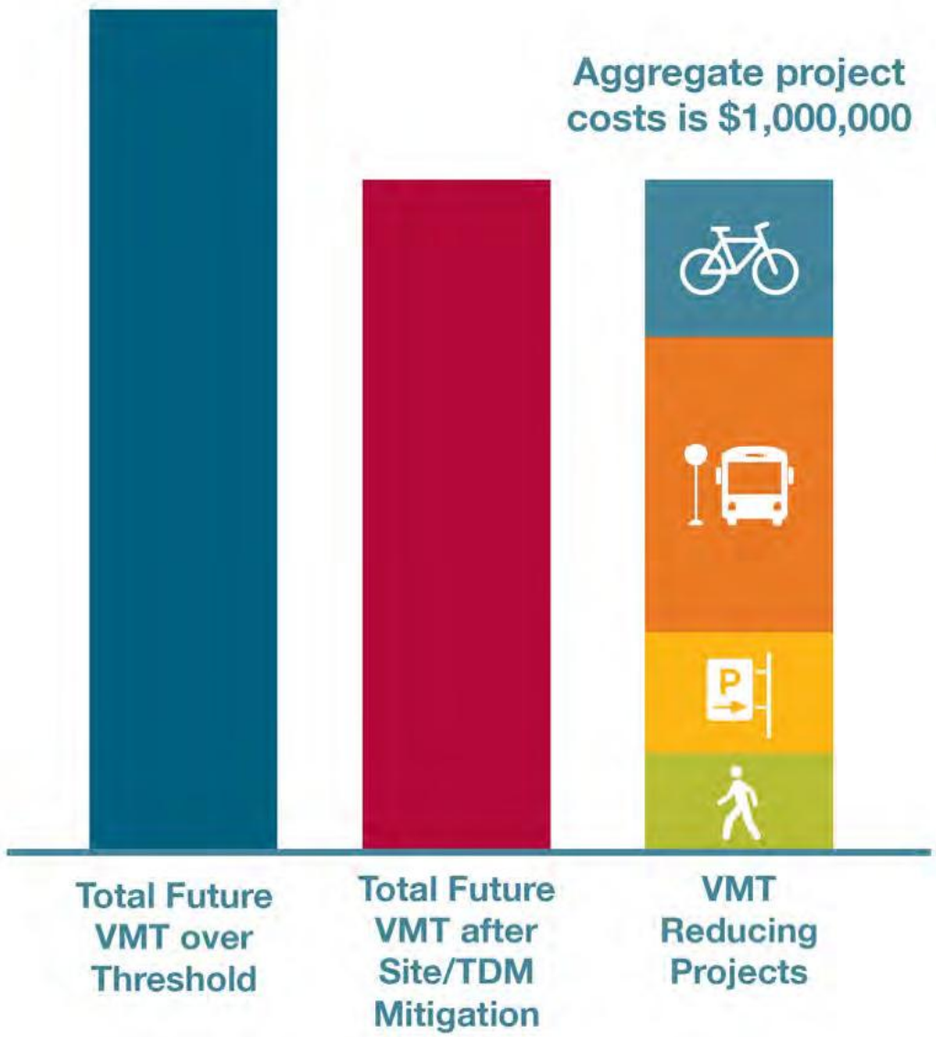
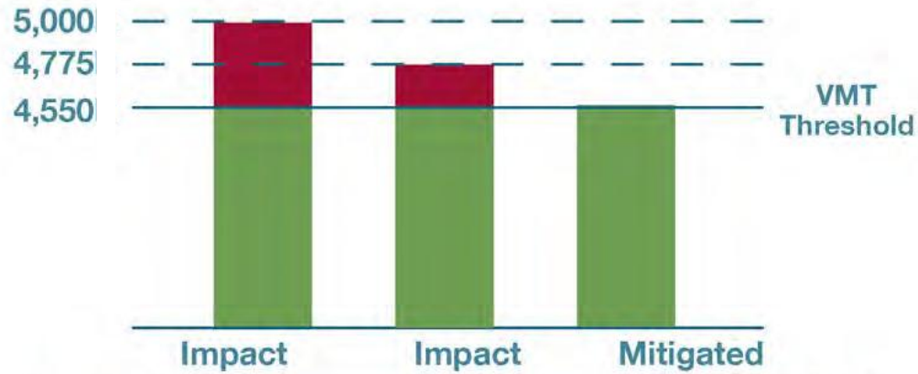
How a VMT Impact Fee Works





Requires $2,000 payment/house for a total cost of $200k.

VMT Impact Fee Schedule

Land Use Type	Amount	Units	Fee/Unit	Total
Residential	250	Houses	$2,000	$500,000
Industrial	2,500,000	S.F.	$0.10	$250,000
Office	1,000,000	S.F.	$0.13	$125,000
Regional Commercial	250,000	S.F.	$0.20	$125,000
			Total	$1,000,000

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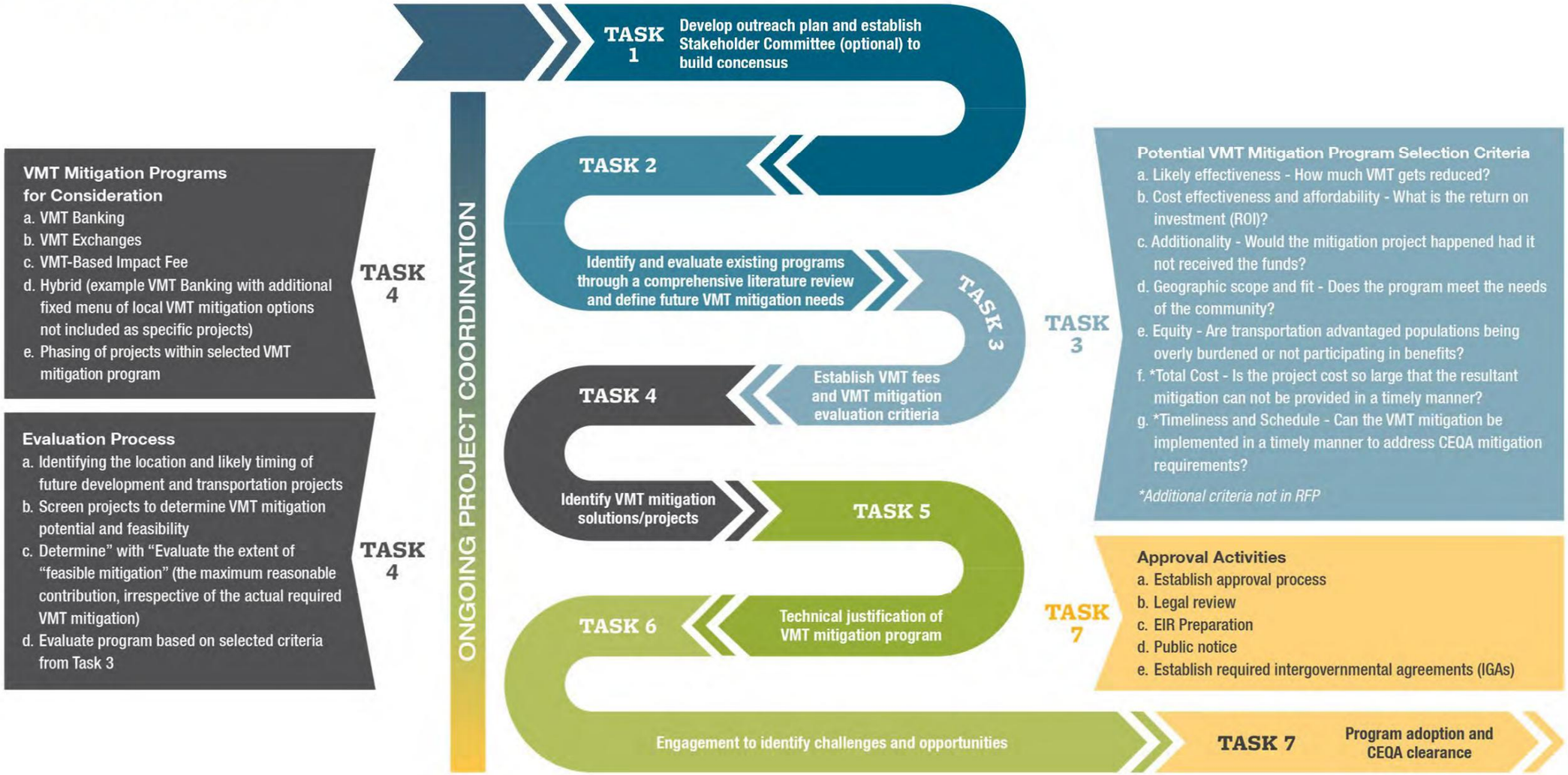
Work Plan


TASK 1
Develop outreach plan and establish Stakeholder Committee (optional) to build concensus
TASK 2
Identify and evaluate existing programs through a comprehensive literature review and define future VMT mitigation needs
TASK 3
Establish VMT fees and VMT mitigation evaluation critieria
TASK 4
Identify VMT mitigation solutions/projects
TASK 5
Technical justification of VMT mitigation program
TASK 6
Engagement to identify challenges and opportunities
TASK 7
Program adoption and CEQA clearance
ONGOING PROJECT COORDINATION
VMT Mitigation Programs for Consideration
a. VMT Banking
b. VMT Exchanges
c. VMT-Based Impact Fee
d. Hybrid (example VMT Banking with additional fixed menu of local VMT mitigation options not included as specific projects)
e. Phasing of projects within selected VMT mitigation program
TASK 4
Evaluation Process
a. Identifying the location and likely timing of future development and transportation projects
b. Screen projects to determine VMT mitigation potential and feasibility
c. Determine" with "Evaluate the extent of "feasible mitigation" (the maximum reasonable contribution, irrespective of the actual required VMT mitigation)
d. Evaluate program based on selected criteria from Task 3
TASK 4
TASK 3
Potential VMT Mitigation Program Selection Criteria
a. Likely effectiveness - How much VMT gets reduced?
b. Cost effectiveness and affordability - What is the return on investment (ROI)?
c. Additionality - Would the mitigation project happened had it not received the funds?
d. Geographic scope and fit - Does the program meet the needs of the community?
e. Equity - Are transportation advantaged populations being overly burdened or not participating in benefits?
f. *Total Cost - Is the project cost so large that the resultant mitigation can not be provided in a timely manner?
g. *Timeliness and Schedule - Can the VMT mitigation be implemented in a timely manner to address CEQA mitigation requirements?
*Additional criteria not in RFP
TASK 7
Approval Activities
a. Establish approval process
b. Legal review
c. EIR Preparation
d. Public notice
e. Establish required intergovernmental agreements (IGAs)

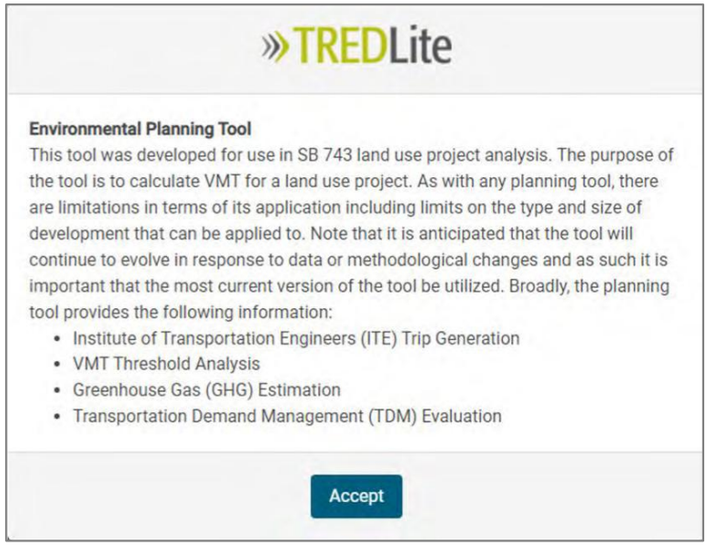
Task 2.1 – 2.4: Literature Review

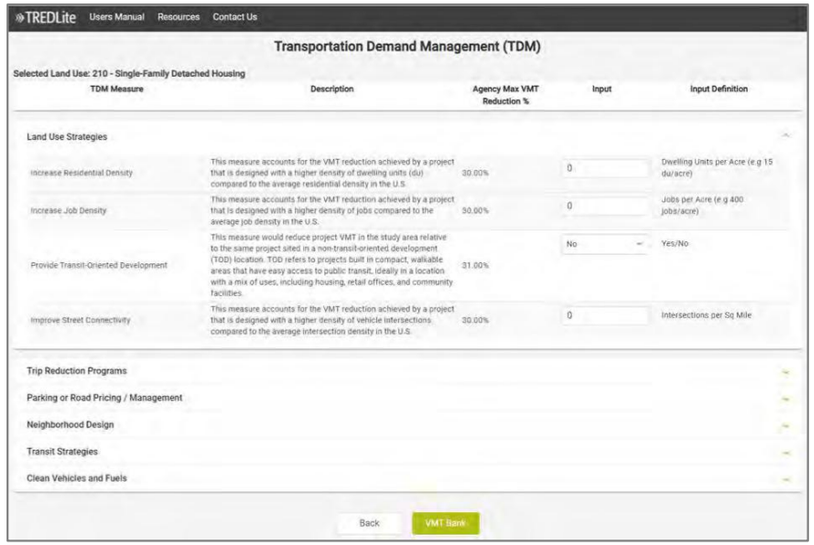
- Safegurding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California
- VMT Program Bulletin 21-01: VMT Mitigation Funding Status And Additionality – State of California Department of Transportation
- An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks
- VMT Mitigation Through Fees, Banks, and Exchanges
- Implementing SB 743: An Analysis of Vehicles Miles Traveled Banking and Exchange Frameworks
- Implementing SB 743: Design Considerations for Vehicle Miles Traveled Mitigation Bank and Exchange Programs
- A Transaction-Based Alternative for VMT Mitigation Under CEQA
- The Potential for Regional Transportation Impact Mitigation Fee Programs and Mitigation Banks to Help Streamline the Implementation of SB 743
- San Diego Citywide Active Transportation In Lieu Fee Program Estimated Impacts and Cost Savings
- City of San Jose Council Policy, Transportation Analysis Policy
- Tahoe Regional Planning Agency, Mobility Mitigation Fee Update
- San Francisco Transportation Sustainability Fee (TSF) Nexus Study
- Transportation Impact Assessment (TIA) Fee Program Study for Coastal Transportation Corridor Specific Plan and West Los Angeles Transportation Improvement and Mitigation Specific Plans Amendment Project
- California Department of Fish and Wildlife, Conservation and Mitigation Banking
- Setting the Stage for Statewide Advance Mitigation in California
- California Legislative Information, AB 602 Development Fees: Impact fee Nexus Study
- State’s VMT Law Driving Builders Away, Making Homes More Expensive, Say Valley Lawmakers
- With State VMT Law Limiting Home Building, Clovis Takes Action
- San Diego County Ponders a VMT Tax, with a Twist
- Powering California, ANALYSIS: Vehicle Miles Traveled Tax (VMT)
- Relevant Superior Court of California Petitions

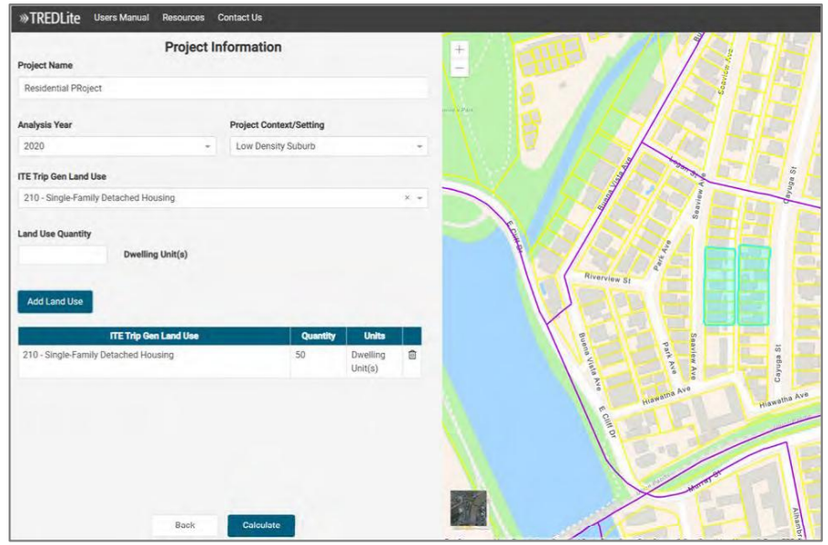
Highlight: Task 3.2 – Evaluation Criteria

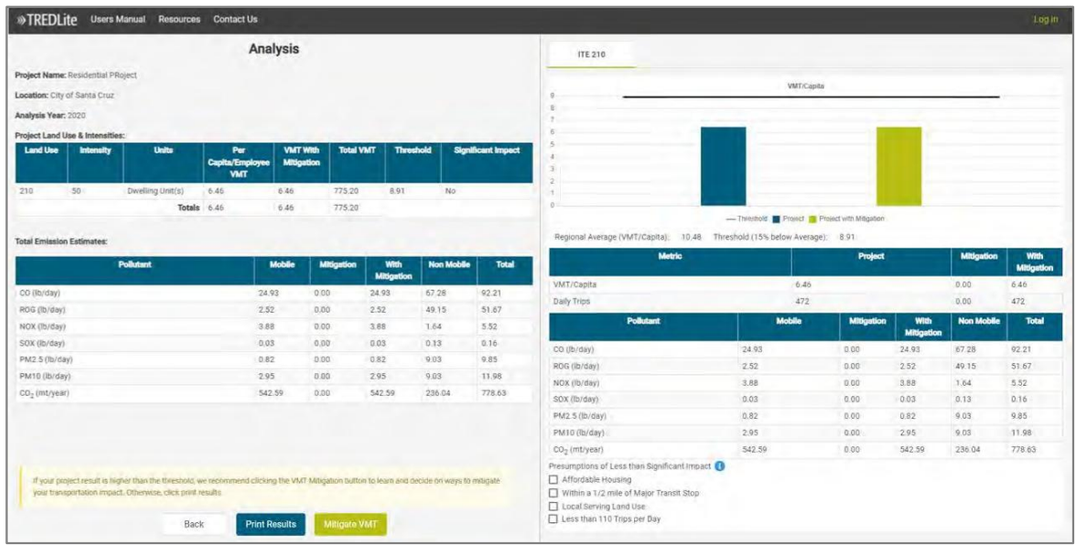
Targeted Mitigation	Designed for projects which require mitigation
Effectiveness	Identified mitigation solutions need to be financially viable and feasible
Additionality	Mitigation must be new and not repurposed from other funded programs
Roughly Proportional	Mitigation "units" must be appropriately sized/priced to offset the impact
Legal	Local and other jurisdictional legal frameworks need to be vetted
Equity	Mitigation should both avoid disproportionate impacts and benefits should be fairly distributed
Unintended Consequences	Mitigation should not discourage good design or contradict community values

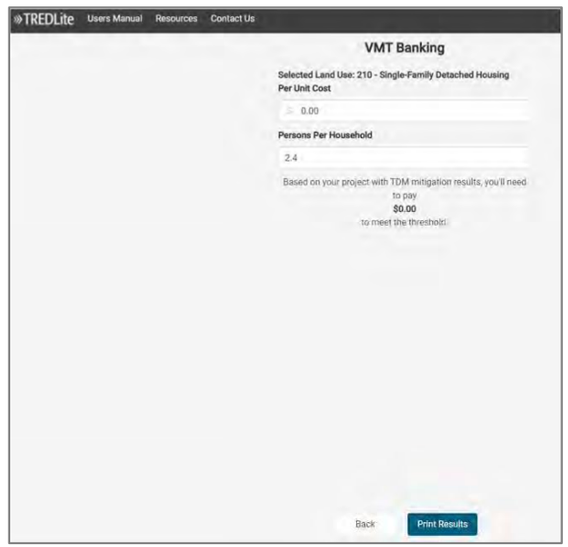
Highlights: Task 4 - Impact Tool











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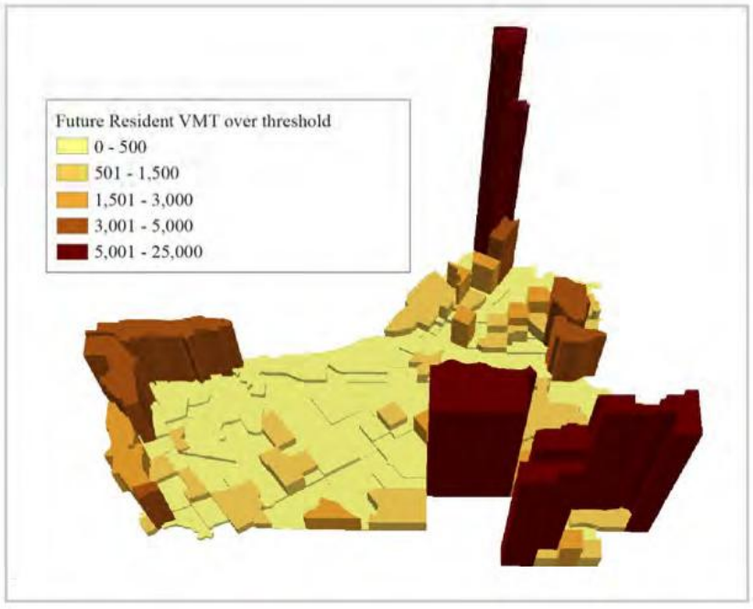
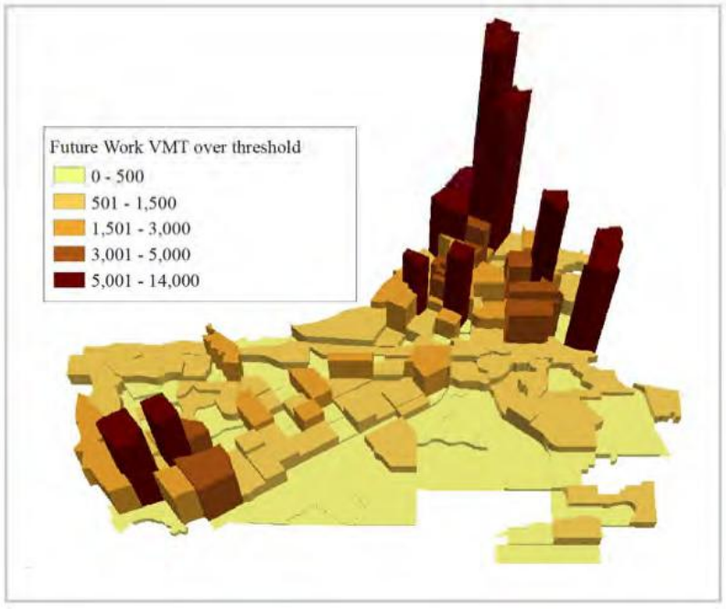
Highlight - Task 5.2: Technical Justification

Daily VMT Mitigation Needs Analysis	*Totals*
Future Total Residents	404,570
Future Total Employment	191,799
Future New Employees with Worker/VMT over Threshold	42,787
Future New Residents with VMT/Capita over Threshold	35,767
Future Citywide Daily Resident VMT to Mitigate	191,803
Future Citywide Daily Employee VMT to Mitigate	299,003

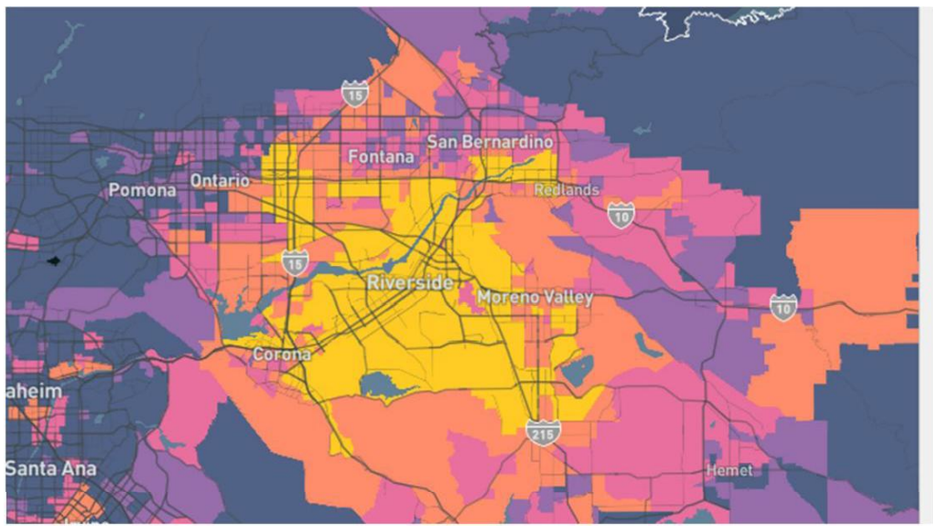


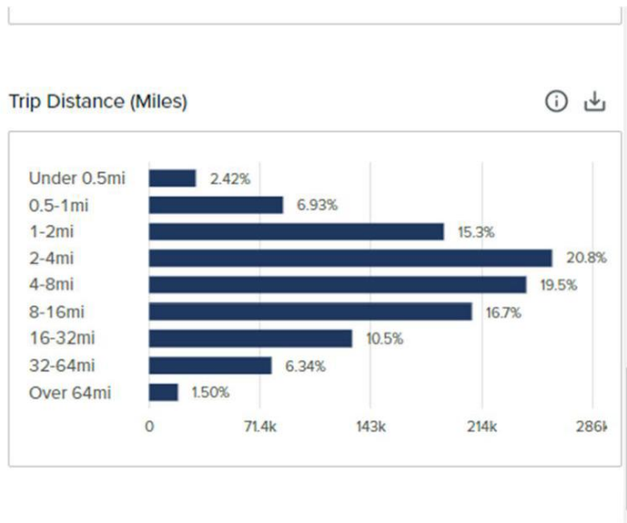


Highlight - Task 5.2: Investment Tool/Screening

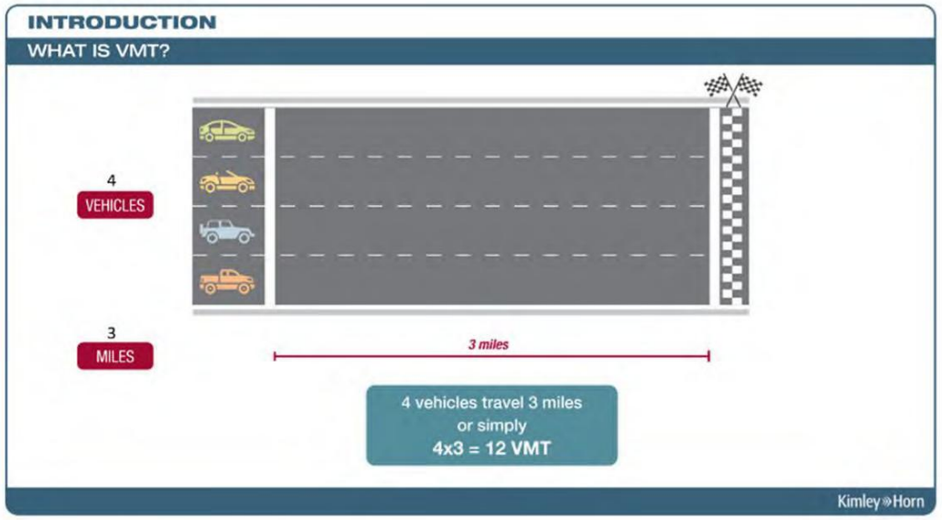
PROJECT ID	PROJECT TITLE	PROJECT DESCRIPTION	EST TOTAL PROJECT COST	Project distance (miles)	Trips to Meet Target Cost/VMT	Trips/Mi to Meet Target Cost/VMT
SCCEX01	Bike Project 1	Convert Ex Street 1 from 4 Lanes to 2 Lanes with Buffered Bike Line in Both Directions	$500,000	2.5	210	84
SCCEX02	Bike Project 2	Convert Ex Street 2 from 4 Lanes to 2 Lanes with Buffered Bike Line in Both Directions	$800,000	4	336	84

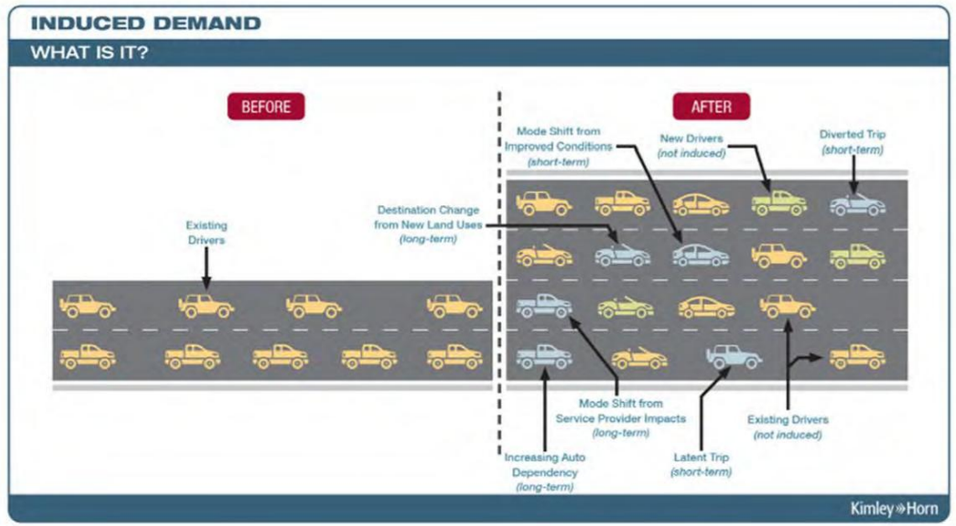
Distance/Percent/Cost	Metric
2.38	City of Riverside Bike Dist
0.43	City of Riverside Ped Dist
67%	Bike Share
33%	Ped Share
$1,000	Target Cost/VMT

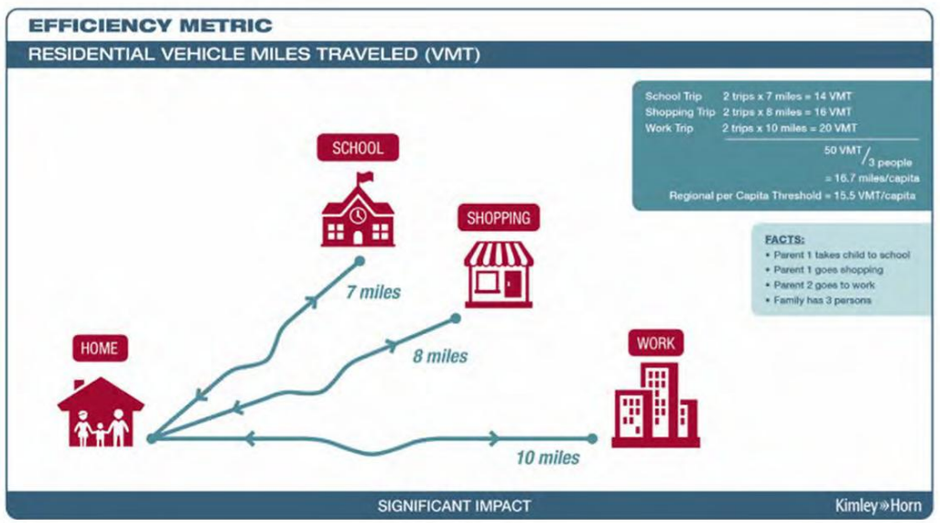


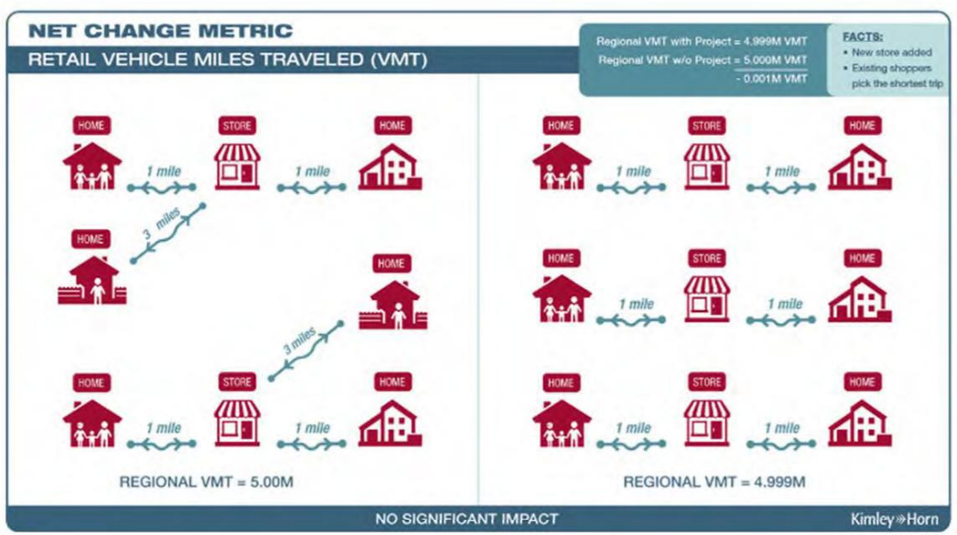


Task 6 - Outreach

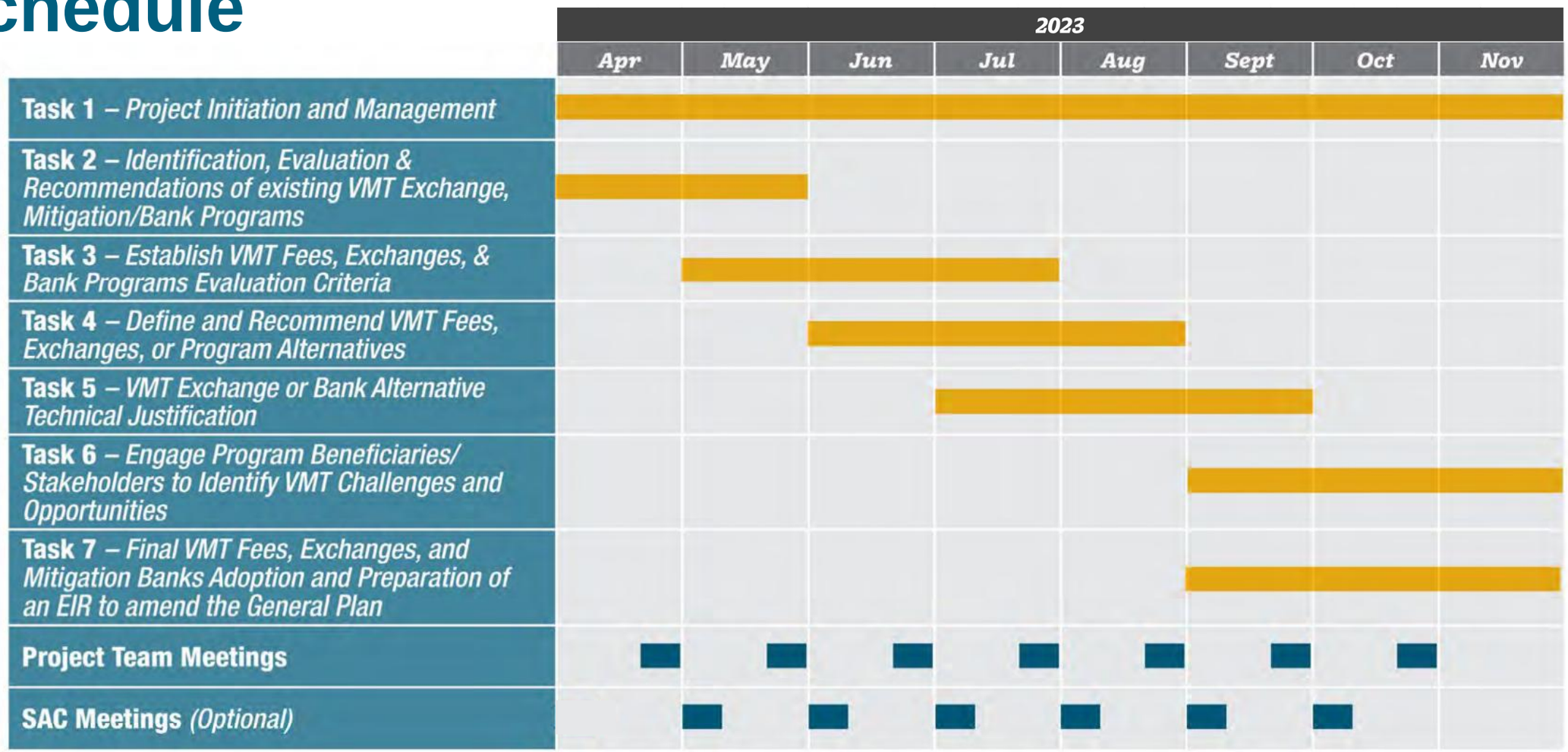








Schedule



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Next Steps

- Review of other existing programs
- Prepare outreach plan
- Next meeting is tentatively June 7th from 2 – 3 PM

Questions?

Chris Gregerson

chris.gregerson@kimley-horn.com

Vehicle Miles Traveled (VMT) Mitigation

Through Fees, Banks & Exchanges Program

Stakeholder Advisory Meeting 2

June 7, 2023

Prepared for:

CITY OF RIVERSIDE

Prepared by:

Kimley»Horn

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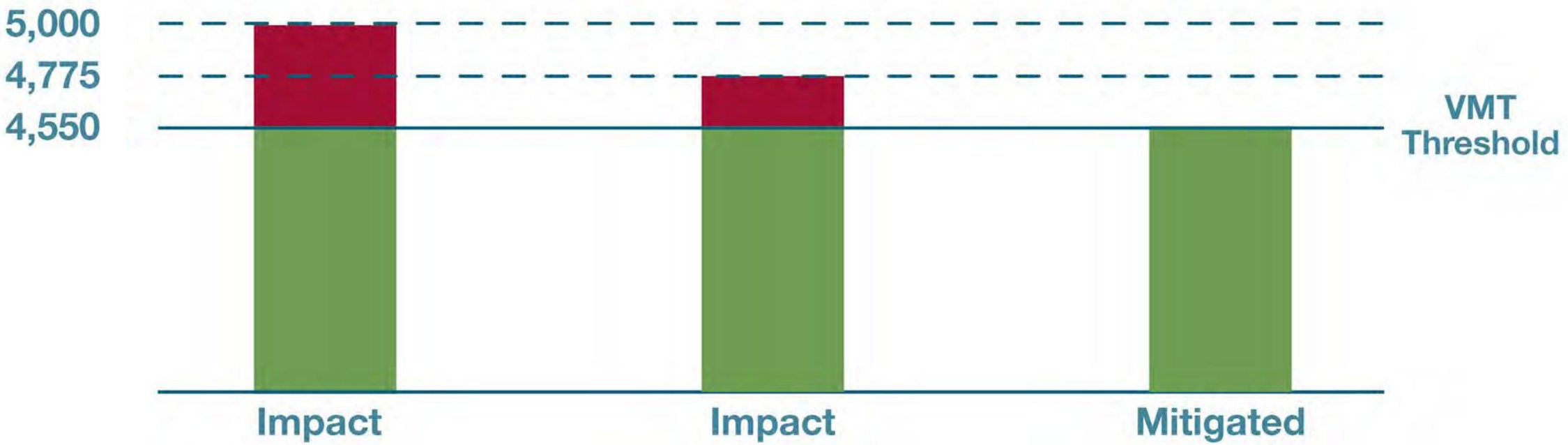
Agenda

- Remaining Slides
- Work Plan
- Task Highlights
- Schedule

Example Project



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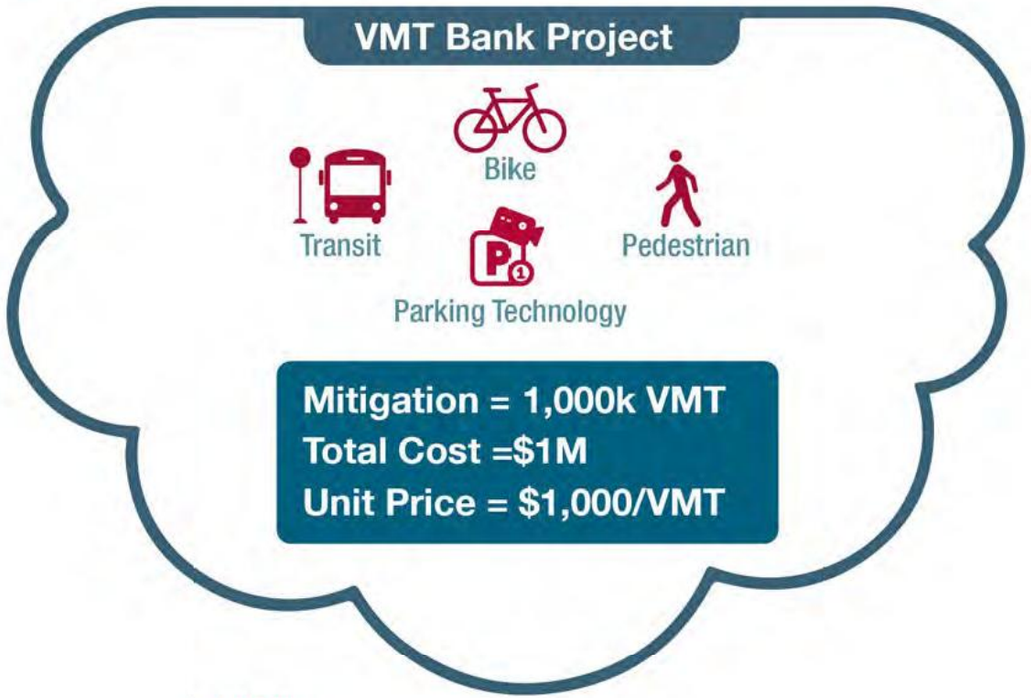
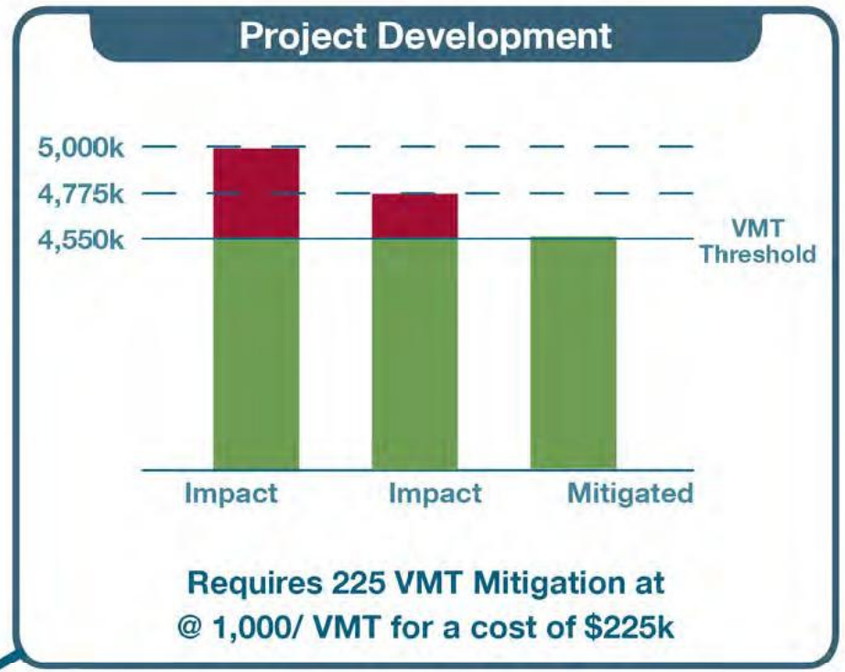
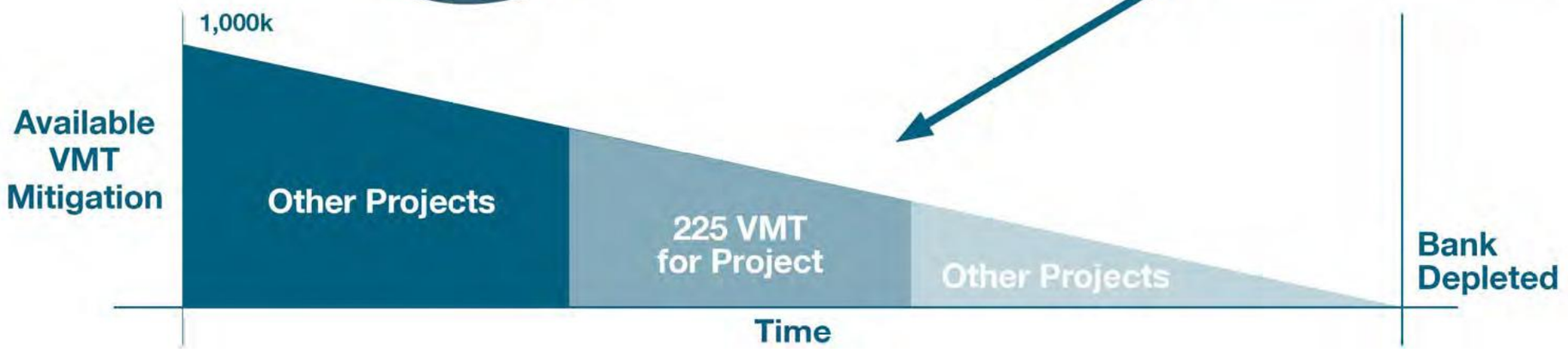
How a VMT Bank Works







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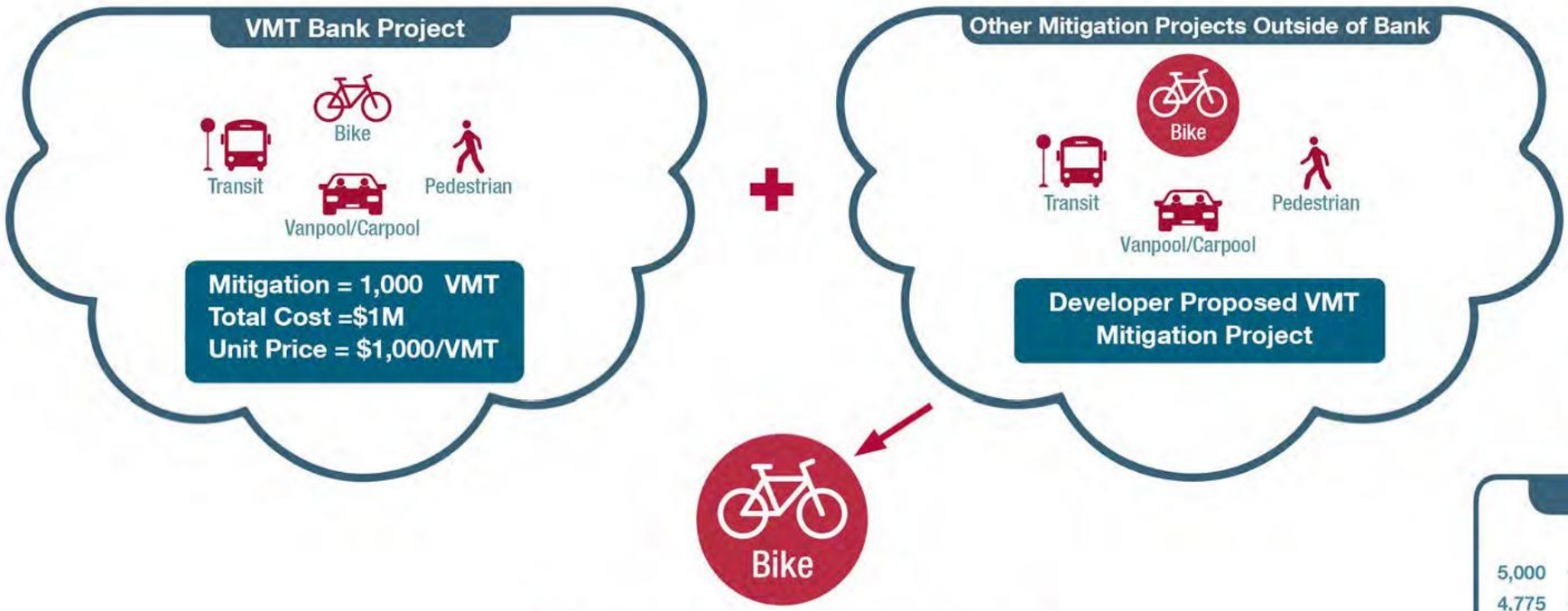
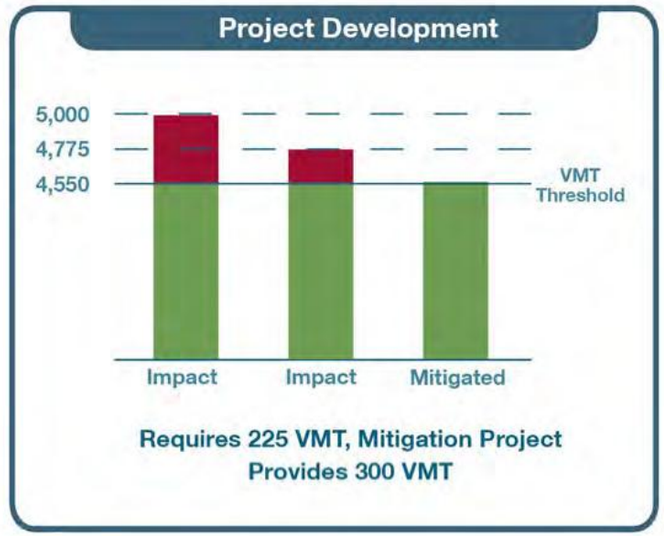
How a VMT Exchange Works



1. A VMT Bank is not required for an exchange but it can optionally provide projects for selection by a VMT Exchange.
2. An applicant can construct at own expense and therefor the price is not necessarily predetermined, however the VMT reduction must be determined.
3. An applicant does not have to monetize or sell excess mitigation VMT unless desired.



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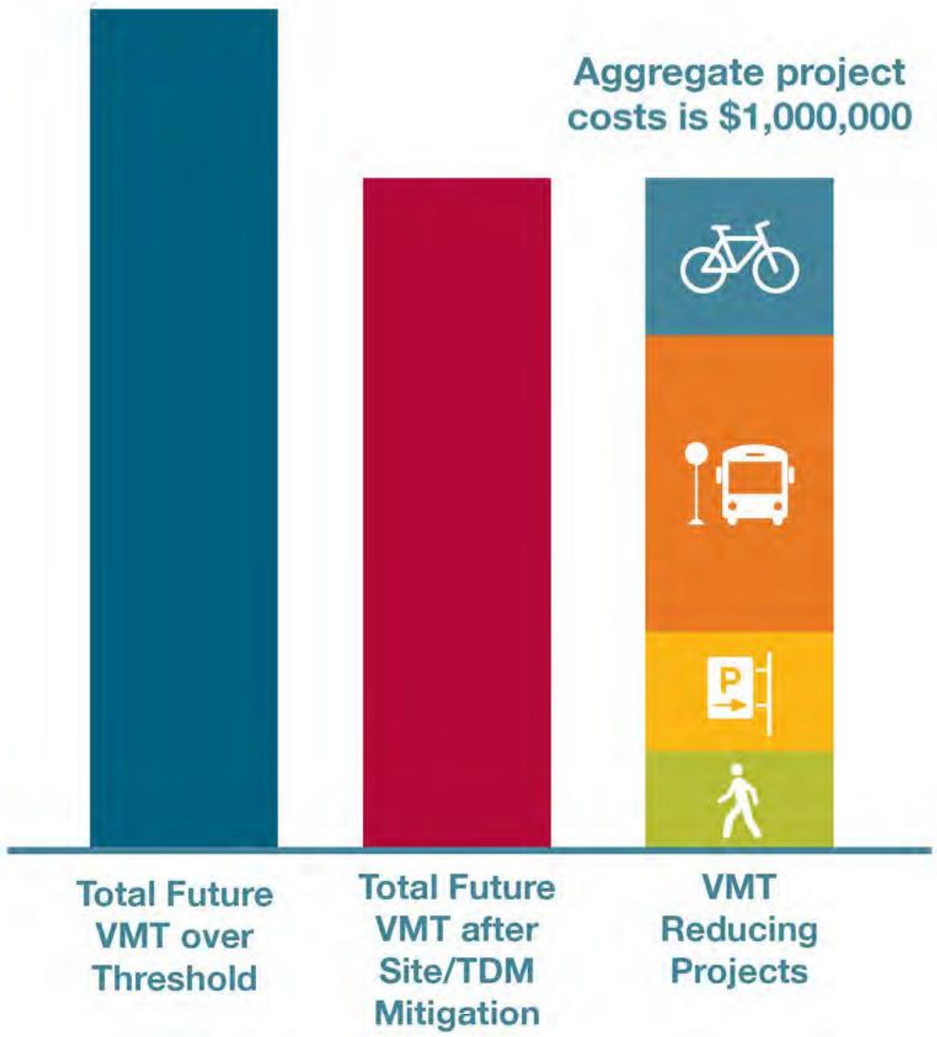
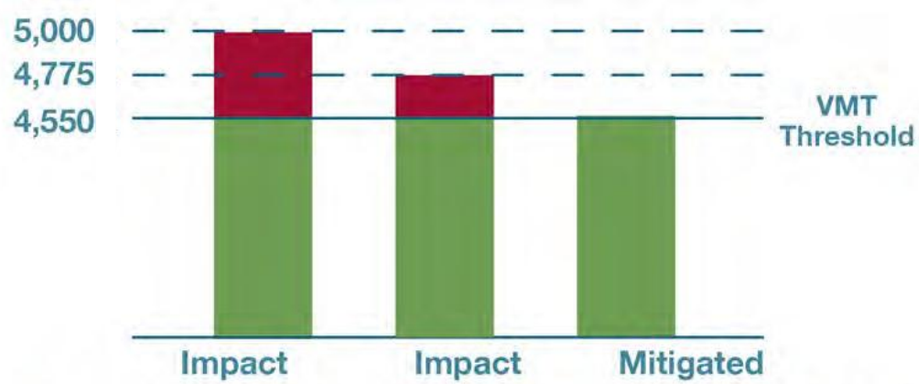
How a VMT Impact Fee Works





Requires $2,000 payment/house for a total cost of $200k.

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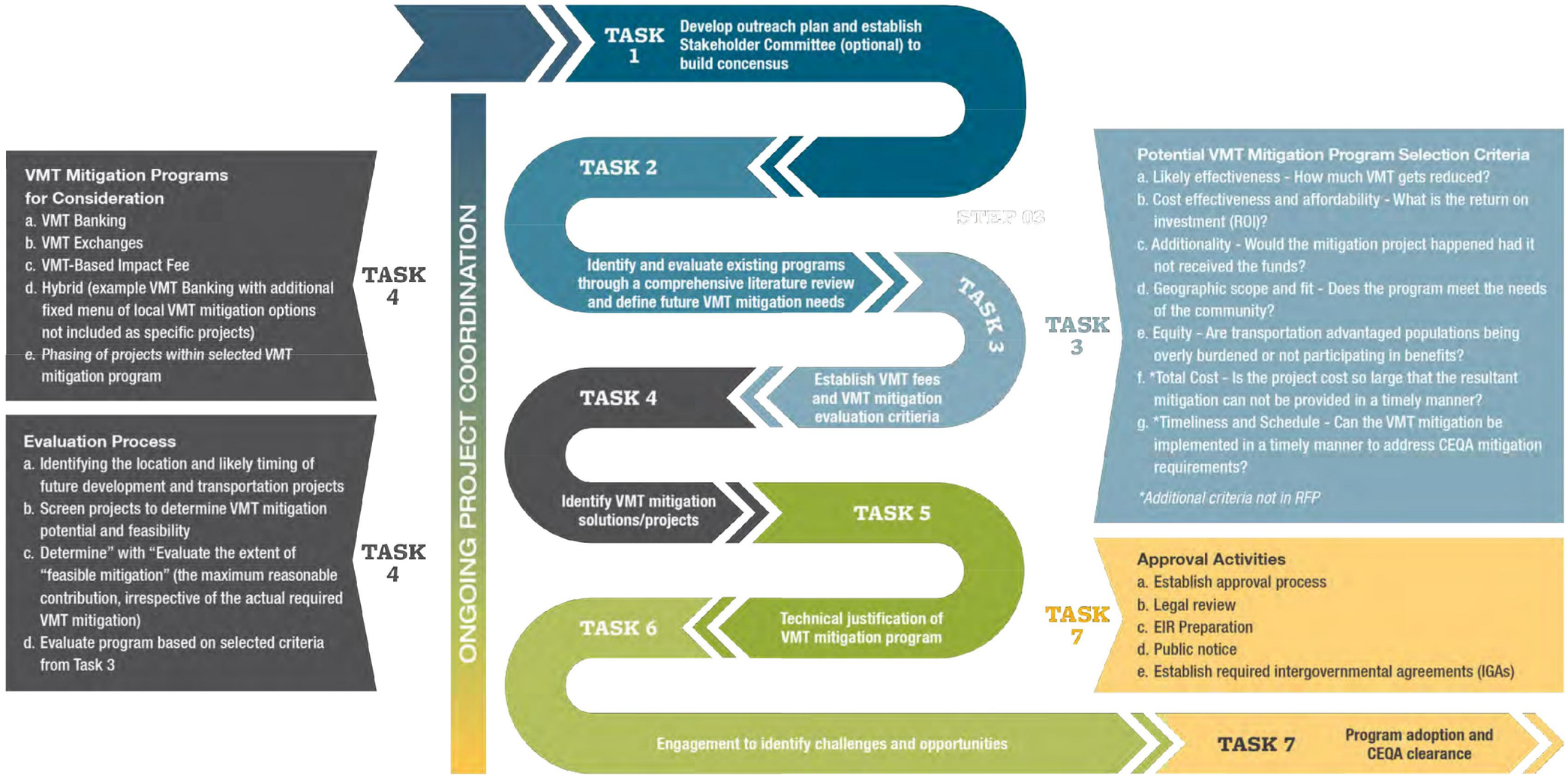
Pause for Questions

Work Plan


TASK 1
Develop outreach plan and establish Stakeholder Committee (optional) to build concensus
TASK 2
Identify and evaluate existing programs through a comprehensive literature review and define future VMT mitigation needs
TASK 3
Establish VMT fees and VMT mitigation evaluation critieria
TASK 4
Identify VMT mitigation solutions/projects
TASK 5
Technical justification of VMT mitigation program
TASK 6
Engagement to identify challenges and opportunities
TASK 7
Program adoption and CEQA clearance
ONGOING PROJECT COORDINATION
VMT Mitigation Programs for Consideration
a. VMT Banking
b. VMT Exchanges
c. VMT-Based Impact Fee
d. Hybrid (example VMT Banking with additional fixed menu of local VMT mitigation options not included as specific projects)
e. Phasing of projects within selected VMT mitigation program
TASK 4
Evaluation Process
a. Identifying the location and likely timing of future development and transportation projects
b. Screen projects to determine VMT mitigation potential and feasibility
c. Determine" with "Evaluate the extent of "feasible mitigation" (the maximum reasonable contribution, irrespective of the actual required VMT mitigation)
d. Evaluate program based on selected criteria from Task 3
TASK 4
TASK 3
Potential VMT Mitigation Program Selection Criteria
a. Likely effectiveness - How much VMT gets reduced?
b. Cost effectiveness and affordability - What is the return on investment (ROI)?
c. Additionality - Would the mitigation project happened had it not received the funds?
d. Geographic scope and fit - Does the program meet the needs of the community?
e. Equity - Are transportation advantaged populations being overly burdened or not participating in benefits?
f. *Total Cost - Is the project cost so large that the resultant mitigation can not be provided in a timely manner?
g. *Timeliness and Schedule - Can the VMT mitigation be implemented in a timely manner to address CEQA mitigation requirements?
*Additional criteria not in RFP
TASK 7
Approval Activities
a. Establish approval process
b. Legal review
c. EIR Preparation
d. Public notice
e. Establish required intergovernmental agreements (IGAs)

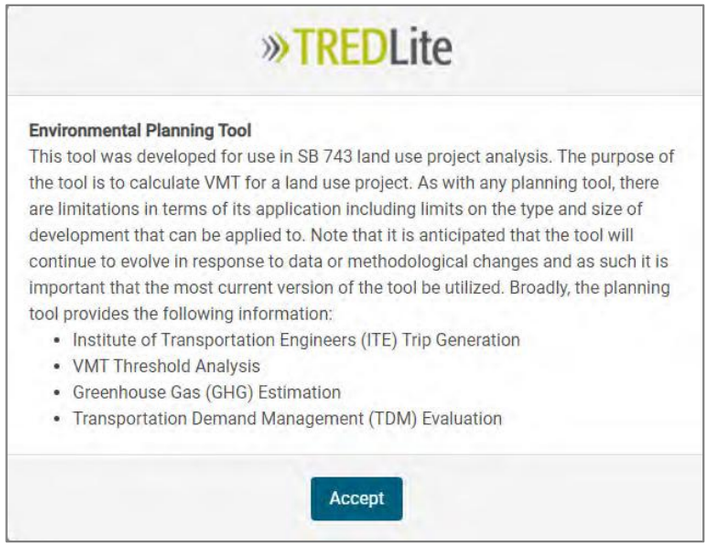
Task 2.1 – 2.4: Literature Review

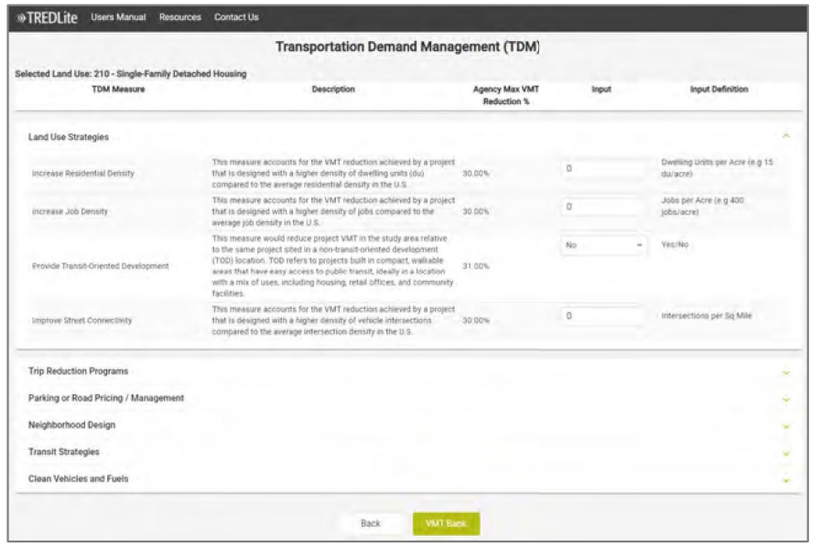
- Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California
- VMT Program Bulletin 21-01: VMT Mitigation Funding Status And Additionality – State of California Department of Transportation
- An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks
- VMT Mitigation Through Fees, Banks, and Exchanges
- Implementing SB 743: An Analysis of Vehicles Miles Traveled Banking and Exchange Frameworks
- Implementing SB 743: Design Considerations for Vehicle Miles Traveled Mitigation Bank and Exchange Programs
- A Transaction-Based Alternative for VMT Mitigation Under CEQA
- The Potential for Regional Transportation Impact Mitigation Fee Programs and Mitigation Banks to Help Streamline the Implementation of SB 743
- San Diego Citywide Active Transportation In Lieu Fee Program Estimated Impacts and Cost Savings
- City of San Jose Council Policy, Transportation Analysis Policy
- Tahoe Regional Planning Agency, Mobility Mitigation Fee Update
- San Francisco Transportation Sustainability Fee (TSF) Nexus Study
- Transportation Impact Assessment (TIA) Fee Program Study for Coastal Transportation Corridor Specific Plan and West Los Angeles Transportation Improvement and Mitigation Specific Plans Amendment Project
- California Department of Fish and Wildlife, Conservation and Mitigation Banking
- Setting the Stage for Statewide Advance Mitigation in California
- California Legislative Information, AB 602 Development Fees: Impact fee Nexus Study
- State’s VMT Law Driving Builders Away, Making Homes More Expensive, Say Valley Lawmakers
- With State VMT Law Limiting Home Building, Clovis Takes Action
- San Diego County Ponders a VMT Tax, with a Twist
- Powering California, ANALYSIS: Vehicle Miles Traveled Tax (VMT)
- Relevant Superior Court of California Petitions

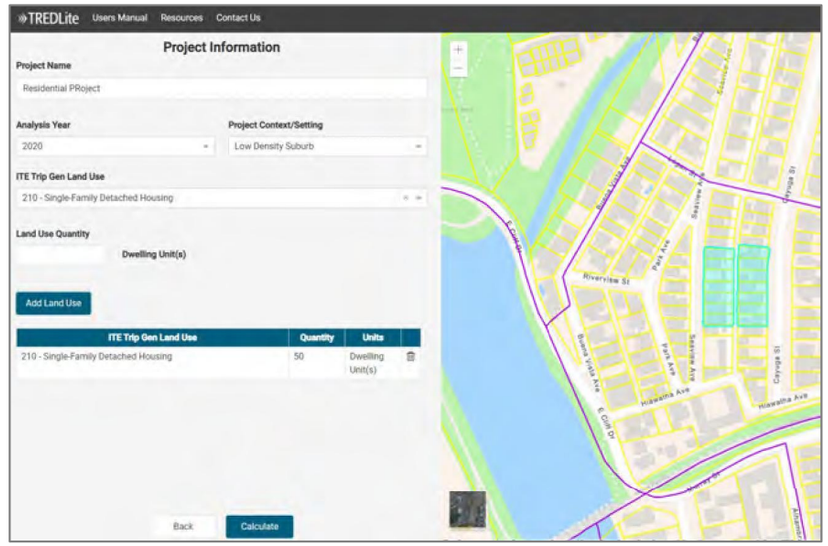
Highlight: Task 3.2 – Evaluation Criteria

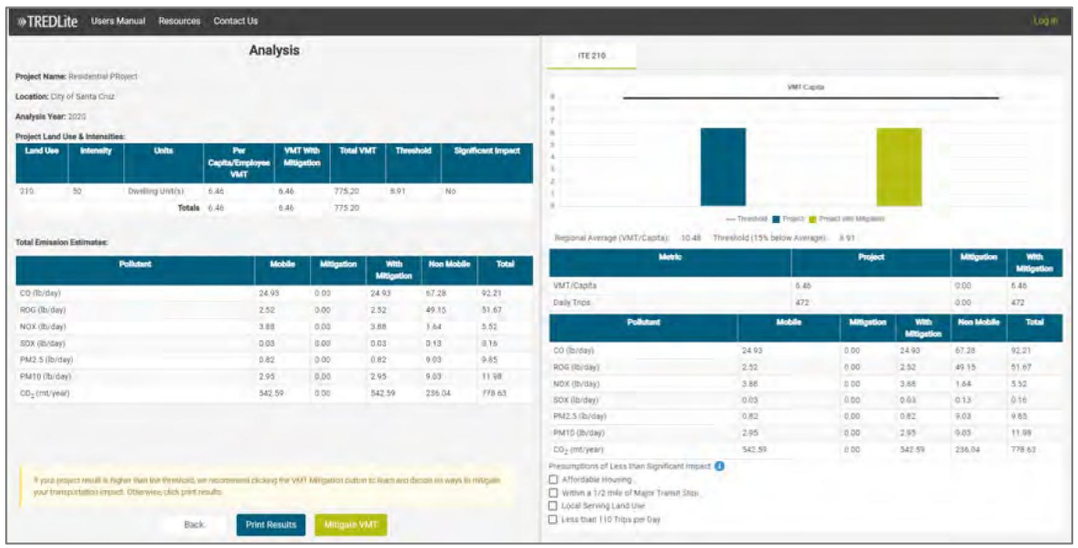
Targeted Mitigation	Designed for projects which require mitigation
Effectiveness	Identified mitigation solutions need to be financially viable and feasible
Additionality	Mitigation must be new and not repurposed from other funded programs
Roughly Proportional	Mitigation "units" must be appropriately sized/priced to offset the impact
Legal	Local and other jurisdictional legal frameworks need to be vetted
Equity	Mitigation should both avoid disproportionate impacts and benefits should be fairly distributed
Unintended Consequences	Mitigation should not discourage good design or contradict community values

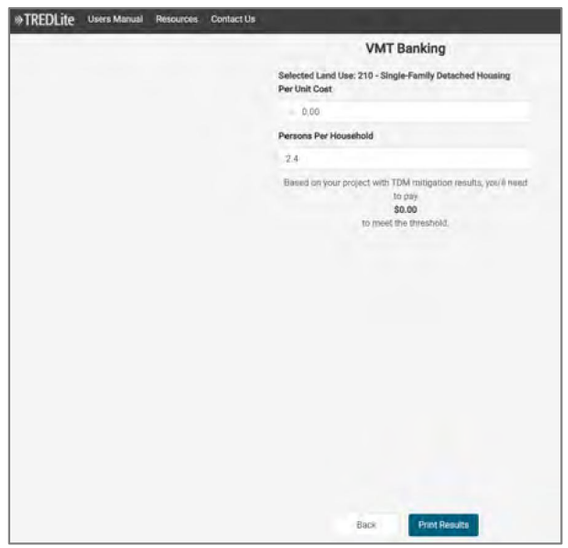
Highlights: Task 4 - Impact Tool







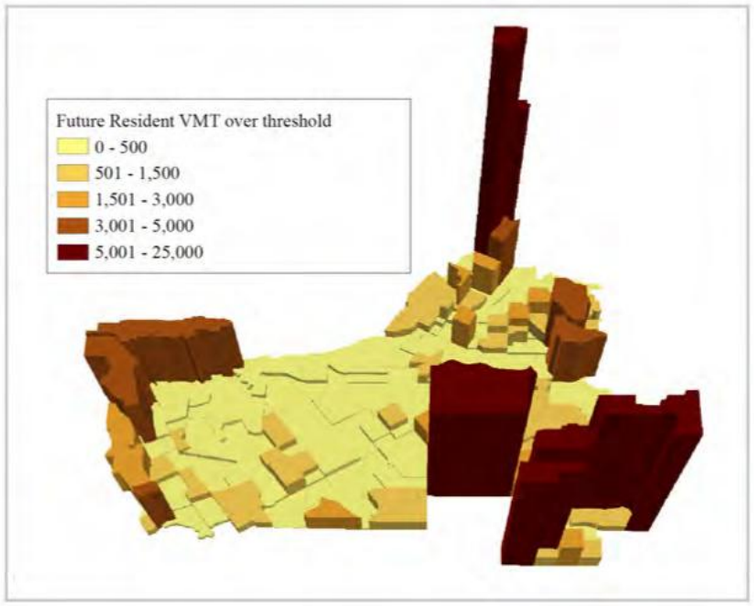


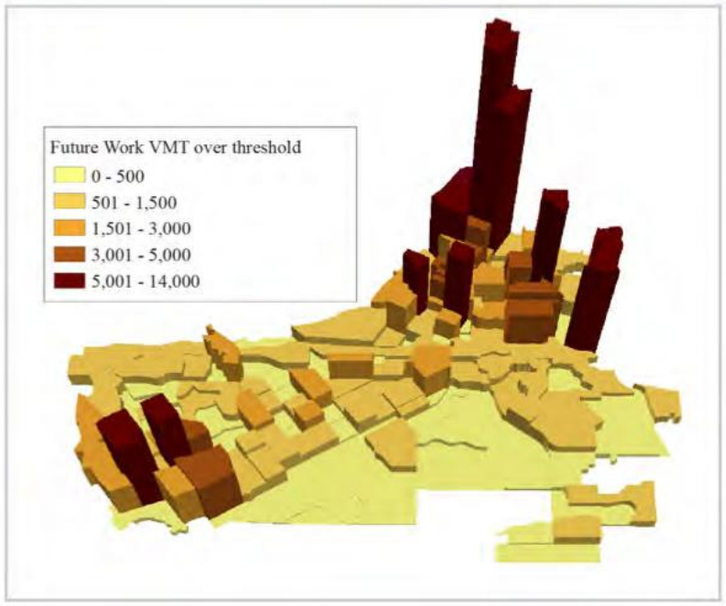


TREDLite

Highlight - Task 5.2: Technical Justification

Daily VMT Mitigation Needs Analysis	*Totals*
Future Total Residents	404,570
Future Total Employment	191,799
Future New Employees with Worker/VMT over Threshold	42,787
Future New Residents with VMT/Capita over Threshold	35,767
Future Citywide Daily Resident VMT to Mitigate	191,803
Future Citywide Daily Employee VMT to Mitigate	299,003

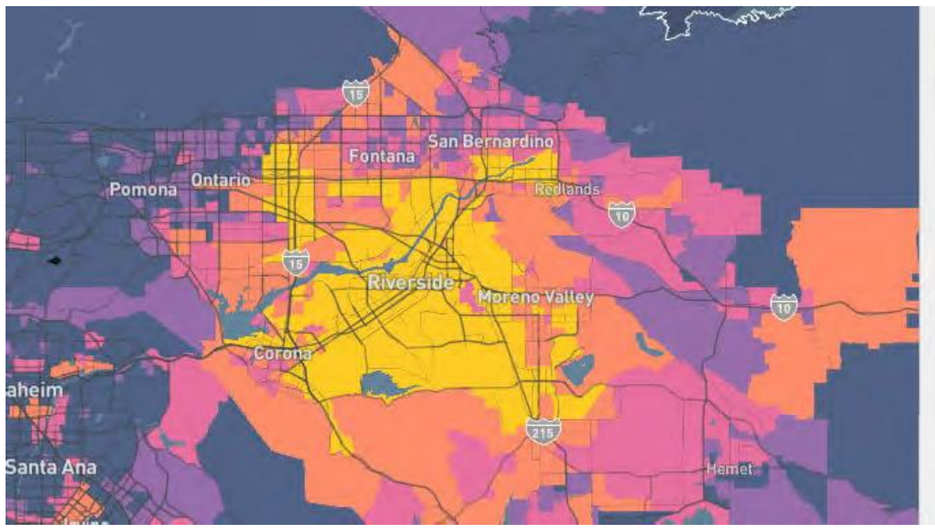


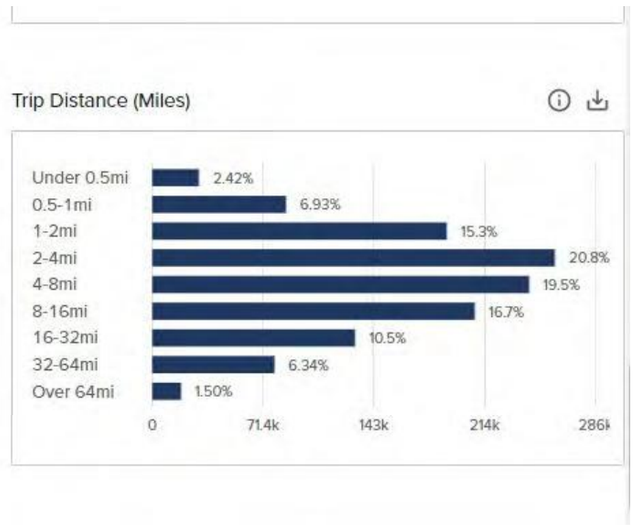


Highlight - Task 5.2: Investment Tool/Screening

PROJECT ID	PROJECT TITLE	PROJECT DESCRIPTION	EST TOTAL PROJECT COST	Project distance (miles)	Trips to Meet Target Cost/VMT	Trips/Mi to Meet Target Cost/VMT
SCCEX01	Bike Project 1	Convert Ex Street 1 from 4 Lanes to 2 Lanes with Buffered Bike Line in Both Directions	$500,000	2.5	210	84
SCCEX02	Bike Project 2	Convert Ex Street 2 from 4 Lanes to 2 Lanes with Buffered Bike Line in Both Directions	$800,000	4	336	84

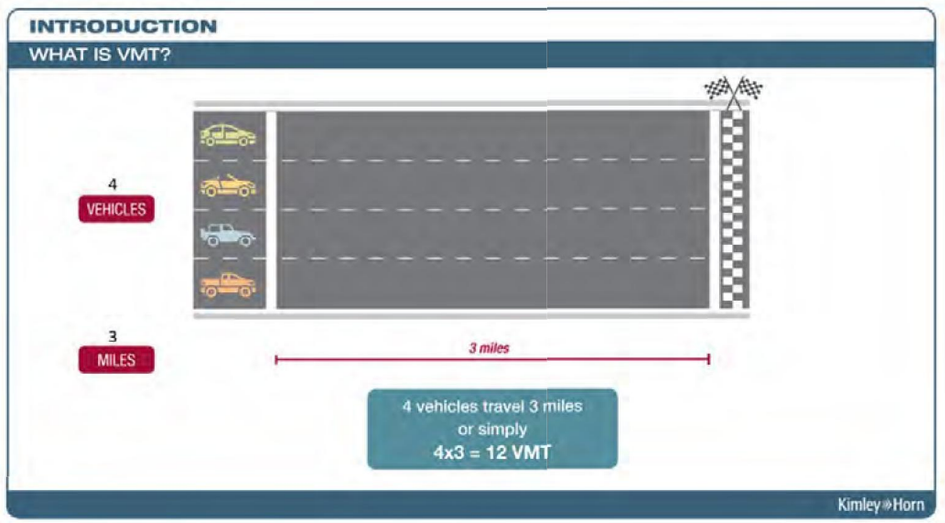
Distance/Percent/Cost	Metric
2.38	City of Riverside Bike Dist
0.43	City of Riverside Ped Dist
67%	Bike Share
33%	Ped Share
$1,000	Target Cost/VMT

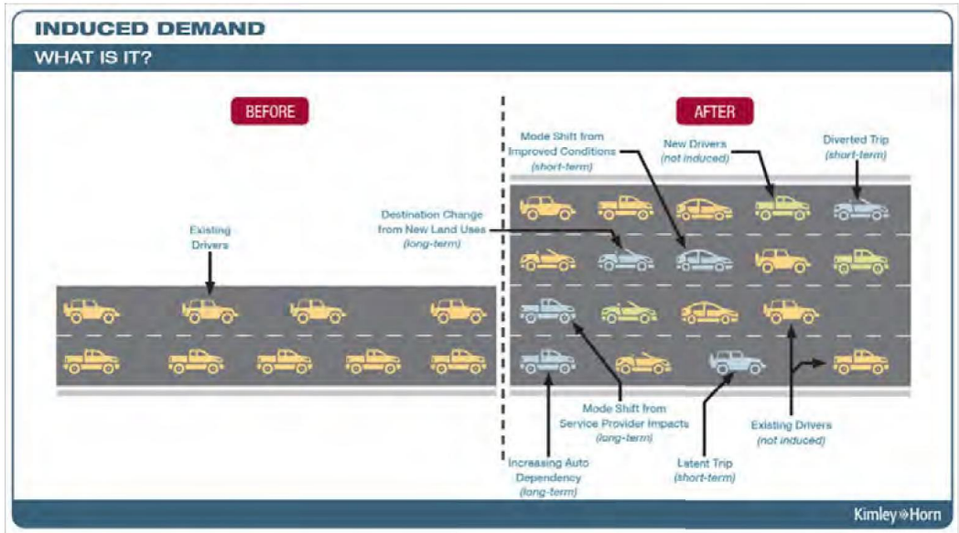


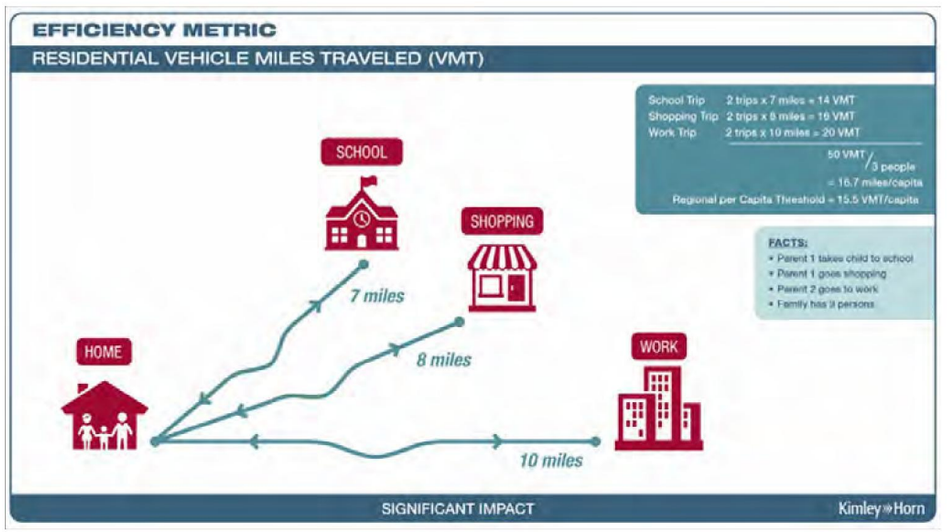


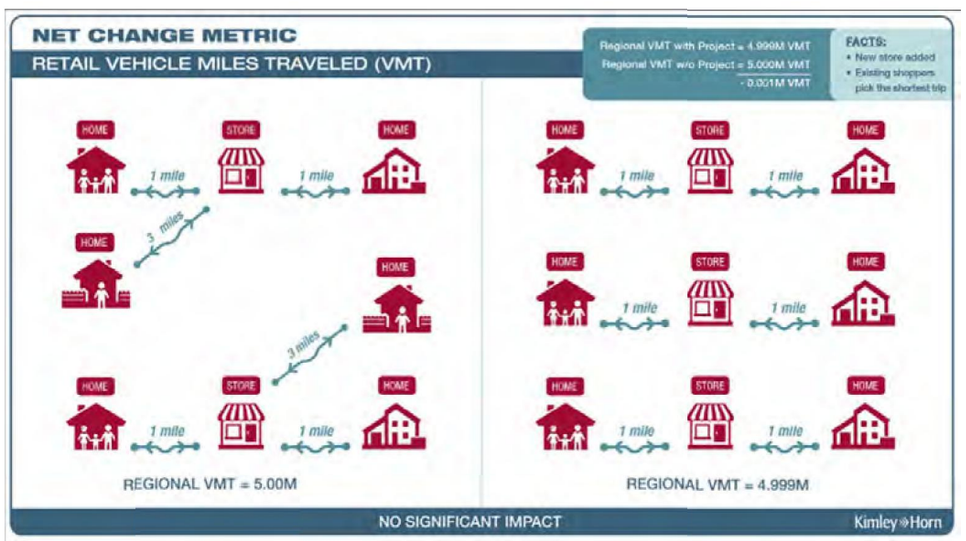
Pause for Questions

Task 6 - Outreach









Outreach Plan

- Virtual meetings with key stakeholders
  - *WRCOG (1)*
  - *Individual City Meetings with Cities (3)/County of Riverside (1)*
  - *UCR (1)*
  - *RTA (1)*
  - *RCTC (Metrolink) (1)*
- Project Website Materials (https://riversidevmt.com/)
  - *Project Instructional Video*
  - *Draft Background Information for Video*
  - *Project Updates*
  - *Kimley-Horn host website (City to link) – story map style*
- One in person meeting Public Meeting (when plan is ready)
  - *Recording posted to the website*
  - *City Library*

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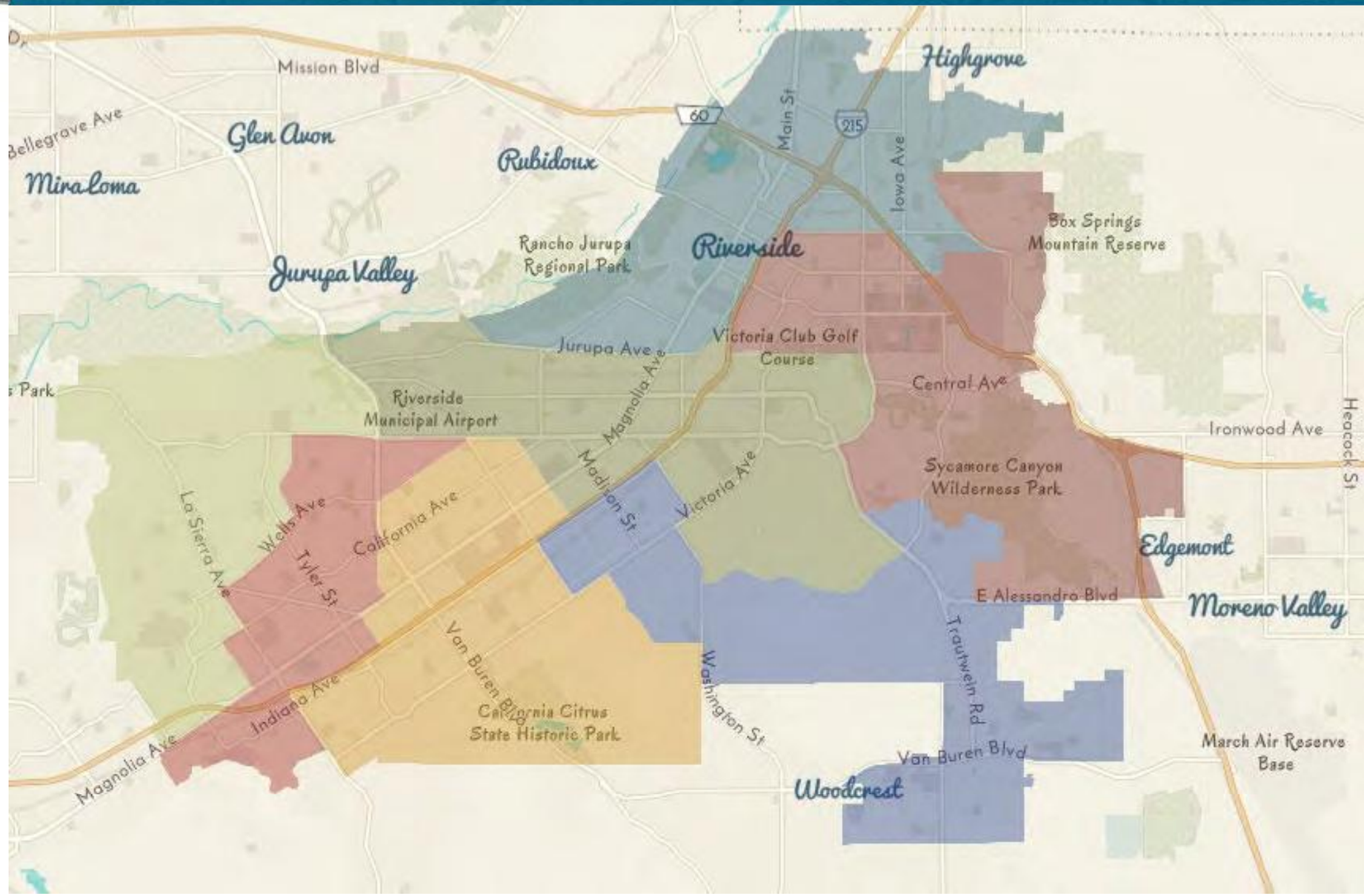
Task 7.6 Final Mitigation Program Implementation/EIR

After gaining official approval from the City Council, the consultant shall make any required changes to the Mitigation Program to reflect decisions during the adoption process. The Final Mitigation Program will include a full description of subsequent steps necessary for implementation in the City of Riverside.

TASKS	DELIVERABLES
7.1	Project Team Meeting #7 Summary
7.2	SC Meeting #6 Summary
7.3	Preparation of an Environmental Impact Report (EIR) to amend the General Plan to incorporate the recommended VMT Mitigation Programs
7.4	Planning Commission meeting, Transportation Board meeting, and Mobility & Infrastructure Committee minutes and summary documents
7.5	City Council meeting agenda, staff report, presentation materials, and discussion summary
7.6	Final Mitigation Program Report/EIR

Ward Map


Mission Blvd
Bellegrave Ave
Glen Avon
Rubidoux
Highgrove
Mira Loma
60
Main St
215
Iowa Ave
Box Springs
Mountain Reserve
Rancho Jurupa
Regional Park
Riverside
Jurupa Valley
Victoria Club Golf
Course
Jurupa Ave
Magnolia Ave
Central Ave
Riverside
Municipal Airport
Ironwood Ave
Heacock St
Sycamore Canyon
Wilderness Park
La Sierra Ave
Wells Ave
Tyler St
California Ave
Madison St
Victoria Ave
Edgemont
E Alessandro Blvd
Moreno Valley
Van Buren Blvd
California Citrus
State Historic Park
Washington St
Trautwein Rd
Indiana Ave
Magnolia Ave
Van Buren Blvd
March Air Reserve
Base
Woodcrest

Pause for Questions

State of Practice

- Existing VMT Mitigation Exchange/Bank Programs Reviewed
  - *SCAG*
  - *LADOT*
  - *SBCTA*
  - *CCTA*
  - *SGVCOG*
  - *City of Fresno*

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Southern California Association of Governments (SCAG) - Los Angeles Department of Transportation (LADOT)

- Developed a VMT Mitigation Program Framework
- Currently testing a pilot VMT mitigation exchange program: U-Pass
  - *Project Applicant sponsors new student transit passes, paying LA Metro or lead agency to distribute the passes, scaling up to meet their VMT reduction needs.*
  - *Funds must go towards new transit trips to qualify as a VMT-reducing mitigation action. (enroll new students, new unis, or expand U-pass)*
  - *Daily VMT reduction per pass: 0.09*
- Next steps: Further refinement of the Multi-Agency Mitigation Program Framework

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San Bernardino County Transportation Authority (SBCTA)

- In August 2022, A pilot VMT mitigation bank was proposed.
- Initially, the program would focus on incentivizing individuals to earn VMT reduction credits by making choices to reduce their travel.
  - *After establishing a verified home-based work trip (HBW) "baseline," individuals who volunteer for the program can generate credits whenever they choose to telework for a particular day.*
  - *The volunteers would need to live or work in the County.*
  - *The verified VMT reduction credit would then be assigned an economic value and the volunteers would be paid a share of that value as an incentive for reducing their VMT.*
  - *The purchased credit would be banked by SBCTA and then sold to development projects that would need mitigation.*
  - *Estimated cost: $0.05 -$0.08 per VMT*
- *Additional projects and programs already established under the Inland Empire (IE) Commuter Rideshare Program could be added in the future (e.g. choices to ride transit or vanpool/carpool)*

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Contra Costa Transportation Authority (CCTA)

- In March 2023, a draft VMT mitigation framework has been released.
- CCTA has expressed interest in establishing a pilot hybrid exchange/in-lieu fee program targeted toward implementing the Mobility On Demand (MOD) app.
  - *The MOD app would function as a voluntary commute trip reduction program and a source of community-based travel information.*
  - *The app offers the ability to monitor the VMT generation, hence quantifying the VMT effects.*
  - *This would create the ability to directly calculate the program's cost-effectiveness for VMT*
  - *Estimated cost: $0.10 -$0.35 per VMT*
- If MOD proves to be effective, could use demonstrated VMT reductions and cost data as the basis for a future fee program

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San Gabriel Valley Council of Governments (SGVCOG)

- No publicly available document on the framework or the progress.

- Project Timeline
  - Initiation: Fall 2021
  - Completion: Fall 2022

City of Fresno

- In the final stages of determining the feasibility of the framework
- Currently determining which type of program would work best
  - *Initial findings point to a combination of a bank and exchange*
- Several categories of projects have been developed
  - *Tested at least 1 project from each category to see what the $/VMT is*
- *Finalizing outreach and environmental justice analysis and the range of fees*

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Fresno COG

- In the final stage of developing the program framework
- Program expected to be a regional program with a local component
- Framework finalized second half of 2023
- Several categories of projects have been developed
  - *Transit, Active Transportation, Carpool/Vanpool, Affordable Housing*

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Micro Banks

- Funding for existing active transportation projects
- Relatively small in terms of capital cost
- Locations
  - *City of Watsonville*
  - *City of Tracy*
  - *City of Salinas*
  - *City of Hollister*

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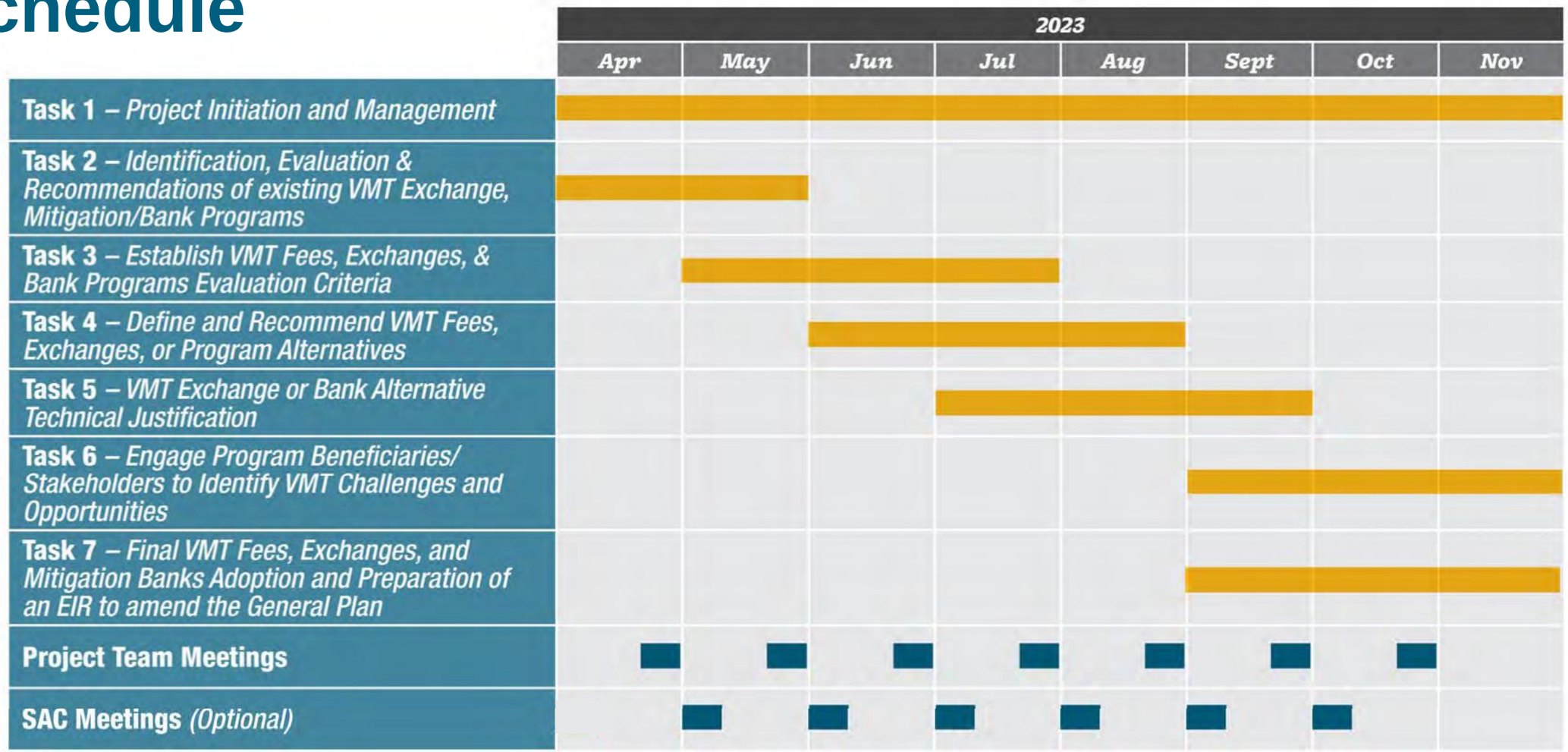
Pause for Questions

Schedule


2023
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Task 1 – Project Initiation and Management
Task 2 – Identification, Evaluation & Recommendations of existing VMT Exchange, Mitigation/Bank Programs
Task 3 – Establish VMT Fees, Exchanges, & Bank Programs Evaluation Criteria
Task 4 – Define and Recommend VMT Fees, Exchanges, or Program Alternatives
Task 5 – VMT Exchange or Bank Alternative Technical Justification
Task 6 – Engage Program Beneficiaries/ Stakeholders to Identify VMT Challenges and Opportunities
Task 7 – Final VMT Fees, Exchanges, and Mitigation Banks Adoption and Preparation of an EIR to amend the General Plan
Project Team Meetings
SAC Meetings (Optional)

Next Steps

- Develop Evaluation Criteria
- Analyze Program Cost and Funding Period Commitment
- SAC Meeting #3 – Tentatively Scheduled for July 12 @ 2 PM

Questions?

Chris Gregerson

chris.gregerson@kimley-horn.com

Vehicle Miles Traveled (VMT) Mitigation

Through Fees, Banks & Exchanges Program

Stakeholder Advisory Meeting 3

July 19, 2023

Prepared for:

CITY OF RIVERSIDE

Prepared by:

Kimley»Horn

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Agenda

- Program Evaluation Criteria
- Program Cost and Funding Period Commitment
- Best Practices Memo/Literature Results
- Website Updates
- Next Steps

Program Options

	VMT Bank	VMT Bank Plus	VMT Exchange	VMT Bank with Exchange	VMT Impact Fee
					
Predefined Projects	YES	YES	NO	YES/NO	YES
Applicant Can Select a Predefined Project	NO	YES	NO	YES	NO
Applicant Can Provide a Project Option	NO	NO	YES	YES	NO
Additionality Options					
Non-Fee Funding Excluded	YES	YES	YES	YES	YES
Voluntary Non-Fee Funding	YES	YES	YES	YES	YES
Required Non-Fee Funding	YES	YES	NO	YES/NO	YES/NO
Complexity to Administer	MEDIUM	HIGH	HIGH	HIGH	LOW
Potential Cost Per Unit of VMT Mitigation	LOW	LOW	MEDIUM	MEDIUM	HIGH
Supportive of All SB 743 Goals	YES	YES	YES	YES	YES/NO

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Fee-Based VMT Program Evaluation

	Legal	Meets CEQA and statutory requirements including additionality
	Effective	Result in long-term financially feasible mitigation
	Geography	Program can scale to meet the City's needs
	Administration	Funds oversight and management of program; maintains analysis/technical requirements
	Equitable	Program avoids disproportionate impacts and encourages equitably benefit distribution
	Alignment	Program supports good design and aligns with community values and plans

Fee-Based VMT Program Evaluation

	VMT Bank	VMT Bank Plus	VMT Exchange	VMT Bank with Exchange	VMT Impact Fee
Legal	●	●	●	●	●
Effective	●	●	●	●	●
Geography	●	●	●	●	●
Administration	●	●	●	●	●
Equitable	●	●	●	●	●
Alignment	●	●	●	●	●

● Feasible ● Concern

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Additional Program Evaluation Criteria

- At a minimum this should consider:
  - *VMT Mitigation Return on Investment (ROI)*
  - *Equity (equal distribution of VMT impacts and VMT reduction projects)*
    - Equal distribution of VMT reducing projects per Ward
  - *Total cost*
  - *Timeliness and schedule*
  - *Feasibility*
    - Selecting projects from Riverside PACT can streamline project selection
  - *Stakeholder, Decision-Maker, and Public support*

Administration Options

- Add to existing Regional Transportation Mitigation Fee structure
  - *Joint Powers Authority (JPA)*
  - *Existing City Staff*
- City of Riverside oversee separately as a pilot program
- A new JPA is created
- Other considerations
  - *Customize for the region: use WRCOG's TUMF development process*
  - *Annual funding costs*
  - *Technical ability*
  - *Legal structure and legal defense*
  - *Ability to manage updates*

Program Administration – Best Practices

- Consider costs of administering program in overall mitigation costs
  - *Administration costs include staff time on processing applications, tracking VMT availability, updating program as necessary, publishing information, and evaluating VMT reducing projects*
- VMT Mitigation Programs may not need to meet the rigor of a Nexus study, but would be hard to consider as CEQA mitigation given requirements
- Fee schedule needs to be transparent and easily understood

Riverside Potential VMT to be Mitigated

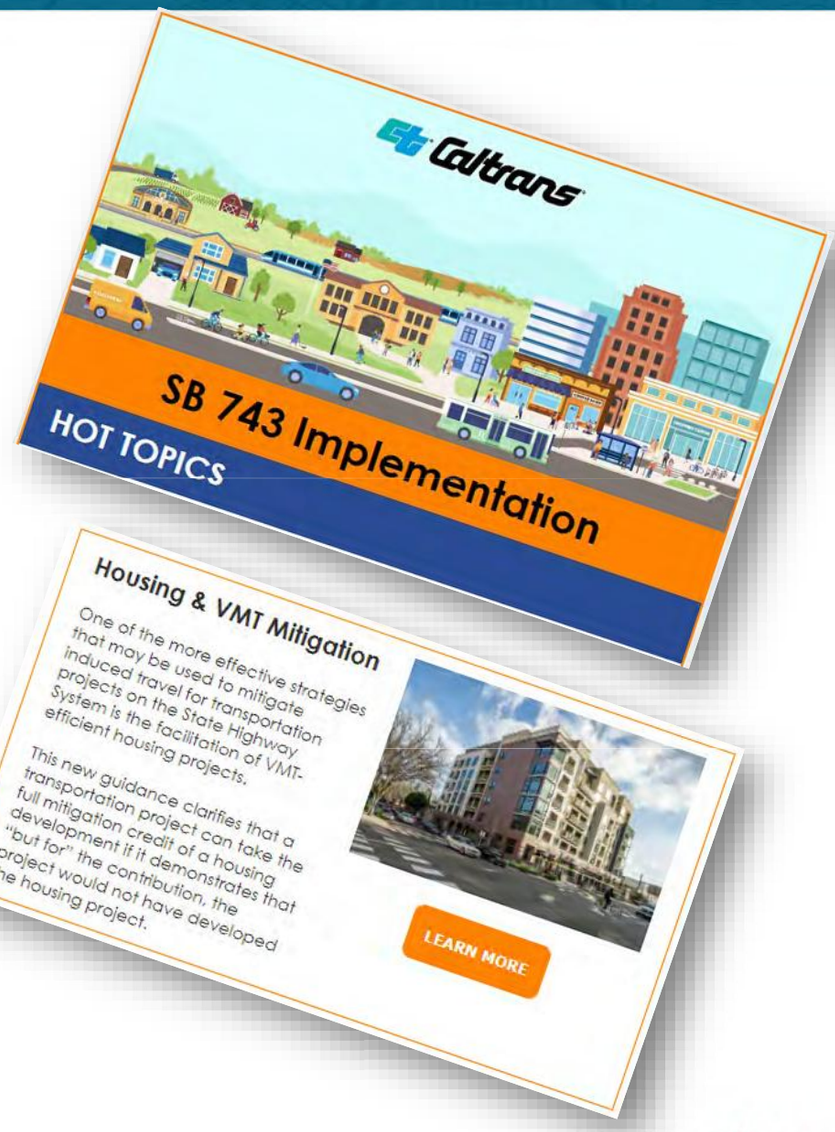
*** Highest Potential ***

Community Type	Future Vehicle Miles Traveled (VMT) to Mitigate		
	Residential	Employment	Total
Total VMT (Thru 2045)	191,803	299,003	490,806
Total VMT per Year	7,672	11,960	19,632

Note: The VMT numbers shown above are derived from the RIVCOM travel demand model

Additionality

- CEQA mitigation must be "additional"
- Simple definition "but for"
- No longer seen as requiring "proportionality"
- Key Project Requirements
  - *Meets definition of Additionality*
  - *Only one claimant to VMT for CEQA Mitigation*



(1) Caltran's VMT Program Bulletin 21-01: VMT Mitigation Funding Status and Additionality, August 26, 2021

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Additionality

- Caltrans Definition (1)

  "A critical step in asserting such mitigation is to assure that the investment provides additional resources that otherwise would not have been provided or providing the additional resources substantially earlier than they otherwise would have been available"

- "Proportionality" of mitigation and contribution has been an open question
- Expected Caltrans guidance will remove "proportionality"
- Similar to how we treat Impact Fee Programs and other Mitigation
- Key mitigation requirements are:
  - *Meets definition of Additionality*
  - *Only one claimant to VMT for CEQA Mitigation*

(1) Caltran's VMT Program Bulletin 21-01: VMT Mitigation Funding Status and Additionality, August 26, 2021

Additionality Options

	Mitigation Source	Mitigation	Effective Project Funding	Cost/VMT	VMT Bank Cost
Non-Fee Funding Excluded	Affordable Housing	250 VMT	Fee	$3,750	$2,250
	Transit	250 VMT	Fee	$2,250	
	Bike/Ped	250 VMT	Fee	$750	
	Technology	250 VMT	Fee	$2,250	
Voluntary Non-Fee Funding	Affordable Housing	250 VMT	Fee / Non-Fee Funding Source	$1,500	$1,500
	Transit	250 VMT	Fee	$2,250	
	Bike/Ped	250 VMT	Fee	$750	
	Technology	250 VMT	Fee / Non-Fee Funding Source	$1,500	
Required Non-Fee Funding	Affordable Housing	250 VMT	Fee / Non-Fee Funding Source	$750	$750
	Transit	250 VMT	Fee / Non-Fee Funding Source	$750	
	Bike/Ped	250 VMT	Fee	$750	
	Technology	250 VMT	Fee / Non-Fee Funding Source	$750	

Anecdotal Project Cost-Effectiveness

Example Projects		ROI	Comments
	Pedestrian	–	Often to costly with minimal VMT reduction (short trip lengths)
	Bike	+	Need to remove recreational trips. Multi-use/Class IV tend to be overly expensive but less costly improvements (paint) generally show promise
	Transit	+/-	Often good VMT reduction, how high costs of improvements and operating costs can make transit less feasible
	Road Diet	+/-	Works best on larger facilities or on multiple nearby facilities, otherwise it can result in route diversion, often increasing VMT
	ITS/ TSM	–	Difficult to quantify, generally minimal impact, better for GHG
	Mobility Hub	+	Can provide a good ROI by serving to connect modes systems that already exist
	Affordable Housing	–	Depends on definition of additionality. Developments with a large number of units have better ROI
	Vanpool/Carpool	+	Shows high promise and cost effective
	Park-and-Ride	+/-	Very dependent on unique local circumstances. Only limited information on efficacy available

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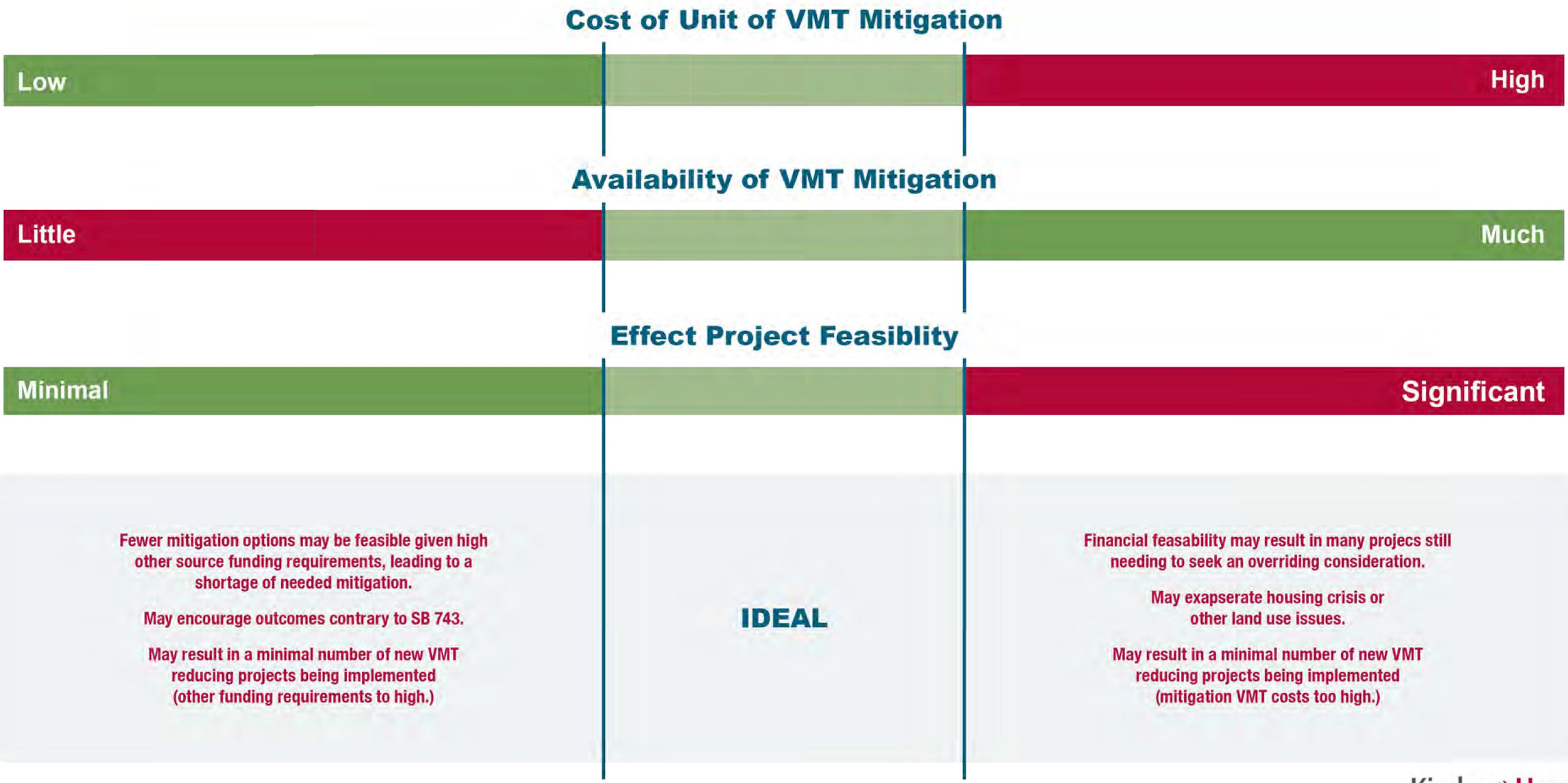
Additionality and Cost



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Program Cost & Funding Commitment

- What funding period is appropriate
  - *2 years, 5 years, with General Plan, with CIP*
- Cost depends on how program administration is set

Project Website Survey

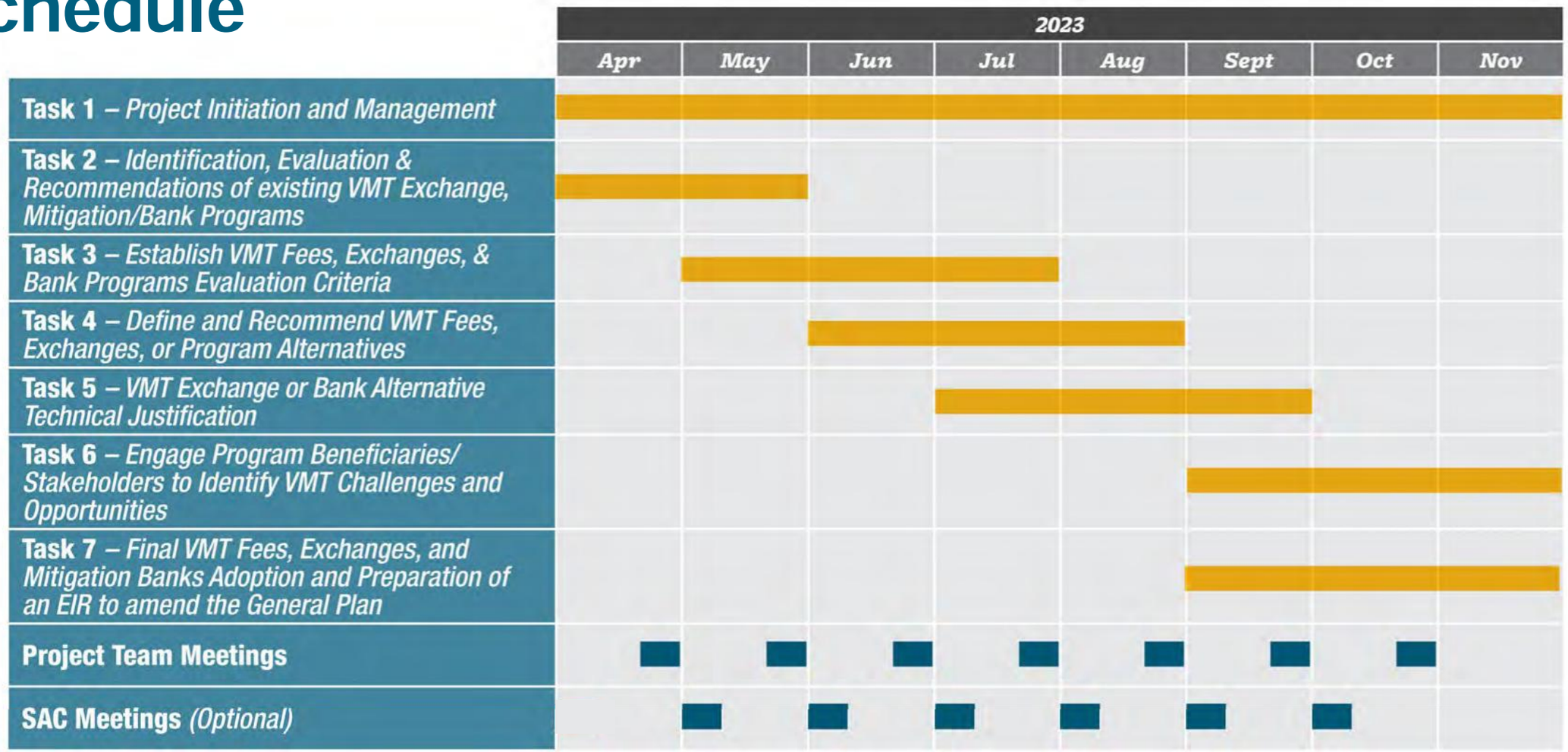
- Framework Preference
  - *VMT Bank, VMT Exchange, VMT Fee Program, Hybrid Bank/Exchange*
- Project Preferences
  - *Transit, Bike/Ped, Affordable Housing, Vanpool/Carpool*
- Project Suggestions

Survey Example Questions

1. Rank the program options?
    1. *VMT Banking*
    2. *VMT Banking +*
    3. *VMT Exchange*
    4. *VMT Banking and Exchange*
    5. *VMT Impact Fee*

2. Rank the importance of the considerations in your choice?
    1. *Predefined project*
    2. *Applicant can select a predefined project*
    3. *Applicant can provide a project option*
    4. *Option to have regional/local distribution*
    5. *Additionality options*
    6. *Complexity to administer*
    7. *Potential cost per unit of VMT mitigation*
    8. *Supportive of all SB 743 goals*

Schedule



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Next Steps

- Project Evaluation
  - *Establish evaluation criteria*
  - *Select candidate projects*
    - Select Riverside PACT projects
    - TDM projects (marketing campaigns, discount transit passes, employer non-SOV travel incentives)
    - Car share program
  - *Evaluate candidate projects*
  - *Summarize results and report back to SAC*
- Begin meetings with other agencies/stakeholders
  - *WRCOG, County of Riverside, UCR, RTA, RTA, RCTC (Metrolink)*

Questions?

Chris Gregerson

chris.gregerson@kimley-horn.com

Kimley»Horn

Vehicle Miles Traveled (VMT) Mitigation

Through Fees, Banks & Exchanges Program

Stakeholder Advisory Meeting 4

September 28, 2023

Prepared for:

CITY OF RIVERSIDE

Prepared by:

Kimley»Horn

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Agenda

- Mitigation Timing
- Agency Meeting Highlights
- VMT Reducing Projects Analysis Results
  - *Bike projects*
  - *Transit Projects*
  - *Travel Demand Management (TDM) Projects*
    - Carpool, Vanpool, Trip Reduction Programs
- Next Steps

Mitigation Timing

- City Mitigation Program only required if a project has a VMT impact
  - *If screened out or no impact, do not need to be involved in program*
- Projects incorporate TDM mitigations **first**
  - *If project can mitigate impact using TDMs, do not need to be involved in program*
- If project still requires additional mitigation, then can purchase VMT from program

Meetings with Agencies/Stakeholders

- Met with WRCOG 8/30
- Met with Riverside County 8/31
- Met with RTA 9/13
- Meet with UCR 9/20

Agency Meeting Themes and Highlights

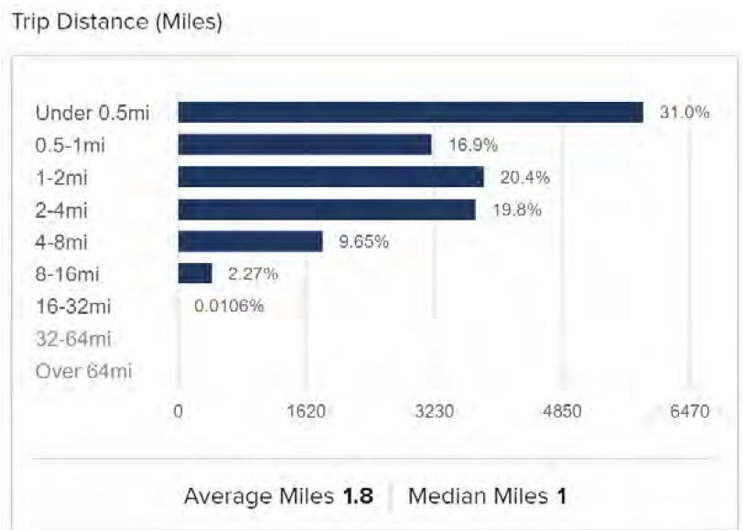
- Developing a VMT Mit. Prog., likely an exchange (WRCOG)
  - *RTA is working with WRCOG on this program*
  - *WRCOG to admin. prog. and determine VMT reductions*
  - *Targeting end of 2024 for implementation*
- County interested in participating in regional program (Riverside County)
- Track ridership, passenger miles traveled, & avg. trip dist. (RTA)
  - *Willing to share data on a per route basis & guidance on headway reductions*
- Conducted several fare reduction promotions (RTA)
  - *Can lead to pure VMT reductions*
- Route 56 is still building ridership (UCR/RTA)
  - *Started in January, 1-hour headway*
  - *Wondering if extending north to industrial area would increase ridership, but would need to also include an additional bus (requires funding)*

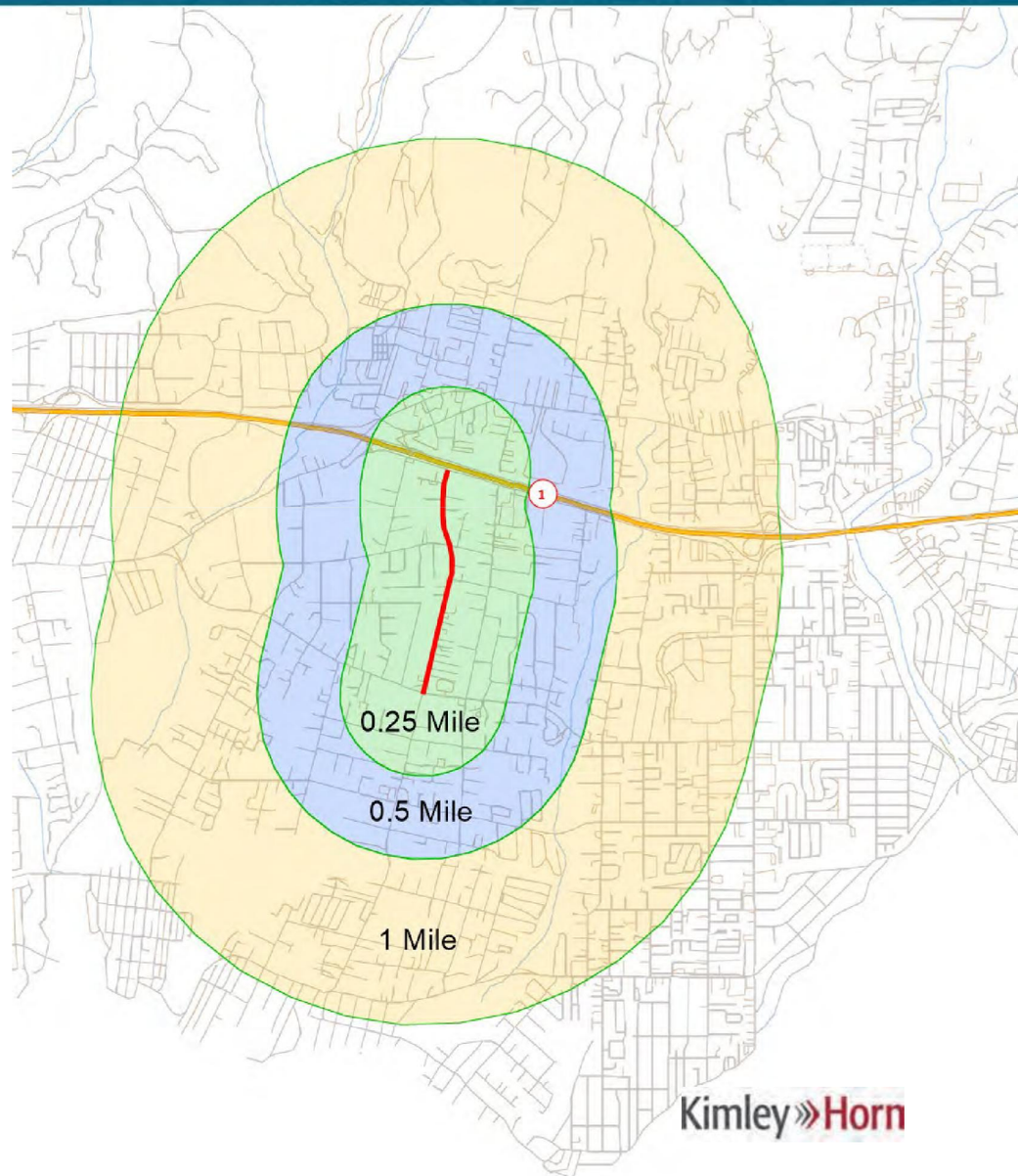
VMT Reducing Projects Analyzed

- 10 PACT bike/ped projects analyzed
- 14 transit operations projects screened
- 1 transit project modeled using RIVTAM
- 3 TDM Projects from SCAG TDM Program
  - *Carpool*
    - Cost/VMT = for $7,255 for 1 passengers, or $2,418 for 3 passengers (over 20 years)
    - Cost/VMT = $0.655 per day for 1 passenger, or $0.218 per day for 3 passengers
  - *Telecommute: Work-from-Home (WFH) every day vs. WFH 1 day a week*
  - *Free Transit Pass*

Bike Project Methodology

- Obtain Bicycle Facility Cost
- Estimate Bicycling Demand based on existing ridership
- Obtain average trip distance
- Calculate VMT reduced and Cost/VMT





Bike Project Analysis Results

Project Name	PACT Project Number	Distance (mi)	Cost	VMT Reduction	Cost/VMT
Columbia Avenue Bike Improvements	4	0.27	$75,000	90	$830
Magnolia Avenue Bike Improvements	5	9.34	$453,000	6,150	$74
Adams St Bike Improvements	7	1.56	$602,837	565	$1,067
Brockton Ave Bike Improvements	9	0.17	$62,605	593	$106
Chicago Av Bike Improvements	10	0.75	$290,250	292	$994
Magnolia Ave Bike Improvements	24	0.42	$14,747	169	$87
Main St Bike Improvements 1	25	0.31	$120,930	121	$1,001
Main St Bike Improvements 2	26	0.08	$30,555	391	$78
Orange St Bike Improvements	29	0.84	$29,187	733	$40
Rutland Ave Bike Improvements	30	0.92	$121,680	1,058	$115

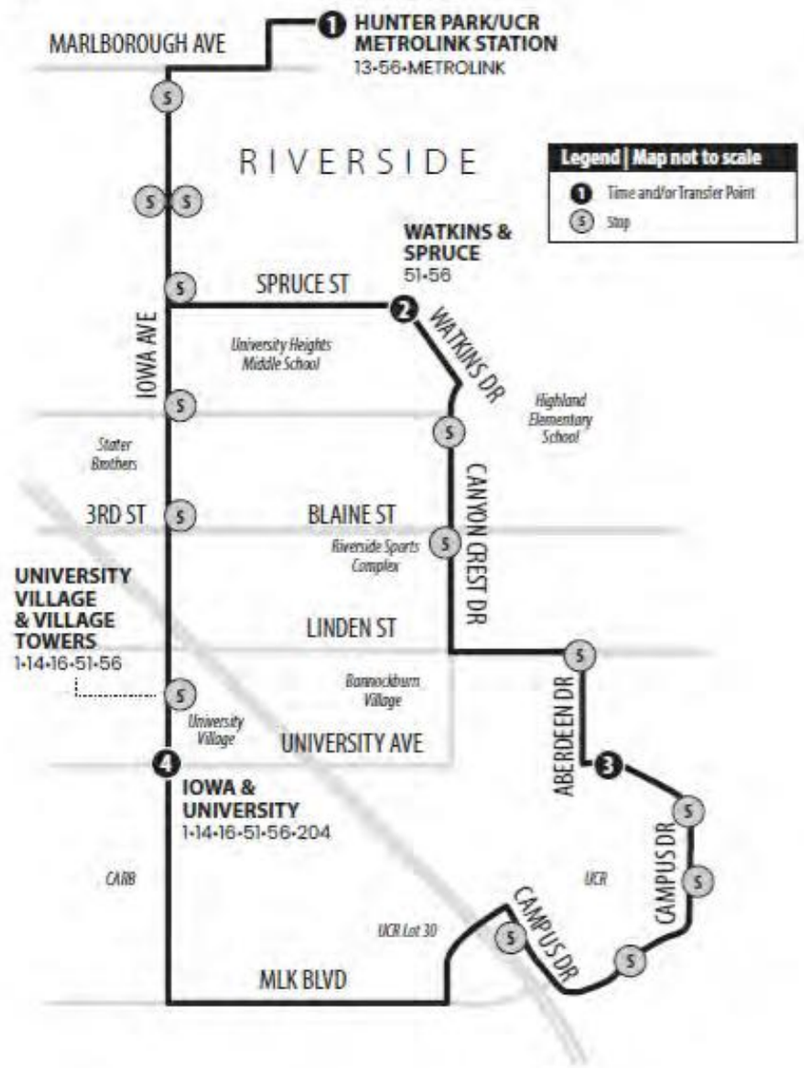
Transit Project Analysis Methodology 1

- Using travel demand model
- Route 56 was replicated in the model including its stops, headway, and route
- Model run was completed including transit ridership to obtain ridership data (number of boardings, passenger miles traveled)
- Able to obtain ridership data for other routes as well

56 HUNTER PARK/UCR METROLINK STATION TO UCR

Routing and timetables subject to change.
Rutas y horarios son sujetos a cambios.

No service on weekends or: Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and New Year's Day.



Transit Project Analysis Methodology 1 - Results

- Cost to increase transit frequency: $3.5 million over 20 years (cost estimated)
- Route 56
  - *Model: 274 ridership, 890 VMT, Average Distance: 3.25 miles*
  - *Current headway = 45 minutes; Proposed headway = 30 minutes*
    - Projected Ridership = 438 (164 additional riders)
    - Projected VMT Reduction = 534 VMT
  - *Cost/VMT = $6,551/VMT for 20 years of service*
- Updated data to be provided by RTA

Transit Project Analysis Methodology 2

- Used Replica to obtain ridership information for Riverside routes
  - *Only able to analyze top 20 routes by ridership, OCTA, Express Bus and OmniTrans routes excluded from total ridership results*
- Also used Replica to determine average transit trip distance
- Obtained existing headways from RTA website
- Used the Bus Rapid Transit Manual methodologies to determine increases in ridership based on reduced frequencies
  - *10% increase in frequency = 4% increase in ridership*

EXHIBIT 3-19 Typical Midpoint Arc Elasticities

Item	Travel Time	Bus Miles	Bus Frequencies
Application	New routes replace or complement existing routes	Service expansion	Greater frequency of existing routes
Range	-0.3 to -0.5	0.6 to 1.0	0.3 to 0.5
Typical	-0.4	0.7 to 0.8	0.4

SOURCE: *Patronage Impacts of Changes in Transit Fares and Services* (*29*) and *TCRP Report 99* (*30*)

Transit Project Analysis Methodology 2 - Results

Route	Route Name	Existing Ridership	Existing Headway	Proposed Headway	Projected Ridership	Increase in Ridership	VMT Reduced	$/VMT Reduced
1	W. Corona-UC Riverside	3707	15	Headway already less than 30 minutes				
3	Eastvale, Norco, Corona Transit Center	113	75	45	188	75	791	$4,425
10	Riverside/Watkins-Galleria	309	60	30	556	247	2,596	$1,348
12	Corona Hills Plaza/Riverside/La Cadena-Merced	427	60	30	769	342	3,587	$976
13	Hunter Park Metro-Galleria	353	60	30	635	282	2,965	$1,180
14	Galleria-Loma Linda VA	423	60	30	761	338	3,553	$985
15	Riverside/Downtown-Merced	214	45	30	342	128	1,348	$2,596
16	UCR-Moreno Valley	890	15	Headway already less than 30 minutes				
19	Mo Val Mall-Perris Station	413	15	Headway already less than 30 minutes				
20	Mo Val College-Riverside	405	60	30	729	324	3,402	$1,029
22	Riverside - Perris	620	60	30	1,116	496	5,208	$672
27	Galleria-Perris	144	60	30	259	115	1,210	$2,894
49	Riverside-Country Village	462	60	30	832	370	3,881	$902
51	UCR-Canyon Crest Towne Centre	63	40	30	97	34	353	$9,921

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Transit Project Analysis Methodology 2 - Results

- Cost to increase transit frequency: $3.5 million over 20 years (cost estimated and updated with RTA data)
- Route 22 (Riverside – Perris)
  - *Replica: 620 riders, Average Distance: 10.5 miles*
  - *Current headway = 60 minutes; Proposed headway = 30 minutes*
    - Projected Ridership = 1,116 (496 additional riders)
    - Projected VMT Reduction = 5,208 VMT
  - *Cost/VMT = $672/VMT*

RTA Data Request

- RTA to provide:
  - *Ridership and cost data for Route 56*
  - *Passenger Miles Traveled and Average Trip Length for Fare Reduction Promotions*
    - Youth ride free, university students ride free
  - *Top routes to consider for headway reduction*
    - Average trip distance, cost, and passenger miles traveled for each route
  - *GoMicro cost and ridership data (may not be applicable for Riverside)*

Telecommute Results – Work-From-Home (WFH) Every Day

- Average commute distance is 21.3 miles (model)
- Replica states existing WFH is 8.1%
- If an additional 0.5% WFH in the city (1,586 workers), this would result in a VMT reduction of 61,706 VMT per day
- Cost estimate $230,000/year or $4,600,000 for 20 years
- Cost per VMT = $4,600,000 / 61,706 = $75 / VMT

Telecommute Results – Once a Week

- Average commute distance is 21.3 miles
- Replica states existing WFH is 8.1%
- If an additional 0.5% WFH once a week (1,586 workers), this would result in a VMT reduction of 12,341 VMT per day
- Cost estimate $230,000/year or $4,600,000 for 20 years
- Cost per VMT = $4,600,000 / 12,341 = $373 / VMT

Free Transit Pass

- Transit pass cost = $1.75
- Commute VMT = 798,897 VMT
- VMT Reduction = 2,353 VMT
- Total cost = $9,955,400 for 20 years
- Cost per VMT = $9,955,400 / 2,353 VMT = **$4,231 / VMT reduced**

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from employee/resident vehicles accessing the site	0–5.5	%	calculated
User Inputs				
B	Average transit fare without subsidy	[ ]	$	user input
C	Subsidy amount	[ ]	$	user input
D	Percent of employees/residents eligible for subsidy	0–100	%	user input
E	Percent of project-generated VMT from employees/residents	0–100	%	user input
Constants, Assumptions, and Available Defaults				
F	Transit mode share of all trips or work trips	Table T-3.1 or Table T-9.1	%	FHWA 2017
G	Elasticity of transit boardings with respect to transit fare price	-0.43	unitless	Taylor et al. 2008
H	Percent of transit trips that would otherwise be made in a vehicle	50	%	Handy & Boarnet 2013
I	Conversion factor of vehicle trips to VMT	1.0	unitless	assumption

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20-Year Cost Summary

Project	Distance	Description	Cost (20-years)	Cost/VMT
Carpool Program	--	Provide financial incentive for carpools	$145,096	$2,418
Bike Project 1	0.27	Columbia Avenue Bike Improvements	$75,000	$830
Bike Project 2	9.34	Magnolia Avenue Bike Improvements	$453,000	$74
Bike Project 3	1.56	Adams St Bike Improvements	$602,837	$1,067
Bike Project 4	0.17	Brockton Ave Bike Improvements	$62,605	$106
Bike Project 5	0.75	Chicago Av Bike Improvements	$290,250	$994
Bike Project 6	0.42	Magnolia Ave Bike Improvements	$14,747	$87
Bike Project 7	0.31	Main St Bike Improvements 1	$120,930	$1,001
Bike Project 8	0.08	Main St Bike Improvements 2	$30,555	$78
Bike Project 9	0.84	Orange St Bike Improvements	$29,187	$40
Bike Project 10	0.92	Rutland Ave Bike Improvements	$121,680	$115
Free Transit Pass	--	Provide Free Bus Trips for Specific Population	$9,955,400	$4,231
Route 56*	12.56	Reduce Headway from 45 min to 30 min	$3,500,000	$6,551
Route 22*	39.54	Reduce Headway from 60 min to 30 min	$3,500,000	$672
WFH Program	--	Work with Employers to Increase City WFH by 0.5%	$4,600,000	$75
Commute Reduction	--	Increase City WFH by 0.5% 1 Day per Week	$4,600,000	$373

*Transit project costs to be updated with data from RTA

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Next Steps

- Use RTA data to calculate free transit pass program cost/VMT
- Use RTA data to calculate headway reduction project cost/VMT
- Develop draft solution for review

Questions?

Vehicle Miles Traveled (VMT) Mitigation

Through Fees, Banks, & Exchanges Program

Stakeholder Advisory Meeting 5

March 14, 2023

Prepared for:

CITY OF RIVERSIDE

Prepared by:

Kimley»Horn

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Agenda

- Review Study Purpose and Status
- Public Outreach Summary
- Program Evaluation and Recommendation
- Project Evaluations and Recommendations
- Implementation and Administration
- Findings and Remaining Steps
- Project Logo Selection



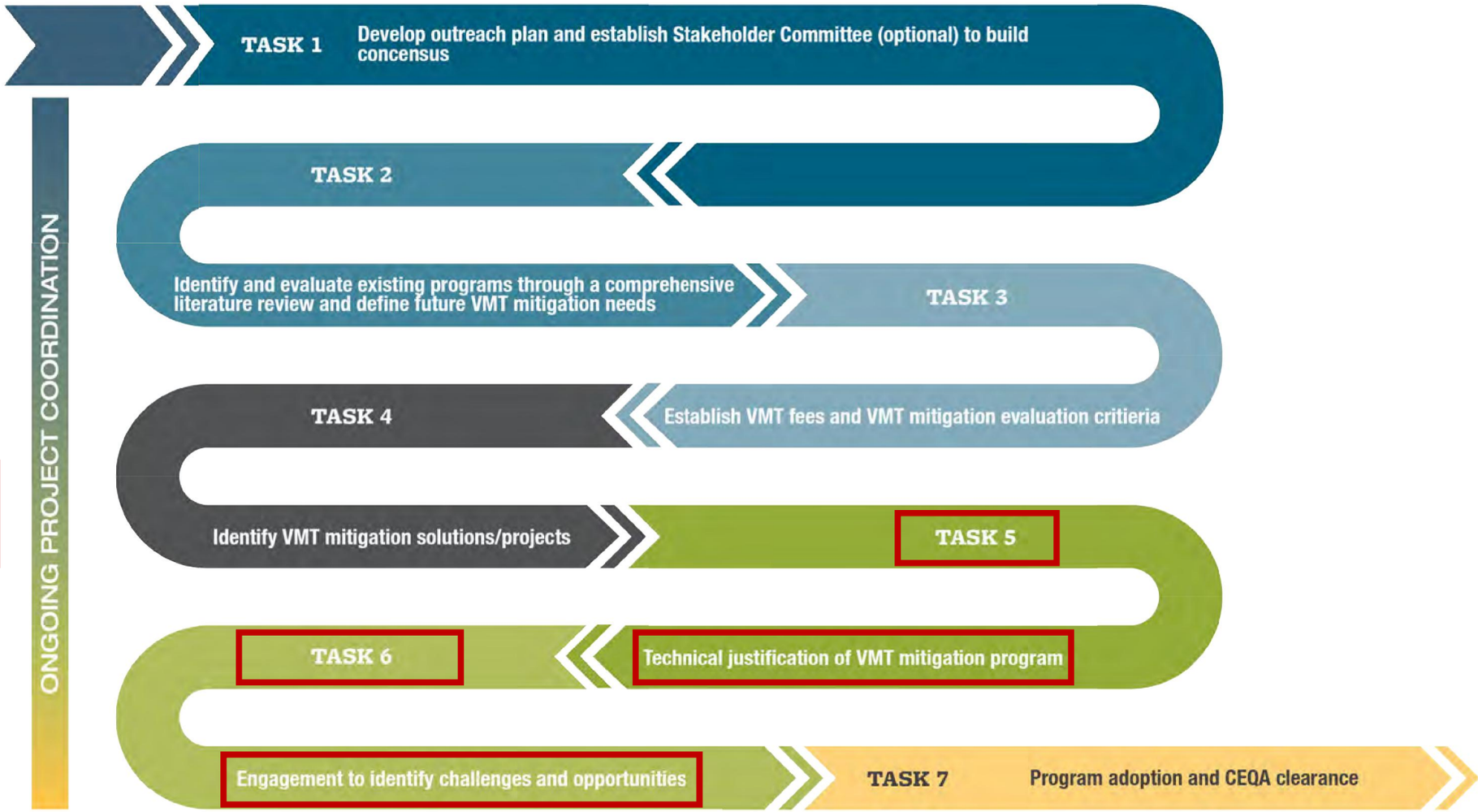

Study Purpose

- Compliance for State Requirements for Transportation Impacts
- Provide information about Vehicle Miles Traveled (VMT)
- Address projects that have VMT impacts without solutions
- Project Website: https://www.riversidevmt.com/

Work Plan

Legend:

Project Status as of March 2024



Note: The Final Draft of the Program is Expected to be Ready by May 2024

Public Outreach Summary

- Online survey released
  - *15 responses from residents*
  - *13% were familiar with VMT state requirements*
  - *40% support a developer fee program*
  - *70% were in favor of fees based on amount of VMT vs size of project*
  - *Respondents ranked Bike/ped and telecommute projects highest*
  - *93% were in favor of mitigation based on project location*
- Public meeting held December 14, 2023
  - *8 attendees*
  - *Most of the input received was about perceived increases to costs/taxes*
  - *Many clarifying questions about VMT analysis vs VMT mitigation*

Program Evaluation

	Legal	Meets CEQA and statutory requirements including additionality
	Effective	Results in long-term financially feasible mitigation
	Geography	Program can scale to meet the region's needs
	Administration	Funds oversight and management of program, including technical analysis
	Equitable	Program avoids disproportionate impacts and encourages equitably benefit distribution
	Alignment	Program supports good design and aligns with community values and plans
	Timeliness	Program includes projects that can be implemented in a timeline manner
	Feasibility	Includes projects that don't have major obstacles to implementation

Program Recommendation

- VMT Bank is the Recommended Framework

	VMT Bank	VMT Exchange	VMT Impact Fee
Predefined Projects	✓	✗	✓
Applicant Can Provide a Project Option	✗	✓	✗
Experience Administering Similar Programs	✓/✗	✗	✓
Can Result in Low Cost per VMT Reduced	✓	✓/✗	✗
Supportive of All SB 743 Goals	✓	✓	✓/✗

Project Ranking

$	**High VMT Reduction per $**	Identified mitigation solutions need to be financially viable and feasible
+	**Reliability of Other Funding Sources**	Likelihood of other funding sources
	Immediacy	Constructable in a short timeline
	Readiness	No issues that may impede its implementation
	Geographic Distribution	Consideration of project distribution across the City
	Transportation Disadvantaged	Provides mobility options to those with reduced car ownership
	Community Value Alignment	Supports ongoing planning efforts
	Distribution of Project Type	Consideration of project types and modes in terms of distribution

Projects Analyzed

- 10 PACT bike/ped projects analyzed
- 14 transit operations projects screened
- 1 transit project modeled using RIVTAM
- 3 TDM Projects from SCAG TDM Program
  - *Carpool*
  - *Telecommute: Work-from-Home (WFH) every day vs. WFH 1 day a week*
  - *Free Transit Pass*

Project Recommendations

Bicycle/Active Transportation Projects

Roadway	From	To	Ward	PACT #	Recommended Facility Type	Length (Miles)	Cost (2023 $)
Columbia Avenue	American Drive	Salmon River Road	1	4	Bike Lane	0.27	$110,067
Adams Street	Lincoln Avenue	California Avenue	5	7	Bike Lane	1.56	$884,699
Brockton Avenue	Magnolia Avenue	Beatty Drive	3	9	Bike Lane	0.16	$91,877
Chicago Avenue	W Linden Street	Spruce Street	2	10	Buffered Bike Lane	0.75	$425,959
Magnolia Avenue	Meyers Street	McKenzie Street	5	24	Bike Lane	0.42	$21,642
Main Street	10th Street	6th Street	1	25	Shared Use Path	0.31	$177,472
Main Street	14th Street	13th Street	1	26	Bike Lane	0.08	$44,841
Orange Street	14th Street	3rd Street	1	29	Separated Bikeway	0.83	$42,834
Rutland Avenue	Wells Ave	Arlington Ave	6	30	Bicycle Boulevard	0.92	$178,573

Travel Demand Management Project

Project	Description	Cost (20-years)
Commute Reduction	Increase City Work From Home by 0.5% 1 Day per Week	$4,600,000

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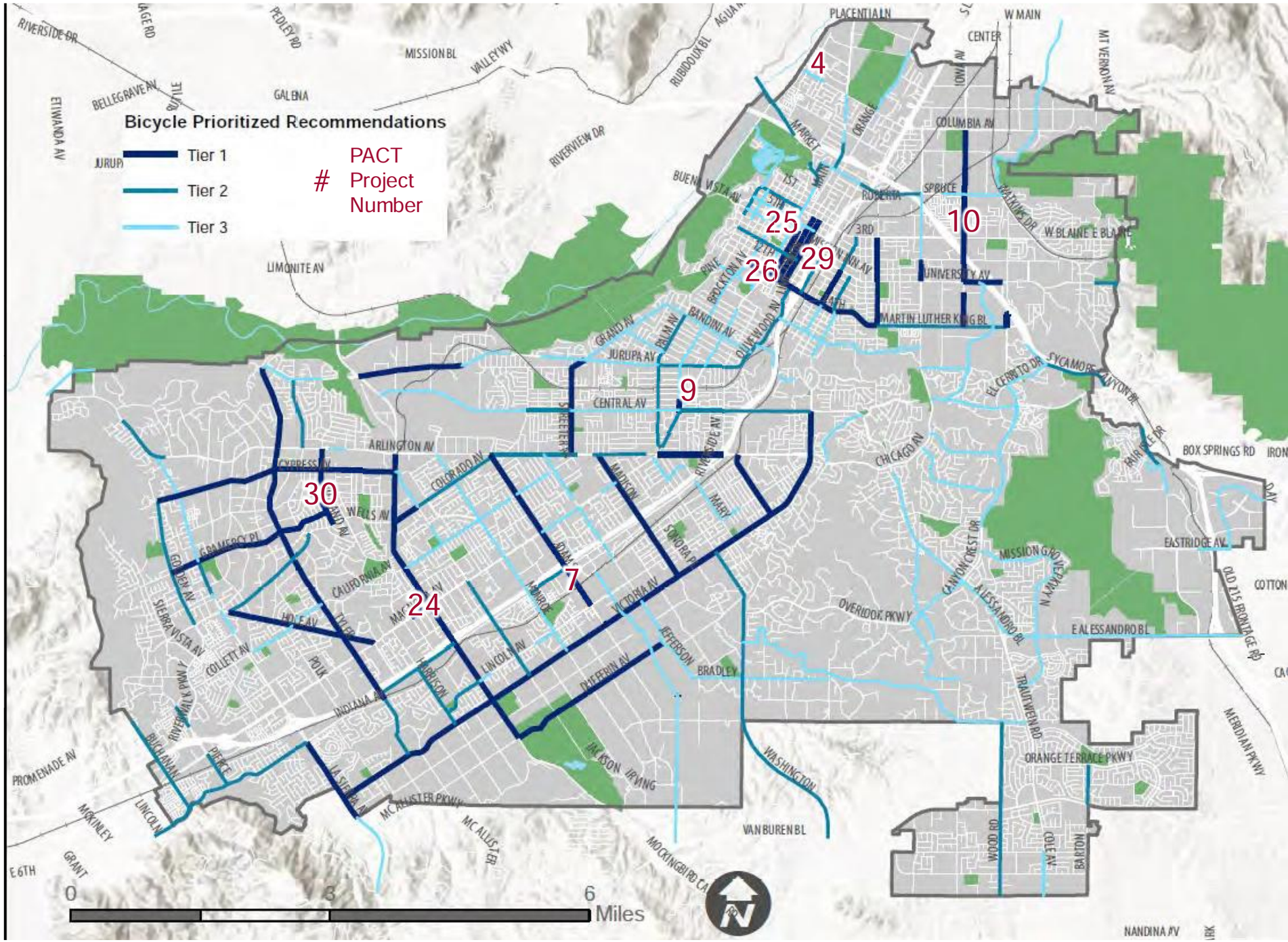
Bike Project Map



Source:
Riverside Active Transportation Plan, Figure 4-30

Program Summary Table

Project	Ward	PACT #	Description	Cost (20-years)	VMT Reduced	Cost/VMT
Bike Project 1	1	4	Columbia Avenue Bike Improvements	$110,067	90	$1,219
Bike Project 3	5	7	Adams St Bike Improvements	$884,699	565	$1,566
Bike Project 4	3	9	Brockton Ave Bike Improvements	$91,877	593	$155
Bike Project 5	2	10	Chicago Av Bike Improvements	$425,959	292	$1,459
Bike Project 6	5	24	Magnolia Ave Bike Improvements	$21,642	169	$128
Bike Project 7	1	25	Main St Bike Improvements 1	$177,472	121	$1,469
Bike Project 8	1	26	Main St Bike Improvements 2	$44,841	391	$115
Bike Project 9	1	29	Orange St Bike Improvements	$42,834	733	$58
Bike Project 10	6	30	Rutland Ave Bike Improvements	$178,573	1,058	$169
Commute Reduction	All	--	Increase City WFH by 0.5% 1 Day per Week	$4,600,000	12,341	$373
Program Combined Total				**$6,577,962**	**16,354**	**$402**

Note:

- All bike projects are Tier 1 priority projects in Riverside PACT except Columbia Ave (Tier 3)
- Bike costs moved from 2007 to 2023 using CPI Inflation Calculator and back checked using ENR Construction Cost Index, 2007 - 2020

Implementation

1. Development Identifies Cost to Mitigate
2. Agency Receives Payment from Applicant
3. Agency Allocates Funds to Construct Projects in Program

Case Studies

- Wood and Lurin Residential Project
- 96 residential units, 3.32 persons per household, 319 project population
- Project VMT/capita = 19.0, City threshold = 9.18 VMT/capita
  - *Difference of 9.82 VMT/capita*
  - *Equates to 3,133 VMT to mitigate*
- At $402/VMT reduced, total cost to mitigate is $1,259,466 or $13,119 per household
- Recent model update may result in a lower impact

Administration Considerations

- City of Riverside to oversee as a pilot program
- Continue to coordinate with WRCOG on the proposed regional program
- Other considerations being finalized
  - *Annual administrative costs paid for by revenue (1% - 2%)*
  - *Identifying technical support for implementation*
  - *Legal structure and adoption format*
  - *Frequency of program/project updates*

Findings and Remaining Steps

Findings

- ***VMT Banking*** *would be the most appropriate initial program*
- *Methods for evaluating VMT mitigation have been established*
- *Pilot projects have been selected*

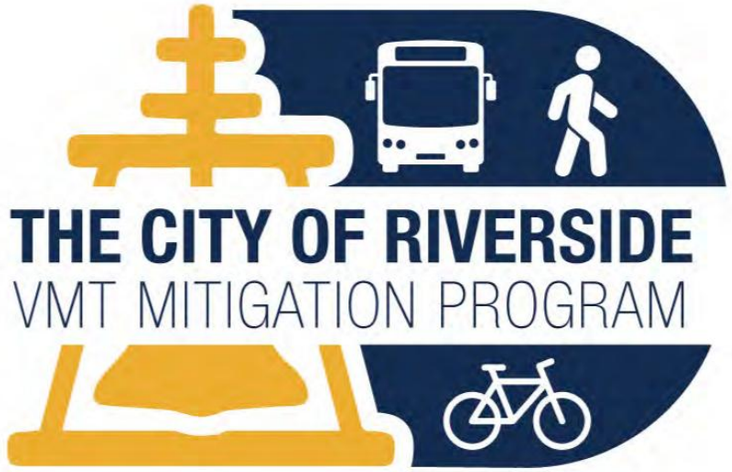
• Remaining Steps

- *Finalize Environmental Requirements (March 2024)*
- *Finalize City's VMT Analysis Tool with VMT Mitigation Bank Implementation (March 2024)*
- *Submit and Finalize Study Report (Early April 2024)*
- *Committee Presentations (April/May 2024)*
- *Council Presentations and Adoption (May 2024)*

#1

#2

#3



Project Logo

Have your say!

Questions?

Kimley»Horn

THE CITY OF RIVERSIDE
VMT MITIGATION PROGRAM

Vehicle Miles Traveled (VMT) Mitigation

Through Fees, Banks, & Exchanges Program

Stakeholder Advisory Meeting 6

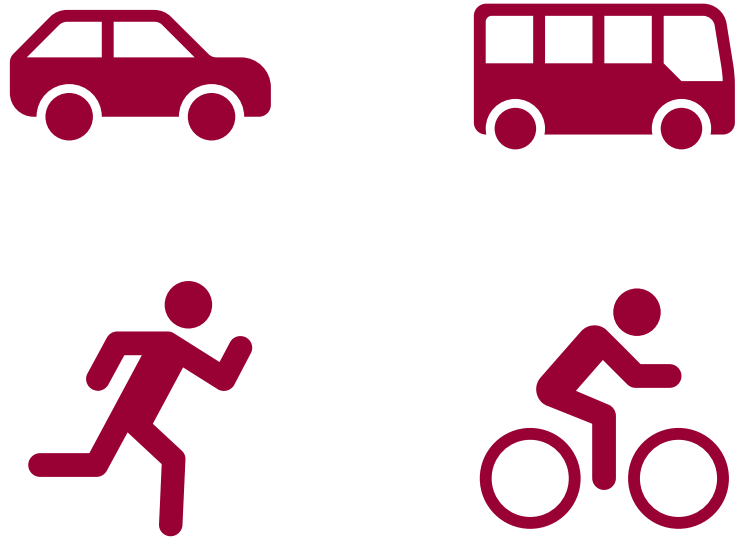
September 26, 2024

Prepared for: CITY OF RIVERSIDE

Prepared by: Kimley»Horn
Expect More. Experience Better.

Agenda

- Review Study Purpose
- Outreach Efforts
- Program Recommendation
- Projects Reviewed & Recommended
- Program Options
- Program Cost Comparison
- Case Studies
- TREDLite VMT Demo
- Mitigation Timing Considerations
- Findings and Remaining Steps



Study Purpose

- Compliance for State Requirements for Transportation Impacts
- Provide information about Vehicle Miles Traveled (VMT)
- Address projects that have VMT impacts without solutions
- Project Website: https://www.riversidevmt.com/

Outreach Efforts

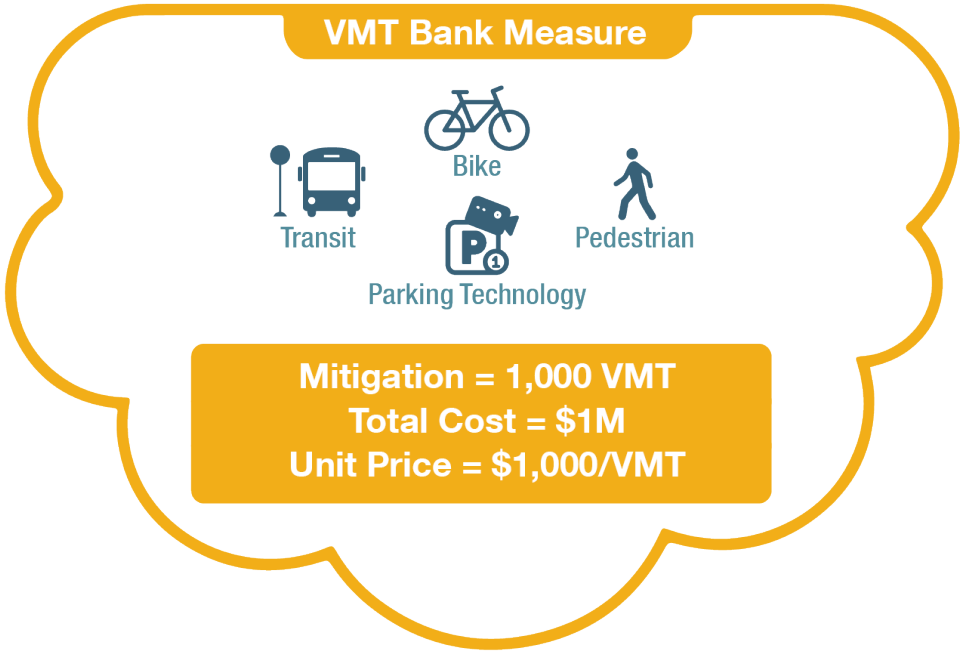
15	1	5	4	20+
				
Online Survey Responses	Public Meeting	Stakeholder Advisory Committee Meetings	Targeted Agency Meetings	City Staff Meetings

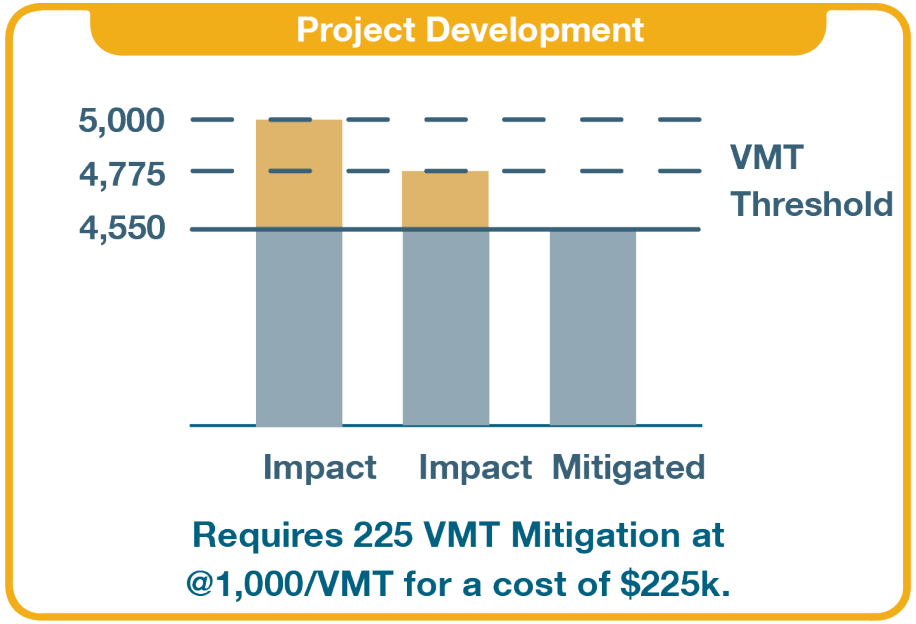
Program Recommendation

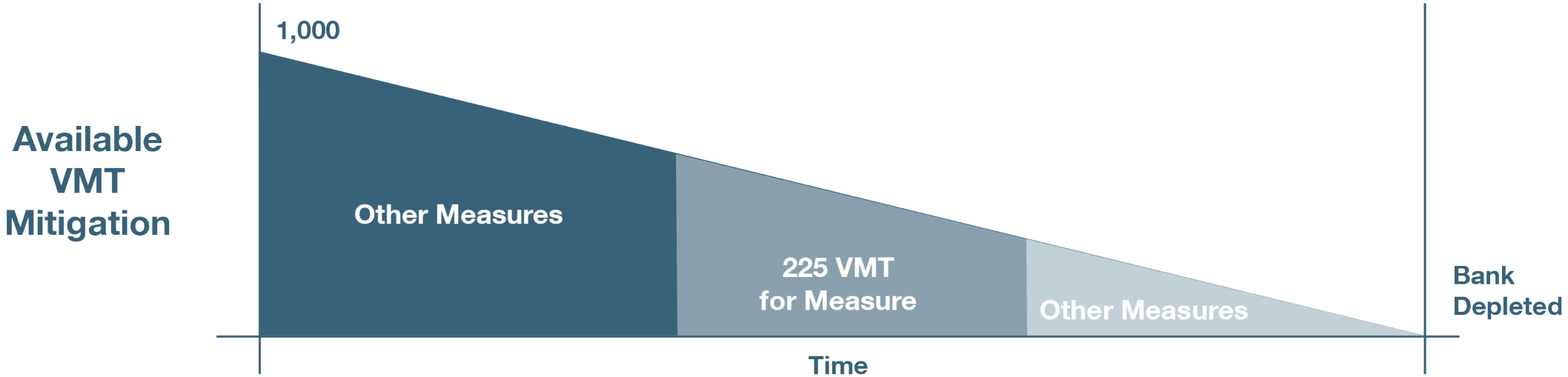
- VMT Bank is the Recommended Framework

	VMT Bank	VMT Exchange	VMT Impact Fee
Predefined Projects	✓	✗	✓
Applicant Can Provide a Project Option	✗	✓	✗
Experience Administering Similar Programs	✓/✗	✗	✓
Can Result in Low Cost per VMT Reduced	✓	✓/✗	✗
Supportive of All SB 743 Goals	✓	✓	✓/✗

How a VMT Bank Works





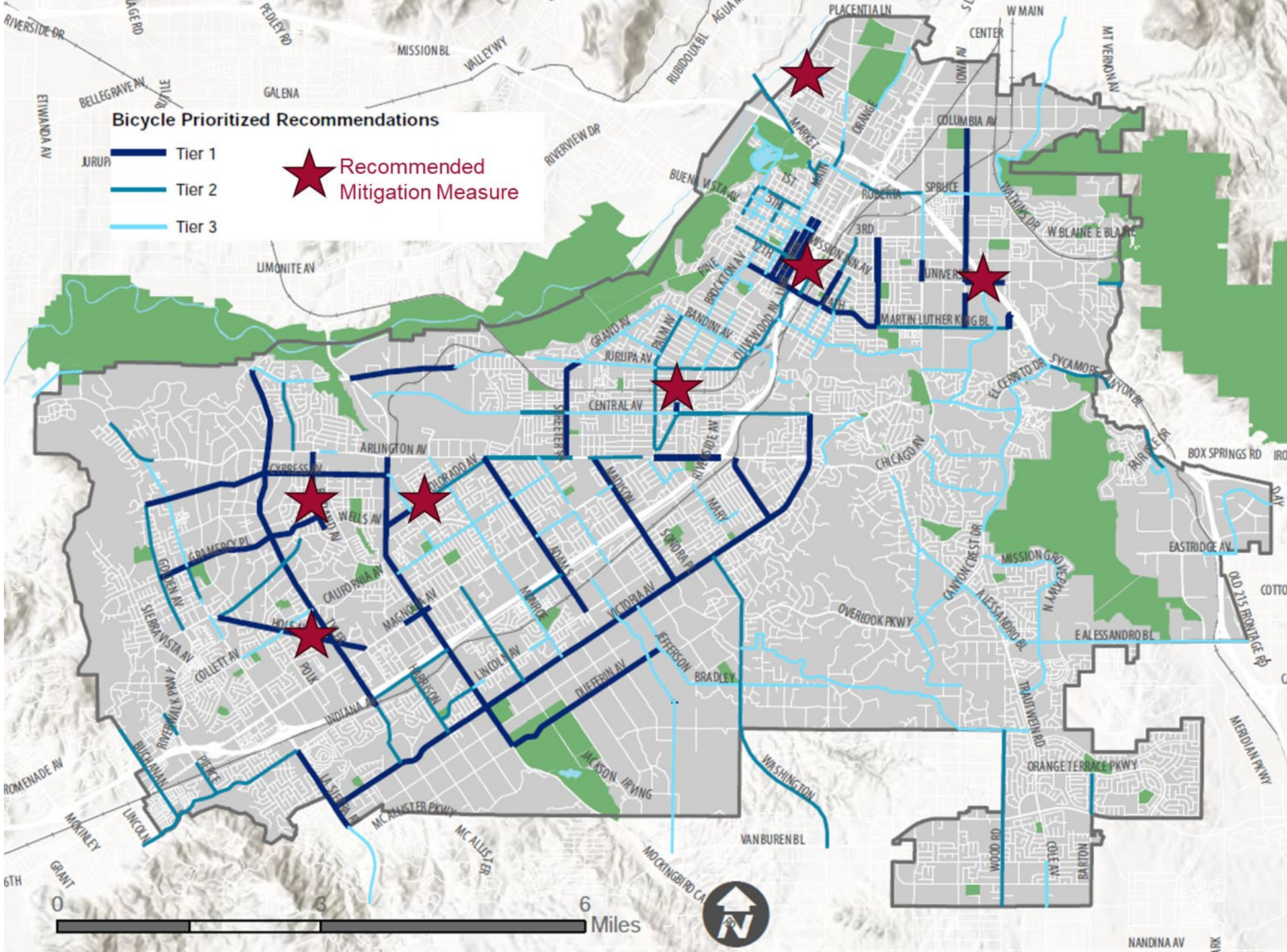


Projects Reviewed

- 25 bike projects analyzed
- 13 pedestrian projects considered, 4 analyzed
- 14 transit operations projects screened
- 6 transit projects analyzed
- 3 TDM projects from SCAG TDM Program considered
  - *Carpool – not analyzed*
  - *Telecommute: Work-from-Home (WFH) every day vs. WFH 1 day a week*
    - Analyzed
  - *Free Transit Pass – not analyzed*

Bike Projects < $3,000/VMT Reduced

(Recommended for Inclusion in Program)



Source:
Riverside Active Transportation Plan, Figure 4-30

Option A Program (Recommended) Summary Table

Roadway	Ward	Description	Cost (20-years)	VMT Reduced	Cost/VMT
Columbia Ave	1	Stripe bike lane between American Dr and Salmon River Rd	$110,067	90	$1,219
Brockton Ave	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$91,877	593	$155
Orange St	1	Construct separated bikeway between 14th St and 3rd St	$42,834	733	$58
Rutland Ave	6	Construct bicycle boulevard between Wells Ave and Arlington Ave	$178,573	1,058	$169
Colorado Ave	5	Stripe bike lane between Van Buren Blvd and Monticello Ave	$1,115,343	646	$1,728
Hole Avenue	6	Stripe bike lane between Tyler St and Magnolia Ave	$1,268,066	450	$2,816
University Ave	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$1,001,921	750	$1,336
Total			**$3,808,681**	**4,320**	**$882**

Note: Option A includes bike improvements only

Option B Program Summary Table

Roadway/Route	Ward	From/To or Route Name	Cost (20-years)	VMT Reduced	Cost/VMT
Columbia Ave	1	Stripe bike lane between American Dr and Salmon River Rd	$110,067	90	$1,219
Brockton Ave	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$91,877	593	$155
Orange St	1	Construct separated bikeway between 14th St and 3rd St	$42,834	733	$58
Rutland Ave	6	Construct bicycle boulevard between Wells Ave and Arlington Ave	$178,573	1,058	$169
Colorado Ave	5	Stripe bike lane between Van Buren Blvd and Monticello Ave	$1,115,343	646	$1,728
Hole Avenue	6	Stripe bike lane between Tyler St and Magnolia Ave	$1,268,066	450	$2,816
University Ave	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$1,001,921	750	$1,336
10		Riverside/Watkins-Galleria	$5,900,000	2,285	$2,582
12		Corona Hills Plaza/Riverside/La Cadena-Merced	$5,900,000	3,553	$1,660
13		Hunter Park Metro-Galleria	$5,900,000	2,990	$1,973
14		Galleria-Loma Linda VA	$5,900,000	3,142	$1,878
15		Riverside/Downtown-Merced	$5,900,000	4,227	$1,396
22		Riverside - Perris	$5,900,000	2,797	$2,109
Total			**$39,208,681**	**23,315**	**$1,682**

Note: Option B includes bike and transit improvements only

Option C Program Summary Table

Roadway/Route	Ward	From/To or Route Name	Cost (20-years)	VMT Reduced	Cost/VMT
Columbia Ave	1	Stripe bike lane between American Dr and Salmon River Rd	$110,067	90	$1,219
Brockton Ave	3	Stripe bike lane between Magnolia Ave and Beatty Dr	$91,877	593	$155
Orange St	1	Construct separated bikeway between 14th St and 3rd St	$42,834	733	$58
Rutland Ave	6	Construct bicycle boulevard between Wells Ave and Arlington Ave	$178,573	1,058	$169
Colorado Ave	5	Stripe bike lane between Van Buren Blvd and Monticello Ave	$1,115,343	646	$1,728
Hole Avenue	6	Stripe bike lane between Tyler St and Magnolia Ave	$1,268,066	450	$2,816
University Ave	2	Construct a buffered bike lane between Iowa Ave and Campus Dr	$1,001,921	750	$1,336
10	N/A	Riverside/Watkins-Galleria	$5,900,000	2,285	$2,582
12	N/A	Corona Hills Plaza/Riverside/La Cadena-Merced	$5,900,000	3,553	$1,660
13	N/A	Hunter Park Metro-Galleria	$5,900,000	2,990	$1,973
14	N/A	Galleria-Loma Linda VA	$5,900,000	3,142	$1,878
15	N/A	Riverside/Downtown-Merced	$5,900,000	4,227	$1,396
22	N/A	Riverside - Perris	$5,900,000	2,797	$2,109
Orange Street	1	Complete street with 5.5-foot sidewalks between SR-60 and Center Street	$1,000,000	24	$41,667
Main St	1	Complete street with 5-8-foot sidewalks between Columbia Ave and Santa Ana River	$2,000,000	30	$66,667
Total			**$42,208,681**	**23,369**	**$1,806**

Note: Option C includes bike, transit, and pedestrian improvements

Program $/VMT Reduced Comparison

Agency	VMT Mitigation Program Format	Status	Cost per VMT Reduced ($/VMT Reduced)
City of Lancaster	VMT Mitigation Fee Optional Program	Implemented in 2023, with a cost basis of $150/VMT	$425/VMT reduced
Los Angeles County State Highway System	VMT Bank	Implemented 2024, with a cost basis of $261/VMT.	--
City of Palmdale	VMT Bank	Study completed. Pending adoption and implementation.	$261/VMT reduced
City of Salinas	Active Transportation In-Lieu Impact Fee	Implemented in 2020, with a cost basis of $1,400/VMT.	--
City of Tracy	VMT Bank	Implemented March 2023, with a cost basis of $1,524/VMT	--
City of Watsonville	TBD	Study funded under REAP 2.0. Not yet started.	$1,524/VMT reduced (maximum)

Case Study Example 1

- Wood and Lurin Residential Project
  - *96 residential units, 3.28 persons per household, 315 project population*
- Project VMT/capita = 19.0, City threshold = 9.18 VMT/capita
  - *Equates to 3,093 VMT to mitigate*
- Option A would provide enough VMT to fully mitigate the impact
- Option A results in a total cost to mitigate of $2,728,000 or $28,400 per household
- Option B would result in a total mitigation cost of approximately $5,202,400 or $54,190 per household
- Option C would result in a total mitigation cost of approximately $5,585,950 or $58,190 per household

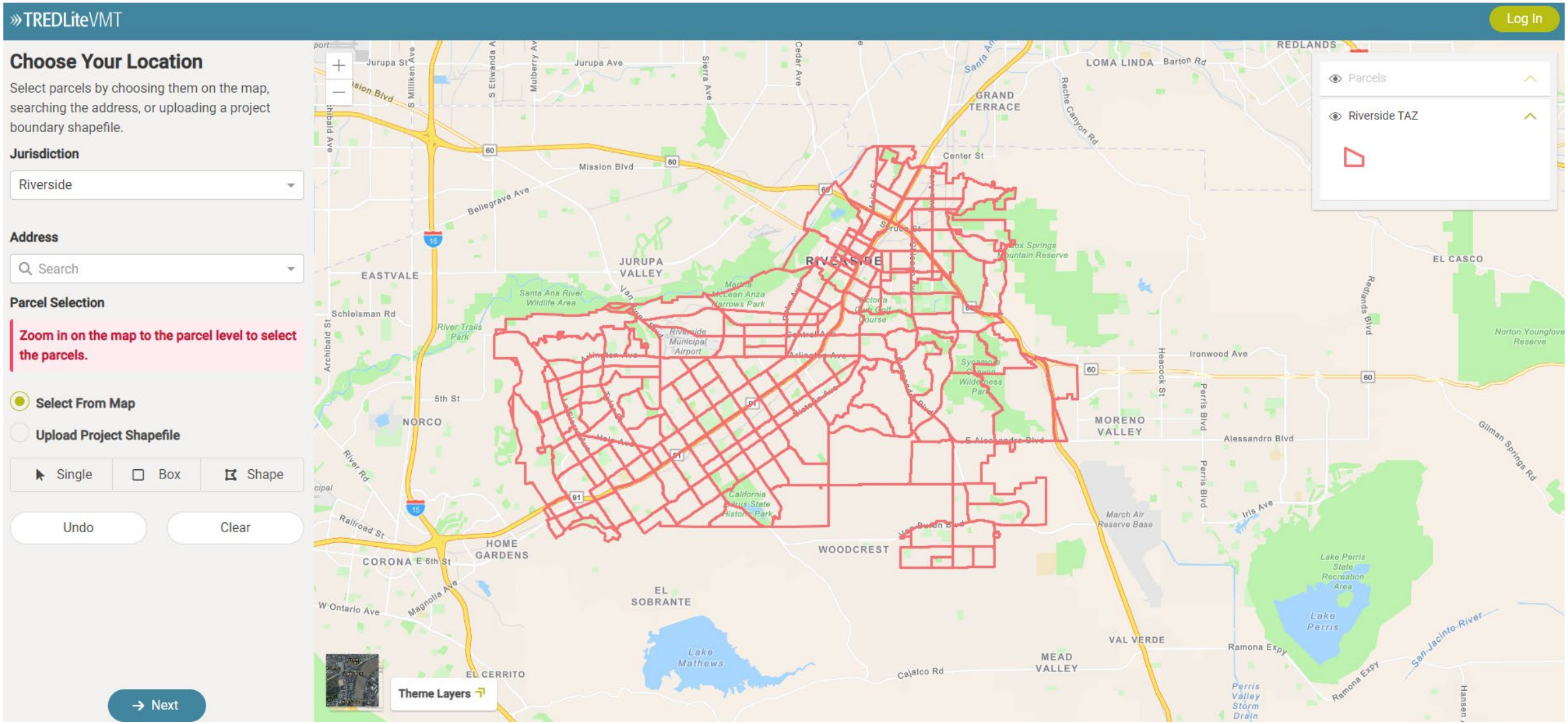
Case Study Example 2

- Kaiser Permanente Regional Hospital Project
  - *Expand existing facility by approximately 296,000 square-feet*
- VMT analysis required 9,316 VMT to mitigate
- Option A would **not** provide enough VMT to fully mitigate the impact, but Option B and Option C **do** provide enough VMT to fully mitigate
- Option B would result in a total mitigation cost of approximately $15,669,500 or $52.94 per square-foot
- Option C would result in a total mitigation cost of approximately $16,824,700 or $56.84 per square-foot

Case Study Findings

- A mitigation bank may not make all projects financially feasible for mitigation
- Reducing the cost of VMT mitigation can make more projects financially feasible
  - *Selecting mitigation measures that provide effective VMT reduction at a lower cost*
  - *Using the VMT bank to cover funding gaps, where other funding sources reduce overall costs*

TREDLite VMT Demo



Mitigation Timing Considerations

- Agencies need to be diligent in managing VMT mitigation timing
- Bank arrangements that receive pooled funds from multiple projects should account for the delay between payment and the deployment of funds
- Agencies must ensure that the timing of the implementation of mitigation measures aligns closely with the development impact to maintain the essential nexus and proportionality

Findings and Remaining Steps

Findings

- ***VMT Banking*** *would be the most appropriate initial program*
- *Three program options with different mixes of mitigation measures were developed*
- *Option A with only bike improvements and the lowest $/VMT is recommended*
- *Methods for evaluating VMT mitigation for various mitigation measures have been established*

• Remaining Steps

- *Committee Presentations*
- *Council Presentations and Adoption*

Questions?

Riverside VMT Mitigation Program

Public Meeting

December 14, 2023

Prepared for:

CITY OF RIVERSIDE

Prepared by:

Kimley»Horn

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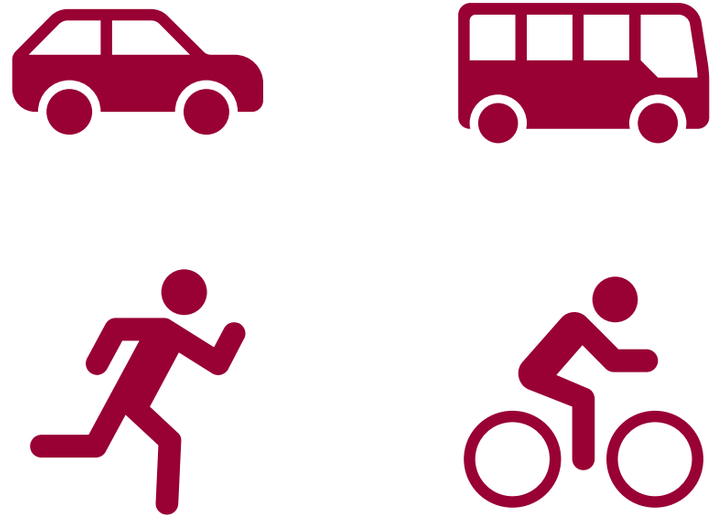
Agenda

- Introductions
- Study/Meeting Purpose
- Background
- Work Plan/Work Completed to Date
- Vehicle Miles Traveled (VMT) Impact Mitigation Procedure
- How VMT Mitigation Works (If There's an Impact)
- Program Analysis
- Potential Project Solutions
- Project Funding Process
- Findings and Next Steps
- Questions



Study Purpose

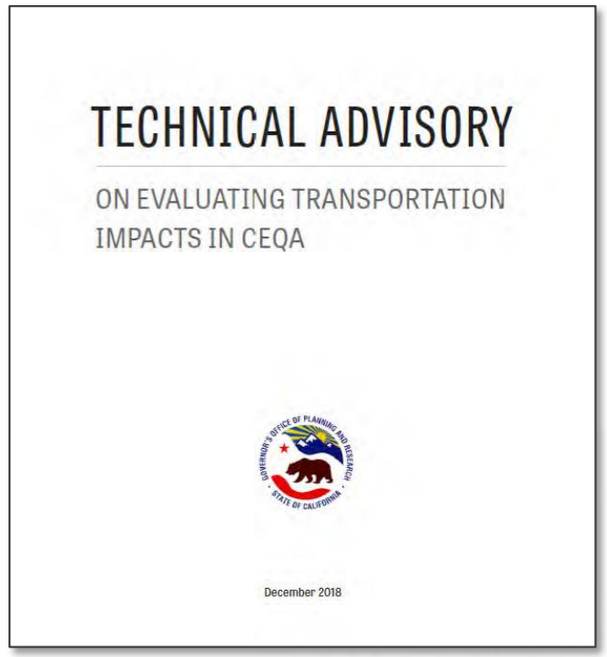
- Compliance for State Requirements for Transportation Impacts
- Introduction to VMT
- Projects have Vehicle Miles Traveled (VMT) impacts without solutions
- Project Website: https://www.riversidevmt.com/

Meeting Purpose/Goals & Objectives

- Obtain community input through public outreach
- Help determine what we are going to improve
  - *Types of projects and locations of projects to reduce travel*

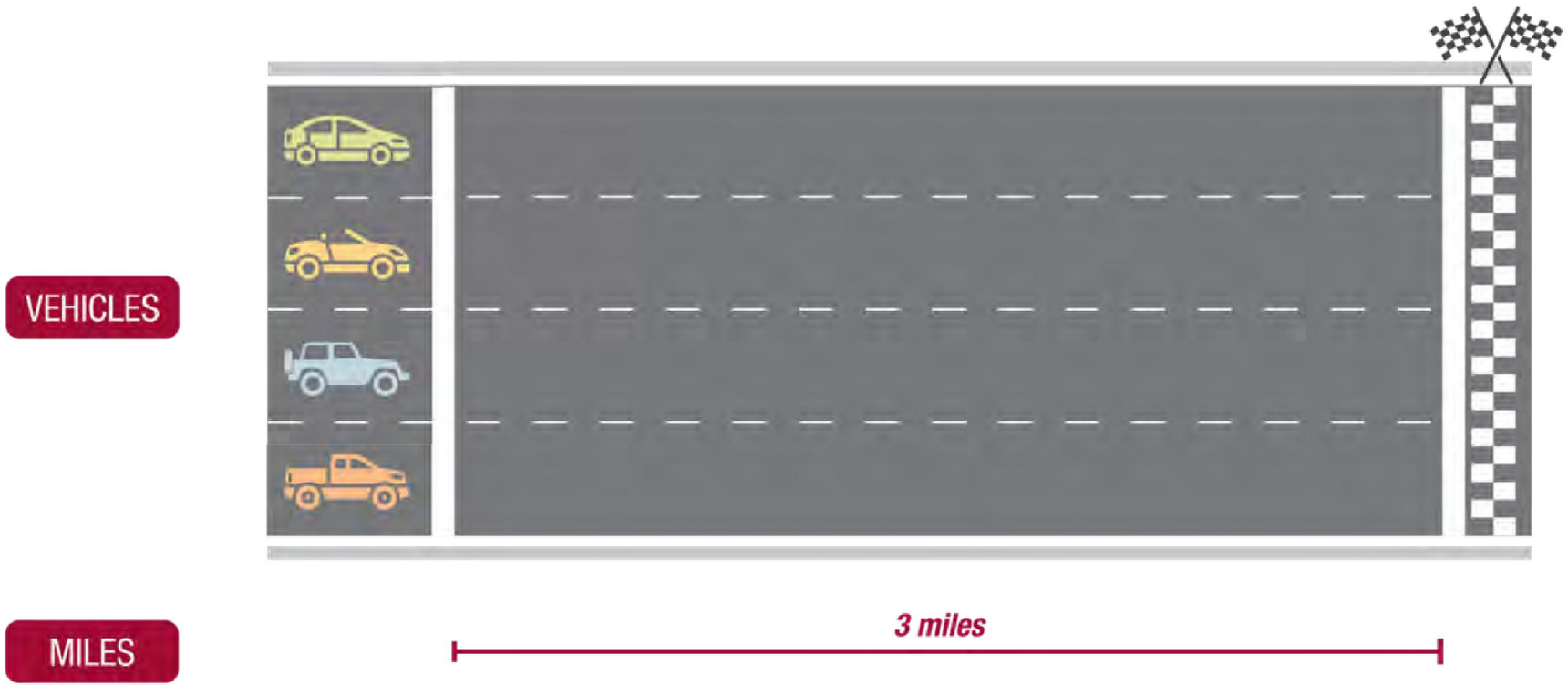
Senate Bill (SB) 743 Overview and Background

- State mandate for <u>all local jurisdictions in California</u>
- SB 743 is California Environmental Quality Act (CEQA) Specific
- Sustainability and Greenhouse Gases (GHG) reduction by
  - *Denser infill development*
  - *Reducing single occupancy vehicles*
  - *Improved mass transit*
- Basis for a "transportation significant impact" determination
- Lead agencies had until July 1, 2020
- VMT is the principal metric



Introduction to Vehicle Miles Traveled (VMT)

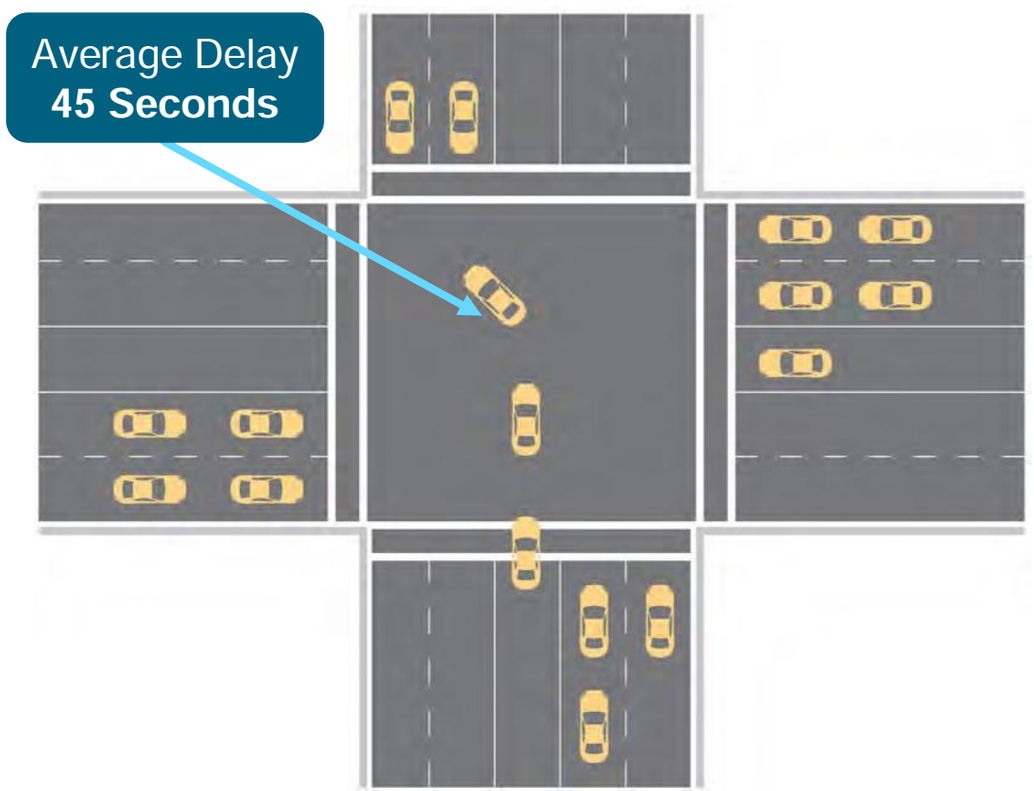
- What is VMT?



Background

Level of Service (LOS)

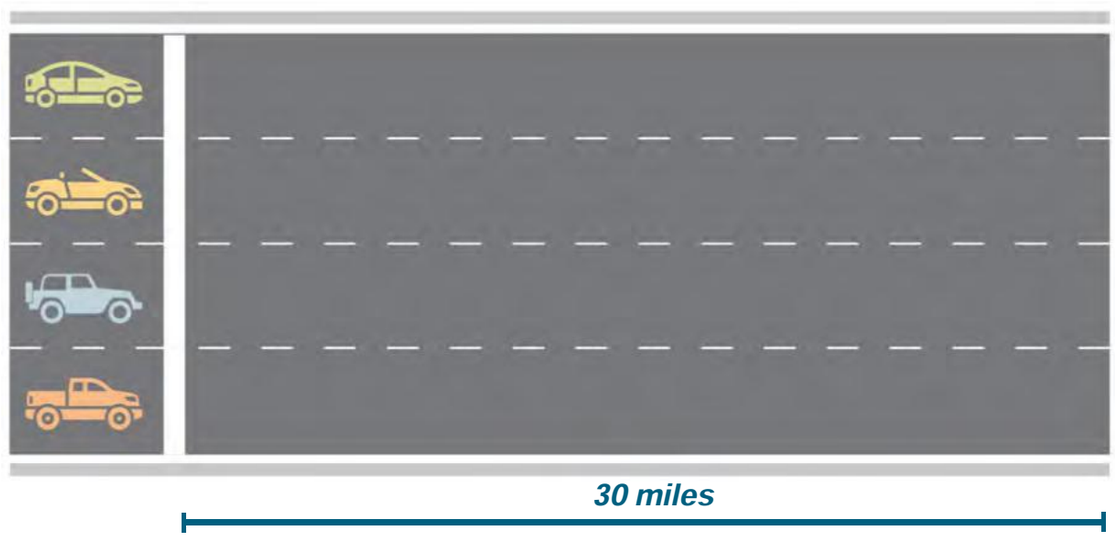
Impact to the Driver



LOS A B C **D** E F

Vehicle Miles Traveled (VMT)

Diver's Impact to Transportation System

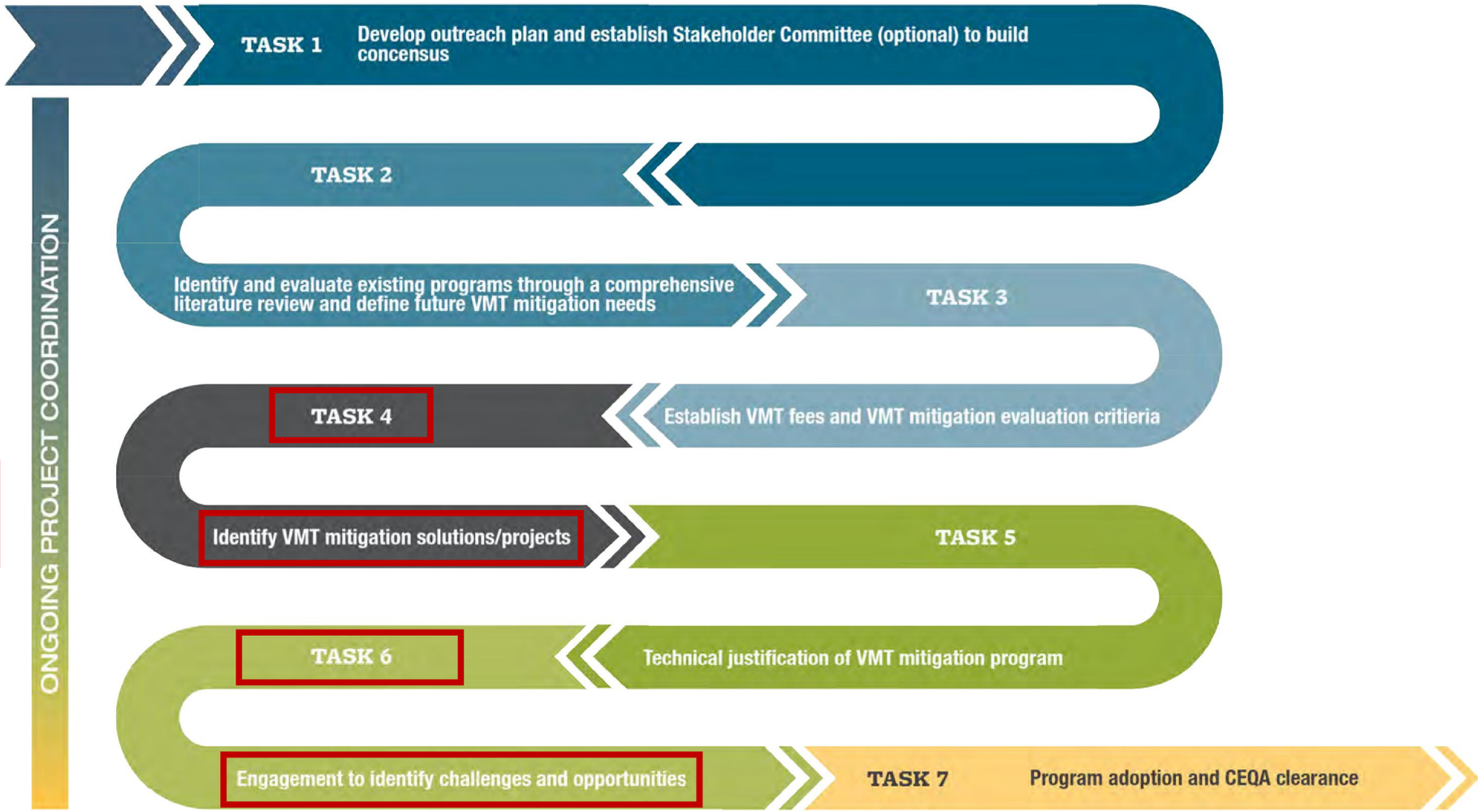


4 vehicles travel 30 miles
or simply
4x30 = 120 VMT

Work Plan

Legend:

Project Status as of December 2023



Work Completed to Date

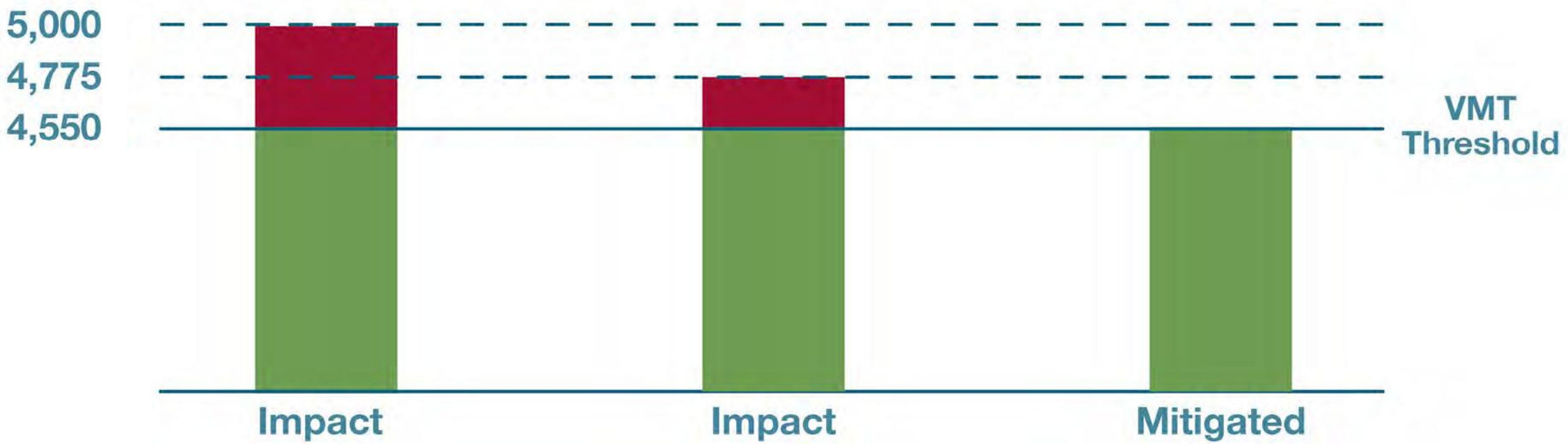
- 4 Stakeholder Meetings Held
- Individual Meetings with WRCOG, Riverside County, RTA, and UCR
- Project Survey (see QR Code to provide input!)
- Project Website: https://www.riversidevmt.com/

Survey QR Code:

VMT Impact Mitigation Procedure

- City Mitigation Program only required if a project has a VMT impact
  - *If screened out or no impact, do not need to be involved in program*
- Projects incorporate Travel Demand Management (TDM) mitigations **first**
  - *If project can mitigate impact using TDMs, do not need to be involved in program*
- If project still requires additional mitigation, then can purchase VMT from program
- Of All Project Development Applications Received, ninety percent (90%) are exempt from a VMT analysis

How VMT Mitigation Works (If There's an Impact)



Note: Numbers Used are Provided as an Example

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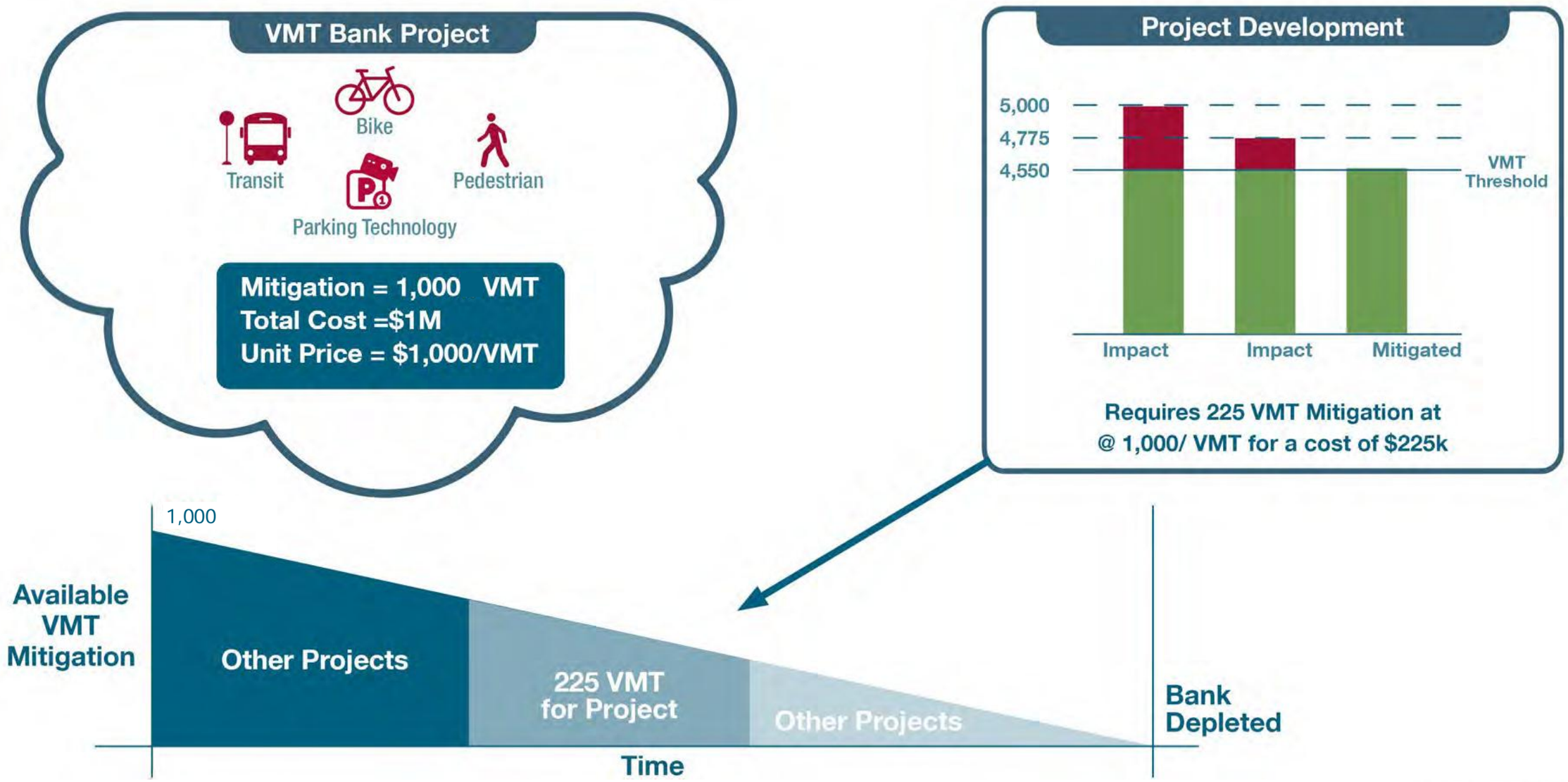
How a VMT Bank Works



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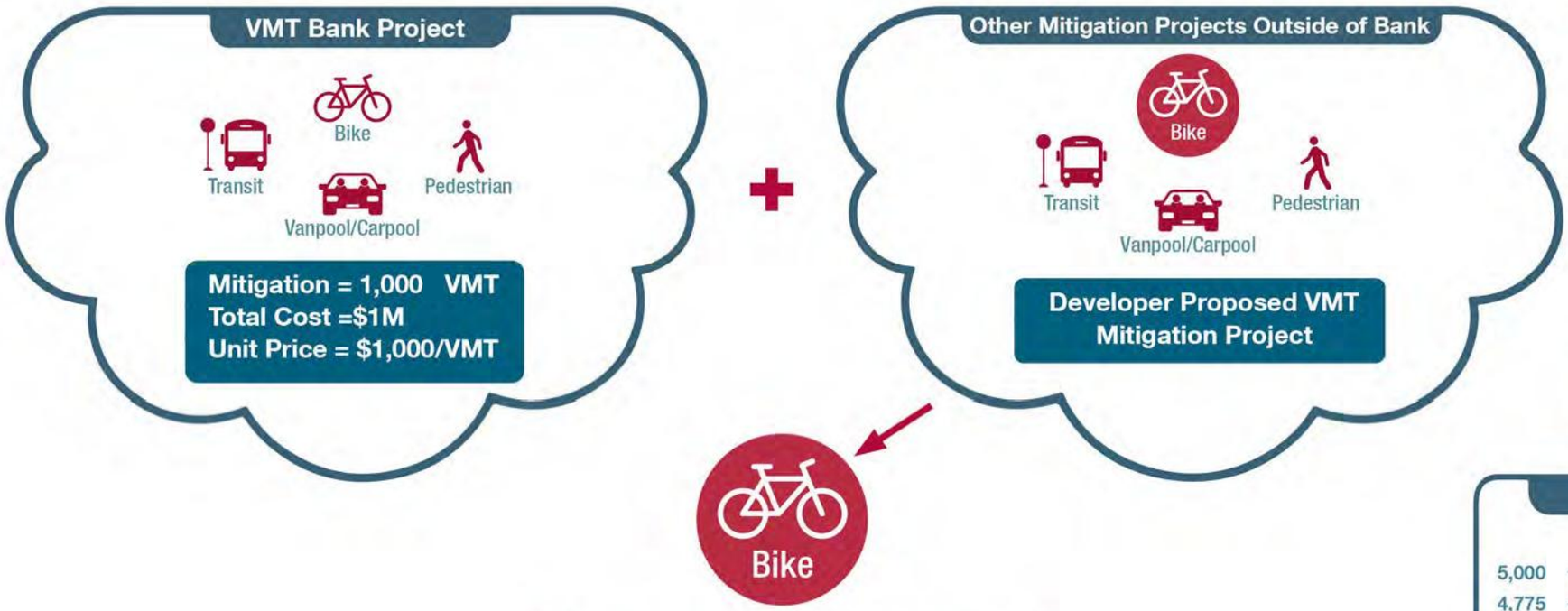
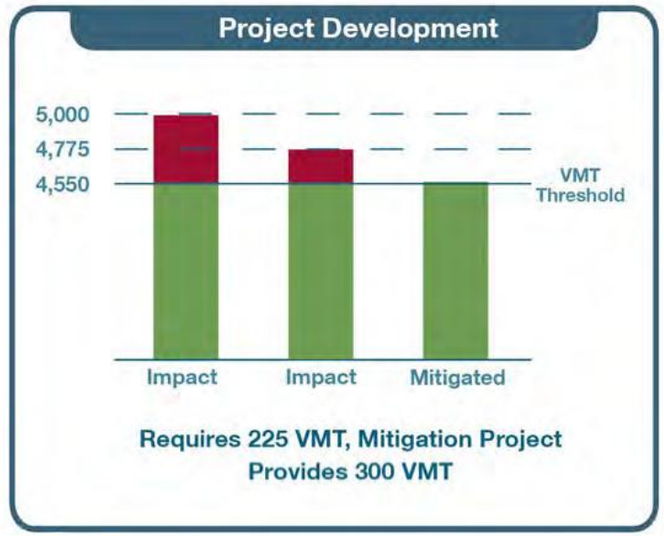
How a VMT Exchange Works



1. A VMT Bank is not required for an exchange but it can optionally provide projects for selection by a VMT Exchange.
2. An applicant can construct at own expense and therefor the price is not necessarily predetermined, however the VMT reduction must be determined.
3. An applicant does not have to monetize or sell excess mitigation VMT unless desired.



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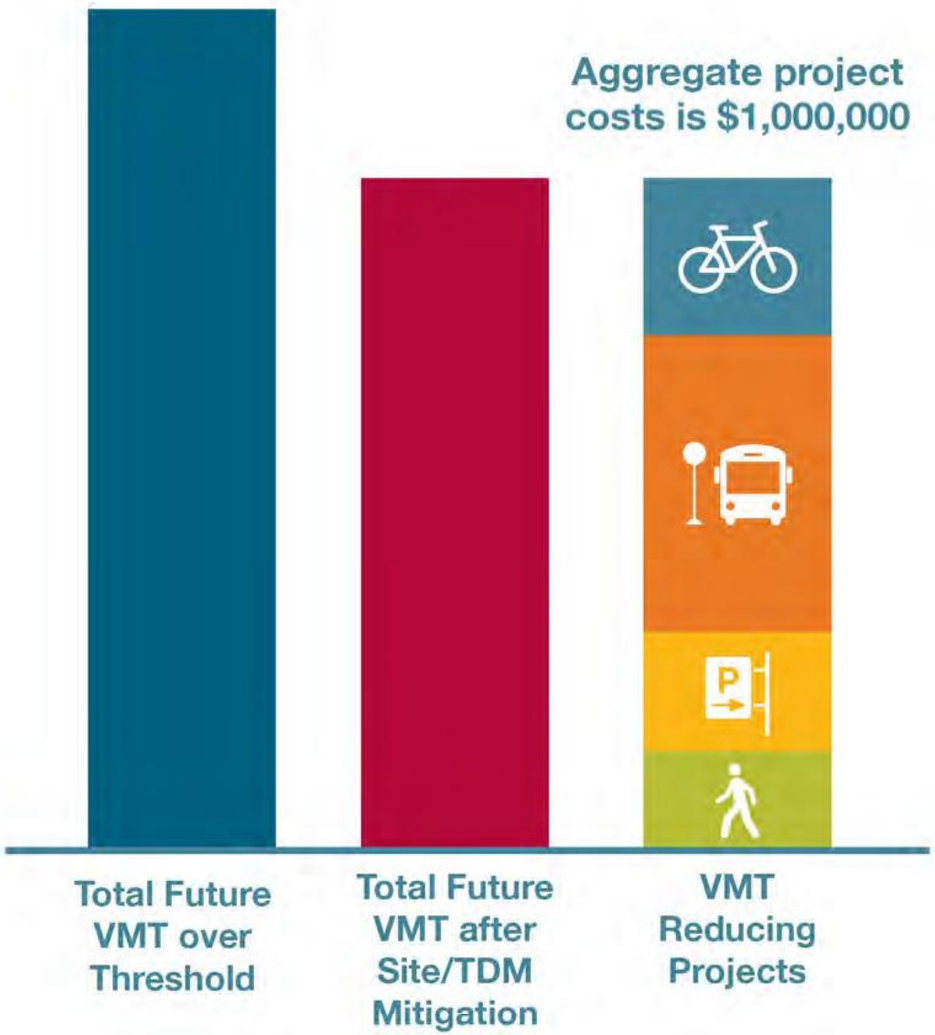
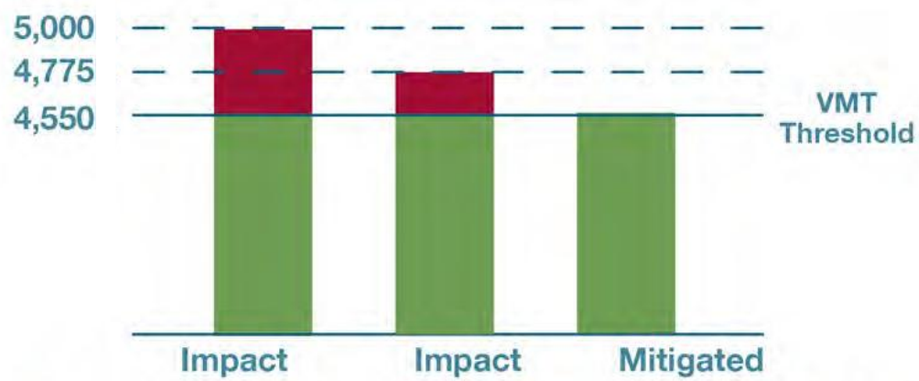
How a VMT Impact Fee Works





Requires $2,000 payment/house for a total cost of $200k.

VMT Impact Fee Schedule

Land Use Type	Amount	Units	Fee/Unit	Total
Residential	250	Houses	$2,000	$500,000
Industrial	2,500,000	S.F.	$0.10	$250,000
Office	1,000,000	S.F.	$0.13	$125,000
Regional Commercial	250,000	S.F.	$0.20	$125,000
			Total	$1,000,000

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Program Analysis

	VMT Bank	VMT Exchange	VMT Bank with Exchange	VMT Impact Fee
Legal	●	●	●	●
Effective	●	●	●	●
Geography	●	●	●	●
Administration	●	●	●	●
Equitable	●	●	●	●
Alignment	●	●	●	●

● Feasible ● Concern

Potential Project Solutions

Example Projects		Cost	VMT Reduction	Return on Investment (ROI)
	Pedestrian	Medium	Low	–
	Bike	Medium	Medium	+
	Transit	High	Medium/High	+/–
	Road Diet	Low/Medium	Low/Medium	+/–
	ITS/TSM	Medium	Low	–
	Mobility Hub	Medium	High	+
	Affordable Housing	High	Medium	–
	Vanpool/Carpool	Low	Medium	+
	Park-and-Ride	Low/Medium	Low/Medium	+/–

Potential Project Solutions

- 10 Riverside PACT bike/ped projects analyzed
- 14 transit operations projects screened using Big Data
- 3 Travel Demand Management (TDM) Projects from SCAG Program
  - *Carpool*
  - *Telecommute: Work-from-Home (WFH) every day vs. WFH 1 day a week*
  - *Free Transit Pass*

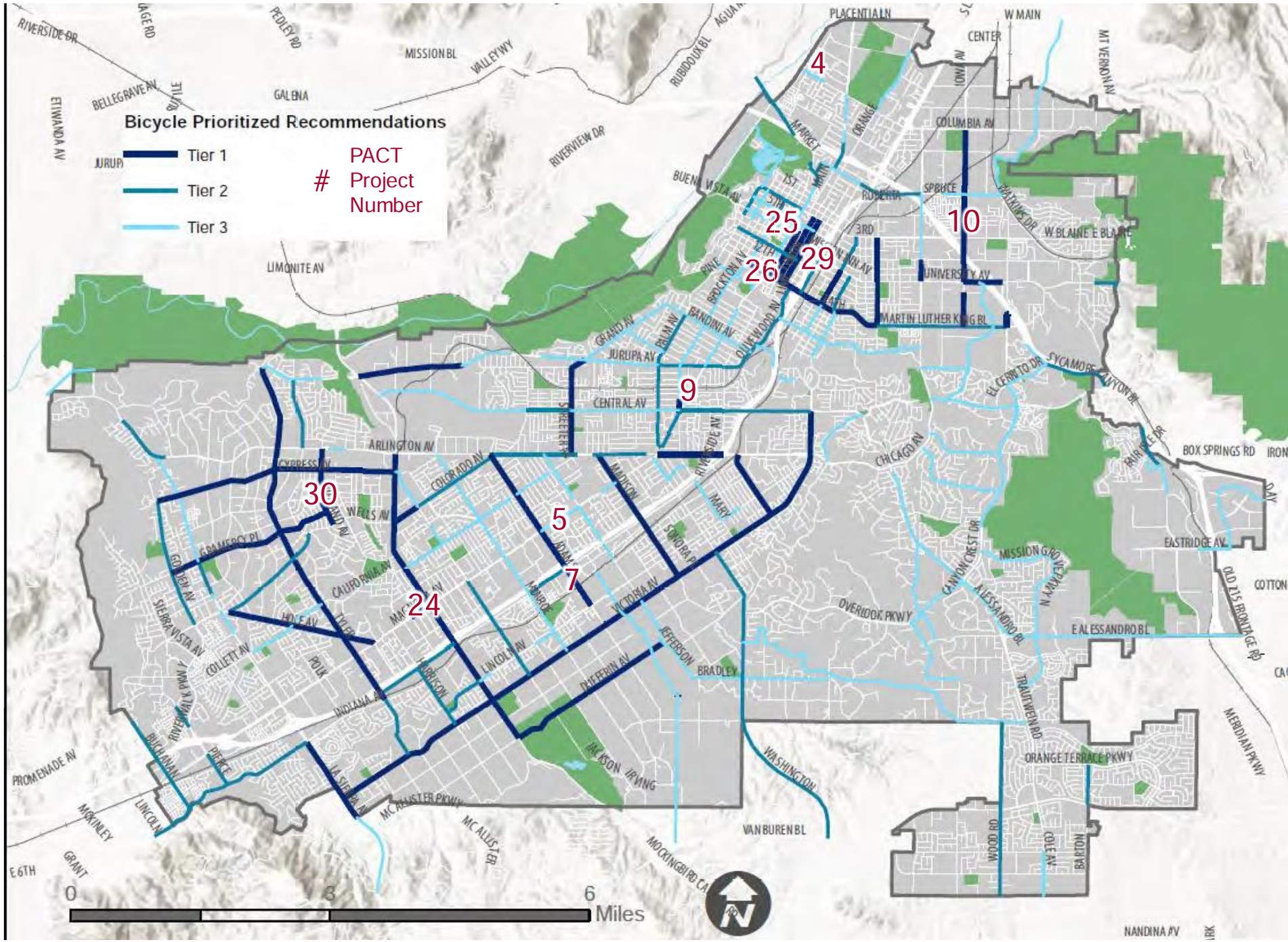
Bike Project Analysis Results

Project Name	PACT* Project Number	Distance (mi)	Cost*	VMT Reduction	Cost/VMT
Columbia Avenue Bike Improvements	4	0.27	$75,000	90	$830
Magnolia Avenue Bike Improvements	5	9.34	$453,000	6,150	$74
Adams St Bike Improvements	7	1.56	$602,837	565	$1,067
Brockton Ave Bike Improvements	9	0.17	$62,605	593	$106
Chicago Av Bike Improvements	10	0.75	$290,250	292	$994
Magnolia Ave Bike Improvements	24	0.42	$14,747	169	$87
Main St Bike Improvements 1	25	0.31	$120,930	121	$1,001
Main St Bike Improvements 2	26	0.08	$30,555	391	$78
Orange St Bike Improvements	29	0.84	$29,187	733	$40
Rutland Ave Bike Improvements	30	0.92	$121,680	1,058	$115

*The City of Riverside PACT consists of a Pedestrian Target Safeguarding Plan (P), an Active Transportation Plan (A), a Complete Streets Ordinance (C), and a Trails Master Plan (T)

**Project cost is obtained from Riverside PACT Section 4 (Active Transportation Plan)

Bike Project Map

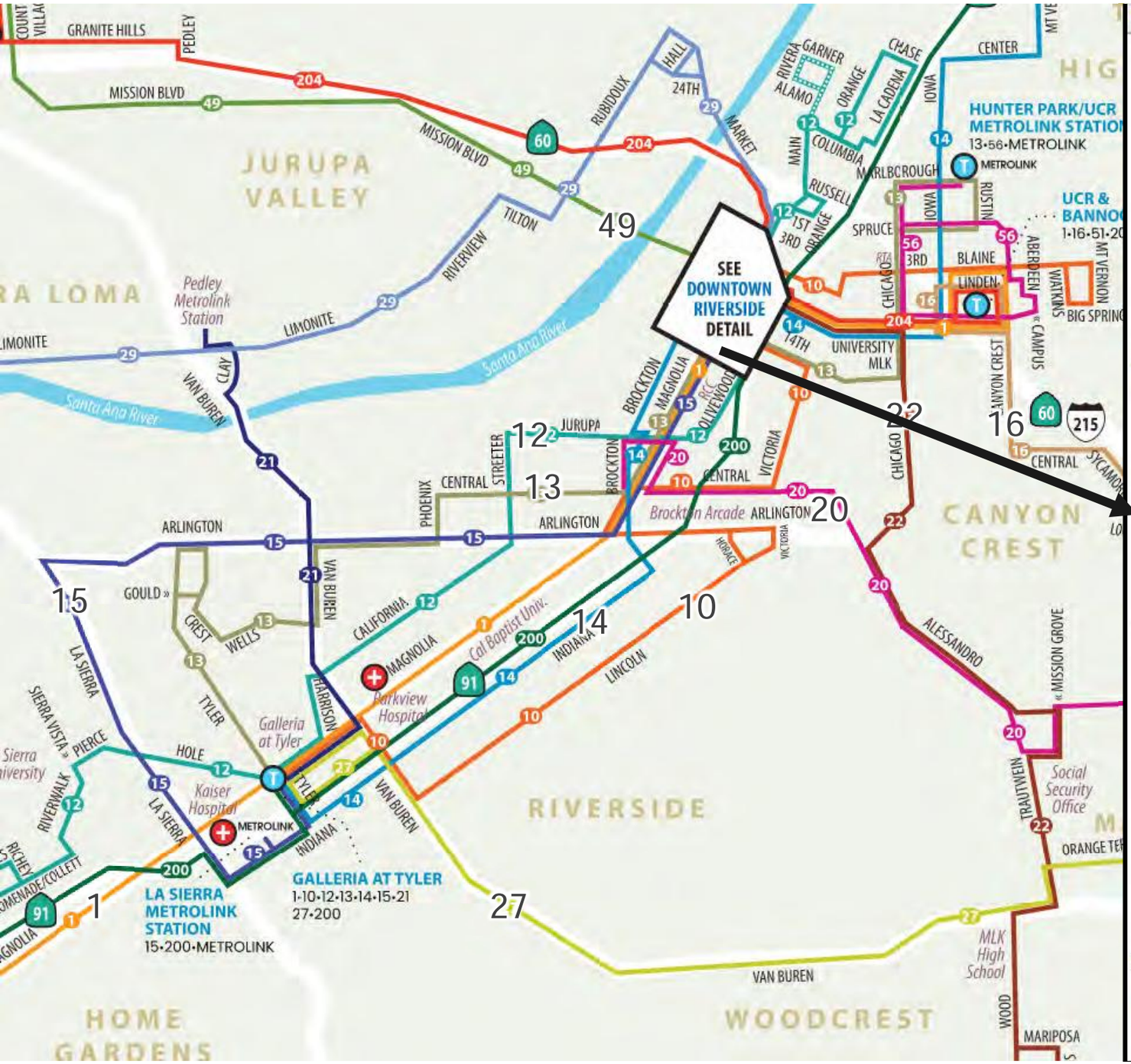


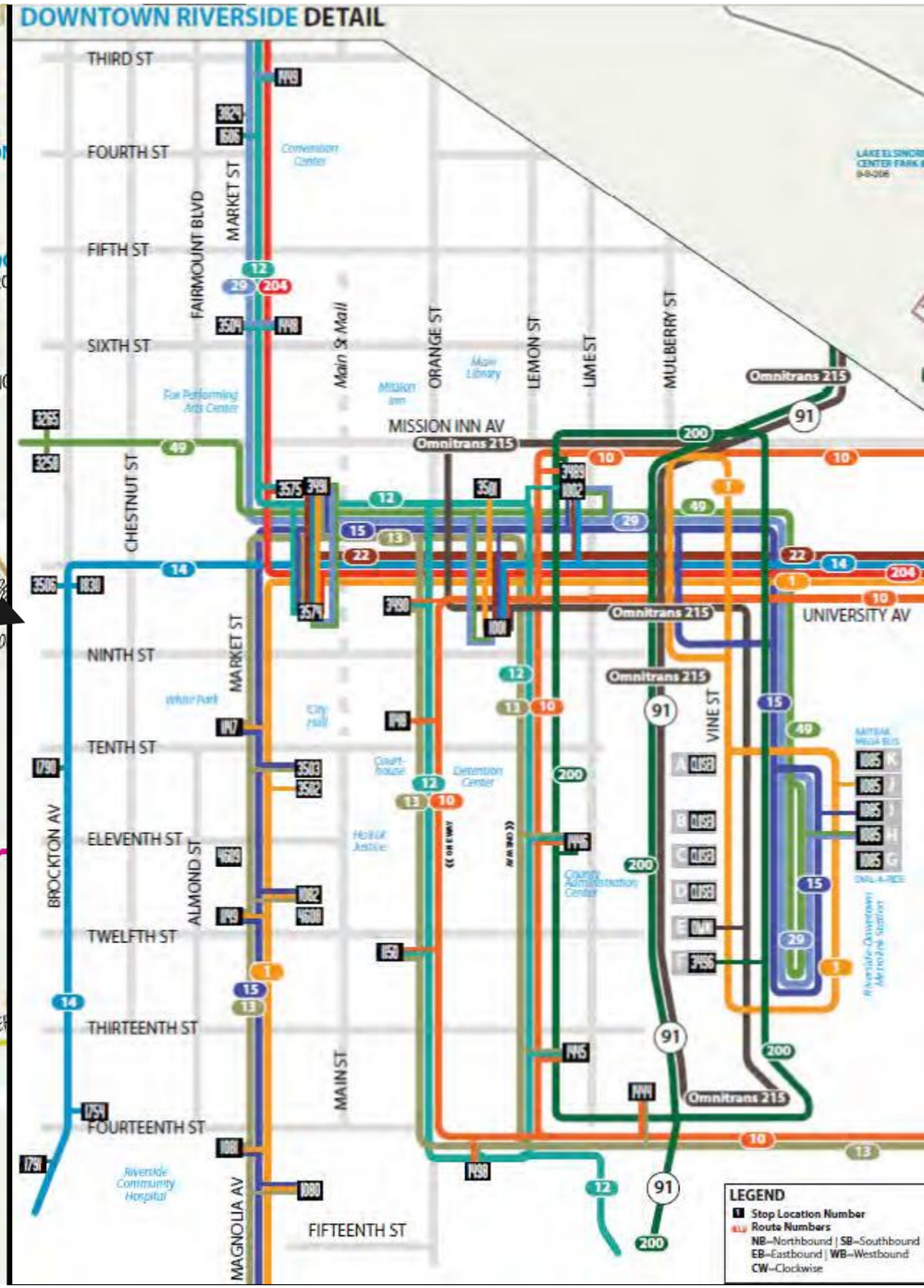
Source:
Riverside Active Transportation Plan, Figure 4-30

Transit Project Analysis Results

Route	Route Name	Existing Ridership	Existing Headway	Proposed Headway	Projected Ridership	Increase in Ridership	VMT Reduced	$/VMT Reduced
1	W. Corona-UC Riverside	3707	15	Headway already less than 30 minutes				
3	Eastvale, Norco, Corona Transit Center	113	75	45	188	75	791	$4,425
10	Riverside/Watkins-Galleria	309	60	30	556	247	2,596	$1,348
12	Corona Hills Plaza/Riverside/La Cadena-Merced	427	60	30	769	342	3,587	$976
13	Hunter Park Metro-Galleria	353	60	30	635	282	2,965	$1,180
14	Galleria-Loma Linda VA	423	60	30	761	338	3,553	$985
15	Riverside/Downtown-Merced	214	45	30	342	128	1,348	$2,596
16	UCR-Moreno Valley	890	15	Headway already less than 30 minutes				
19	Mo Val Mall-Perris Station	413	15	Headway already less than 30 minutes				
20	Mo Val College-Riverside	405	60	30	729	324	3,402	$1,029
22	Riverside - Perris	620	60	30	1,116	496	5,208	$672
27	Galleria-Perris	144	60	30	259	115	1,210	$2,894
49	Riverside-Country Village	462	60	30	832	370	3,881	$902
51	UCR-Canyon Crest Towne Centre	63	40	30	97	34	353	$9,921

Note: Route information obtained from Riverside Transit Agency (RTA), https://www.riversidetransit.com/index.php/route-info


GRANITE HILLS
PEDLEY
MISSION BLVD
JURUPA VALLEY
RUBIDOUX
HALL
24TH
MARKET
RIVERA
ALAMO
GARNER
ORANGE
CHASE
LA CADENA
CENTER
IOWA
MAIN
COLUMBIA
MARLBOROUGH
HUNTER PARK/UCR METROLINK STATION
13•56•METROLINK
METROLINK
RUSSELL
1ST
3RD
ORANGE
SPRUCE
RUSTIN
UCR & BANNO
1•16•51•20
ABERDEEN
WATKINS
MT VERNON
BIG SPRING
CAMPUS
CANYON CREST
TILTON
RIVERVIEW
49
SEE DOWNTOWN RIVERSIDE DETAIL
Pedley Metrolink Station
LIMONITE
Santa Ana River
CLAY
VAN BUREN
BROCKTON
MAGNOLIA
RIC OLIVEWOOD
14TH
UNIVERSITY MLK
JURUPA
CHICAGO
22
16
60
215
CENTRAL
SYCAMORE
12
13
20
PHOENIX
STREETER
VICTORIA
Brockton Arcade
ARLINGTON
HOBART
15
21
GOULD
CREST
WELLS
CALIFORNIA
Cal Baptist Univ.
INDIANA
LINCOLN
ALESSANDRO
MISSION GROVE
TYLER
HARRISON
Galleria at Tyler
Parkview Hospital
Kaiser Hospital
METROLINK
HOLE
PIERCE
SIERRA VISTA
LA SIERRA
RIVERWALK
RICHEY
PROMENADE/COLLETT
GALLERIA AT TYLER
1•10•12•13•14•15•21
27•200
LA SIERRA METROLINK STATION
15•200•METROLINK
1
27
TRAUTWEIN
Social Security Office
ORANGE TER
MLK High School
WOOD
MARIPOSA
VAN BUREN
RIVERSIDE
WOODCREST
HOME GARDENS


DOWNTOWN RIVERSIDE DETAIL
THIRD ST
FOURTH ST
FIFTH ST
SIXTH ST
NINTH ST
TENTH ST
ELEVENTH ST
TWELFTH ST
THIRTEENTH ST
FOURTEENTH ST
FIFTEENTH ST
FAIRMOUNT BLVD
MARKET ST
Main St Mall
ORANGE ST
LEMON ST
LIME ST
MULBERRY ST
MISSION INN AV
CHESTNUT ST
UNIVERSITY AV
VINE ST
MAIN ST
BROCKTON AV
ALMOND ST
MAGNOLIA AV
Omnitrans 215
91
200
Riverside Community Hospital
LEGEND
Stop Location Number
Route Numbers
NB=Northbound | SB=Southbound
EB=Eastbound | WB=Westbound
CW=Clockwise

Potential Project Solutions: 20-Year Cost Summary

Project	Distance	Description	Cost (20-years)*	Cost/VMT
Carpool Program	--	Provide financial incentive for carpools	$145,096	$2,418
Bike Project 1	0.27	Columbia Avenue Bike Improvements	$75,000	$830
Bike Project 2	9.34	Magnolia Avenue Bike Improvements	$453,000	$74
Bike Project 3	1.56	Adams St Bike Improvements	$602,837	$1,067
Bike Project 4	0.17	Brockton Ave Bike Improvements	$62,605	$106
Bike Project 5	0.75	Chicago Av Bike Improvements	$290,250	$994
Bike Project 6	0.42	Magnolia Ave Bike Improvements	$14,747	$87
Bike Project 7	0.31	Main St Bike Improvements 1	$120,930	$1,001
Bike Project 8	0.08	Main St Bike Improvements 2	$30,555	$78
Bike Project 9	0.84	Orange St Bike Improvements	$29,187	$40
Bike Project 10	0.92	Rutland Ave Bike Improvements	$121,680	$115
Free Transit Pass	--	Provide Free Bus Trips for Specific Population	$9,955,400	$4,231
Route 56*	12.56	Reduce Headway from 45 min to 30 min	$3,500,000	$6,551
Route 22*	39.54	Reduce Headway from 60 min to 30 min	$3,500,000	$672
WFH Program	--	Work with Employers to Increase City WFH by 0.5%	$4,600,000	$75
Commute Reduction	--	Increase City WFH by 0.5% 1 Day per Week	$4,600,000	$373

*Project costs are estimated
**Not shown, but a pedestrian cost per VMT would be > $10,000/VMT

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Project Funding Process

1. Development Identifies Cost to Mitigate
2. Agency Receives Payment from Applicant
3. Agency Allocates Funds to Construct Projects in Program

Findings and Next Steps

- Program is feasible
- VMT Banking would be the most appropriate initial program
- Study established methods for evaluating VMT mitigation
- **Next Steps**
  - *Select specific VMT projects*
  - *Finalize administration format*
  - *Define pilot and/or implement program*
- Project Timeline: Estimated to be completed by May 2024
  - *Program will be presented at Boards & Committees and then adopted by City Council by later half of 2024*

Questions

Appendix D: Riverside TREDLite VMT Quick Guide

»TREDLiteVMT

QUICK START GUIDE

TREDLite VMT Riverside

A Kimley-Horn Sustainable Transportation Solution

This help file describes the main concepts, vocabulary, and application functionality.

Note that the data used to develop TREDLite VMT Riverside is based on the current version of WRCOG's travel demand model, RIVCOM, as of October 17, 2024. The VMT analysis results obtained from the use of this tool may differ from WRCOG's VMT Analysis Tool.

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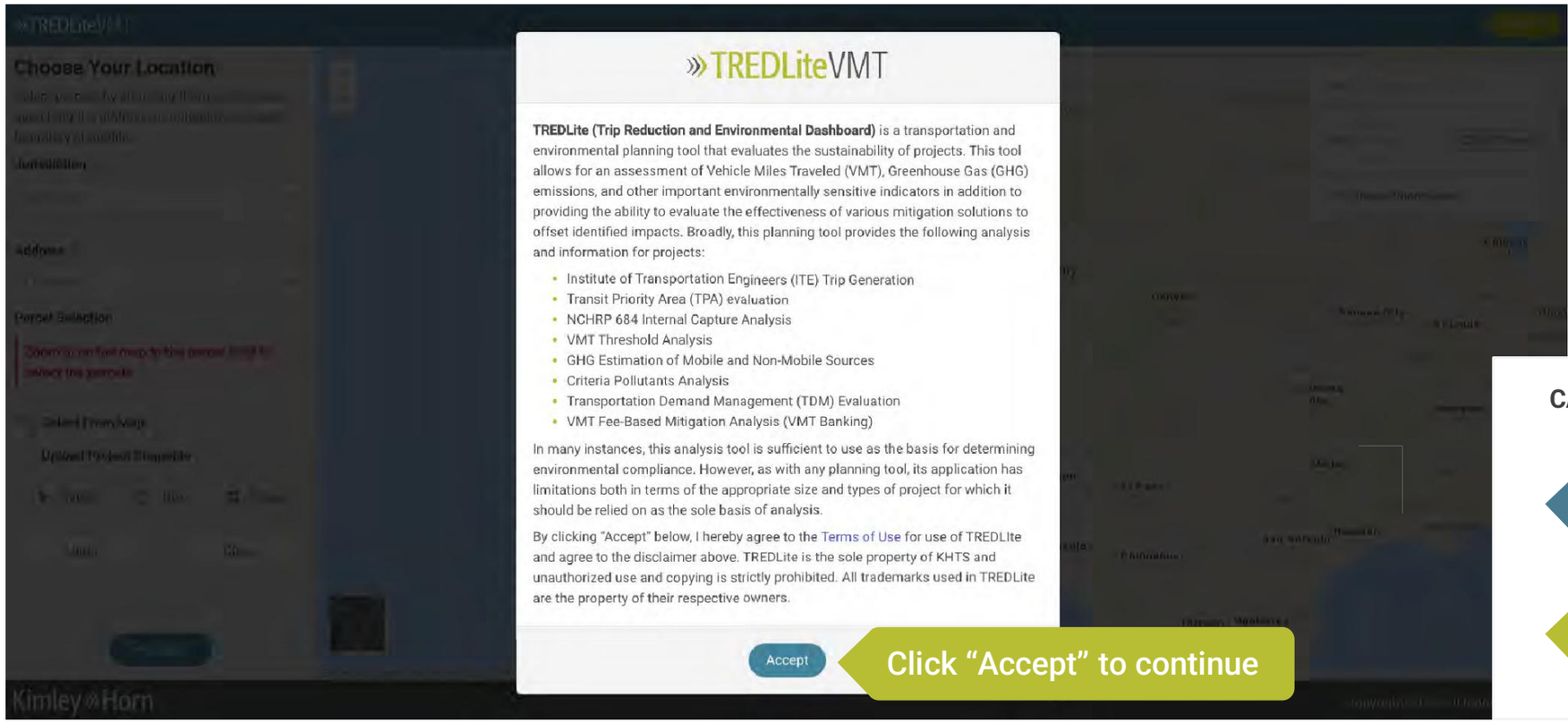
Getting Started

TREDLite (windows.net)

Click this link to launch the demo site from your browser



CALLOUT KEY

Callouts in **blue** highlight key instructions or considerations

Callouts in **green** provide general guidance or instructions

Few things to note:

- TREDLite relies on travel demand model data from that has been processed by Kimley-Horn
- Thresholds are based on OPR guidance and are established for each jurisdiction separately (Unincorporated County and Cities)
- Sometimes there are “blanks” in the data given that there is no existing data for a land use (something we can address in a full implementation)

TREDLiteVMT

Log In

Choose Your Location

Select parcels by choosing them on the map, searching the address, or uploading a project boundary shapefile.

Jurisdiction

Riverside

Address

Search

Parcel Selection

Zoom in on the map to the parcel level to select the parcels.

Select From Map

Upload Project Shapefile

Single | Box | Shape

Undo | Clear

Click "Next" to proceed.

→ Next

Select Jurisdiction and map will zoom to that area

Option to either enter project address or select parcel using the toggle below

Note: you must zoom in *(use mouse scroll wheel)* to display the parcel layer to see and select an individual parcel

Click "Single" to pick a specific parcel

Activate colored/hatched theme maps, showing VMT/Capita or VMT/Employee based on thresholds established for the jurisdiction and/or the location of disadvantaged communities.

Theme Layers

Parcels

Riverside TAZ

Esri Community Maps Contributors, City of Riverside, County of Riverside, County of San Bernardino, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, Powered by Esri

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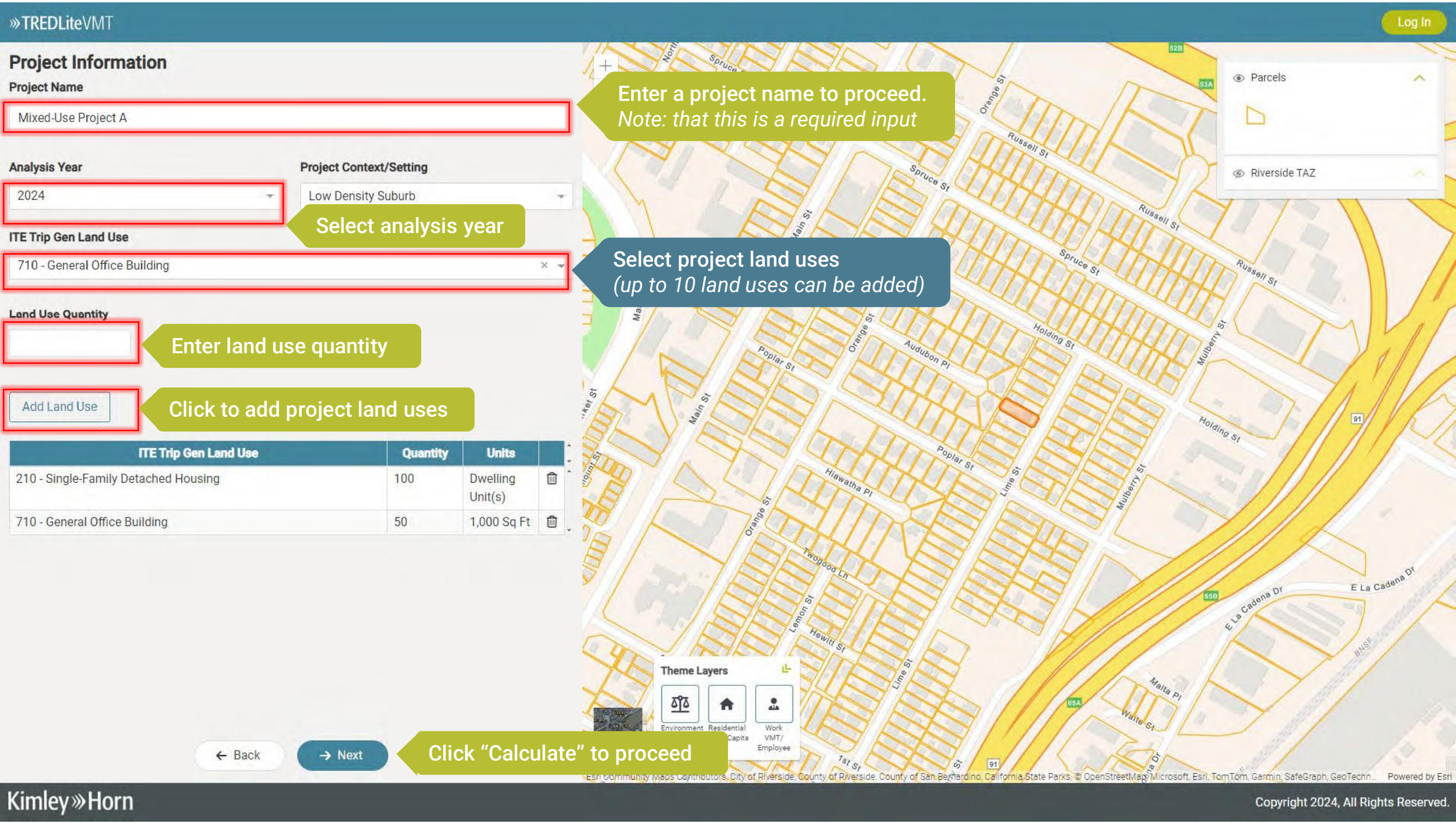
TREDLiteVMT
Log In
Project Information
Project Name
Mixed-Use Project A
Enter a project name to proceed.
Note: that this is a required input
Analysis Year
2024
Select analysis year
Project Context/Setting
Low Density Suburb
ITE Trip Gen Land Use
710 - General Office Building
Select project land uses
(up to 10 land uses can be added)
Land Use Quantity
Enter land use quantity
Add Land Use
Click to add project land uses
ITE Trip Gen Land Use | Quantity | Units
210 - Single-Family Detached Housing | 100 | Dwelling Unit(s)
710 - General Office Building | 50 | 1,000 Sq Ft
Parcels
Riverside TAZ
Theme Layers
Environment
Residential
Work VMT/ Employee
Back
Next
Click "Calculate" to proceed
Esri Community Maps Contributors, City of Riverside, County of Riverside, County of San Bernardino, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechn...
Powered by Esri
Kimley»Horn
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TRED Lite VMT

Log In

Internal Capture

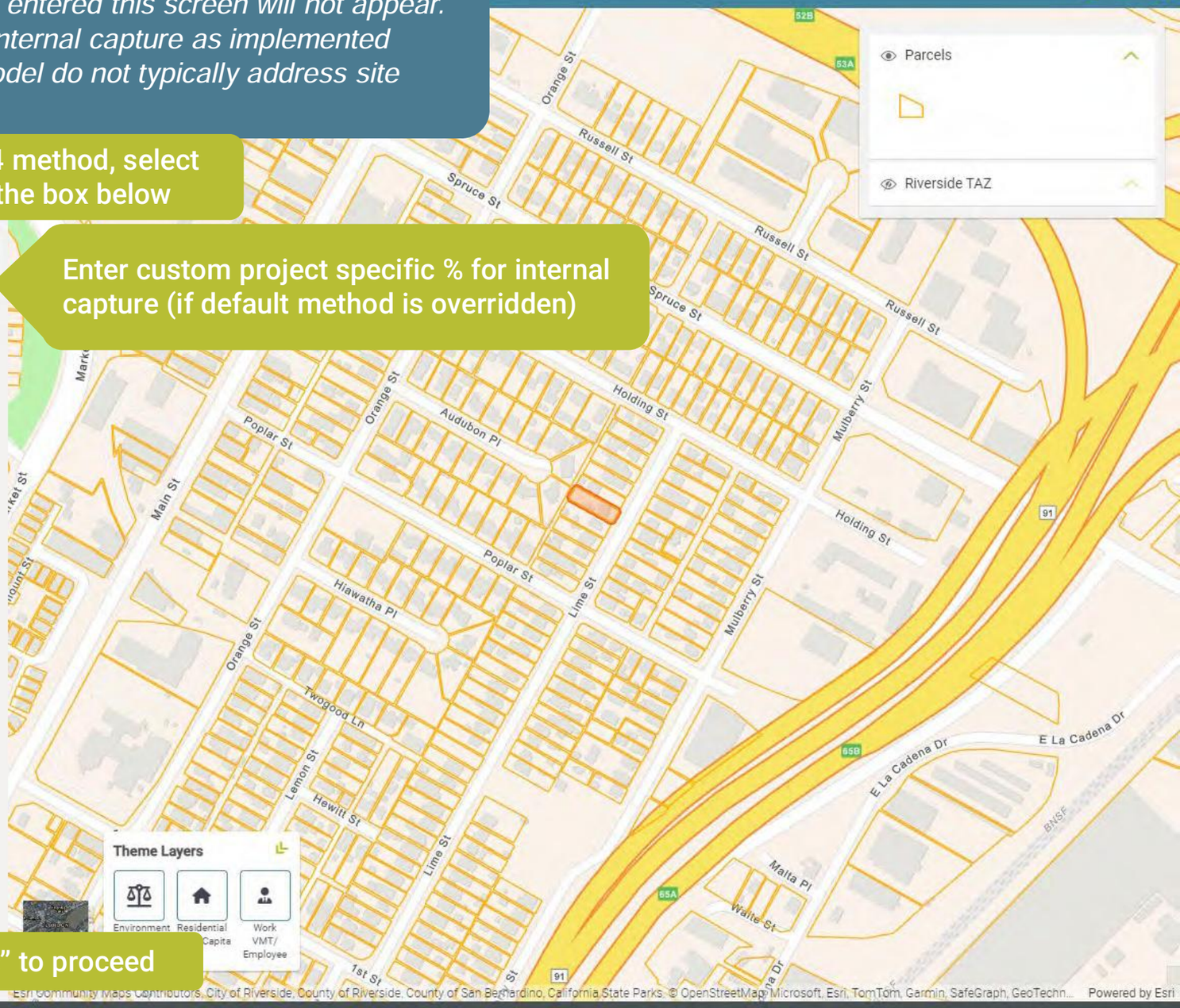
Note: that if only a single land use is entered this screen will not appear. This module allows for analysis of internal capture as implemented by NCHRP 684 (Travel Demand Model do not typically address site specific internal capture effects).

- (•) NCHRP 684
- ( ) Custom

If desired to override the default NCHRP 684 method, select "Custom" to enter Internal Capture Rates in the box below

210 - Single-Family Detached Housing	944	19	2.01
710 - General Office Building	487	19	3.90

Enter custom project specific % for internal capture (if default method is overridden)



← Back

→ Calculate

Click "Calculate" to proceed

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Analysis

Project Name: Mixed-Use Project A

Location: Riverside

Analysis Year: 2024

Project Land Use & Intensities:

Land Use	Quantity	Units	Per Capita/Employee VMT	Mitigation			
210	100	Dwelling Unit(s)	16.3	16.3	5,521.4	13.8	Yes
710	50	1,000 Sq Ft	42.5	42.5	6,308.9	27.1	Yes
				Totals	11,830.3		

Graph shows VMT result & threshold for each *individual* land use

Total Emission Estimates:

Pollutant	Mobile	Mitigation	With Mitigation	Non Mobile	Total
CO (lb/day)	39.10	0.00	39.10	88.39	127.49
ROG (lb/day)		0.00	5.43	10.95	16.39
NOX (lb/					
SOX (lb/					
PM2.5 (l					
PM10 (lb/day)	10.30	0.00	10.30	10.52	20.81
CO_2 (mt/year)	1,687.78	0.00	1,687.78	2,666.48	4,354.26

Note: Air quality is shown both in the aggregate and for individual uses and includes both mobile and non mobile sources

Project Presumptions of Less than Significant Impact

- [ ] Within a 1/2 mile of Major Transit Stop
- [ ] Less than 110 Trips per Day

This is being implemented in *a separate GIS module*

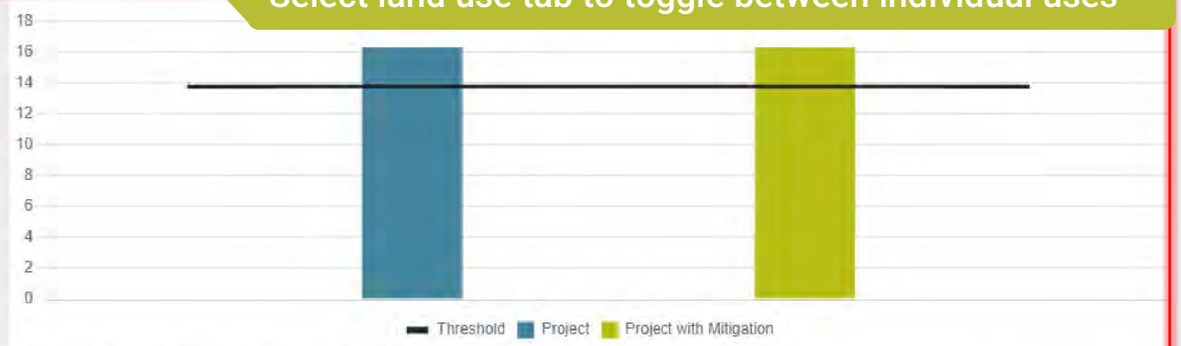
If your project result is higher than the threshold, we recommend clicking the **Mitigate VMT** button to learn and decide on ways to mitigate your transportation impact. Otherwise, click Print Results.

← Back | Print Results | → Mitigate VMT

Click "Mitigate VMT" if it is over the threshold

ITE 210 | ITE 710

Select land use tab to toggle between individual uses



Regional Average (VMT/Capita): 16.2 Threshold (15% below Average): 13.8

Metric	Project	Mitigation	With Mitigation
VMT/Capita	16.3	0.0	16.3
Daily Trips	925	0	0

Pollutant	Mobile	Mitigation	With Mitigation	Non Mobile	Total
CO (lb/day)	39.80	0.00	39.80	48.97	88.77
ROG (lb/day)	3.63	0.00	3.63	8.00	11.63
NOX (lb/day)	5.35	0.00	5.35	7.50	12.85
SOX (lb/day)	0.08	0.00	0.08	0.09	0.17
PM2.5 (lb/day)	1.91	0.00	1.91	2.12	4.03
PM10 (lb/day)	6.95	0.00	6.95	7.16	14.11
CO_2 (mt/year)	1,229.14	0.00	1,229.14	1,819.74	3,048.88

Land Use Presumptions of Less than Significant Impact

- [ ] Affordable Housing
- [ ] Local Serving Land Use

Transportation Demand Management (TDM)

VMT can only be mitigated in each group by up to the stated Group Max Reduction. The current reduction listed for each group must not exceed the max reduction for its respective group.

CAPCOA Handbook

Selected Land Use: 210 - Single-Family Detached Housing

Total Maximum Reduction: 20%

Current Reduction: 0.00%

TDM Measure	Description	Max VMT Reduction	Input	Input Definition	Reduction
Land Use Strategies - Group Max Reduction: 20%, Current Reduction: 0.00%					
Trip Reduction Programs - Group Max Reduction: 20%, Current Reduction: 0.00%					
Parking or Road Pricing / Management - Group Max Reduction: 20%, Current Reduction: 0.00%					
Provide Electric Vehicle Charging Infrastructure (T-14) Reminder: Does not reduce VMT	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, multi-family).	11.90%	0 0 NA	number of chargers installed (e.g. 20) daily vehicles accessing the site (e.g. 200) project opening year	0.00%
Limit Residential Parking Supply (T-15)	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 ma	13.70%	0 0 0	requ... parking (e.g. 100) provided parking (e.g. 80) percentage of VMT generated by residents	0.00%

Although the new 2021 CAPCOA guide does not include maximum value guidance, we still recommend setting them at the TDM level, the TDM category level, and for the total TDM reduction

← Back | Print Results | → VMT Bank

Click to proceed to VMT Banking if VMT is over threshold

ITE 210 | ITE 710

Select land use tab to toggle between Individual uses *(land uses are mitigated individually as not all mitigations are appropriate for all land uses.)*

Click to expand each TDM category

Threshold (15% below Average): 13.8

Metric	Project	Mitigation	With Mitigation
VMT/Capita	16.3	0.0	16.3
Daily Trips	925	0	0

Pollutant	Mobile	Mitigation	With Mitigation	Non Mobile	Total
	39.80	0.00	39.80	48.97	88.77
	3.63	0.00	3.63	8.00	11.63
	5.35	0.00	5.35	7.50	12.85
	0.08	0.00	0.08	0.09	0.17
	1.91	0.00	1.91	2.12	4.03
	6.95	0.00	6.95	7.16	14.11
CO_2 (mt/year)	1,229.14	0.00	1,229.14	1,819.74	3,048.88

Enter project specific inputs for applicable TDM

Results of each TDM based on data entered

Land Use Presumptions of Less than Significant Impact

- ☐ Affordable Housing
- ☐ Local Serving Land Use

VMT Banking

Banking/VMT Cost (VMT/$): 200

Feasible Mitigation (%): 10

ITE 210 | ITE 710

Select land use tab to toggle between individual uses

Enter Feasible Mitigation % to test the effect on hypothetical or real projects

Enter cost in VMT/$ to test the effect of different costs on hypothetical or real projects

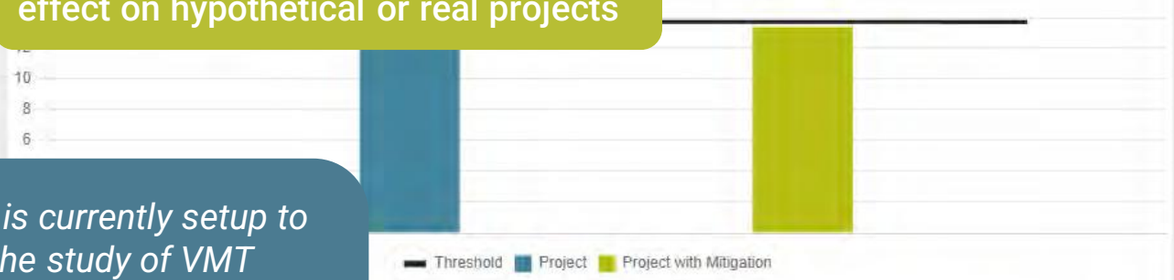
Note: this is currently setup to facilitate the study of VMT mitigation options. Prior to public release, the values can be hardcoded or the module can be removed if desired

	ITE Co… 210	710
Land U…	100	50
Proje…	16.3	42.5
Initial…	5,521.4	2,124.6
Thres…	13.8	27.1
Feasib…		
Total Minimum Mitigation (VMT/Unit*)		
TDM Mitigation (VMT/Unit*)	2.8	
Remaining Mitigation Required (VMT/Unit*)	0.0	
Remaining Absolute VMT Mitigation Required (VMT/Unit*)	0.0	
Mitigation Required Banking Cost ($)	**0**	
Optional Full Mitigation (VMT/Unit*)	0.0	
Optional Full Mitigation Banking Cost ($)	**0**	
Requires "Overriding Consideration" on Feasible Mitigation Only	Yes	Yes

*Unit = Capita for Residential land uses. Unit = Employee for other land use types.

Total Mitigation Required Banking Cost ($) 126,178

Total Optional Full Mitigation Banking Cost ($) 456,595



Threshold (15% below Average): 13.8

	Project	Mitigation	With Mitigation
	16.3	2.8	13.5
	925	0	0

Pollutant	Mobile	Mitigation	With Mitigation	Non Mobile	Total
CO (lb/day)	39.80	6.83	32.97	48.97	81.94
ROG (lb/day)	3.63	0.62	3.01	8.00	11.01
NOX (lb/day)	5.35	0.92	4.43	7.50	11.93
SOX (lb/day)	0.08	0.01	0.06	0.09	0.15
PM2.5 (lb/day)	1.91	0.33	1.58	2.12	3.70
PM10 (lb/day)	6.95	1.19	5.76	7.16	12.92
CO_2 (mt/year)	1,229.14	210.95	1,018.19	1,819.74	2,837.93

Land Use Presumptions of Less than Significant Impact

- ☐ Affordable Housing
- ☐ Local Serving Land Use

← Back | Print Results

Click “Print Results” to capture a PDF of inputs and outputs

»TREDLiteVMT

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Appendix E: VMT Mitigation Bank Program and CEQA Clearance

VMT Mitigation Bank Program and CEQA Clearance

Kimley-Horn and Associates, Inc. for City of Riverside

July 8, 2024

DRAFT

Introduction

Kimley-Horn has prepared this document to summarize ongoing discussions regarding potential CEQA documentation options for the VMT Mitigation Bank Program and associated tiering implications for future VMT Mitigation Projects and future development and transportation projects ("applicant projects"). Note this is not provided as a legal opinion but rather as a summary of what is understood from conversations surrounding this and other similar projects. The key questions and a summary of our understanding is provided below:

1. **What is the most appropriate CEQA documentation for the proposed "VMT Mitigation Program"?** There has been some conflicting information in the industry on whether environmental clearance is required given that both the "applicant's project" and the "VMT Mitigation Projects" require that CEQA be addressed and as such there is the question as to whether the "VMT Mitigation Program" would accordingly require clearance. Further adding to this confusion, many existing fee programs, such as transportation impact free programs, do not require CEQA clearance as part of their reoccurring updates. Additional discussion regarding this is provided in **Appendix A**. Note that this discussion is general in nature and does not presume a final format of the VMT Mitigation Program.

   Regardless of a final determination as to whether it is legally required to prepare CEQA documentation for a VMT Mitigation Program, it is Kimley-Horn's understanding that the City would prefer to have some level of CEQA documentation prepared in order to clearly demonstrate that CEQA requirements were considered and that the VMT Mitigation Program does not have an environmental impact.

2. **To what extent should the proposed "VMT Mitigation Projects" (projects to be funded by the VMT Mitigation Program) have CEQA evaluation completed as part of the current scope of services.** It is understood that the individual projects require CEQA consideration. However, the projects, based on preliminary review and as discussed are anticipated to qualify for a CE, and there would be no need to adopt a "Statement of Overriding Considerations." Assuming this is the case, the individual VMT Mitigation Projects could likely be cleared within the existing budget of this study depending on the final approach to CEQA that is determined.

3. **What approaches are available to establish a defined "feasible mitigation" limit in terms of an applicant's project, that has been found to have a "significant impact", being required to participate in the proposed VMT Mitigation Program?** In practice, the existence of a VMT Mitigation Program establishes "feasible mitigation" that must be considered for any applicant's project that has a significant impact and that does not have alternate solutions to address that significant impact prior to seeking an overriding consideration. Under these circumstances, an applicant's project would be required to participate in the VMT Mitigation Program to the extent necessary to mitigate their project's impact or to the extent it becomes infeasible. As a practical matter the

determination of when it becomes infeasible is a determination as to the point at which the next incremental cost of mitigating an applicant's project through the VMT Mitigation Program becomes "unaffordable". The existence of VMT Mitigation Program could result in the City being asked by individual project applicants to make a determination as to whether their claim of unaffordability is appropriate. Any applicant's project that is not fully mitigated through participation in the VMT Mitigation Program (assuming there it is agreed to by the City that the next incremental cost of mitigating an applicant's project is unaffordable) would still be required to pursue an overriding consideration.

To avoid the potential for the City having to address claims related to the feasibility of the mitigation (affordability), it is desired to establish a predefined maximum limit that a project applicant would be required to participate in the program. It is envisioned under these circumstances that an applicant could still participate to the level necessary to fully mitigate their project to avoid the requirement to seek overriding consideration but that would not be a requirement. An initial discussion on approaches to establishing a feasible mitigation limit included the following:

- The upcoming General Plan update may provide an opportunity to establish a feasible mitigation limit. It was understood from the discussion that the establishment of a feasible mitigation limit may require a General Plan amendment as its establishment would introduce a new General Plan policy. The impacts of that policy would be studied as part of the General Plan Update Environmental Impact Report.

  There was some additional discussion regarding whether a finding of overriding considerations for this policy would create an opportunity for future applicant projects to subsequently tier off the General Plan EIR, allowing them to provide a lesser level of CEQA documentation (potentially an MND?) if they (1) had a significant impact related to VMT; and (2) participated in the VMT Mitigation Program (or some combination of mitigations) up to the feasible mitigation limit irrespective of the fact that they would not fully mitigate their VMT impact. The passage is provided in italics for the purpose of highlighting this as an area for future discussion/clarity.

- The prior or current version of the CAPCOA's *Handbook for Analyzing Greenhous Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* could be useful in establishing the maximum feasible mitigation limit. There has been some precedence elsewhere by agencies to use this document to establish feasible limits of mitigation.

Current Study's Options

In terms of the current study the following options resulted from the initial discussion.

Option A: Option A is to prepare a Categorical Exemption (CE) for the VMT Mitigation Program and then a CE for each individual VMT Mitigation Project (preliminary review of currently identified VMT Mitigation Projects suggests that each individual VMT Mitigation Project would qualify as a CE, so that both the VMT Mitigation Program and the VMT Mitigation Projects it will initially fund would qualify for a CE). For the purposes of CEQA, the "Project" is the VMT Mitigation Program and associated specific VMT Mitigation Projects. As these physical VMT improvement projects are themselves anticipated to qualify for a CE, there would be no need to adopt a "Statement of

Overriding Considerations."

Future applicant projects could rely on the Program and CE to provide substantial evidence regarding the availability of reasonable and feasible mitigation and could offset VMT impacts by paying into the VMT Mitigation Program. See below for discussion on tiering where an applicant's project identifies unavoidable significant VMT impacts.

Option B: City staff identified an interest in preparing a Program EIR for the VMT Mitigation Program and then tiering off the EIR for future applicant projects. According to OPR guidance on MNDs and tiering (page 9) - C. Tiering, CEQA Guidelines § 15152 and § 21083.3 of the Public Resources Code allow a Negative Declaration to be adopted when an EIR has previously been prepared for a program, policy, plan or ordinance. "The later project must be consistent with that program or other action and must not result in any significant effects which were not examined in that previous EIR. In order to tier from an EIR, the later project must be consistent with the general plan and zoning of the applicable city or county. The Negative Declaration must clearly state that it is being tiered upon a previous EIR, reference that EIR, and state where a copy of the EIR can be examined. These requirements apply equally to MNDs. Of course, any potential significant effects that were not examined in the previous EIR must be avoided or completely mitigated if a MND is to be adopted. *A MND is not recommended when the document on which it is being tiered has identified unavoidable significant cumulative effects.*"

For future VMT Mitigation Projects, these could easily tier off of the Program EIR, as long as they are consistent with VMT Mitigation Projects identified in the Program EIR. These future VMT Mitigation Projects could also simply prepare project-specific Categorical Exemptions where appropriate. Should additional VMT Mitigation Projects be identified, these may require additional CEQA review (broad categories of VMT mitigation could be included in the Program EIR to minimize the need for further CEQA review).

With respect to future applicant projects tiering off of the Program EIR, upon further consideration and research, we have the following comments and questions:

- Where a future development project has less than significant VMT impacts or is able to mitigate VMT impacts, then this is a moot point. The Program and associated CEQA document could be cited as background on VMT mitigation options within the City, but in this case the VMT Mitigation Program would not be needed.
- Where a future development project has significant VMT impacts, is not able to fully mitigate those impacts as part of the Project, these projects could obtain additional VMT mitigation by paying into the VMT Mitigation Bank Program. The development project CEQA document can cite to the Program EIR for VMT background and evidence for availability of reasonable and feasible mitigation. However, the development project CEQA document will need to demonstrate that the VMT impact is mitigated to less than significant levels, and if not, prepare a SOOC. We'd like the City's further input on tiering off the Program EIR where a development project identifies an unavoidable significant impact, as the EIR for the VMT Mitigation Program would not have evaluated all land development projects (future buildout) within the City (refer to bold/italics section from OPR guidance cited on the previous page).

Appendix A – CEQA Requirements for VMT-Based Mitigation Fee Programs

Lead agencies are pursuing a range of strategies to implement VMT-based mitigation fee programs. Approaches that lead agencies are taking for VMT impact fees include: (1) impact fee programs that fund VMT-reducing projects without establishing a VMT "nexus" (the nexus is the basis for identifying impacts to be addressed by the program); (b) establishing a VMT nexus for identifying facilities need and cost allocation; and (c) establishing a fee program that links to systematic CEQA-reviewed VMT analysis in the General Plan and/or other related CEQA-reviewed citywide policy documents. These different approaches are factors in the determination of whether a City's proposed VMT Mitigation Fee Program would be subject to the general provisions of CEQA.

A City could potentially find that a fee program is not a "project" under CEQA and is therefore exempt pursuant to CEQA Guidelines Section 15378 (b)(4); and is not intended to apply to specific capital improvement projects, and as such it would be speculative to evaluate such projects now; and/or is not intended to, nor does it provide CEQA clearance for future development-related projects by mere payment of the fees.

As set forth in CEQA Guidelines Section 15002, "CEQA applies in situations where a government agency can use its judgment in deciding whether and how to carry out or approve a project. A project subject to such judgmental controls is a "discretionary project". For a fee program, a City could use its judgment in deciding whether and how to carry out or approve the program, and therefore the fee program would be a discretionary action. However, a fee program is not necessarily a "project" pursuant to CEQA. CEQA Guidelines Section 15378 provides that: "A project means the whole of an action which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." **Whereas CEQA Guidelines Section 15378(b)(4) further provides that: "A project does not include . . . the creation of government funding mechanisms or other government fiscal activities which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment."**

If the fee program is intended to create a funding mechanism but the fee program does not include any specific commitment to an individual project or any specific collection of individually identified projects, the City could determine it is not a project under CEQA. **It is important to note that fees set by ordinance without a CEQA evaluation do not presumptively establish full mitigation for a discretionary project. If a mitigation program is not fully funded so as to fully mitigate an impact to an insignificant level, based on substantial evidence that it can do so, then it might be open to challenge as a basis for more than partial mitigation.**

CEQA Guidelines Section 15273(b) notes that fees or rate increases to fund capital projects that provide for "expansion of a system" are subject to CEQA. Again, the objectives and detail of the VMT Mitigation Fee Program will determine whether the project would be subject to CEQA or could be exempt. For example, if specific improvements are identified, do these result in the expansion of the transportation system that have been previously identified as mitigation measures in prior CEQA documents? These transportation system expansion projects have already undergone CEQA review and no further environmental analysis is required unless (pursuant to CEQA Guidelines Section 15162) there are changes in the description of these planned transportation system projects, changes in circumstances, or new information which indicates that there are new or substantially more severe environmental impacts that could occur upon their implementation. Another approach would be to tier from the City's adopted Climate Action Plan CEQA documentation.

Unless cleared through prior CEQA documentation, specific improvements would be subject to

environmental review at such time as approvals for those projects are considered. Individual VMT projects may, or may not be found to be individually exempt from CEQA on the basis of their unique characteristics. That decision can only be made at a later date, when the investment in a specific project is identified.

Appendix F: Categorical Exemption (CE) for the City of Riverside VMT Mitigation Program

Print Form

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk
County of: Riverside
4080 Lemon St., 1st Floor
Riverside, CA 92501

From: (Public Agency): City of Riverside Planning Division
3900 Main Street, 3rd Floor
Riverside, CA 92522
(Address)

Project Title: Riverside VMT Mitigation Program

Project Applicant: City of Riverside

Project Location - Specific:
City of Riverside

Project Location - City: Riverside Project Location - County: Riverside

Description of Nature, Purpose and Beneficiaries of Project:
The Riverside VMT Mitigation Program would implement a VMT bank program to require development projects to offset project generated VMT by paying a per VMT fee to the bank. The VMT bank would be established by the City through the implementation of VMT-reducing projects. The amount of VMT that would be reduced through such projects would then be used to establish a fee that is proportional to the associated costs of the VMT-reducing projects. Future development projects that would produce VMT would be required to pay the established fee per VMT generated.

Name of Public Agency Approving Project: City of Riverside

Name of Person or Agency Carrying Out Project: City of Riverside

Exempt Status: **(check one):**

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☐ Categorical Exemption. State type and section number: _____
- ☒ Statutory Exemptions. State code number: 15262 - Feasibility and Planning Studies

Reasons why project is exempt:

Exempt under CEQA Guidelines Section 15061(b)(3) and Section 15262. See Attachment A.

Lead Agency
Contact Person: _____ Area Code/Telephone/Extension: _____

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: _____ Date: _____ Title: _____

Signed by Lead Agency Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: _____

ATTACHMENT A
BACKGROUND, PROJECT DESCRIPTION AND JUSTIFICATION FOR CEQA EXEMPTIONS

1.0 PROJECT BACKGROUND

In 2013, SB 743 was signed into law which required the Governor's Office of Planning and Research (OPR) to establish a new metric for identifying and mitigating transportation impacts for projects that are subject to the California Environmental Quality Act (CEQA). OPR identified Vehicle Miles Traveled (VMT) as the new metric. In accordance with SB 743 and the OPR's designated VMT metric, the City of Riverside (City) adopted VMT thresholds in July 2020. Many of the development projects within the City are screened out based on the City's existing screening criteria; however, some development projects cannot meet adopted thresholds for reducing VMT.

To encourage reductions in VMT, the City has analyzed various types of fee-based VMT mitigation programs, such as VMT banks, VMT exchanges, and VMT impact fee programs. VMT banks are established by implementing VMT-reducing projects within the City, such as improving pedestrian and bicycle facilities within the City. The VMT reductions are then placed in a "bank" with an associated fee that a development project would "purchase" to offset VMT that would be generated as a result of project implementation. VMT exchanges work similarly, with the main difference being that applicants have the option to choose a single project from an existing list or program of VMT-reducing projects or propose a VMT-reducing project for implementation that may not appear on said list. The program that is chosen or proposed would have to meet the minimum VMT reductions that the project would generate. VMT impact fee programs would function similarly to how existing development fee programs work. In this case, a development project would be required to pay a fee to offset its VMT impact.

Based on the results of the analysis, the VMT bank program would be the recommended framework for the City's future VMT Mitigation Program. The VMT bank program would address all reasonable and feasible VMT mitigation opportunities. Compared to all other VMT Mitigation Programs, the VMT bank can successfully address legal, effectiveness, geographical, administrative, equitable, and alignment concerns. Additionally, the VMT bank would best reduce complexity and allow for concerns around equity to be addressed by public agencies.

2.0 PROJECT DESCRIPTION

Project Location – Specific

The VMT bank program would be implemented in the City of Riverside and would be applicable to all future discretionary development projects proposed within the City, that are subject to CEQA, and that have been determined to have a significant VMT impact. The program is voluntary, in that individual projects may choose to address VMT impacts on a project-by-project basis.

Existing Conditions

Currently, there is no City-wide VMT mitigation program implemented that would help reduce VMT within the City. Where a significant VMT impact has been identified, at present the available VMT mitigation options for applicants are to modify the proposed development project such that impacts to VMT are

reduced, implement Transportation Demand Management or other VMT-reducing measures, or if those two options are not available, prepare an Environmental Impact Report (EIR) and adopt a Statement of Overriding Considerations.

Project Operations

The VMT bank program would be established by calculating a fee per VMT. This can be done by first identifying VMT-reducing projects and evaluating the extent of reduction for each identified project. The total reductions from all projects are combined to calculate the total mitigated VMT, which would then become the VMT bank, or the amount of VMT available for projects to "buy" to offset project generated VMT. To determine the cost to mitigate future VMT, the associated costs of each VMT-reducing project are summed; the sum is then divided by the total VMT reductions (from VMT-reducing projects). Once the available VMT is used by development projects purchasing from the VMT bank, the VMT bank would need to be replenished with new VMT-reducing projects added.

The VMT bank program would be an opt-in program that would contain both physical and non-physical improvements. The City would only be committed to implementing or constructing VMT mitigation measures once enough developers have paid into the program. It would then be within the City's jurisdiction to choose which mitigation measures to implement or construct.

Description of Nature, Purpose, and Beneficiaries of Project

Purpose and Need

While many development projects within the City can be screened out based on the City's existing VMT screening guidelines, some development projects may not meet the threshold criteria for reduced VMT. As such, the VMT bank may serve as a mitigation program that would allow the City to offset future unavoidable VMT generation within the City as a result of future development projects. The City can invest in VMT-reducing projects, such as those improving and increasing alternative modes of transportation within the City (bicycle lanes, pedestrian facilities, public transit improvements, etc.). Based on the total cost of the VMT-reducing projects and the total reduction in VMT resulting from such projects, the VMT bank would allow those development projects that cannot feasibly mitigate the VMT to pay for the VMT that cannot be reduced. The purpose of this VMT mitigation program would be to reduce overall VMT within the City to less-than-significant levels.

Beneficiaries of Project

Reducing VMT would reduce greenhouse gas emissions and help reduce air quality impacts due to the decreased reliance on motorized vehicles and associated reduction in vehicular-oriented emissions. Additionally, the VMT mitigation program would allow the City to invest in alternative transportation projects that would provide diverse transportation opportunities for residents and businesses, further reducing reliance on vehicular travel. Planned pedestrian and bicycle facility improvements as well as improved public transit projects can improve the circulation system within the City and improve traffic in high-volume areas. The VMT bank would also allow the City to expedite processing projects with identified VMT impacts and minimize or eliminate the need for additional environmental studies. By utilizing the VMT bank, the City can directly use the money obtained from the VMT fees paid by development projects to fund more VMT-reducing projects.

3.0 REASONS WHY THE PROJECT IS EXEMPT

Applicable CEQA Exemptions

Section 15262 (Feasibility and Planning Studies) states that "a project involving only feasibility or planning studies for possible future actions which the agency, board, or commission has not approved, adopted, or funded does not require the preparation of an EIR or Negative Declaration but does require consideration of environmental factors. This section does not apply to the adoption of a plan that will have a legally binding effect on later activities."

In addition, the Project is exempt pursuant to the "common-sense" exemption found in CEQA Guidelines Section 15061(b)(3). The common-sense exemption applies to projects that don't necessarily fit within a statutory or categorical exemption, but "where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment," the activity is exempt from CEQA (CEQA Guidelines Section 15061(b)(3).

Justification why Project is Exempt: The VMT mitigation program does not propose any development or redevelopment of any kind. The program would serve as a study for possible future actions of the City to implement a mitigation program to mitigate overall VMT generated from development projects. Once implemented, the VMT mitigation program would be voluntary for future development projects that are subject to CEQA and are not able to mitigate VMT impacts on a project-specific level. These projects, on a voluntary basis, could evaluate the projected VMT that would be generated and pay a fee to the VMT bank to offset potential VMT associated with project development. The VMT mitigation program would not result in environmental impacts, as the purpose of the program is to reduce VMT within the City implementing reasonable and feasible VMT mitigation projects. This program is voluntary and does not create a "legally binding effect" upon the City or future projects. Therefore, the VMT mitigation program would be statutorily exempt from CEQA under a Section 15262 Feasibility and Planning Studies.