

# Implementing SB 743

Design Considerations for Vehicle Miles Traveled  
Mitigation Bank and Exchange Programs

AUGUST 2022  
Policy Report





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# ABOUT THIS REPORT

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## I. EXECUTIVE SUMMARY

The purpose of this report is to inform Caltrans, fellow state agencies, and local and regional planning and land use agencies in their consideration of vehicle miles traveled (VMT) mitigation bank or exchange programs as a strategy to facilitate efficient and effective investment in locationally appropriate VMT-reducing projects.

This approach could help to mitigate the impacts of roadway improvement and expansion projects developed by Caltrans and regional transportation agencies, as well as VMT-inducing land use and transportation projects for which local governments are the lead agency. The intended audience of the report includes Caltrans, local elected officials and lead agencies, local and regional transportation and planning agencies, state lawmakers and transportation policymakers, non-governmental organizations, and fellow transportation and climate researchers seeking to address VMT-related issues.<sup>1</sup>

Following the passage of Senate Bill 743 and issuance of California Environmental Quality Act (CEQA) guidelines calling for assessment and mitigation of transportation impacts using the VMT metric, governmental entities at multiple levels throughout the state need strategies to mitigate VMT impacts of transportation and land-use projects. VMT mitigation bank or exchange programs are one potential strategy for lead agencies and developers/applicants to effectively and efficiently ensure VMT mitigation and satisfy their obligations to mitigate under CEQA.

The options presented in this report generally presume that bank or exchange programs would be run by governmental bodies (or multiple governments through joint powers authorities or memoranda of understanding) as an extension of existing project planning, delivery, and environmental review responsibilities, although agencies could delegate management to new entities or third-party non-profits where appropriate.<sup>2</sup> While there is limited direct precedent for VMT mitigation

The VMT mitigation bank or exchange programs and mitigation banking/exchange functions described in this report are, broadly speaking, extensions of existing project planning and mitigation capacities within California state and local transportation and land use agencies to meet the specific needs of effectively mitigating VMT. They are transactional methodologies used to collect and distribute mitigation funds in accordance with legal obligations and calculations of impact costs, drawing from and expanding on programs to offset environmental impacts of development through the conservation of physical land parcels such as the Caltrans and Bay Area Regional Advance Mitigation Programs. References to a “mitigation bank” or “mitigation exchange” are shorthand for these expanded programmatic capacities and do not necessarily refer to new stand-alone entities or programs.

banking or exchange programs, state and local agencies can build on existing core capacities (including regional transportation plans and capital improvement programs) in developing these new programs and use the opportunity to develop innovative, regional mitigation frameworks.

## OVERVIEW OF PREFERRED BANK/EXCHANGE PROGRAM PATHWAYS

This analysis envisions two program pathways operating in parallel. The first is a state-level program for Caltrans (or other state agencies) in the role of lead agency for VMT-generating projects. The second is a set of regional-level programs for local and regional entities in the role of lead agencies for VMT-generating projects. Both a state-level program and regional-level programs would operate simultaneously and independently, but state agencies could transact through regional programs in some cases (such as where a local entity co-leads a project) and local entities could transact through the state program if necessary (if no regional program exists). The research and expert outreach that inform this analysis suggest a set of potential core program elements, including:

**A. For Caltrans (and other state lead agencies):** Creation of a state-level bank or exchange program administered by a state agency, to maximize administrative efficiency, build on existing mitigation programs and expertise, and develop an aligned approach for state projects. *State-level administration for Caltrans and state projects is the preferred option in this analysis.*

- If Caltrans operates the program on its own behalf, it could be created via a Director's Policy Memorandum or Deputy Directive assigning the Caltrans division responsible for program administration, defining the scope of authority, and outlining the program components described below; and a subsequent deputy directive setting out detailed program guidelines.
- If another state agency operates the program, and if the program manages VMT mitigation obligations on behalf of state agencies other than Caltrans that have lead agency responsibilities for VMT-generating projects, then an Inter-Agency Agreement, memorandum of understanding, or similar documentation would be required between the relevant agencies detailing the responsibilities of the program. See [Section IV](#) for more information on administrative and geographic considerations.

**B. For local and regional governments:** Creation of regional-level bank or exchange programs administered by MPOs and RTPAs on behalf of their constituent governments, to take advantage of legal authority and planning capacity, alignment with existing transportation and capital planning processes, existing mitigation programs and expertise, and operational scale. Potential alternatives include individual administration by certain large and densely developed cities and counties; sub-MPO

administration for certain large and diverse MPOs (such as the Bay Area MTC); multi-agency collaboration and/or Joint Powers Authority administration for certain rural RTPAs; and participation in the state program for areas that do not create their own program. *MPO- or RTPA-level administration for local and regional projects is the preferred option in this analysis.*

- If administered at the MPO level (which this report sees as the most viable general pathway), these programs could be created via local and county government ordinances or legislation authorizing VMT mitigation through the program at the MPO level; binding agreements between the participating governments defining the scope of authority and outlining the program components described below; and an implementing memorandum with detailed program guidelines issued by each MPO or RTPA.
- If administered at the sub-MPO level (e.g., by groups of two or more counties within a large MPO), participating jurisdictions could follow the same process with guidance and participation from the MPO, or the MPO could create parallel programs and administer them locally.
- If administered at the multi-agency level, participating jurisdictions could follow the same process, either through an existing joint powers authority or new memorandum of understanding among the participating MPOs or RTPAs. See [Section IV](#) for more information on administrative and geographic considerations.

**C. For all programs:** Definition of project prioritization and selection criteria by the administering entity, according to the needs and priorities of the participating jurisdictions within the program area. Administrators should determine criteria for prioritization and selection of mitigation projects as well as any threshold requirements for bank entry.

- Administrators should evaluate the feasibility of onsite mitigation and may wish to require analysis of policy considerations such as equity or community needs before allowing a proposed VMT-generating project to enroll in the program.
- Administrators should apply selection criteria to determine the priority of investment for VMT-mitigating projects eligible for the program. Possible criteria include, but are not limited to, cost per unit of VMT reduced, direct public benefit, GHG reduction potential, time to completion, duration of mitigation, and more. Administrators should factor in local needs and priorities when selecting these criteria. For example, areas with greater need for or interest in active transportation expansion might weigh those projects more heavily in the selection process.
- In the case of a statewide program for Caltrans and state agencies, such criteria may vary by region. See [Section IV](#) for more information on project prioritization and selection considerations.

- D. For all programs:** Development of a fiscal framework that includes pricing of VMT at an appropriate level to facilitate mitigation investments, use of a fee-based structure to collect and disburse mitigation funds, and a basic accounting structure to facilitate and track mitigation “transactions.” The VMT pricing structure should reflect the estimated cost of VMT-mitigating investment in the relevant region, including a range of potential investments (i.e., transit capital investments, active transportation infrastructure, transit subsidies, etc.) actually available for investment and appropriate pricing variations for different forms of land use and transportation projects. The framework may include mechanisms (such as pricing discounts or multipliers) to account for geographical, durational, and equity considerations as appropriate. See [Section V](#) for more information on fiscal frameworks.
- E. For all programs:** Implementation of a monitoring program to ensure that mitigation investments actually occur as planned and committed, that mitigation funds enter and exit the program in accordance with guidelines and legal requirements, and that the program conducts regular public reporting. Tracking post-investment project performance in VMT reduction is not a focus of the monitoring program (but may help inform future investment plans).
- Monitoring programs should incorporate application of an additionality framework on a programmatic, rather than project-by-project, basis. Programmatic assessment of VMT additionality—the principle that reductions funded by a program should not be otherwise required by law or certain to occur—captures the overall reduction of VMT achieved as a result of the program. This will minimize the time and administrative burden for program participants and administrators and will also allow some flexibility for projects that may not be entirely additional but meet other needs or priorities. See [Section VI](#) for more information on monitoring considerations and strategies.
- F. For all programs:** In order to address the needs of communities while also achieving efficient VMT reductions, programs can prioritize equity and community engagement at multiple decision points. While consideration of social or economic impacts and equity is not generally required for CEQA mitigation, it can promote effective and high-value mitigation investments and build community support for new programs. Working alongside communities within their jurisdictions, administrators should develop a locally appropriate definition of VMT equity and evaluate if and how equity will be prioritized in the program, such as in the VMT-mitigating project selection process. If equity will be factored into program decisions, the administrator should consider the appropriate points at which to evaluate equity and should commit to community engagement throughout the process. See [Section VII](#) for more information on equity considerations and strategies.

## NEXT STEPS

### Caltrans and state agency leaders could:

- Convene staff from Caltrans, the Governor's Office of Planning and Research, and other state transportation, planning, and climate agencies; and select representatives of local project implementation partners to initiate the state program design process.
- Establish priorities and goals for program design including administration and geographic scope, project prioritization and selection, fiscal framework and pricing, monitoring and reporting, additionality, and equity criteria.
- Establish a memorandum of understanding between participating agencies (including Caltrans) and the administering agency to establish the program, assign administrative authority and associated responsibilities, and set administrative guidelines (or issue a Caltrans Director's Policy Memorandum and Deputy Directive if program administration stays within Caltrans).

### MPO and RTPA leaders could:

- Convene their member jurisdictions and lead agency representatives to initiate local/regional program design processes.
- Determine participating entities and program scope.
- Establish priorities and goals for program design including administration, project prioritization and selection, fiscal framework and pricing, monitoring and reporting, additionality, and equity criteria.
- Craft and support approval of:
  - Local legislation to authorize participation in a program administered at the MPO/RTPA level
  - Memoranda of understanding establishing core program components at the MPO/RTPA
- Issue implementing memoranda setting program administration guidelines.

### State lawmakers could:

- Authorize funding to support state and local/regional bank establishment and administration.
- Create and fund an office within a state agency such as the Governor's Office of Planning and Research or the California State Transportation Agency, among other possible options, to support bank administration statewide, collect program implementation data, and develop a state website and resource for bank administrators.



## II. INTRODUCTION AND BACKGROUND

Passage of Senate Bill 743 (Steinberg, Chapter 386, Statutes of 2013) initiated a substantial shift in California’s approach to measuring and mitigating the transportation and traffic impacts of new development projects under the California Environmental Quality Act (CEQA).

SB 743 directed the Governor’s Office of Planning and Research (OPR) to update the CEQA Guidelines—the formal regulatory framework for application of CEQA—with new transportation impact measurement criteria.<sup>6</sup> Traditionally, CEQA analysis of transportation impacts centered on the roadway congestion a project would generate based on the level of service (LOS) metric, which assessed the new vehicle trips and traffic dynamics created by a project and required mitigation measures to ease congestion. Following SB 743, OPR’s guidance recommended that automobile delay no longer be considered a significant environmental impact and that vehicle miles traveled (VMT), a measure of the amount and distance traveled in automobile trips that are generated by a project regardless of congestion impact, is often the best metric for a transportation project’s impact.<sup>7</sup> As a result of SB 743, CEQA lead agencies—including Caltrans—have begun to shift their transportation impact analysis metric to VMT.<sup>8</sup>

CEQA requires public agencies responsible for discretionary approval of development or land-use projects (known as “lead agencies”) to assess their anticipated environmental impacts and to select project alternatives or implement mitigation measures that lessen those impacts where feasible.<sup>9</sup> Under CEQA, a lead agency with the discretionary authority to approve or deny a project (or to carry it out directly) generally must analyze the proposed project’s impacts to the physical environment, identify alternatives and mitigation measures, and approve a project alternative and/or mitigation measures that substantially reduce significant impacts, unless those measures are infeasible due to economic, social, or other conditions.<sup>10</sup> In general, lead agencies

### LOS AND VMT

LOS measures and rates local vehicle congestion and effects on travel time. By contrast, VMT accounts for the total amount and distance that vehicles travel as a result of a development project, whether those vehicles are on free-flowing or congested roads. Anticipated advantages of VMT analysis include greater consideration of the full impacts of vehicle travel (including GHG emissions<sup>3</sup>), rewards for total reduction in vehicle trips (such as through shifts to public or active transportation) rather than convenience for automobile travel in particular locations, and potential to incentivize more infill development.<sup>4</sup> An early survey of local approaches found general support for the VMT transition statewide, although some rural and suburban jurisdictions have indicated hesitancy around the appropriateness of VMT analysis for local needs and anticipated retention of LOS analysis for non-CEQA purposes<sup>5</sup>

should design and select project alternatives that do not generate significant environmental impacts (including transportation impacts); where such alternatives are infeasible or unable to meet project objectives, lead agencies then move to designing and implementing mitigation measures to address those impacts.<sup>11</sup> Following SB 743 and the subsequent CEQA regulatory guidance, lead agencies should identify project alternatives that do not generate significant VMT impacts and mitigate any impacts to the extent feasible, including where necessary through offsite mitigation investments. Creating a mitigation bank or exchange program is one strategy to ensure that maximum feasible mitigation is achieved.

The CEQA Guidelines define mitigation to include “avoiding” impacts by deciding not to take an action; “minimizing” impacts in project design; “rectifying” or “reducing” impacts through restoration or operational actions; and “compensating for the impact by replacing or providing substitute resources or environments.”<sup>12</sup> In concept and in practice, avoidance and minimization strategies are distinct from restoration or compensation strategies, and all mitigation strategies are contemplated as a result of (rather than incorporated into) a finding of significant impact. The need to develop and implement specific mitigation measures—including VMT mitigation measures—arises only after the lead agency determines that the project is likely to generate a significant impact.<sup>13</sup>

This report is primarily concerned with compensatory mitigation under CEQA, which for VMT impacts may take many different forms and may occur in different locations. Although onsite VMT mitigation within the boundaries or scope of a VMT-inducing project is generally preferable (because mitigation actions taken near a project site can more directly benefit impacted communities and foster low-VMT development), it may not be possible or cost-effective to accomplish mitigation onsite for every project given the nature of VMT and the inherent challenge of reducing it in lower-density locations. Therefore, lead agencies and local governments may need to identify offsite mitigation options for VMT.

Although lead agencies may meet requirements through individual investments in off-site VMT mitigation, approaching off-site mitigation on a project-by-project basis may face implementation and monitoring challenges and limit the effectiveness of strategies to reduce VMT at the local and regional levels. Many active transportation and transit projects, such as bicycle lanes and parking facilities, need to be implemented as cohesive networks to provide viable travel alternatives and effectively reduce VMT. State and local lead agencies may need to develop programs to facilitate effective and efficient VMT mitigation while ensuring accountability, fairness, legal compliance, and consistency with regional priorities for investment in transit and active transportation infrastructure, especially at large scale. One potential solution to this challenge is a mitigation “bank” or “exchange” program. This report focuses on banking and exchanges programs,

## VMT MITIGATION STRATEGIES

VMT mitigation will likely encompass a range of investments in transportation and land use projects anticipated to shift travel from private automobiles to public transit, active transportation, and shared and shorter trips. State and local agencies are developing lists of potential VMT-mitigating projects that could be employed in a bank or exchange program, including measures such as pedestrian and bike path improvements, micro-mobility and ride-share parking spaces, transit service improvements such as increased frequency and capacity, and mixed-use transit-oriented development. Each measure will vary by cost, efficacy, time to completion, and other key measures. For an overview of state and local examples, see [page 52](#) (Caltrans) and [page 58](#) (San Diego).

## ASSESSING VMT AND SIGNIFICANCE

The CEQA Guidelines define VMT as simply “the amount and distance of automobile travel attributable to a project.”<sup>14</sup> The Guidelines do not specify a method of defining or calculating VMT; rather, lead agencies and local jurisdictions are responsible for setting their own metrics for assessing VMT impacts, determining whether they are “significant,” and identifying mitigation obligations under CEQA.<sup>15</sup>

These metrics vary by lead agency and between transportation and land use projects. In the transportation context, Caltrans and other lead agencies typically define VMT in terms of the total amount of vehicle travel attributable to a project, as opposed to measuring VMT per capita, VMT as a percentage, or a VMT growth rate (which could be positive or negative).<sup>16</sup> In the land use context, the City of San Francisco’s Planning Department notes that “the department uses VMT efficiency metrics (per capita or per employee) for thresholds of significance. VMT per capita reductions mean that individuals will, on average, travel less by automobile than previously but, because the population will continue to grow, it may not mean an overall reduction in the number of miles driven.”<sup>17</sup> Lead agencies are responsible for adopting their own interpretations of and methods for calculating VMT in both contexts; mitigation bank and exchange programs will need to develop intake criteria and pricing structures that reflect (or achieve compromise among) participating jurisdictions’ methodologies.

In 2018, OPR issued a Technical Advisory to guide lead agencies in assessing, setting thresholds for significance of, and mitigating VMT. OPR identified three statutory goals that VMT can facilitate—reducing GHG emissions, developing multimodal transportation networks, and supporting a diversity of land uses—and recommended a numerical VMT significance threshold for residential and office projects of 15 percent (per capita or employee) below that of existing development.<sup>18</sup> For transportation projects, OPR suggested an approach based on the percentage increase in VMT occasioned by each percentage increase in roadway mileage added to the local network.<sup>19</sup> San José, for example, adopted OPR’s proposed 15 percent threshold for land use projects and a 0.3 percent increase threshold for transportation projects.<sup>20</sup>

building on existing regional planning and CEQA mitigation programs, as potential pathways for VMT mitigation.

VMT mitigation bank or exchange programs would seek to achieve the same goal and will overlap in most program components, including processes to set the threshold for onsite versus offsite mitigation requirements for land use and transportation projects; determine the eligibility and prioritization of mitigation investments, incorporating local needs and equity considerations; and establish fiscal and accountability frameworks.<sup>21</sup> However, a few definitional distinctions apply:

- **VMT mitigation bank** programs would allow land use and/or transportation developers (working through applicable CEQA lead agencies) to “commit funds instead of undertaking specific on-site mitigation projects” with a local or regional public authority responsible for allocating the funds to selected mitigation projects in the jurisdiction.<sup>22</sup> The County of San Diego defines mitigation banking as a system in which “developments can buy VMT reduction credits from the County or other jurisdictions within the region, that are the result of previously constructed VMT reducing infrastructure or planned infrastructure that will be constructed within the near future.... The fees collected from this program would then be used to construct additional VMT reducing infrastructure in new locations or be used to close gaps within the existing [multi]-modal network, thus making the network more efficient.”<sup>23</sup>
- **VMT mitigation exchange** programs would allow developers to “select from a list of pre- approved mitigation projects throughout the jurisdiction” and commit mitigation funds directly, rather than deferring investment decision-making to a separate authority.<sup>24</sup> San Diego, for example, defines a VMT mitigation exchange as a program that allows developers to “fund and implement off-site VMT reducing infrastructure and/or programs to off-set their VMT related impacts. This program would allow new development within suburban and rural jurisdictions to invest in multi-modal/VMT reducing infrastructure in more urban jurisdictions where higher reductions are possible and more efficient.”<sup>25</sup>

These bank or exchange programs would be administered by public entities, such as state or local government bodies or regional authorities like MPOs, with expertise and responsibilities in transportation and land use project planning and CEQA review and mitigation.

The programs would facilitate transaction management between mitigation payors (state or local lead agencies with VMT mitigation obligations) and payees (typically local agencies investing in projects designed to reduce VMT). The figure below depicts the relationship between the banking or exchanging program and the payor and payee.

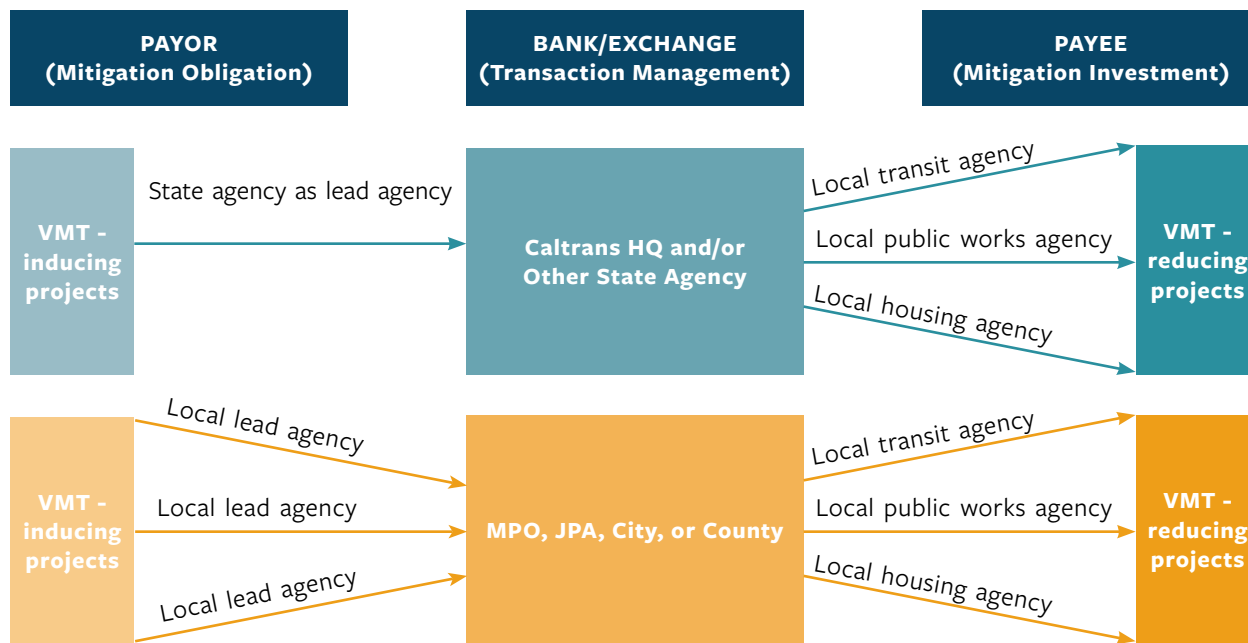


Figure 1. Relationship between payor, bank/exchange program, and payee.

California courts have long accepted the use of fee-based mechanisms to aggregate funds from multiple individual projects and spend them on regional mitigation projects under CEQA,<sup>26</sup> including fees whose ultimate expenditure was not specifically identified at the time of assessment, so long as a reasonable and enforceable spending plan/program is in place and documented and fees are actually tied to mitigating the project’s anticipated impact.<sup>27</sup> While it appears that the CEQA statute presents no direct barriers to creation of a VMT mitigation bank or exchange, the extensive CEQA jurisprudence will likely define the structure and scope of programs. Agencies and developers will need to use their extensive experience in CEQA mitigation and fee-based programs to develop these new frameworks.

Previous analyses by Fehr and Peers, CLEE, and others have explored VMT mitigation banks and exchanges, identifying key challenges, project prioritization criteria, and legal framework considerations, among other program design factors.<sup>28</sup> A Caltrans whitepaper concludes that fee programs and mitigation banks could be “adapted to addressing VMT impacts and used to offer an alternative to ad-hoc, project-specific fair share analysis and fee payment.”<sup>29</sup> Others have suggested a design similar to cap-and-trade or transfer of development rights.<sup>30</sup> Multiple local governments are in the process of developing VMT mitigation strategies potentially including bank or exchange components. This report is meant to accompany and inform those programs.

Implementation of VMT mitigation banking programs requires a careful approach to program design to ensure effective and efficient mitigation of impacts and use of funds. In addition, these programs may face equity and environmental justice concerns, especially if program design lacks appropriate geographic

limitations between the location of the impact and mitigation. (In general, equity considerations would arise as a policy rather than a legal concern, since CEQA and SB 743 do not expressly contemplate distributional matters with regard to VMT or mitigation, although equity-related concerns can inform the community impact analysis that Caltrans and other transportation agencies are required to prepare for federally supported projects.<sup>31</sup>) Several possibilities exist for weaving policy-based considerations such as equity into the design process, including establishing equity as a threshold requirement for bank entry, restricting the geographic area in which a mitigation may take place to ensure the community bearing the burden of the original development also receives the benefit of the mitigation, and prioritizing particular communities for offsite mitigation investment.

## A. OVERVIEW OF VMT BANK/EXCHANGE DESIGN ELEMENTS

The public entities responsible for creating and administering VMT mitigation bank or exchange programs—including Caltrans (and potentially other state agencies) and regional and local lead agencies—will consider several design elements to ensure that the programs meet mitigation requirements while accounting for local and regional priorities. Within each program design element listed below, administrators will need to select between multiple implementation options. For example, administrators may pursue different approaches to accountability, monitoring, and enforcement. The remainder of this report details these program design considerations and offers a list of implementation options as well as recommendations for both a Caltrans and regional/local bank.

- **Geographic scope:** The participating agencies in a bank or exchange program must first determine the appropriate geographic scope of the program to meet their needs, such as choosing a statewide versus regional approach for Caltrans, or a regional versus local approach for local governments. This decision will directly inform the choice and scale of administrative entity for the program. The selected geographic scope will also influence subsequent decisions, such as the appropriate accountability, monitoring, and enforcement mechanisms.
- **Administrative entity and participating lead agencies:** The next decision in banking program design will be to determine the public entity responsible for managing the banking program on behalf of one or more participating lead agencies. For Caltrans (and other state agencies), the administrative entity could be a state agency with transportation and VMT reduction expertise such as the Governor’s Office of Planning and Research or the California State Transportation Agency, or Caltrans itself, overseeing a statewide bank.<sup>a</sup>

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a While additional state funding support for staff capacity to handle bank administration will be valuable in any case, it would be particularly important should a smaller agency such as OPR take responsibility for the state-level program.

(Alternatively, individual Caltrans districts could manage regional-scale banks, although this option would sacrifice the potential scale and efficiency advantages of centralized management for the state program.) For local and regional lead agencies, the administrative entity could be a city or county government (managing a program on its own behalf), an MPO or RTPA (managing a program on behalf of member governments), or a regional joint powers authority or other public body operating through a memorandum of understanding (on behalf of member governments). The administrative entity's responsibilities will center on the matching of mitigation obligations with appropriate investments, monitoring of the investment program and other key criteria, and identifying new projects that are good candidates for inclusion in the bank or exchange program. Participating lead agencies for a given project in in the bank or exchange will be responsible for most traditional lead agency work.

- **Fiscal framework:** Another key step for program administrators will be to select an appropriate fiscal framework for the jurisdictions participating in the program. The framework will establish a means of exchange by determining whether a bank should be based purely on fees or include tradeable credits, or whether an exchange (providing a menu for direct selection of mitigation project options) is more appropriate. The fiscal framework will establish or incorporate prices for VMT impacts so that they can be matched with mitigation investments (i.e., developers must know that for every VMT unit created, they are responsible for a corresponding amount of mitigation investment). Since the framework will likely reflect the geographies and investment priorities of multiple jurisdictions/lead agencies, a measure of flexibility will be valuable and some preliminary agreement on fiscal and pricing structures may be necessary as part of initial decisions on scale and participation.
- **Additionality mechanisms:** The administrative entity should consider how to ensure that the program's impact is additional, in that the program is delivering VMT reductions "not otherwise required" by other funded programs or legal requirements.<sup>32</sup> Mitigation programs should avoid "double dipping" or taking credit for efforts which have already been taken or committed to address the impacts of other projects. Additionality can be evaluated either at the project level—assessing whether each mitigation action that enters the bank/exchange would not have happened otherwise—or at a programmatic level—assessing the overall additional VMT reduction achievement of the bank or exchange. Determining additionality will rely in part on analysis of existing local and regional transportation investment plans (including fiscal constraint analysis) to determine the status and likelihood of potential mitigation projects in the absence of mitigation bank or exchange funding.
- **Accountability, monitoring, and enforcement:** The administrative entity must determine how to ensure that program rules are followed and that the program is achieving its intended impact. A comprehensive monitoring program, including financial, mitigation, and additionality

issues, can promote transactional integrity and transparency while highlighting community benefits of VMT mitigation. Programs should monitor financial operations (including both fund management and investment management), mitigation compliance (including both actual mitigation and legal compliance), and additionality, and conduct regular public reporting on their findings. If it is found that the program is failing to achieve its intended mitigation outcomes, administrators (with participating jurisdiction approval as necessary) should modify program elements accordingly.

- **Equity:** As an additional layer on top of other design decisions, and as a matter of sound policy, administrators may want to consider how mitigation bank or exchange programs can advance state and local equity goals, including locally specific definitions of VMT equity that incorporate socioeconomic, geographic, demographic, environmental, and transportation access criteria as appropriate. Lead agencies should avoid exacerbating existing inequalities where possible and could aim to remedy historic underinvestment and discriminatory practices, such as by prioritizing investments serving underserved areas or populations, where legally and financially feasible. The administrative entity might consider requiring a certain minimum amount of investment to serve priority communities or could require that development in certain high-priority areas must mitigate within the same area to ensure that benefits and costs are evenly distributed.

## VMT EQUITY

This report discusses strategies for considering equity in VMT mitigation decision-making. These strategies should be considered in the context of locally appropriate definitions of VMT equity and locally appropriate prioritization of VMT equity among other key criteria, in particular cost-effectiveness of VMT investments. For more information, see [Section VII](#).

## B. PROGRAM DESIGN PRECEDENT

As a VMT mitigation bank or exchange represents a novel approach for mitigating a relatively newly defined impact under CEQA, recommendations in this report will draw largely from non-VMT programs based on similar concepts and other programs used in VMT-adjacent contexts.

The term “mitigation bank” originates in the creation of physical land parcels set aside for biodiversity and habitat conservation in order to offset species and ecosystem impacts of development in sensitive areas; while VMT presents a significantly different set of mitigation strategies and considerations, the model of the bank is useful to organize the various features and functions of a VMT mitigation program.<sup>33</sup>

Examples of these parallel programs and precedent, discussed in detail in [Section III](#), include:

- **Conservation and mitigation banks**, which involve the preservation of land (the “bank”) in order to generate credits that are purchased to mitigate the impacts of development projects on particular species, habitats, and ecosystems.

- **Advance mitigation programs**, which identify and aggregate legal mitigation obligations in advance of actual project development and implementation in order to streamline mitigation investments.
- **In-lieu fee programs**, which assign a dollar price to environmental impacts and assess a fee to fund associated mitigation investments.
- **VMT reduction programs**, which assign a dollar price to VMT impacts and require payment of a fee for use in mitigation investments.
- **Transportation demand management programs**, which assess the local transportation impacts of urban development and require offsetting investment in VMT-reducing elements such as transit passes and bicycle infrastructure.
- **Transfer of development rights programs**, which allow development density in excess of local zoning requirements in some areas in exchange for preservation of open space or parks in other areas.

These examples are incomplete precedent for VMT mitigation banks and exchanges, but they provide a conceptual framework (and, in some cases, useful templates) for local and state leaders seeking to organize them.



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### III. LEGAL SETTING AND BASIC REQUIREMENTS

The legal setting for VMT mitigation banks and exchanges consists primarily of the California Environmental Quality Act (CEQA) as amended by SB 743; the CEQA Guidelines as updated by the Governor’s Office of Planning and Research; and associated constitutional and legal doctrines.

A review of applicable legal requirements indicates that:

- Mitigation banks and exchanges are generally permissible under current law and likely do not require any specific state statutory authorization (although local jurisdictions may need to adopt ordinances or equivalent legislation to create them).<sup>34</sup>
- Program design and structure will need to account for basic standards regarding nexus, proportionality, and reasonability of fees/mitigation costs; specificity and non-deferment of programs; and enforcement and monitoring mechanisms for mitigation projects.
- Issues of additionality and project prioritization arise primarily out of policy and program efficacy concerns rather than legal requirements, although CEQA does include basic additionality requirements.

This section provides an overview of the legal setting for VMT banks and exchanges, identifies key legal steps and considerations for program design, and highlights legal questions that program implementers may confront.

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#### KEY LEGAL STEPS

- To institute legally valid and enforceable bank or exchange programs, local governments should adopt council or board legislation authorizing the program and any multi-jurisdiction coordination. Caltrans and state agencies can likely do so through director-level policy memoranda or equivalent.

- Programs should develop specific lists of eligible mitigation projects and/or criteria for eligibility, clear and consistent processes for evaluation and selection for investment, and standard binding agreements for participation in order to establish an enforceable and non-deferred (i.e., legally committed, concrete, and planned) mitigation program.
  - Programs should clearly define their geographic boundaries and document the regional (or sub-regional) nature of VMT impacts as appropriate for the covered area and the set of eligible mitigation projects to establish nexus and proportionality.
  - Programs should implement a mitigation monitoring and reporting framework incorporating both traditional CEQA reporting elements and financial operations tracking to ensure funds enter and exit the bank or exchange in accordance with the program's investment plan and individual lead agency and developer obligations.
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## **A. BACKGROUND: THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AND SB 743**

The California Environmental Quality Act (CEQA) is the state-level source of environmental impact mitigation requirements in California, including VMT impacts and mitigation, and is the core setting for VMT banks and exchanges. CEQA requires public agencies responsible for approval of development projects and land-use and other major decisions (known as “lead agencies”) to assess their anticipated significant environmental impacts and to select project alternatives or implement mitigation measures that address those impacts to a “less than significant” level where feasible.<sup>35</sup>

Under CEQA, a lead agency with the discretionary authority to approve or deny a project (or to carry it out directly) generally must prepare an environmental review document that comprehensively analyzes the proposed project's impacts to the physical environment; if the project has the potential to result in significant environmental impacts, this generally must take the form of an environmental impact report (EIR) that identifies alternatives and mitigation measures. The lead agency must then adopt a project alternative and/or mitigation measures that substantially reduce significant impacts, unless it determines that those measures are infeasible due to economic, social, legal, or other conditions and decides to approve the project despite the significant impacts for reasons identified in a statement of overriding considerations.<sup>36</sup> If the project's impacts can be reduced below the threshold of significance through implementation of mitigation measures, the lead agency may prepare a mitigated negative declaration (MND); if the lead agency identifies no significant impacts, it may prepare a negative declaration and proceed to project approval without preparing an EIR or implementing mitigation measures. If the project falls within predetermined exempt categories, then a Statutory Categorical Exemption may be used. The Governor's Office of Planning and Research (OPR) is responsible for issuing detailed guidelines for CEQA implementation.<sup>37</sup>

Traditionally, CEQA analysis of transportation impacts centered on the roadway congestion a project would generate based on the level of service (LOS) metric, which assessed the new vehicle trips and traffic dynamics created by a project and required mitigation measures to ease congestion.<sup>38</sup> Senate Bill 743 directed OPR to update the CEQA Guidelines with new transportation impact measurement criteria potentially including VMT, which focuses on the total number and length of vehicle trips generated independent of congestion.<sup>39</sup>

In 2018, OPR drafted and the California Natural Resources Agency issued new CEQA Guidelines stating that vehicle miles traveled – defined as “the amount and distance of automobile travel attributable to a project” – is generally the most appropriate measure of transportation impacts; that impacts on transit and non-motorized travel may be relevant considerations; and that congestion impacts generally are not considered significant.<sup>40</sup> Together, the SB 743 amendment to CEQA and the updated CEQA Guidelines give rise to the need for many lead agencies to assess and mitigate VMT impacts of new projects, and the potential—in line with the express and implied powers of local governments, regional transportation planning agencies, and state agencies to take actions necessary to implement their statutory responsibilities—to use bank and exchange frameworks to address VMT-related mitigation needs.

## B. KEY LEGAL REQUIREMENTS

CEQA does not directly address or restrict the use of bank or exchange frameworks in VMT mitigation. The CEQA Guidelines expressly contemplate the use of compensatory mitigation—a strategy that would include off-site mitigation strategies such as banking or exchanges—that “replac[es] or provid[es] substitute resources or environments.”<sup>41</sup> California courts have long accepted the use of fee-based mechanisms to aggregate funds from multiple individual projects and spend them on regional mitigation projects under CEQA, including fees whose ultimate expenditure was not specifically identified at the time of assessment.<sup>42</sup> And, in its 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA, OPR identified a range of potential VMT mitigation strategies including providing transit passes, limiting access to vehicle parking, and building bicycle parking. OPR noted that due to the regional nature of VMT impacts, regional mitigation measures including in-lieu fees may be appropriate so long as “there is both a commitment to pay fees and evidence that mitigation will actually occur.”<sup>43</sup>

Thus, it appears that CEQA generally permits the use of banking or exchange frameworks for VMT mitigation. Such frameworks, however, are subject to CEQA’s broad requirements that mitigation measures:

- Are formulated in the present rather than deferred and identified in detail (or, if detail is impractical at the time of the EIR or MND, through agency commitment, adoption of performance standards, and selection of potential actions).<sup>44</sup>
- Are made fully enforceable through legally binding instruments.<sup>45</sup>

- Are enforced via an adopted monitoring or reporting program designed to ensure that mitigation measures are implemented as designed.<sup>46</sup>
- Are consistent with constitutional standards requiring an essential nexus between mitigation and legitimate government interests and rough proportionality between mitigation and project impacts.<sup>47</sup>
- (If compensatory or fee-based) are documented as part of a reasonable and enforceable spending plan/program and actually tied to mitigating the project’s anticipated impact.<sup>48</sup>

In *Golden Door Properties v. County of San Diego*, the California Court of Appeal (Fourth District) evaluated San Diego’s inclusion of off-site (including out-of-state and international) greenhouse gas emission offsets as a mitigation pathway in its Climate Action Plan.<sup>49</sup> The court made three key findings regarding GHG mitigation measures that indicate criteria for designing VMT mitigation bank or exchange programs:

- While the use of offsets is not necessarily impermissible as CEQA mitigation, the program must include stringent standards for enforcing and documenting the actual avoided impacts, such as the CARB cap-and-trade program offset protocol requirements regarding data collection and monitoring, baselining, leakage, uncertainty, and permanence.<sup>50</sup>
- The program must require offsets to be additional to reductions that otherwise would have occurred.<sup>51</sup>
- The program must include specific, objective criteria for evaluation of proposed mitigation efforts – not simply a discretionary, potentially subjective evaluation based on a generalized goal.<sup>52</sup>

While the court made these findings in the context of GHG, rather than VMT, impacts, the structural similarity between bank/exchange and offset frameworks highlight the common importance of enforceability, additionality, and specific and objective assessment criteria for a program to be CEQA-compliant.

## 1. Present Formulation

CEQA generally prohibits agencies from deferring mitigation measures until after project approval, but allows agencies to do so in limited circumstances where pre-approval formulation of specific measures “is impractical or infeasible” and “the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure.”<sup>53</sup> For example, mitigation is improperly deferred where it is subject to individual discretion and “not guaranteed to occur at any particular time or in any particular manner,”<sup>54</sup> it “does no more than require a report to be prepared and followed,”<sup>55</sup> “success or failure...may largely depend upon management plans that have not yet been formulated,”<sup>56</sup> or “no specific criteria or standard of performance is committed to in the EIR.”<sup>57</sup>

However, California courts have held that selection of specific mitigation measures may properly be deferred so long as the agency “has evaluated the potentially significant impacts of a project and has identified measures that will mitigate those impacts ... [and] commits to mitigating the significant impacts of the project.”<sup>58</sup> If the agency identifies the full ‘menu’ of mitigation measures that may be employed to mitigate the impacts identified in the EIR and commits itself to mitigation, it may properly “fix the exact details of the implementation” at a later time, for example by identifying a specific mitigation measure in the EIR but setting its exact location after further study,<sup>59</sup> or where mitigation measures consist of the adoption of local ordinances and regulations that will require mitigation of identified environmental risks, giving adequate assurance that mitigation will occur through feasible and effective methods.<sup>60</sup>

While this requirement broadly limits agencies’ ability to implement fee-based mitigation programs without defined investments, the inherent structure of a VMT mitigation bank or exchange program should satisfy the criteria: the agency will commit itself to mitigation measures in the enabling instrument and each project participation instrument; the program’s fiscal framework (see [Section V](#)) and monitoring structure (see [Section IV](#)) will set a mitigation performance standard and establish a price for VMT, facilitate transactions, and ensure implementation of investments; and the project prioritization/additionality assurance mechanisms, in combination with a preliminary project list and/or reference to an active RTP, will identify potential actions. The EIR (or MND) for the bank or exchange program can include each of these elements to strengthen the program’s legal foundation and certainty for participants.

With lead agencies are still in the process of establishing the efficacy of various VMT mitigation projects (as compared to decades of experience utilizing more traditional CEQA mitigation efforts dealing with natural resource and physical environment impacts), this information gap may increase the need for banking program leaders to evaluate the efficacy of a potential mitigation project list in a programmatic fashion rather than for individual lead agencies and developers to do so on a case-by-case basis. This analysis will increase the level of detailed review required prior to program roll-out (though it could rely in part on supporting documentation from existing transportation plans) but it could save significant delay and litigation at the implementation stage.<sup>61</sup>

## 2. Legal Enforceability

CEQA requires all mitigation measures to be “fully enforceable through permit conditions, agreements, or other legally binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.”<sup>62</sup> Thus, it is essential that the implementing agency document and manifest each project’s participation in a VMT mitigation bank or exchange via a legally binding instrument such as a standardized contract or agreement that includes legal consideration (i.e., mitigation commitment in exchange for project approval) and an enforcement mechanism (i.e., penalties or sanctions) for non-performance. This agreement should be a precondition to participation in the bank program.

### 3. Monitoring/Reporting Plan

CEQA allows a fair amount of flexibility with regard to monitoring and reporting. While a formal plan is required, an agency may delegate oversight of the plan to another agency or a private party (provided the agency remains responsible for ensuring implementation of mitigation measures).<sup>63</sup> In addition, agencies can choose either reporting (“a written compliance review that is presented to the decision making body”) or monitoring (“an ongoing or periodic process of project oversight”), or both, as its primary oversight method; reporting may be more suited to mitigation measures with readily measurable completion indicators, while monitoring may be more suited to those with complex and long-term implementation.<sup>64</sup> VMT mitigation, which likely will encompass both types of measures, will likely require a hybrid monitoring/reporting program. State and local lead agencies will likely already have monitoring and reporting programs in place for other mitigation measures, including for LOS mitigation, and may be able to draw applicable elements from those programs to craft the VMT program. See [Section VI](#) for a discussion of monitoring and reporting programs.

### 4. Nexus and Proportionality

CEQA mitigation, like most regulatory conditions on development, generally must adhere to two central constraints established under the state and federal constitutions. First, there must be an “essential nexus” between the mitigation requirement and a legitimate government interest which would otherwise allow denial of the discretionary application —i.e., the requirement must not only serve some government interest, but must serve the same interest as advanced by the underlying policy (here, reduction of total VMT occasioned by a development).<sup>65</sup> Second, the requirement must bear “rough proportionality” to the anticipated impact (again, total vehicle miles traveled occasioned by a development)—i.e., the lead agency “must make some sort of individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development.”<sup>66</sup>

CEQA expressly applies these general principles to mitigation measures,<sup>67</sup> and mitigation bank or exchange program designers should be careful to document that both the VMT fee/price they institute and the potential mitigation investment list/plan bear the required relationships to the impact-generating projects. Agency leaders can likely address these concerns by establishing a VMT price based on the anticipated local average cost of VMT-reducing investments (see [Section V](#)) and a geographic scope for the bank/exchange program that matches the regional nature and impact of VMT (see [Section IV](#)). Since bank and exchange programs can be designed to manage both transportation- and land use-related VMT impacts and mitigation, administrators could document a valuation strategy that fairly prices multiple impact and mitigation types and facilitates the broadest range of transactions.

The California Supreme Court has held that the imposition of a development fee or monetary exaction to fund a public investment related to the impact of the development can readily satisfy the essential nexus requirement.<sup>68</sup>

A traffic mitigation requirement or fee must be limited to addressing the “harm resulting from an individual project” and cannot require mitigation of general impacts beyond its own.<sup>69</sup> And an agency responsible for a fee must make “individualized findings” demonstrating a “fit” between the fee and the public impact of the development in order to satisfy the rough proportionality requirement.<sup>70</sup> Thus, bank or exchange program founders will need to establish a clear and consistent VMT pricing regime and application of that based solely on estimated induced VMT as an essential components.

Lead agencies will be highly familiar with satisfying these constitutional requirements for mitigation programs. In the VMT mitigation bank/exchange context, they may require additional emphasis on the exclusive use of mitigation funds to support approved VMT-reducing projects (for essential nexus); and on the VMT calculation methods that will determine pricing and project selection, including individualized assessment of each development and mitigation project (for rough proportionality).

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### MITIGATION FEE ACT

California’s Mitigation Fee Act codifies the “essential nexus” and “rough proportionality” requirements for local agencies seeking to impose a fee as a condition of land use development. While CEQA analysis should guide mitigation bank or exchange program development, local leaders familiar with Mitigation Fee Act requirements may wish to consult them for the land use aspects of a program.

Under the act, an agency imposing a fee must document and support findings that:

- Identify the purpose of the fee.
- Identify the use of the fee, including identifying any public facilities (defined broadly to include “public improvements, services, and community amenities”) to be funded.
- Determine the reasonable relationship between the project type and the fee use.
- Determine the reasonable relationship between the project type and the need for the public facility to be funded.
- Determine the reasonable relationship between the cost (or relevant portion of the cost) of the public facility or service to be funded and the amount of the fee, which cannot exceed the “estimated reasonable cost” of the facility or service.<sup>71</sup>

In addition to these substantive standards, the law requires agencies to adopt a proposed construction schedule or plan, establish accounts prior to fee assessment, and identify the public improvement that the fee will be used to finance at the time the fee is assessed, along with other accounting requirements.<sup>72</sup>

The California Supreme Court held that the act’s “reasonable relationship” requirement effectively merges with the Dolan “rough proportionality” requirement. Local agency nexus studies, such as the Active Transportation In Lieu Fee Nexus Study prepared by the City of San Diego in connection with its VMT fee program, describe the basis for fees and related program structures and document Mitigation Fee Act compliance.<sup>73</sup> However, since these requirements generally only apply in the land use context, program administrators may not need to apply the analysis for the transportation parts of their programs. And the regional nature of VMT impacts could pose a challenge to the local “burden” analysis that lead agencies typically apply in fee program nexus studies—further indicating that plan-level CEQA reviews are a more viable strategy for nexus analysis of bank and exchange programs.

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## 5. Additionality

Additionality, which is discussed in depth in [Section VI](#), is the principle that mitigation should consist of “additional resources that otherwise would not have been provided or [are provided] substantially earlier than they otherwise would have been available” absent the specific mitigation commitment.<sup>74</sup> While the CEQA statute and guidelines do not expressly reference additionality requirements, the concept of additionality is central to general CEQA mitigation principles. All EIRs must include identification of a baseline for comparison purposes which normally reflects “existing conditions...at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.”<sup>75</sup> The proposed project and its anticipated environmental impacts must generally be assessed in comparison with the existing conditions or another set of conditions that accurately reflect the baseline against which those impacts are measured.<sup>76</sup> As a result, existing and reasonably expected conditions are assumed in the “baseline”, meaning mitigation measures generally should not include actions that would be reasonably expected to occur otherwise. As such, lead agencies and developers should not claim mitigation “credit” for actions that otherwise would have occurred with or without the proposed project, much as they cannot base significance determinations on anticipated conditions that would result from mitigation measures.<sup>77</sup>

As a corollary, mitigation bank programs should include strategies to ensure program investments do not displace other planned VMT-mitigating investments or, if they do, that displaced funds are redirected to other VMT-reducing projects. Thus, while additionality does not appear explicitly in the CEQA statute (or in CEQA case law outside the specific context of greenhouse gas offsets), accounting for additionality can be considered a part of sound CEQA analysis and is critical to the analysis of mitigation opportunities.

## 6. CEQA Analysis of the Bank/Exchange

In addition to the basic CEQA-related requirements for implementing mitigation described above, because the development of a bank or exchange program likely involves discretionary actions by the public agency creating it, any agency seeking to create a bank or exchange program will likely need to conduct an independent CEQA analysis of the proposed bank or exchange program itself. California courts have held that while fee-based mitigation programs “may offer the best solution to environmental planning challenges, by providing some certainty to developers while adequately protecting the environment,” they should first be evaluated under CEQA if they are to serve as a substitute for traditional case-by-case mitigation.<sup>78</sup> Since a VMT mitigation bank or exchange would functionally (for CEQA purposes) parallel an in-lieu fee program for mitigation, this same requirement would likely apply, although the analysis may result in a mitigated negative declaration since the net impact of the program would be to reduce VMT impacts.<sup>79</sup>

## C. OTHER LEGAL CONSIDERATIONS

In addition to the core CEQA and constitutional considerations shaping VMT bank or exchange programs, California law includes a group of other transportation planning frameworks with which a bank or exchange may need to interact. While these regimes are unlikely to pose substantial legal barriers to bank or exchange formation, they may raise some policy implications for which program implementers should account.

### 1. Regional Transportation Plans (RTPs)

California (and federal) law requires metropolitan planning organizations (MPOs, covering regions with urban centers) and regional transportation planning agencies (RTPAs, covering rural areas) to develop a Regional Transportation Plan (RTP) “directed at achieving a coordinated and balanced regional transportation system” and incorporating local, regional, state, and federal plans and priorities.<sup>80</sup> The RTP is the primary long-range plan for regional transportation investment with policy, financial, and action elements “constrained by a realistic projection of available revenues,” updated every four or five years.<sup>81</sup> While state law and guidelines on RTP development are not focused on VMT reduction, an RTP’s inclusion of specific projects may impact the scope of VMT mitigation projects available in a bank or exchange and the assessment of additionality. For example, a project that is certain to be funded and completed under an RTP would be unlikely to qualify as additional for mitigation purposes except under limited circumstances (such as clear advancement in time of project delivery); at the same time, the RTP reflects regional transportation investment priorities, and large-scale mitigation investments likely should overlap with those priorities where feasible. Thus, for additionality and project prioritization purposes, VMT mitigation bank and exchange programs will have to consider the investments outlined in the applicable RTP to identify where overlap exists, and when a mitigation project is included in an RTP, include program mechanisms to ensure that it meets additionality requirements (i.e., while a

bank or exchange program need not operate completely outside the RTP, it should not displace funds that would otherwise be invested). See [Section VI](#) for in-depth discussion of additionality and [Section IV](#) for in-depth discussion of project prioritization.

## 2. Sustainable Communities Strategies

Senate Bill 375 directs MPOs (but not RTPAs) to adopt Sustainable Communities Strategies (SCS), which are RTP components designed to integrate land use, housing, and transportation planning strategies to meet regional greenhouse gas emission reduction goals set by CARB.<sup>82</sup> SB 375 required MPOs to model, but not necessarily to implement, GHG reduction strategies. Since SB 375 included limited enforcement mechanisms, and since the GHG reduction goals largely overlap with those of SB 375, implementation of VMT mitigation banks or exchanges under SB 743 is unlikely to conflict with an SCS. In addition, the development goals outlined in an SCS may not reflect the development reality in a given MPO, which may direct future planning priorities but should not affect CEQA analysis or mitigation. However, in areas with an adopted SCS, program implementers may wish to account for its long-term plan to ensure that investment prioritization and geographic distribution elements do not conflict.

## 3. Congestion Management Program

California law requires counties containing urbanized areas of more than 50,000 residents to adopt a congestion management program (CMP) to maintain level of service at a minimum E level.<sup>83</sup> Since the mid-1990s, counties have been able to opt out of the requirement, but many still maintain CMPs.<sup>84</sup> In addition, the Federal Highway Administration requires large metropolitan areas over 200,000 residents to maintain CMPs (though it is not prescriptive regarding implementation).<sup>85</sup> While VMT mitigation strategies are designed to reduce overall vehicle travel (and thus congestion), some strategies may increase congestion in particular places where density is directed and the off-site nature of some mitigation in a VMT bank or exchange framework could raise congestion issues for some development projects. For banks and exchanges in areas that still maintain CMPs, program implementers should confirm that the CMP's level of service requirements do not conflict with any potential distribution of VMT mitigation projects.

## D. PROGRAM PRECEDENT AND MODELS

This section provides a brief review of select mitigation bank-style programs and VMT-related programs whose design elements inform various aspects of this report. While no existing program offers a clear template for VMT mitigation banks or exchanges, these programs present useful precedent and points of reference.

## 1. California Conservation and Mitigation Banking Program and Clean Water Act Section 404 Mitigation Banking Program

California's [Conservation and Mitigation Banking Program](#) establishes a framework for the exchange of credits or funds for conservation of habitat and species in designated locations to mitigate significant environmental impacts, including under CEQA.<sup>86</sup> The goal of the program is to find “alternatives to the small, fragmented habitat reserves that can result from project-by-project mitigation” in the form of “generally large, connected areas of preserved, restored, enhanced, or constructed habitats...that are set aside for the express purpose of providing mitigation for project impacts.”<sup>87</sup> Banks are publicly or privately managed lands that allow project developers to discharge their CEQA mitigation obligations cost- and time-efficiently by funding mitigation commensurate to project impact at a centralized site, rather than attempting to craft a feasible mitigation strategy onsite at the project. Since its reestablishment in 2013, the program (administered by the California Department of Fish and Wildlife in coordination with other state, local, and federal agencies) has set up dozens of banks throughout the state protecting tens of thousands of acres of wetland habitats and a range of vulnerable species.<sup>88</sup> While the program's focus on physical ecosystem “banks”—discrete locations that can be conserved in perpetuity based on the exchange of credits—has limited application to the context of VMT mitigation, it demonstrates the acceptance of mitigation banking under California law and the potential success of multi-agency coordination on mitigation investment.<sup>89</sup>

The [Clean Water Action Section 404 compensatory mitigation program](#), which is administered by the U.S. Environmental Protection Agency and the Army Corps of Engineers, similarly facilitates off-site mitigation of impacts to waters and ecosystems that arise from dredge or fill activity permitted under the Clean Water Act.<sup>90</sup> The Regulatory In-Lieu fee and Bank Information Tracking System (RIBITS) database that the agencies sponsor in association with the program is a potential model for VMT mitigation databases at the state or regional level. In addition, like the California mitigation bank program, it demonstrates the need for significant staff capacity to maintain a successful program.<sup>91</sup>

## 2. Caltrans Advance Mitigation Program

Caltrans' [Advance Mitigation Program](#), which was established by the major Senate Bill 1 (2017) transportation funding legislation, allows Caltrans to identify and discharge environmental mitigation obligations in advance of roadway project deployment.<sup>92</sup> The goal of the program is to consolidate the forecasted ecosystem, habitat, and wetland impact mitigation needs of multiple planned projects to aggregate benefit, reduce project delays, and streamline implementation.<sup>93</sup> While the program largely relies on links to other existing mitigation programs for the identification and funding of actual mitigation investments, its establishment of eligibility criteria, credit management, and state reporting components may all be worth consideration for VMT mitigation bank or exchange designers.<sup>94</sup> In addition, the program's nearly three-year timeline from statutory authorization to project implementation—and the legislature's appropriation of \$30 million to seed a revolving fund for initial

investments—indicate the level of staffing and financial support likely required for effective bank development. The legislature has not to date appropriated funds for Caltrans or local agencies to seed or staff VMT mitigation banking programs.

### 3. Bay Area Regional Advance Mitigation Program

The Metropolitan Transportation Commission (MTC, the Bay Area’s regional Metropolitan Planning Organization) established a Regional Advance Mitigation Program (RAMP) to carry out aggregated conservation-based mitigation for impacts from regional transportation investments, similar to the Caltrans AMP and premised in part on California’s Regional Conservation Investment Strategies program, which was enacted in 2016 and specifically authorizes the creation of mitigation credit agreements to facilitate corridor- and watershed-level (rather than project-by-project) mitigation investments.<sup>95</sup> While the program is still in the early stages of implementation, the structure used to deliver aggregated off-site mitigation—individual participating transit agencies participate via project entry and associated credit purchases, while MTC manages funds and program policy but is not directly responsible for carrying out mitigation projects—offers a viable model for VMT mitigation banks and exchanges.<sup>96</sup>

### 4. San Diego and San José Vehicle Miles Traveled Programs

The cities of [San Diego](#) and [San José](#) have adopted VMT mitigation programs that do not formally function as banks or exchanges but include VMT impact fees—\$1,400 per VMT in San Diego, \$2,300-\$3,200 in San José—that accomplish a key capacity of the fiscal framework of a VMT mitigation bank or exchange. The location- and project type-based pricing that these programs use may be viable for the land use components of mitigation bank or exchange programs; transportation projects may require different analytical factors but should equate to a comparable dollar value. [See Sections V](#) (fiscal framework) [and VII](#) (equity considerations) for further discussion of these programs.

### 5. San Francisco Transportation Demand Management Program

San Francisco’s [Transportation Demand Management \(TDM\) Program](#) requires that developers of all but the smallest residential and commercial projects must prepare a plan incorporating “design features, incentives, and tools to encourage new residents, tenants, employees, and visitors to travel by sustainable transportation modes, such as transit, walking, ride-sharing, and biking, thereby reducing [VMT] associated with new development.”<sup>97</sup> Each proposed development is assigned a points-based “target” based on the development type, property location, and the number of accessory parking spaces, and is then required to meet this target by implementing qualifying VMT reduction measures that generate an equivalent number of points on the TDM menu of options, ranging from bicycle parking to shuttle bus service to on-site childcare.<sup>98</sup> (Each point is equivalent to a one percent reduction in VMT.) The city reviews each TDM plan and must approve it prior to final

project approval; developers must submit annual TDM plan reports and undergo site visits every three years. The city operates an online TDM tool that allows developers to assess their VMT impact and identify a mix of viable mitigation options.<sup>99</sup> While the program is focused on on-site mitigation, its points-based pricing system as well as its specific authorization in the city Planning Code are valuable for consideration.

## 6. Transfer of Development Rights Banks

Transfer of development rights (TDR) is a mechanism by which a “sending” property owner records an easement that restricts future development and sells the equivalent development right to a “receiving” property owner, which is then permitted to exceed baseline zoning density (or floor area, lot coverage, or height limits) in another location.<sup>100</sup> TDR can be used to direct development toward areas that are more appropriate for growth—typically those close to jobs, schools, and transit—and away from environmentally sensitive areas or historic properties, which are permanently protected from further development. While TDR typically involves one-for-one exchanges between properties, some counties around the country (including King County, WA and Palm Beach County, FL) have developed TDR “banks” that collect development rights severed from “sending” properties in advance and later aggregate and sell the credits to developers in “receiving” areas, using centralized administration to facilitate a greater number of transactions.<sup>101</sup>

## E. LEGAL FORMATION AND ENABLING INSTRUMENTS

The next section of this report will discuss the potential benefits and drawbacks of various approaches to selecting the administrative entity for a VMT mitigation bank or exchange. The core options include:

### *Caltrans (and potentially other state agencies) could:*

- Create a **single statewide bank/exchange managed by a state entity** such as the Governor’s Office of Planning and Research (OPR), California Natural Resources Agency, or California State Transportation Agency (CalSTA) (created pursuant to a memorandum of understanding with Caltrans and other participating agencies) or by Caltrans’ Division of Environmental Analysis (created pursuant to a Caltrans Director’s Policy Memorandum and subsequent Deputy Directive).
  - State enabling legislation would likely not be necessary to set up the program—an interagency MOU or internal Caltrans policy documents could do so based on existing CEQA authority—but it would be helpful to formally establish the program and secure funding for staffing and administration.

- Create **regional-scale banks/exchanges for each Caltrans district or region**, pursuant to a Caltrans Director’s Policy memorandum and subsequent Deputy Directive followed by implementing memoranda or guidelines approved by individual district directors.
  - If multiple districts seek to form a regional multi-district bank or exchange, their respective directors could issue implementing memoranda or guidelines together with a coordinating MOU (or cooperative agreement) describing rights and obligations.

*Local/regional governments could:*

- Create **regional-scale banks or exchanges managed by MPOs and RTPAs**, pursuant to individual enabling legislation or ordinances by each participating city or county to confer legal authority for the new program; a binding agreement between participating governments describing rights and obligations; and an implementing memorandum or guidelines issued by the MPO or RTPA.
- Create **individual city- or county-scale local banks or exchanges managed by local lead agencies** pursuant to local ordinance or resolution. Major cities or counties within the MPO that already have stand-alone VMT programs or are otherwise poor candidates for regional linkage could decline to join the MOU and establish their own programs via local ordinance.
- Create **multi-region banks or exchanges by executing a joint powers agreement among multiple MPOs or RTPAs** (and/or multiple cities or counties not contained in a single MPO or RTPA), in addition to local enabling legislation and regional guidelines, to form a VMT mitigation-specific JPA.
  - State enabling legislation would likely be unnecessary but could be helpful to establish multi-regional programs and secure administrative funding.



## IV. ADMINISTRATIVE ENTITY

The first fundamental decision in the design of a VMT mitigation bank or exchange mitigation program will be the selection or creation of an administrative entity to house the program, set its geographic scope/jurisdiction, and set the shape of other program elements.

Any VMT mitigation bank or exchange will require substantial administrative capacity from the earliest design phases through implementation, and the choice of administrator will determine how that administration is carried out.<sup>b</sup> The options presented in this report generally presume that bank or exchange programs would be run by governmental bodies (or multiple governments through joint powers authorities or memoranda of understanding) as an extension of existing project planning, delivery, and environmental review responsibilities, although agencies could delegate management to new entities or third-party non-profits where appropriate.<sup>102</sup> Selecting the appropriate jurisdiction or level of government (local vs. state) will have significant implications for program design decisions.

The administrative entity initially would be tasked with designing the bank or exchange and deciding on key structural elements as described in this report. Once agency leaders establish the bank/exchange's framework, the administrative entity would oversee the operation of the program by determining project eligibility, managing funds collected from developers by local jurisdictions, matching projects in the exchange with appropriate mitigation efforts, and conducting monitoring and evaluation efforts.<sup>c</sup>

The VMT mitigation bank or exchange program functions described in this report are, broadly speaking, extensions of existing project planning and mitigation capacities within California state and local transportation and land use agencies. References to a “mitigation bank” or “mitigation exchange” are shorthand for these expanded programmatic capacities and do not necessarily refer to new stand-alone entities or programs.

b For a discussion of geographic scope and administrative entity selection, including a comparative rating of different state and local administrators, see Fehr & Peers, *VMT Mitigation Program Pilot Project*, supra, pp. 11-18.

c If multi-jurisdictional programs are created, the jurisdiction approving the development could collect the fee and pass it to the joint powers authority. Local jurisdictions would be responsible for collecting fees in single-jurisdiction programs.

The exact nature of these tasks may vary depending on the structure of the bank and the selected administrative entity. For example, Caltrans (or another state agency with lead agency responsibilities) might have a different set of responsibilities than an MPO when administering a bank/exchange program. Administrative entity leaders also could seek out and identify new projects to include in the program.

This section considers two sets of options for bank/exchange administrative entities:

- **For Caltrans or other state agencies with lead agency responsibilities:** Administration by Caltrans or another state agency on a statewide level; or by individual Caltrans districts.
- **For local and regional agencies:** Administration by regional planning agencies at the regional level; or by cities or counties at the local level; or by joint powers authorities at the multi-regional level.

This report includes recommendations for Caltrans as the state agency most likely to be responsible as a lead agency for VMT-inducing projects. In many cases these projects will be State Highway System projects which Caltrans co-administers and co-funds on behalf of local or regional agencies. In addition, other state agencies may at times serve as lead agencies for infrastructure or housing projects with potential VMT impacts. For simplicity, this report generally refers to projects and mitigation programs in the state context under the Caltrans label.

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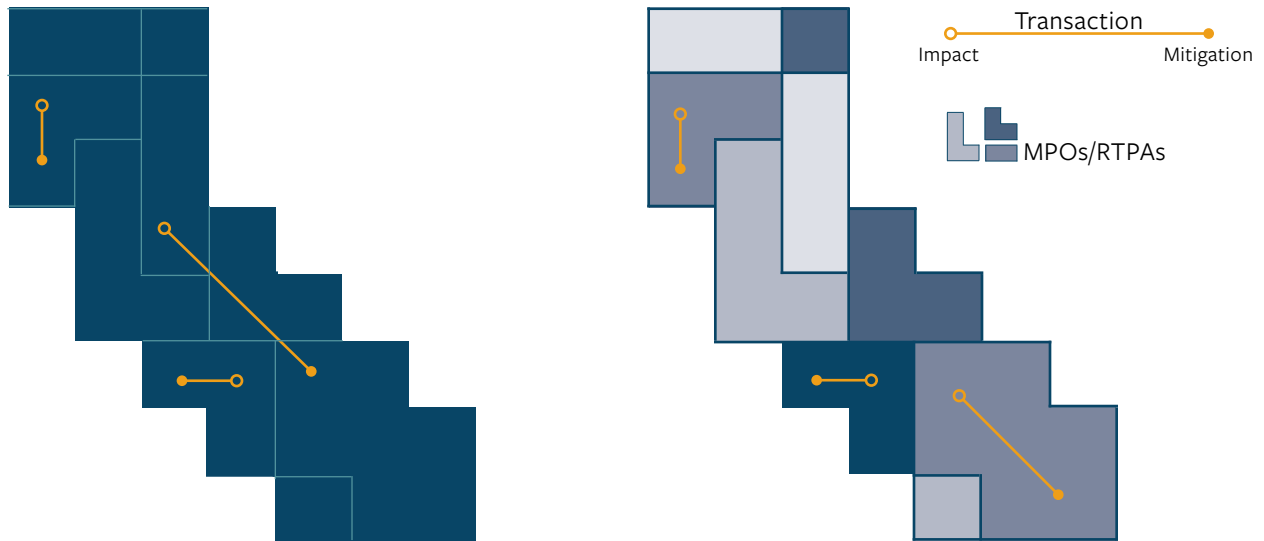
Based on research and expert interviews, two parallel pathways for program administration emerged:

- Statewide administration may be preferable for Caltrans and other state agencies, with a state entity such as the Governor's Office of Planning and Research or CalSTA (or, potentially, Caltrans itself) responsible for program administration. While OPR, CalSTA, and Caltrans have in-house transportation and mitigation program expertise, some legislative support and funding for additional staff and agency capacity would likely be necessary.
- Regional-scale administration by MPOs and RTPAs may be preferable for local and regional agencies. Some larger local governments with existing VMT programs may choose not to participate in regional scale programs, and regional transportation agencies that lack capacity or a critical mass of projects may rely on a multi-regional collaborative approach or even participate in the state program as a backstop.

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This section will describe the options listed above and will focus on a set of preferred options for administrative entities. The description of each option will consider efficacy/VMT reduction implications, financial implications, and equity implications (which are discussed in more detail in Section VII). Next, this section will consider questions of administrative entity organization, such as funding and staffing. The section will conclude with a discussion of project selection and prioritization criteria aimed at aligning mitigation projects with broader goals (e.g., efficiency, equity, or emissions reductions).

## PREFERRED PROGRAM ADMINISTRATION OPTIONS



### State Program

Single program, Caltrans and/or other state agency administration

AND

### MPO/RTPA Programs

Multiple programs, MPO/RTPA Administration, possible local carve-outs and regional combinations

*Figure 2: Preferred program administration options for both Caltrans/state projects and regional/local projects. A state agency or Caltrans would administer a state-level program to manage mitigation when a state entity is lead agency for a VMT-inducing projects. MPOs and RTPAs would administer separate programs when local and regional entities are lead agency for VMT-inducing projects. **Both the state-level program and local/regional-level programs would operate simultaneously, managing mitigation obligations for their respective participating agencies and jurisdictions.***

## A. ADMINISTRATIVE ENTITY BACKGROUND AND COMPARISON

This analysis considers both state-administered banks/exchanges to serve Caltrans-approved State Highway System and other state projects (which could be administered at a statewide level) and local- or regional-level banks to serve local lead agency-approved development projects in towns, cities, and counties throughout the state (which could be administered at the city or county level, or through a regional or multi-jurisdictional body). The entities responsible for administering each bank will need to determine the specific program design elements relevant for their applicable jurisdiction, but consistency and communication across regions will be important to achieve state VMT goals.

This section will discuss the administration options for both state and local/regional agencies to manage their respective mitigation needs. A discussion of the preferred options will follow.

## 1. Caltrans and state agencies

- **State-level bank/exchange program:** A state government entity (such as OPR, CalSTA, or CNRA) or Caltrans (through a headquarters division) could administer a statewide mitigation program that manages VMT mitigation needs from State Highway System projects for which Caltrans has CEQA lead agency responsibilities, as well as any other VMT-inducing state projects. This would allow one state government entity (or two entities in coordination) to oversee the program's administration at the state level, which could maximize administrative efficiency and have the greatest likelihood of aligning VMT mitigation efforts with state transportation and greenhouse gas mitigation policies. Another benefit of this approach is that cross-regional or large-scale projects, like intercity highway infrastructure projects, would be easier to bring into a single bank from an intake perspective, and large-scale mitigation could be easier to fund. In addition, locating the program at an agency other than Caltrans would allow Caltrans (which would provide the majority of the VMT-generating projects in the program) to participate solely as a party to transactions and not as an administrator of those transactions. However, this approach would require careful coordination among state agencies in program design and initial creation. Finally, a state-scale approach would have to address CEQA's nexus and proportionality requirements by managing the location of mitigation investments.
- **District-level bank/exchange program:** Alternatively, each of the 12 Caltrans districts, or combinations of adjacent districts, could administer a bank or exchange operating within its identified geographic bounds. This arrangement could allow the districts to tailor solutions and projects as appropriate to address local project types and impacts as well as local or regional transportation needs. However, for state projects, district-level administration might result in less program coordination and consistency than a state-scale option would, and district offices may not all prioritize VMT mitigation and SB 743 compliance to the extent needed for an effective program. In addition, district offices would likely have less capacity for program development and management than Caltrans headquarters or another state entity. Finally, a district-level program might lack the ability to aggregate mitigation at regional or state scale when necessary or beneficial.

## 2. Local and regional governments

- **MPO- or RTPA-level administration:** For local and regional lead agencies, administering mitigation programs at the Metropolitan Planning Organization (MPO) or Regional Transportation Planning Agency (RTPA) level

## RURAL CONSIDERATIONS

California's regions include a mix of rural areas, densely populated urban areas, and suburban areas. While the majority of total VMT impacts will arise in urban and suburban areas, VMT mitigation program leaders will need to address impacts and provide viable mitigation in rural areas as well.<sup>d</sup> These communities (in particular those that do not have an approved travel demand model) can face significant barriers to VMT-reducing investment, from minimum ridership requirements for state investment in new transit stops to local zoning rules that do not accommodate transit-oriented development and a lack of infrastructure necessary to make public transit or active transportation improvements. For example, some communities may not have the drainage plans or stormwater infrastructure needed to install a curb and gutter that would be necessary to support a new bus stop. Program administrators should thus consider the full scope of required infrastructure and planning and seek to balance different needs within their program regions. For example, they may need to avoid situations where all funds from rural areas are diverted to urban city centers, and it may be necessary to modify VMT pricing or project prioritization for projects and mitigation investments in rural areas. Program leaders could also consider innovative rural VMT-reducing strategies such as resilience and recreation centers, mobile farmers markets, and safe routes to school.<sup>103</sup> Administrators will need to conduct outreach in rural communities in the program development phase to ensure they can reflect these considerations and investments in program design.

d The greatest induced travel (and air quality) impacts in many rural areas result from truck and heavy-duty vehicle trips from warehouse, agricultural, and industrial projects. However, the CEQA Guidelines only include automobile and light-duty truck traffic in the definition of VMT. 14 Cal. Code Regs. § 15064.3.

could maximize administrative efficiency and ensure most effective investment of mitigation funds.<sup>104</sup> California’s 44 regional transportation agencies (including the 18 MPOs and 26 RTPAs, with some RTPAs contained within MPOs<sup>105</sup>) have substantial experience developing transportation plans, administering funding from multiple sources, and connecting with their local communities, and their boards consist of elected officials from constituent local governments. Within an MPO or RTPA jurisdiction, participating local governments could individually authorize creation of a joint bank through passage of local ordinances or equivalent; enter an MOU creating the joint program within the MPO or RTPA governance and detailing key program guidelines; and encourage their constituent lead agencies to direct VMT mitigation through the joint program. This regional scale could promote high-quality mitigation investment through aggregation of funds and ease of administration while retaining a focus on local priorities. To sustain local participation, an MPO- or RTPA-scale bank would likely need to guarantee that each participating local government would achieve a balance of VMT impact and mitigation investment over a long-term (e.g., 10- or 20-year) timeframe, potentially limiting the bank/exchange’s flexibility to shift mitigation throughout the region. RTPAs in rural areas might still see limited VMT impacts from development and limited options available for mitigation investments (and may need additional support in administering a bank/exchange from a staff capacity and funding standpoint), suggesting a multi-region approach may be valuable in some locations as described below. Conversely, a populous MPO with distinct sub-regions may find that multiple “benefit basins” within the MPO may better address local needs; for example, the Bay Area’s Metropolitan Transportation Commission could consider North Bay, East Bay, South Bay, and Peninsula districts within a single MPO-level administrative program. In this arrangement, the MPO would still manage the program on behalf of all participating jurisdictions, but would institute a set of internal boundaries to limit the scope of potential mitigations, set targeted pricing, and prioritize investments.

### MPO/RTPA PROGRAM ADMINISTRATION OPTIONS

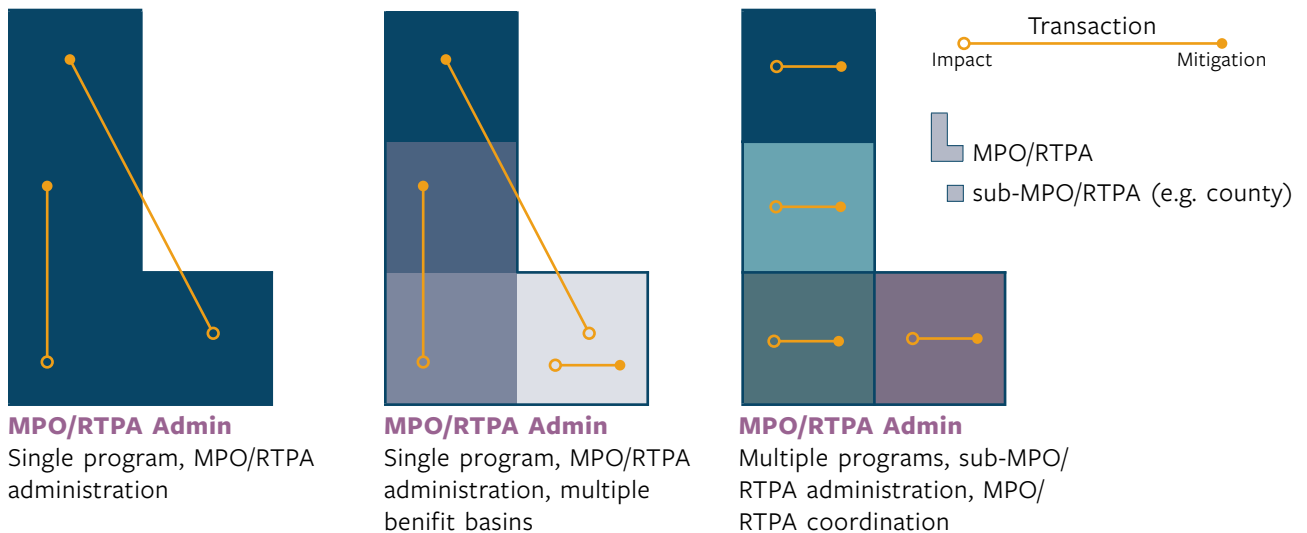


Figure 3: MPO- or RTPA-level bank or exchange administration options, including single uniform program with one MPO/RTPA administrator covering one program area (left); single program with one MPO/RTPA administrator covering multiple distinct “benefit basins” (middle); and multiple program administrators, each covering a distinct program area, overseen by a single MPO/RTPA coordinator (right).

- **County- or city-level administration:** Administering a bank or exchange at the county or city level could allow for greatest alignment between local priorities and program outcomes. For example, Los Angeles County may have substantially different priorities for VMT mitigation programming than neighboring Ventura County, although both are within the same MPO, with an existing set of major transit capital projects seeking funding and a county-level capacity to administer bank or exchange duties. In this scenario, county administration may allow for a more targeted program compared to administration by the applicable MPO, drawing on collaboration with existing sub-regional organizations like the Southern California Association of Governments (SCAG). Similarly, a large city with the administrative capacity to develop and oversee their own VMT mitigation program and concentration of projects and mitigation opportunities to sustain it (such as San Diego or San Francisco) may not wish or need to participate in a regional program. Thus, for populous counties and cities that have already begun VMT mitigation programs, an individually administered local-scale bank or exchange may be preferable to participating in an MPO- or RTPA-administered program.
- **Multiregional and/or intergovernmental administration:** A bank or exchange could be administered by multiple regions or different levels of government working in collaboration. For example, several MPOs or RTPAs might decide to align to create a joint bank, administered across their regions. Similarly, one or more MPOs might choose to collaborate with cities or counties, or governments to create a Joint Powers Authority (JPA). The multiregional or intergovernmental design option may be particularly attractive in less densely populated areas where local authorities may lack the staff capacity and resources or the threshold number of projects to make bank administration feasible. By combining with neighboring entities, these areas can aggregate resources and cover more projects in one bank/exchange.

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### MULTIJURISDICTIONAL PROJECTS

Some of the projects with the greatest potential for VMT reduction may cross multiple regions or jurisdictions, such as large rail transit projects. These mitigation opportunities are most likely to arise in a state-level mitigation program administered for Caltrans (and potentially other state agencies), since this program will have the capacity to aggregate mitigation funds into major investments. Caltrans or the other state administering entity will need to ensure any such investments satisfy nexus and rough proportionality requirements, potentially by including funds only from VMT-inducing projects in regions that benefit from the mitigation investment. If large-scale projects are under consideration for inclusion in an MPO/RTPA-scale local banking program, multiple administrative entities could enter into an MOU outlining the proportionate VMT mitigation obligation of each entity

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## B. PREFERRED OPTIONS

This section identifies the preferred options for both the Caltrans/state agency and local/regional banks as identified based on research, interviews and analysis, and highlights some of the design decisions that will be particularly relevant to administrative entity selection. However, each of the program design aspects described in subsequent sections—including fiscal frameworks, monitoring and enforcement, program evaluation, and equity—will flow from the choice of administrative entity.<sup>e</sup>

### 1. Caltrans preferred option: state-level administration

The preferred option for a bank or exchange for Caltrans' State Highway System projects (and potentially other state agency projects with VMT impacts) is a state-level program administered by a state agency such as OPR, CalSTA, or CNRA in coordination with a Caltrans headquarters division. Since Caltrans does not have a traditional VMT reduction mandate, and since it would also participate in transactions as a “payor” entity, housing the program in another agency could help ensure optimal transaction management. By drawing on existing state agency resources and staff expertise, the program could achieve efficiency in program management and alignment with state transportation and climate policies. The state-level administrators would also be well positioned to conduct evaluation and assessment at regular intervals after the program is underway and share best practices and outcomes with regional and local counterparts. Finally, a state-level bank program could likely serve as an administrative backstop if any local or regional governments choose not to create their own programs – in order to comply with VMT mitigation requirements, lead agencies in such jurisdictions could work with the state program to determine mitigation obligations and identify locally appropriate mitigation investments.

A state-level bank would need to develop program guidelines that ensure mitigation investments are made within appropriate jurisdictional or transportation network proximity to VMT-inducing projects to satisfy CEQA and political needs (or within regional “benefit basins” around the state). A state-level bank would also need to conduct careful additionality analysis since it would be distributing funds to mitigation projects encapsulated in a wide range of existing RTPs and other local and regional plans.

A Caltrans Director's Policy Memorandum and/or Deputy Directive could likely create the state-level program if Caltrans were to manage it; a memorandum of understanding or other agreement between Caltrans and a second state agency (such as OPR, CalSTA, or CNRA) would be necessary if another agency were involved in administration. In the latter case, state authorizing legislation would be helpful but likely not necessary to formally establish the program.

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e In addition, since most discretionary actions by state or local governments that generate environmental impacts result in CEQA obligations, the existing CEQA compliance practices of the administrative entity will influence the operation of the bank or exchange program.

## 2. Local/regional government preferred option: MPO- or RTPA-level administration

The preferred option for local or regional governments is mitigation program administered by existing regional government entities, such as MPOs, COGs, or RTPAs. These entities likely have the resources and management capacity to handle the administrative aspects of bank management and oversee efficient VMT mitigation at regional scale, and regional administration rather than city- or county-level administration may offer a larger pool of projects in the bank or exchange while retaining ability to tailor investment priorities to the needs of participating jurisdictions. Since mitigation funds will often be insufficient to the costs of significant investments, bank administrative entities will likely need to access supplemental funding sources to effectively mitigate VMT—something MPOs and RTPAs are equipped to do given the multiple funding sources they routinely integrate. Additionally, using existing political boundaries that overlap with transportation planning efforts can improve efficiency.<sup>106</sup> However, this option may not be appropriate for every MPO or RTPA, especially those that face greater capacity constraints and those in less-populated areas which may not see as many projects in the bank or exchange. In these cases, multiple regional entities may join to form a single multi-regional banking program or simply allow local lead agencies to participate in the state-scale program as a backstop. As noted earlier, individual cities or counties with existing VMT mitigation programs and greater administrative capacity, and high concentrations of development and mitigation projects may wish to form stand-alone local banks or exchanges; similarly, some large and populous MPOs may wish to form multiple “benefit basins” or districts within their respective regions to keep a sufficiently local focus under the rubric of a single MPO-administered program.

## 3. Staffing and Funding

Both state and local/regional banks will need to consider broader questions of administrative design and set-up, including the staffing requirements, funding needs, and any legal limitations.<sup>107</sup> Managing a mitigation program—even if it largely builds on existing mitigation efforts at a state agency or local government—will require dedicated staff time, so administrative entities should prepare to train or hire multiple full-time employees, or restructure the responsibilities of existing mitigation staff, to ensure comprehensive management. While the administrative entities identified as preferable for program management in this report (Caltrans and MPOs/RTPAs) likely have staff with the requisite expertise to manage a bank or exchange effort, it is unlikely that a mitigation program can be managed in a consistent manner entirely through part-time staff or existing time commitments.<sup>108</sup>

Funding to support these administrative needs is a crucial consideration for bank/exchange operation.<sup>109</sup> While the fee associated with VMT bank payments could include a set-aside to cover basic program administration, administrators will need funding to support the initial set-up phase, and may need additional funding to ensure that these complex programs are managed in a high-quality manner over long periods of time (e.g., by funding training programs for staff

or investing in database management). Programs will require an adequate and reliable funding source to ensure that the bank/exchange meets its obligations. Program design choices will also influence the amount of funding required. For example, banks may require a greater amount of staff and administrative resources and thus be more expensive to operate than exchanges.

To facilitate staffing of both state and local efforts, the state legislature could consider creating a dedicated seed fund for bank program establishment and administration. Local government agencies and MPOs seeking to establish programs could also consider applying for funding under the Regional Early Action Planning Grant Program 2.0, which includes a number of VMT reduction targets and specifically references VMT mitigation bank establishment as an eligible use.<sup>110</sup>

## C. PROJECT SELECTION AND PRIORITIZATION CRITERIA

A key aspect of the administrative entity's responsibility is to set bank entry and investment prioritization priorities for their bank or exchange, drawing on the needs of the geographic area and participating jurisdictions that constitute the program's VMT catchment area. The administrative entity will be responsible for identifying the set of mitigation projects available for investment through the program, and in a bank context will likely be responsible for establishing criteria to determine which mitigation projects will receive investment and in what order (i.e., project prioritization). For example, a region that wants to build more active transportation projects may assign greater weight to these projects in the bank/exchange, so long as the projects are achieving a certain amount of VMT reduction per dollar of investment to ensure efficiency. In addition, programs may wish to set baseline criteria to determine when a VMT-generating project may use the bank program for offsite mitigation (or if it is required to achieve mitigation onsite).

### 1. VMT-generating project bank/exchange entry

One of the core benefits of VMT mitigation banks or exchanges is that they can provide an outlet for VMT mitigation that might otherwise prove infeasible onsite; however, before entry into a bank or exchange, each VMT-inducing project should undergo evaluation of the feasibility of onsite mitigation, which will be determined individually for each project. Onsite mitigation is likely preferable to offsite mitigation in most cases, and developers should generally try to keep mitigation actions onsite, since this will typically be the most straightforward and equitable form of mitigation. But onsite mitigation will not always be possible, practical, or most efficient in a local context (the origin of the need for mitigation program).

Each mitigation program may wish to establish conditions to determine whether a project can pursue offsite mitigation via the bank or exchange. Potential criteria for this threshold could include an exploration of on-site options and detailed feasibility analysis, or equity and community considerations that require more on-site mitigation (i.e., incentivizing onsite mitigation in priority

communities). The point at which lead agencies evaluate VMT-inducing projects for off-site mitigation eligibility may be an appropriate point at which to apply an equity filter or GHG reduction filter. Equity considerations are discussed in detail in [Section VII](#).<sup>111</sup>

## 2. VMT mitigation project prioritization

The administrative entity will be responsible for determining the set of mitigation projects that are eligible for investment in the bank or exchange and the criteria by which they are selected for investment once funds begin to enter the program. While the VMT price and fiscal framework (see [Section V](#)) will set the terms of exchange, the administrative entity will need to make a threshold determination of what investments qualify, potentially including a preliminary additionality analysis as discussed in Section VI. In the context of a mitigation bank—where the bank administrator will be responsible for selecting mitigation projects for investment with bank-assessed fees—it will likely be necessary to establish a priority order of investments or to develop criteria for investment decision-making, in order to direct decision-making by bank staff and clarify for the public and participating agencies how funds will be spent. Ultimately, the program will rely on a set of criteria reflecting regional priorities for VMT mitigation to determine funding allocations.

VMT-mitigating projects may range from major transit capital investments to biking and walking infrastructure to transit passes and service improvements. For example, Los Angeles area transportation and planning agencies are developing a pilot VMT mitigation program focused on transit pass subsidies to increase public transit use over vehicle use.<sup>112</sup> Each mitigation program will need to assess the potential mitigation projects available in the jurisdiction and develop a set of criteria to prioritize among them and deliver the most locally appropriate, cost-effective, and publicly beneficial set of mitigation measures.

Possible criteria for project prioritization include:

- Costs in terms of dollar per VMT reduced (and the potential for costs to increase over time)
- Verifiability or accountability of VMT reduction (where projects with easier verification are preferable)
- Duration of mitigation project, including an assessment of how long it will take to achieve projected VMT reductions compared to the timeline of VMT creation of the initial project, and how long the mitigation will last
- Time to completion
- Administrative or legal complexity (with less complex projects favored over more complex ones)
- Direct public benefit (with clearer public benefits favored)
- Capacity to aggregate or pool funds

- Multi-benefit potential
- Equity implications or benefits
- Proximity to original project (with greater proximity favored over greater distance)
- Location in an SB 743 transit priority area
- GHG reduction<sup>f</sup>
- New versus existing infrastructure requirements (i.e., how much new infrastructure must be built to achieve the intended VMT mitigation).<sup>113</sup>

Note that this is not a comprehensive list with any presumed order of priority—the exact choice of criteria, weight, order of priority will be for the administering entity to determine and apply depending on local needs, transportation and development patterns, and fairness and equity considerations (although cost-effectiveness of VMT reduction will likely rank high across programs). Table 1 on the following pages includes a summary of mitigation project selection frameworks at the state level that may inform decision-making.

The program could implement its chosen set of priorities at an initial project screening stage (i.e., before placing a mitigation project on an eligibility list) or on a case-by-case basis as mitigation funds enter the bank (i.e., at the time of investment decision-making) or both, through either automatic ranking or review and voting processes. For example, an intake process might incorporate details about the selected criteria (e.g., GHG reduction, verifiability), and mitigation projects that perform well across the selected criteria could automatically rank highest on a project or investment list. Similarly, potential projects might be scored for each of the criteria, perhaps on a 1-10 scale, and projects with the highest scores could be prioritized for selection. In a bank program, an administrative entity review board could also evaluate potential projects against a set of criteria and select for investment the projects most suited for the bank/exchange’s priorities. A review board process (such as a citizen’s advisory board) could ensure representation in investment decision-making by historically underserved, rural, and other communities that may be vital for equitable program implementation. Technical Advisory Committees already hosted by RTPAs and MPOs could also serve this function.

Significant technical challenges are inherent in measuring these criteria, so administrative entity leaders will need to decide how to measure and score any selected criteria without creating substantial administrative burdens. Each program will likely select a different array

## CAPITAL AND NON-CAPITAL MITIGATION INVESTMENTS

VMT mitigation bank or exchange programs may consider a wide range of VMT-reducing investments including both capital investments in transit infrastructure and transit-oriented land use development and non-capital investments to increase use of existing infrastructure. These might include subsidized transit passes to promote ridership or service improvements such as increased frequency or additional rail cars on existing routes. Local transportation dynamics, total funding available, and the prioritization criteria discussed in this section will determine the optimal mix of investments.

<sup>f</sup> It is important to note that while GHG reduction and VMT reduction are related, CEQA addresses them separately. Even zero-emitting vehicles create VMT and the negative impacts associated with it, such as congestion or safety impacts, and VMT mitigation obligations are not affected by the emission profile of vehicles.

of criteria appropriate to its specific circumstances, including Caltrans and/or other state agencies at the state level, and each MPO or other government entity at the local/regional level. For example, the criteria prioritized in a largely rural area may differ from the criteria selected in a highly urban or suburban area. Administrative entities may choose to adopt a points-based system to prioritize projects, with points assigned to each criterion (e.g., GHG reduction or multi-benefit potential) to ensure that projects are evaluated on merits other than VMT reduced per dollar, although that will be the primary metric for evaluation. Similarly, an administrative entity may choose to institute a review panel to evaluate each potential project across a set of selected factors.

## SUMMARY OF CALTRANS SB 743 MITIGATION PLAYBOOK

For Caltrans, VMT mitigation obligations will primarily arise out of the inducement of new vehicular traffic through new roadway capacity projects, which Caltrans will continue to develop in select locations across the State Highway System (SHS) as necessary to address local and system needs even as the state moves toward VMT reduction targets. As Caltrans notes, “mitigation is not the first option for addressing induced VMT”—rather, “the primary method is to plan and develop projects in a way that does not induce VMT in the first place,” followed by “design and lane-management strategies” within a capacity project to reduce unavoidable induced VMT.<sup>114</sup> A mitigation obligation arises when the first two options are exhausted.<sup>115</sup>

Caltrans identifies three core requirements for VMT mitigation: it must be quantifiable and effective at reducing VMT; enforceable via a firm commitment among relevant parties; and additional.<sup>116</sup> Caltrans’ forthcoming “SB 743 Mitigation Playbook” will outline some mitigation measures that Caltrans may consider when a VMT mitigation obligation arises for a roadway capacity project. The table below provides a draft summary of those measures, many of which could be eligible for funding through a mitigation bank or exchange (and most of which resemble the measures that could be included in a local or MPO-administered non-Caltrans bank). At this writing, the Mitigation Playbook is in draft form, and the table below may change. It is due to be finalized later in 2022.

MITIGATION MEASURE	EASE OF IMPLEMENTATION	EFFICACY	KEY CONSIDERATIONS
Active transportation	High	Low	Must provide access to destinations, not simply recreational opportunities.
Land use – residential	Low	High	Requires partnership agreements with land use jurisdictions, housing authorities, and private developers. VMT benefits come from density, affordability and location.
Land use – employment	Low	High	Requires partnership agreements with land use jurisdictions, housing authorities, and private developers. VMT benefits come from density and location.
Transportation demand management	High	Medium	Services can be tailored to meet specific user needs. Must be supported with long term maintenance of effort.

Transit service improvement	Low to high	Low to high	Usually requires partnership agreements with transit operators.
Local road networks/ connectivity	Low to high	Low to high	Can relieve pressures on SHS and provide more direct, multimodal access to destinations.
Micro-mobility	High	Low	Requires partnership agreements with transit operators and/or transportation network companies.
Telecommuting	High	Minimal	Telecommuting tends to shift trip-making, but not reduce VMT. Any claim here would need careful, specific support.
Road diets	High	High	Lane removals can be considered roughly equivalent to lane additions for similar facilities.
Pricing	Low to high	High	Operational details and market analysis needed during project approval/ environmental review.
Lane management/ intelligent transportation systems	Medium	Low	VMT effect depends on specific management strategy such as transit/HOV priority.
Parking pricing/ restrictions	High	High	Potentially powerful tool for specific land uses in a highway corridor.
Park and ride lots	High	Low	Removes commute trips. Effect on total VMT needs to be addressed in mitigation plan.
Land preservation	High	Unclear	Could work in theory but measurement is difficult. May be best combined with transfer of development rights to spur infill transit-oriented development.

*Table 1: Caltrans mitigation measures, adapted from Caltrans SB 743 Mitigation Playbook mitigation measure summary. Note: This list is not exhaustive and other measures that satisfy CEQA requirements could be developed.*

EXIT 15  
14th St  
T EXIT

SPEED  
LIMIT  
65

RADAR  
ENFORCED

INTERSTATE  
238  
NORTH



## V. FISCAL FRAMEWORK

Ensuring an appropriate level of VMT mitigation and managing transactions will rely on a fiscal framework that incorporates two key capacities:

- **Pricing VMT:** The bank or exchange must establish a price (or set of prices) for VMT impacts that it can link to appropriate mitigation investments.
- **Enabling transactions:** The bank or exchange must establish a means of exchange—e.g., dollars or credits—to facilitate the satisfaction of mitigation obligations and associated investment in mitigation projects. In addition, the bank or exchange may wish to facilitate the exchange of credits between project developers.

In this regard, a bank program will function somewhat like an impact fee program by assessing a cost of impacts and serving as a clearinghouse for mitigation, with ultimate success of the program reliant on the bank's acceptance of payments according to established transactional terms.<sup>117</sup> An exchange model, in which project sponsors and lead agencies would directly select mitigation investments (from a pre-approved project list) equivalent to their project impacts, could potentially avoid cost/price assessment if it functions solely on the basis of estimated VMT—but it may include pricing to structure transactions and would need to offer a method of exchange in any event. Program administrators will need to conduct outreach with participating jurisdictions, lead agencies, and developers to determine whether the relative simplicity of an exchange model or the greater complexity—but greater ability to aggregate funds and tailor investments to optimal projects—of a bank model. The fiscal framework will also provide the basis for exchange within the bank/exchange and will feed directly into the transactional monitoring capacity described in [Section VI](#).

This section details key considerations for the fiscal framework. The analysis generally presumes that programs will incorporate mitigation for both land use and transportation projects, which

### TO ENSURE OPTIMAL FISCAL DESIGN, PROGRAM ADMINISTRATORS SHOULD:

- Develop a fiscal framework that includes a VMT pricing structure that accurately reflects the estimated cost of reasonably anticipated VMT-mitigating investments and VMT-generating transportation and land use projects in the region, including multiple or flexible pricing structures to reflect both project types.
- Consider pricing discounts or multipliers to account for geographical, durational, and equity considerations (tailored to local needs and priorities) as appropriate.
- Implement a fee-based transactional structure for either a bank or exchange model (and may consider the use of tradeable credits, but with appropriate safeguards and limits to limit risk of double-counting or over-building).
- Include basic transactional tracking and clearance structures.

would generally streamline administration and facilitate the most efficient achievement of local and regional VMT mitigation (and other) goals. However, this arrangement will likely require multiple or flexible pricing schemes to accommodate different VMT-inducing (payor) project types and will likely rely on greater collaboration and consensus-building among participating agencies.

## A. DETERMINING THE VMT PRICE

Prior to beginning operation, VMT mitigation bank and exchange programs will need to establish a pricing structure for VMT reductions that the bank/exchange can then translate into one or more mitigation investments (selected pursuant to the project prioritization process or factors described in Section IV) to meet each project's mitigation obligation.<sup>118</sup> The details and methodology of VMT pricing are outside the scope of this analysis, and pricing of VMT impacts has proven a challenging and context-dependent exercise (as is estimating the impacts themselves, although tools like the UC Davis California Induced Travel Calculator have marked significant advancements<sup>119</sup>). However, a few jurisdictions have developed VMT pricing models for land use projects that offer potential templates for how to structure an efficient and workable pricing scheme:

- **Setting a jurisdiction-wide average price — the San Diego example:** The city adopted an Active Transportation In Lieu Fee “for the purpose of addressing burdens posed by new development that increases Citywide vehicle miles traveled” which requires projects located in areas where VMT exceeds 85 percent of the regional average (Mobility Zone 4) that have significant VMT impacts to fund VMT-reducing infrastructure investment in areas with VMT below the 85 percent threshold (Mobility Zones 1-3), reflecting OPR’s recommended 15 percent significance threshold.<sup>120</sup> The city set the price through a standards-based approach based on the average cost of VMT reduction across a sample set of qualifying projects in those zones (selected based on their capacity to achieve a citywide VMT reduction of 15% and their prioritization in the city’s Climate Action Plan), which resulted in a price of \$1,400 per VMT.<sup>121</sup> By directing VMT mitigation investment exclusively to VMT-efficient zones, the city was able to ensure an efficient price and set of projects. By contrast, a county-wide assessment estimated costs of \$10,000–\$19,000 per VMT to fully mitigate for 30 years, highlighting the efficiency/affordability benefits of focusing programs and price calculation on denser areas.<sup>122</sup>
- **Setting a price based on project types — the San José example:** The city specified the types of projects that would qualify for offsite mitigation of unavoidable VMT impacts via a statement of overriding considerations (including commercial/industrial projects that demonstrate overriding benefits to the city and are consistent with the General Plan, and residential projects that additionally meet location and density requirements) and thus could be eligible for mitigation bank participation. The city set VMT prices of \$3,200 per VMT for commercial and industrial projects and \$2,300 per VMT for residential projects.<sup>123</sup>

Given the potential challenges of identifying available and effective VMT mitigation opportunities for all participating projects, mitigation bank administrators should consider selecting a price model (and bank investment plan) that reflects the most efficient use of mitigation investments (thus lowering the cost of an average unit of VMT mitigation). However, any zone-based price adjustments should accord with any locational equity considerations established in the bank/exchange program (see [Section VII](#)).

In addition, program administrators could consider measures to adjust pricing based on development project type (e.g., residential, commercial, industrial, or transportation/roadway investment) as well as broader local planning goals. Developing pricing schemes that accommodate both land use projects and transportation projects could prove analytically complex, but it will likely be more straightforward to administer (and more tailored to local investment goals) than separate transportation and land use programs. Finally, program administrators could carefully calibrate the VMT price to ensure it is neither so high that it places insurmountable burdens on desirable development or is infeasible and therefore subject to a statement of overriding consideration, nor so low that it fails to place some disincentive on unnecessarily high-VMT development (or generate usable revenue).

The pricing model selected will form the basis of the fiscal framework.

## SAN DIEGO MOBILITY CHOICES REGULATION IMPLEMENTATION GUIDELINES

Local and regional entities' VMT obligations will stem from a larger array of VMT-inducing projects than Caltrans' obligations, including both road and roadway capacity projects and trip-generating land-use projects such as residential and commercial developments. The City of San Diego's Mobility Choices regulations illustrate a local-level approach to mitigating VMT in a manner that distributes benefits and impacts efficiently and equitably. The City's program applies specific requirements to each of four Mobility Zones based on their level of VMT efficiency, with Mobility Zone 1 being the most VMT efficient and Mobility Zone 4 being the least VMT efficient. The program focuses VMT mitigation projects in areas where the greatest VMT reduction can be achieved per dollar while also ensuring investment in underserved communities.<sup>124</sup> Development in Mobility Zone 2 (transit priority areas) and Mobility Zone 3 (VMT efficient areas) requires implementation of VMT mitigation at or adjacent the project based on a set of eligible VMT reduction measures. Development in Mobility Zone 4 requires an in-lieu fee payment rather than direct mitigation investments, and the fee is determined by the cost of reducing VMT in more VMT-efficient zones. Revenue collected from the fees in Zone 4 funds active transportation infrastructure in other zones, and a minimum of fifty percent of these funds must be directed to Communities of Concern.<sup>125</sup> The average cost for one unit of reduced VMT is \$1,400, based on the assessed costs of a set of locally specific VMT mitigation measures including:

- Bicycle
- Protected Bikeways (Class I, Class IV)
- Semi-Protected Bikeways (Buffered Class II)
- Bicycle Parking
- Wayfinding Signage
- Micro Mobility Network
- NEV Network
- Transit
- Queue Jumper Lanes
- Transit Signal Priority
- Microtransit / Neighborhood Shuttle
- Wayfinding Signage
- Pedestrian
- Enhancements
- Gap Closure
- Wayfinding Signage<sup>126</sup>

## B. FACILITATING TRANSACTIONS

The bank or exchange administrative entity will need to determine whether its transactional function—in which the entity will facilitate the satisfaction of mitigation obligations via offsite mitigation investment—is based on the exchange of fees, points, or tradeable credits. Potential models include:

- **Fee-based bank:** The administrative entity assigns a cost of mitigation based on the established VMT pricing structure and the submitted assessments of VMT impacts; assesses a mitigation fee; banks the resulting funds; and spends the funds on mitigation investments in accordance with the project prioritization criteria and/or spending plan (see [Section IV](#)) and in compliance with program monitoring requirements (see [Section VI](#)). Relevant examples include San Diego’s Mobility Choices Program and Active Transportation In-Lieu Fee.<sup>127</sup>
- **Credit bank:** In addition to (or in place of) these fee-based functions, the bank allows project developers to generate credits for onsite VMT mitigation investments and to exchange these credits with other developers via the bank. Relevant examples include San Diego’s Mobility Choices Program and Active Transportation In-Lieu Fee.<sup>128</sup> To maintain predictability for developers and lead agencies (as well as satisfaction of fee proportionality requirements), any credits would likely have to follow a fixed price rather than a price set by market supply and demand.
- **Fee-based exchange:** The administrative entity assigns a cost of mitigation based on the established VMT pricing structure and the submitted assessments of VMT impacts; project developers and/or lead agencies select mitigation investments from the exchange menu/list that equal the assigned cost; the administrative entity approves the exchange and documents the investment in compliance with program monitoring requirements (see [Section VI](#)).
- **Points-based exchange:** Rather than a dollar price, the administrative entity assigns a total VMT mitigation point requirement and presents mitigation investments as a menu with mitigation point values. Relevant examples include San Francisco’s Transportation Demand Management Program.<sup>129</sup>

A fee-based approach would likely be the most straightforward to administer and efficient in terms of investment, as it would allow bank administrators and/or exchange participating parties to select the highest level of VMT mitigation per dollar of impact (controlling for other project prioritization factors) based on a transparent price per VMT. A points-based approach could place more direct emphasis on one-for-one VMT reduction,<sup>130</sup> but may reduce efficiency of transactions as well as public clarity on the use of funds. Similarly, an exchange framework would likely be simpler to administer than a bank, since mitigation project selection would be left to participating parties rather than the administrative entity, but it could limit the potential to deliver investments that directly advance local transit priorities. Program designers should consider

including regular opportunities for administrators to review and update VMT pricing to account for variables such as inflation.

Allowing generation and trading of credits within a program could lead transit-oriented and infill developers to include greater onsite VMT reductions than required under their own impact mitigation obligations by providing a financial incentive and opportunity to exchange. In addition, credit generation could support program effectiveness and flexibility by increasing the supply and diversity of available mitigation projects. However, allowing credit generation could create the risk of “gaming the system” (and raise concerns around the additionality of mitigation) if developers can obtain credit for mitigation that is otherwise required of them under CEQA or which they otherwise would have completed as a basic project component. Credit generation could also unintentionally incentivize actions that work against the original intent of a mitigation program, for example if infill development builders could obtain credits for “over-building” at infill projects that they would build regardless of the banking program, thus facilitating more sprawl in other areas. In these cases, parameters like geographic limits on the sale of a generated credit, as well as robust additionality assessments, would help to minimize outcomes incongruent with the crediting system’s goals.

For programs that do incorporate crediting, administrators should include requirements to document that credit-generating onsite mitigation is exclusively additional to what is required to mitigate the generating project’s significant impacts under CEQA. Failure to do so could effectively render the bank’s own mitigation inadequate under the law. Bank administrators should also consider setting an expiration date for credits (for example, San Diego’s Active Transportation In-Lieu Fee credits expire after five years) to maintain scarcity and ensure timely mitigation investments.

Tradable credits in a VMT mitigation bank could thus resemble crediting in a pollution cap-and-trade scheme, in that the program could help drive funds toward the most cost-effective mitigation investments—but a key distinction would lie in the fact that credit purchasing likely would only occur where a credit-seeking party has established in its environmental review process that onsite mitigation is infeasible.<sup>131</sup>

### C. ACCOUNTING FOR DURATION OF IMPACT AND MITIGATION

In general under CEQA, mitigation obligations are expected to match impacts in terms of duration.<sup>132</sup> As the Office of Planning and Research has noted, VMT impacts typically manifest over several years and have the potential to evolve over time, since new land use development and changes in travel times can have dynamic impacts on driving behavior.<sup>133</sup> As a result, assessing the VMT impact of a project over time can be a complex task. Unlike traditional onsite mitigation, offsite VMT mitigation investment options may not readily match development projects in terms of duration. In addition, some VMT mitigation projects funded through a bank may involve delayed investment (see [Section III](#) for a discussion of legal standards for deferred mitigation),

which could prove challenging from an accounting perspective. The fiscal framework should account for durational considerations in its pricing and transactional function,<sup>134</sup> including:

- **Duration of impact:** The amount of time over which the proposed project is expected to generate VMT (i.e., the life of the project), which is often estimated at 30 years for impact and mitigation assessment purposes under CEQA.<sup>135</sup>
- **Duration of mitigation:** The period of time over which the mitigation investment is expected to reduce VMT.

To address these considerations, bank administrators should consider one or more transactional mechanisms such as:

- **Aggregating VMT impacts and investment across the estimated life of the project/investment** (by multiplying VMT by the total number of years) would allow expenditure of aggregated obligations across any timeframe.<sup>136</sup> This approach would maximize flexibility and efficiency of investment.
- **Requiring mitigation investments to match estimated impacts in terms of duration**, by contrast, would not allow aggregation and would reduce flexibility, but could ensure the most accurate one-to-one mitigation.
- **Adjusting VMT pricing according to timing of impact and mitigation**, for example by assigning a higher price to more immediate VMT impacts or increasing the cost (or discounting the mitigation benefit) of delayed or future investments, would allow for flexibility but still privilege more certain, near-term mitigation investments. This approach would count immediate reduction as more valuable than future reduction.
  - This approach could also be applied to VMT mitigation pilot projects whose reduction benefits are uncertain, effectively using a value discount to assign a probabilistic value to the mitigation.
- **Requiring a certain portion (or all) of a mitigation obligation to be satisfied in the near-term and any remainder to be satisfied in the long-term.** This hybrid approach might, for example, require complete “front-loading” of mitigation during a project’s construction phase (such as a block investment to accelerate delivery of an ongoing capital improvement project); or call for annual investments (such as transit pass subsidies or transit capacity increase) for years 1-10 of a project’s VMT impact, followed by a block investment in a major infrastructure project to satisfy year 11-30 obligations. (Note that for longer-term satisfaction of mitigation obligations, program administrators should include fiscal guarantees or upfront payments to protect against potential insolvency of private developers.)

In designing mechanisms to address durational questions, program administrators should carefully consider factors such as how the “start” date for a mitigation investment is determined (e.g., construction start, substantial completion, or initial occupancy/service date); the differences in certainty between VMT impacts and VMT mitigation over time and the risk of increased impact or reduced mitigation benefit due to exogenous changes; the tradeoffs of allowing developers to aggregate mitigation obligations in near-term investments, which could deliver immediate public benefits but may disfavor investments in major capital projects and whether equity-oriented elements of program design (see [Section VII](#)) are best managed under any particular approach.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<b>A</b>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<b>B</b>	1	1	1	1	1	1	1	1	1	1	1	20																			
<b>C</b>	30																														

*Table 2: Sample project mitigation timelines, each with a mitigation obligation of 1 VMT per year for 30 years. Project A funds mitigation investments totaling 1 VMT reduced each year for 30 years. Project B funds 1 VMT reduced for 10 years and then a block of 20 VMT reduced covering years 11-30. Project C funds a single block of 30 VMT reduced. Blue shaded boxes indicate when the mitigation obligation is satisfied (i.e., when the developer has invested the required amount in mitigation actions). As in Project C, it may be possible to front load mitigation so that the investment accrues as early as possible regardless of the timeline for the VMT-generating project.*

## D. ACCOUNTING FOR GEOGRAPHY

In addition to addressing the duration of impact and mitigation, the fiscal framework may be used to address geography and the distance between impact and mitigation. In some cases—as with San Diego’s Active Transportation In-Lieu Fee—the pricing/crediting system may be directly premised on geography. Bank/exchange jurisdictions with distinct high- and low-VMT zones, where mitigation investment will clearly be most efficient in particular areas, could consider a pricing structure that reflects the lower cost of mitigation in denser, higher-priority areas.

To the extent the administrative entity wishes to disincentivize the physical separation of mitigation from investment—for example, to limit inequitable impacts or to support community acceptance of the program—the pricing or crediting of VMT mitigation could incorporate discounts to require a greater quantity of mitigation where investments are located farther from the location or service area of an impact-generating project. The bank/exchange could apply a 1:1 ratio for mitigation projects within the vicinity or community of an impact (or potentially a <1:1 ratio), but require a mitigation project located several miles from the impact-generating project to achieve a >1:1 level of mitigation, resulting in a greater number of VMT reduced to account for the greater distance between mitigation and impact generation.<sup>137</sup> As long as the standard fee applied to a particular VMT-generating project follows the

program’s established pricing structure and any modifications are applied only in the mitigation investment process, nexus and proportionality requirements should be satisfied.<sup>138</sup>

## E. ACCOUNTING FOR EQUITY

As noted earlier in this section, the fiscal framework design may have implications for equity-focused elements of the mitigation bank/exchange program; any pricing incentives, durational adjustments, or geographic adjustments could affect the distribution of investments in a way that could advance or hinder equity goals.

VMT pricing strategies could also directly address equity goals in two related ways:

- **The framework could increase the price of offsite mitigation when a VMT-generating (payor) project is located in a designated priority community** (based on locally determined definitions of VMT equity as described in Section VII) as an incentive to keep mitigation near impacts in those communities. However, this approach could have the consequence of increasing the cost of development in lower-income and other priority areas, which would counteract mitigation program and equity goals.
- **The framework could provide mitigation fee or credit bonuses for mitigation investments located in designated priority communities** as an incentive to direct investments toward those communities. However, this approach could have the consequence of effectively “discounting” mitigation in lower-income and other priority areas, which could deliver them reduced investment relative to neighboring, non-priority communities for a given project (though it could also secure more total mitigation commitment). Discounting or crediting approaches could also raise potential CEQA compliance concerns if they result in less total mitigation than required by law. Thus, they should be narrowly tailored to incentivize equitable investment as part of the broader pricing strategy.

Because of these risks, these approaches call for careful evaluation. While the goal is to locate as much mitigation investment as possible in locally identified priority areas, program administrators should implement any equity-focused pricing adjustments only after consultation with relevant community members and developers to ensure the program will not reduce overall investment in desired development or mitigation.<sup>139</sup> For this reason, non-pricing equity strategies—including bank entry threshold, project prioritization, and minimum fund commitment percentages, discussed in [Section VII](#)—are likely preferable at the initial stage of program formation and operation.



## VI. MONITORING STRUCTURE

As both a CEQA mitigation program and a platform for receipt and expenditure of funds, VMT mitigation banks or exchanges will require thorough processes for accountability, monitoring, and reporting. A comprehensive monitoring program, including tracking transactions and verifying additionality, can promote transactional integrity, transparency and public disclosure while highlighting the community benefits of VMT mitigation.

The monitoring program can also serve as a basis for public reporting on program expenditures and outcomes, similar to annual reporting under existing transportation impact mitigation fee programs.

The primary source of this monitoring and accountability requirement is the CEQA statute, which states that a lead agency must adopt a monitoring or reporting program “designed to ensure compliance during project implementation” for any mitigation measures adopted to mitigate a project’s significant environmental impacts.<sup>140</sup> (Similar requirements apply under the Mitigation Fee Act, Cal. Govt. Code §§ 66006(b).) An agency may conduct monitoring directly or may delegate it to a private party, but the agency must craft the monitoring strategy and retains ultimate responsibility for compliance.

While the CEQA requirement applies specifically to ensure that mitigation occurs as planned (the “actual mitigation” criterion identified above) and to create a record for potential enforcement (including via litigation), effective bank administration should incorporate monitoring of fund and investment management, actual mitigation and legal compliance, and additionality. Examples of such monitoring are commonplace across similarly situated programs such as:

- Caltrans’ Advance Mitigation Program, which requires credit management and public reporting to the legislature.<sup>141</sup>
- San Francisco’s Transportation Demand Management Program, which requires property owners to conduct

To ensure program performance and compliance, program administrators should develop frameworks to regularly monitor and assess:

- **Financial operations**, including both **fund management** (i.e., funds are received and managed in accordance with the fiscal framework described in Section V) and **investment management** (i.e., funds are directed to mitigation investments in accordance with the project prioritization framework and/or spending plan described in Section IV).
- **Mitigation compliance**, including both **actual mitigation** (i.e., mitigation investments are completed and delivered for the duration estimated prior to commitment of funds) and **legal compliance** (i.e., mitigation investments comply with CEQA and other legal requirements described in Section III).
- **Additionality**, i.e., mitigation investments are certified as additional to VMT-reducing investments that would have occurred if bank/exchange funding were not available.

site inspections and report on completion of VMT-reducing physical improvements and requires the Planning Department to publicly report on project performance and compliance.<sup>142</sup>

- California's Conservation and Mitigation Banking Program, which requires the Department of Fish and Wildlife to publicly report on credits, transactions, and bank monitoring.<sup>143</sup>
- California's cap-and-trade program compliance offset program, which includes detailed offset protocols incorporating stringent additionality requirements as well as a publicly available database of all projects that have received funding.<sup>144</sup>

Since VMT mitigation banks and exchanges will combine elements of each of these types of programs, the monitoring and accountability system will also be a hybrid.

Monitoring and accountability should include not only internal tracking and accounting mechanisms but also public reporting on fund management and project implementation, to provide lead agencies and developers with information on mitigation actions and the public with information on program benefits and expenditure of funds. A comprehensive monitoring program can effectively and efficiently ensure financial, mitigation, and additionality tracking are satisfied. Adoption of such a program will be vital to the function and success of VMT mitigation banks and exchanges.

VMT mitigation banks or exchanges (or designated third parties), rather than lead agencies or developers, should take on the responsibility of designing and managing the monitoring program for several related reasons including:

- Ensuring that transaction management, monitoring, and enforcement are consistent across the bank or exchange.
- Implementing a single bank or exchange investment plan and consolidating monitoring plans/practices where multiple projects provide mitigation funding for the same mitigation effort.
- Limiting the administrative burdens that VMT mitigation banking imposes on local lead agencies participating in the bank/exchange.

However, each individual bank or exchange may not need to implement its own monitoring program; multiple banks or exchanges (including both Caltrans/state agency programs and local/regional programs) could work with a single third party to handle monitoring responsibilities, or a state-level bank program (potentially with state funding support) could conduct monitoring programs on behalf of local and regional governments, in order to centralize expertise and capacity and gain efficiency.

This section describes the monitoring structures best suited to the task.

## A. MONITORING VMT MITIGATION

The VMT monitoring structure for a mitigation bank or exchange in most cases can follow the template of existing mitigation monitoring and reporting programs (MMRPs) or their equivalents implemented by the agency responsible for bank/exchange administration or the local agencies that jointly form it. MMRPs—known as Project Commitments Records in the Caltrans context—typically describe each mitigation measure reflected in an environmental review; identify a timeline and method for implementation; name a responsible monitoring agency; and detail steps for compliance and verification to certify that a measure has been satisfactorily completed.<sup>145</sup> The goal of the MMRP is to create a comprehensive record of mitigation measures, detail steps for implementation, and ensure they actually occur when and as required. (Performance monitoring of mitigation measures to track VMT reductions largely falls beyond CEQA requirements, though a robust monitoring program could eventually incorporate such information.)

For VMT mitigation, the task of the monitoring program will likely be different and more complex, ensuring not only that mitigation takes place but also a number of other requirements are met. However, the basic MMRP structure can serve as a familiar framework for managing these tasks through a centralized bank/exchange function that oversees transactions and ensures compliance with program requirements.

Despite some distinctions and the additional capacities of a VMT mitigation monitoring program described above, the basic MMRP framework is still a valuable model for a VMT mitigation bank or exchange monitoring program. The core capacities of the program—financial, mitigation, and additionality—are described below.

## B. FINANCIAL OPERATIONS

The fund management (i.e., intake) and investment management (i.e., spending) aspects of the monitoring program should build directly from the bank or exchange's fiscal framework. This monitoring capacity is essentially an accounting mechanism.

Financial operations monitoring should consist of a ledger identifying:

- Participating projects, their estimated VMT impacts, and the dollar (or credit) cost of VMT mitigation.
- Mitigation investments, their estimated VMT reductions, and the funding (or credits) allocated to them.

The content of the ledger would depend on whether it depicts transactions in a mitigation bank (where VMT impacts are assigned a dollar or credit value, to be allocated among mitigation investments by the administrative entity) or a mitigation exchange (where a lead agency or developer would identify one or more specific mitigation investments that match the estimated impact of a project):

- For a mitigation bank, the ledger would show the total dollar or credit amount of VMT impact and mitigation by participating project, mitigation measure, and total. (The ledger would also certify that bank funds were received and deposited in a segregated account, an important safeguard for transactional accountability and additionality in the bank.) For a mitigation exchange, the ledger would omit information on funding and credits, instead showing the total VMT impact of a participating project on one side and the VMT reductions of selected mitigation investments on the other.
- For a mitigation exchange, the ledger would require the drawing of one or more direct links between a participating project and specific mitigation investments (to illustrate the exchange). For a mitigation bank, specific links between projects and investments might not be necessary, so long as the VMT impacts and reductions (translated through the pricing mechanism) balance within designated time frames.

Thus, for example, a bank ledger might include non-correlated entries, with VMT impacts and reductions balanced only in total for a given reporting period (i.e., one year).

VMT-GENERATING PROJECT	VMT IMPACT	DOLLAR/CREDIT COST	MITIGATION INVESTMENT	FUNDED	VMT REDUCTION	DOLLAR/CREDIT COST
A	50	\$50,000	W	Yes	60	\$60,000
B	25	\$25,000	X	Yes	10	\$10,000
C	10	\$10,000	Y	No	--	--
			Z	Yes	15	\$15,000
<b>Total</b>	<b>85</b>	<b>\$85,000</b>			<b>85</b>	<b>\$85,000</b>

Table 3: Sample mitigation bank ledger. (Note: sample entries, including sample VMT cost of \$1,000, are simplified and included only for illustrative purposes.)

By contrast, an exchange ledger would correlate entries to depict the completed VMT exchange for each participating project, including split or overlapping investments as appropriate:

VMT-GENERATING PROJECT	VMT IMPACT	MITIGATION REQ'T. SATISFIED	MITIGATION INVESTMENT	VMT REDUCTION
A	50	60%	X	30
		40%	Y	20
B	25	100%	Z	25
C	10	100%	X	10
<b>Total</b>	<b>85</b>			<b>85</b>

Table 4: Sample mitigation exchange ledger. (Note: sample entries are simplified and included only for illustrative purposes.)

Ultimately, this accounting process should be a straightforward output of the total transactions conducted by the bank, applying the fiscal framework to the project selection process. By documenting the transactions, the administrative entity can ensure that project developers satisfy mitigation obligations individually and in the aggregate. And by incorporating the accounting into a broader monitoring and public reporting program, the entity can promote program integrity and transparency.

### C. MITIGATION COMPLIANCE

The actual mitigation (i.e., completion of mitigation investments) and legal compliance elements of the monitoring program are drawn directly from the CEQA MMRP framework. As noted above, the goal of an MMRP is to create a record of mitigation measures and structure to ensure that project developers achieve them by identifying the steps and timeline for implementation and parties responsible for completion and monitoring. For a standard MMRP, which includes mitigation measures related to all of a project’s CEQA impacts, this could cover both operational/construction-stage measures (such as steps to limit noise or dust impacts during excavation) and permanent-post-construction measures (such as emission control standards or habitat restoration).

Exhibit D Mitigation Monitoring and Reporting Program for Kern County Oil & Gas Zoning Ordinance SREIR (2020/2021)

Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
4.1	<b>Aesthetics</b>				
4.1-3	<p><b>MM 4.1-1</b> The Applicant shall use existing public access easements or county maintained roads to access oil production areas. Existing private roads may only be used with the written permission of the property owner or private easement holder and written permission is only required if the surface owner is different from the mineral owner. The property owner’s signature on the site plan statement will be considered permission for the use of all private roads shown on the site plan.</p> <p>New roads shall only be created if no existing public access easement exists for access to the oil production area or permission for legal use of an existing private access easement or private driveway/road cannot be obtained. Evidence that legal permission to use a private access or private driveway/road cannot be obtained shall be through two attempts by certified letter to the easement owner with two week reply times for each attempt. No response shall constitute lack of agreement to use the private access easement or private driveway/road.</p> <p>Permission for use of a private access instead of the signature on the site plan shall be from the property owner with a copy of the private easement or, in the case of a private driveway/road a highlighted plot plan showing the driveway/road being approved for use. Any new road shall not exceed 40 feet in graded width.</p>	<p>Delineated on Site Plan and materials submitted Ongoing</p> <p><b>Steps to Compliance and Verifications</b>            A. Detail access roads or driveways to be used on site plan and status is it Private or public?            B. If public – verify public access easement            C. If private or driveway- verify surface owner is same as mineral owner.            D. If private or driveway and surface owner different, verify written permission provided.            E. New roads only permitted if no existing access road can be utilized or evidence as detailed that permission can not be obtained to use a private road or driveway.            F. New road – not more than 40 feet graded in width</p>	<p>Kern County Planning and Natural Resources            KC PLNR</p>		
	<p><b>MM 4.1-2</b> All derricks, boilers, and other drilling equipment used to drill, repair, clean out, deepen or redrill any well with oil, gas, or other hydrocarbon shall be</p>	<p>Delineated on Site Plan and materials submitted</p>	<p>KC PLNR</p>		

Image 1. Sample MMRP measure. Source: Kern County Planning Department.

The MMRP document itself—as overseen by the lead agency responsible for the project—serves as the operational basis of the monitoring program, with written compliance reviews and/or ongoing direct monitoring as required for each mitigation measure, certified by responsible parties to the agency.

For a VMT mitigation bank or exchange, the mitigation monitoring program can follow the same structure as CEQA MMRP. However, two key characteristics distinguish the VMT mitigation bank/exchange monitoring program from the traditional MMRP:

- Because the VMT mitigation bank or exchange will handle mitigation for a single class of impact (transportation) across a number of projects that generate that impact within the relevant geographic area, the monitoring program will only include VMT-related mitigation measures—whereas a traditional MMRP includes mitigation measures across all impacts for a single project.
- Because the mitigation measures contemplated in a bank or exchange will only be implemented when selected for funding by the administering entity, the monitoring program might include some mitigation projects that are not selected for funding via bank/exchange processes—whereas all measures in a traditional MMRP would normally be implemented in the course of the project. In addition, the program will only include permanent/post-construction mitigation measures, due to the limited set of off-site, long-term VMT impacts covered.

Thus, the mitigation program should largely resemble a traditional MMRP. However, it will include just a single category of mitigation measures which represents the full “menu” of measures contemplated by the bank/exchange, including all measures identified as mitigation investments (both already and not yet funded) in the financial ledger. In addition, given the potential legal complexity of off-site mitigation, the program should include a legal compliance element for the bank administrator to certify that the mitigation investment will be completed at a cost, on a timeline, and in a location that satisfies nexus and proportionality requirements.

## REPORTING AND MONITORING

CEQA distinguishes between reporting (“generally consists of a written compliance review”) and monitoring (“generally an ongoing or periodic process of project oversight”) as accountability methods. Monitoring, which is designed to ensure “that project compliance is checked on a regular basis during and, if necessary after, implementation,” is likely most appropriate for VMT mitigation banks or exchanges since VMT mitigation projects may “be implemented over a period of time, or require careful implementation to assure compliance.”<sup>190</sup>

MITIGATION INVESTMENT	IMPLEMENTATION STEPS	TIMELINE	RESPONSIBLE PARTY	MONITORING PARTY	LEGAL COMPLIANCE
Transit pass subsidy	<ul style="list-style-type: none"> <li>• Allocate funding to transit agency</li> <li>• Identify pass recipient group</li> <li>• Conduct community outreach and distribute passes</li> </ul>	24 mo.	Local transit agency	Lead agency	Administrator certification
Bicycle lane extension	<ul style="list-style-type: none"> <li>• Allocate funding to public works agency</li> <li>• Implement lane construction plan</li> <li>• Certify completion of construction to original specifications</li> </ul>	--	Local public works agency	Lead agency	Administrator certification

*Table 5: Sample mitigation monitoring program elements. (Note: sample entries are simplified and included only for illustrative purposes.)*

Whereas a lead agency is typically responsible for MMRP oversight, the VMT mitigation bank/exchange administrative entity should be responsible for the mitigation monitoring elements of the monitoring program, since that entity will also handle transactional monitoring and will be primarily responsible for development and management of the mitigation investment program. Individual lead agencies for participating projects may be responsible for monitoring and reporting to the bank administrator, however. As with an MMRP, the mitigation monitoring program should be developed as part of the bank/exchange creation process, when the potential set of mitigation projects is established; the administrator’s monitoring staff can then follow the program as applicable when individual investments (or portions thereof) are funded via the bank/exchange, certifying project completion following the transactional monitoring process.

#### D. ADDITIONALITY

Additionality refers to the concept that investments to mitigate (or, in parallel contexts, offset) environmental impacts in a manner other than direct modification of a project—including offsite VMT mitigation through a bank or exchange—should provide benefits that otherwise would not have occurred absent the mitigation program.<sup>146</sup> Caltrans has defined additionality as an investment “provid[ing] additional resources that otherwise would not have been provided or providing the additional resources substantially earlier than they otherwise would have been available.”<sup>147</sup> The California Air Resources Board defines additionality for offset projects as benefits that are “not required by law, regulation, or any legally binding mandate applicable in the offset project’s jurisdiction, and would not otherwise occur in a conservative business-as-usual scenario.”<sup>148</sup>

While neither CEQA nor SB 743 explicitly refers to the term “additionality” as a statutory requirement, as a matter of good mitigation policy as well as basic mitigation logic—if an investment is necessary to mitigate a project impact, then it necessarily must not be an investment that would otherwise occur—appropriately formed additionality considerations should form a core component of a mitigation bank or exchange monitoring program.<sup>149</sup>

In the context of transportation and transit investment—where many VMT mitigation measures will likely originate—additionality poses a potentially significant challenge, since the vast majority of these public investments are already contemplated, and often planned for environmental review or construction, in Regional Transportation Plan (RTP) processes.<sup>g</sup> If a project is planned in an RTP and in line for (or likely to receive) funding from known sources, then it could be challenging for a project developer to demonstrate

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g RTP projects are distinguished by their inclusion in the RTP’s “financially constrained” project list (projects for which funding has been identified or is reasonably expected to be available within the RTP’s planning horizon) or its “financially unconstrained” project list reflects (projects that do not have identified or reasonably anticipated funding but which are desirable should funds become available).

that a VMT mitigation bank/exchange-provided investment in that project is additional (since plans were already in place for it to occur) unless they can show that the investment will move the project forward in time, increase the project's capacity, displace funds for later use in other VMT-mitigating investments, or otherwise ensure net VMT reductions.<sup>150</sup> On the other hand, if a project is not reflected in an RTP, then it may be an unlikely candidate for priority public investment (or may not be expected to generate substantial VMT reductions).

In this context, VMT mitigation banks/exchanges should consider one of two basic approaches to tracking additionality in the selection and implementation of mitigation investments:

- **Project-specific:** Prior to funding (or including on a bank/exchange mitigation investment list) an individual mitigation project, the bank administrator or lead agency must determine, based on a documented assessment of the applicable RTP(s) and any other relevant investment plans or known funding sources, whether the project is additional (i.e., would not have otherwise occurred) pursuant to the entity's selected definition of additionality.
- **Programmatic:** On a regular (i.e., annual or biannual) basis, the program administrator conducts a comprehensive review of funds received and spent, VMT impacts and reductions, mitigation investments supported, and the relationship of the investment cohort to the applicable RTP(s) and any other relevant investment plans or known funding sources to determine whether investments were additional relative to an expected baseline scenario for the same period. To help inform decision-making in advance, the program administrator could identify particular classes of investment as likely or unlikely to be additional based on their placement in (or absence from) the applicable RTP prior to selection.

In either context, the bank or exchange administrator would ultimately certify or attest that the mitigation investment or investment cohort was additional (or, if not, document deficiencies), either by funding a project that is not currently planned/funded or by accelerating or improving delivery of a planned/funded project.

A project-specific approach might offer greater granularity and assurance that individual efforts are additional, but it could also prove administratively impracticable (especially in light of the other monitoring responsibilities of the entity), whereas a programmatic approach would not ensure additionality for individual investments but could achieve the necessary level of assurance of benefit at the program scale. Although a programmatic approach could allow some non-additional projects to receive investment, individual programs may not require 100 percent additional investment in all cases, and periodic review could enable program leaders to identify corrections or best practices for future investment rounds. While early offset and similar programs generally took a project-specific approach, experts have recently questioned the value

of the approach given ongoing accounting questions and the potential benefits of program-scale evaluation.<sup>151</sup>

Regardless of the selected approach, the monitoring program should include a component that assesses individual or aggregate mitigation investments against the RTP and any other known funding sources and publicly reports the extent to which these investments were additional. This component should identify the location/status of the investment within the RTP or other plan, the type of investment (i.e., new capital construction vs. capacity increase), and whether the bank/exchange administrator can consider it additional relative to baseline.

For example, a mitigation investment in a project that is already “programmed” in an RTP (i.e., planned and in line to receive funding from a known source) would be unlikely to qualify as additional unless it significantly accelerates the timeline for deployment of that project or increases its VMT-reducing capacity. Conversely, investment in a project that is “unprogrammed” and “unconstrained” (i.e., no existing plan or funding expectation) would likely be considered additional in most cases.<sup>152</sup> Truly unplanned projects would require additional documentation of a spending and implementation plan to ensure actual mitigation but would likely fall in the latter category (as would ridership-increasing investments such as transit pass subsidies).

The table below represents the type of assessment a program administrator could make—whether pre-investment on a project-specific basis, or post-investment on a regular programmatic basis—to assess whether projects are additional. The goal of such an assessment is to ensure net VMT reductions from program investments, whether achieved through new investments in smaller, unplanned projects or through accelerated deployment of planned or in-progress projects. Program administrators should develop appropriate criteria to accommodate local transportation investment priorities while documenting the direct or indirect link between program funds and net VMT reductions.

While carbon offset programs offer perhaps the most relevant example of additionality concerns, there are significant differences between carbon offsets and VMT mitigation banks or exchanges. For VMT mitigation banks and exchanges, mitigation investments will all be made in California, against a known and planned transportation investment baseline—whereas carbon offset protocols often involve out-of-state or international investments against unknown or unfamiliar baselines.<sup>153</sup>

**IF THE MITIGATION PROJECT IS A TRANSIT OR TRANSPORTATION PROJECT:**

<b>Project Type</b>	<b>Documentation</b>
Unprogrammed and in the unconstrained portion of the RTP	<ul style="list-style-type: none"> <li>·Project location/status within RTP</li> <li>·Investment type:                             <ul style="list-style-type: none"> <li>· New construction/installation</li> <li>· Previously unfunded project phase/stage</li> <li>· Increased capacity/reliability</li> <li>· Accelerated deployment</li> </ul> </li> <li>·Additionality of VMT reduction compared to baseline</li> </ul>
Unprogrammed and in the constrained portion of the RTP	<ul style="list-style-type: none"> <li>·Project location/status within RTP</li> <li>·Investment type:                             <ul style="list-style-type: none"> <li>· Previously unfunded project phase/stage</li> <li>· Increased capacity/reliability</li> <li>· Accelerated deployment</li> </ul> </li> <li>·Additionality of VMT reduction compared to baseline</li> </ul>
Programmed in the RTP	<ul style="list-style-type: none"> <li>·Project location/status within RTP</li> <li>·Investment type:                             <ul style="list-style-type: none"> <li>· Previously unfunded project phase/stage</li> </ul> </li> <li>· Additionality of VMT reduction compared to baseline</li> </ul>
Already built	<ul style="list-style-type: none"> <li>·Project location/status within RTP</li> <li>·Investment type:                             <ul style="list-style-type: none"> <li>· Increased capacity/reliability</li> </ul> </li> <li>·Additionality of VMT reduction compared to baseline</li> </ul>
Not included in the RTP	<ul style="list-style-type: none"> <li>·Project type/origin</li> <li>·Investment type:                             <ul style="list-style-type: none"> <li>· New construction/installation</li> <li>· Previously unfunded project phase/stage</li> <li>· Increased capacity/reliability</li> <li>· Accelerated deployment</li> </ul> </li> <li>·Agency/third party commitment to project implementation/ownership</li> <li>·Implementation/investment plan</li> <li>·Additionality of VMT reduction compared to baseline</li> </ul>

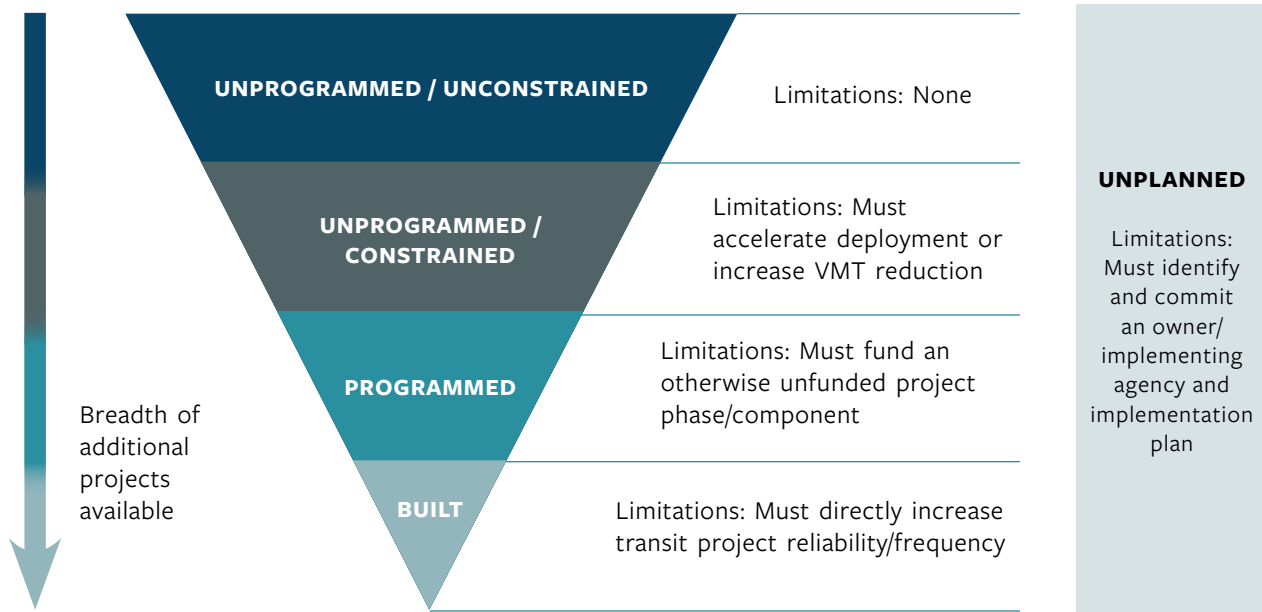
**IF THE MITIGATION PROJECT IS A HOUSING/DENSITY OR OTHER PROJECT:**

<b>Project Type</b>	<b>Documentation</b>
Housing/density	<ul style="list-style-type: none"> <li>·Project type/origin</li> <li>·Investment type                             <ul style="list-style-type: none"> <li>· Agency/third party commitment to project implementation/ownership</li> </ul> </li> <li>·Implementation/investment plan</li> <li>·Additionality of VMT reduction compared to baseline</li> </ul>
Planning action	<ul style="list-style-type: none"> <li>·Project type/origin</li> <li>·Investment type                             <ul style="list-style-type: none"> <li>· Agency/third party commitment to project implementation/ownership</li> </ul> </li> <li>·Implementation/investment plan</li> <li>·Additionality of VMT reduction compared to baseline</li> </ul>

*Table 6: Sample additionality evaluation checklist.*

The figure below depicts a conceptual framework for assessing the relative ease of selecting projects that satisfy additionality. For each level of the pyramid, including already-built projects, some form of investment of program funds may be considered additional, so long as an anticipated net reduction in VMT can be documented.

**VMT MITIGATION ADDITIONALLY FRAMEWORK FOR TRANSPORTATION AGENCIES**



*Figure 4: Sample VMT mitigation additionality framework.*

Application of such a framework could run the risk of “gaming the system” through removal of projects from an RTP or other plan in order to make them eligible for funding through the bank program and freeing planned funding for other investments that do not decrease VMT. However, this strategy is unlikely to be successful in practice, due to the uncertainty that a VMT mitigation program will deliver sufficient funds to guarantee complete funding of former RTP projects and the significant political/stakeholder concerns that would result from such an action. Additionally, as noted above, program administrators may allow some shifting or replacement of funds so long as program investments ultimately result in the appropriate level of net VMT reductions, even if planned project components are included. Still, program administrators should conduct additionality review with an eye to the contents of the RTP and awareness of any changes that may have occurred and consider requiring mitigation project proponents to submit an attestation that no such plan-shifting has occurred. Alternatively, focusing investment on non-capital projects like fare subsidies and smaller, non-programmed investments in active transportation could minimize risk.

## E. PUBLIC REPORTING

To inform developers and lead agencies about program function and mitigation opportunities, as well as to inform the public about VMT mitigation projects and benefits and promote general transparency, administering agencies should present the bank/exchange monitoring program information—financial operations, mitigation compliance, and additionality—in a publicly accessible format, ideally including a mapping- or GIS-based presentation that demonstrates where mitigation investments are located within a bank/exchange region and how they are linked to VMT impacts elsewhere.

One example of such a reporting platform is the US Army Corps of Engineers Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS), which provides information on mitigation banks and in-lieu fee programs nationwide.<sup>154</sup> RIBITS “allows users to access information on the types and numbers of mitigation and conservation bank and in-lieu fee program sites, associated documents, mitigation credit availability, service areas, as well information on national and local policies and procedures that affect mitigation and conservation bank and in-lieu fee program development and operation” across Army Corps, Environmental Protection Agency, Fish and Wildlife Service, Federal Highway Administration, and National Oceanic and Atmospheric Administration programs via map- and list-based platforms, showing the location of banks/programs and detailing current credit balances where available. The San Francisco Transportation Demand Management Program’s monitoring webpage—which offers a map of all projects and quarterly “monitoring dashboard” reports that include program performance statistics—is another example of such a platform.<sup>155</sup>

VMT migration bank administrators should adopt a similar approach to house their transactional ledgers, mitigation monitoring reports, and additionality assessments, together with a regional map of all projects. However, maintaining such a platform may require significant dedicated staff time and data management capacity.<sup>156</sup> To address this barrier, Caltrans, OPR, and other state agencies

responsible for administering the state-level banking program could create a single database and public website to house reporting from local and regional programs throughout the state. Such a program would facilitate comparison across programs and public understanding of the use of CEQA mitigation funds and benefits of the VMT approach; it could also assist researchers seeking to evaluate program success around the state. State funding support would likely be necessary to establish and maintain the program.

## F. PERFORMANCE MONITORING

As noted earlier in this report, for impacts that are found to be significant and unavoidable (i.e., those that would enter a bank or exchange program), CEQA does not generally require long-term monitoring of the success of mitigation measures; rather, it requires monitoring or reporting to confirm that a mitigation measure is completed and maintained according to plan. (Performance monitoring may be required to confirm less-than-significant findings, which will fall outside the context of this report.) As a result, VMT mitigation banks and exchanges will generally not be responsible for reporting the actual VMT reductions that result from their mitigation investments—the difference, for example, between monitoring the funding and distribution of subsidized transit passes and monitoring the recipients’ use of those passes for transit rides instead of private vehicle trips.

While VMT mitigation banks and exchanges are not obligated to conduct this latter form of performance monitoring, the long-term success of VMT mitigation around the state will rely on better understanding of how mitigation measures perform in the real world. As VMT performance monitoring strategies develop—such as the use of transportation surveys to document residents’ VMT changes after the introduction of new investments, or parking audits to track vehicle use—the monitoring programs established by mitigation banks and exchanges could provide a key venue to track real-world VMT reductions and identify best practices for future investment rounds.<sup>157</sup>



## VII. EQUITY CONSIDERATIONS

To ensure fair distribution of the burden associated with increased VMT and the benefits associated with VMT-reducing mitigation projects in the context of off-site mitigation, VMT mitigation banks and exchanges should consider equity-focused design elements. Program design should encompass equity—with consideration for locally relevant definitions of inequity and disadvantaged communities to improve the program’s public acceptance, political feasibility, and efficacy, and to ensure the program is in sync with the state’s broader social values and objectives. Banks and exchanges designed with equity as a core component will better align with the values and goals shared by governments, communities, and advocates statewide.<sup>158</sup>

Equity-focused bank/exchange design would, for example, prioritize improvements in disadvantaged communities which have historically been underfunded with respect to transit and active transportation (or overburdened with highway development) and/or investments to increase access to major job and service centers for lower-income or rural residents.<sup>159</sup> Determination of which communities merit prioritization on equity grounds will depend on how the program shapes its local definition of VMT equity, which could encompass a range of factors. Points at which an agency could consider prioritizing disadvantaged communities could include the initial juncture at which a lead agency enters a project into the bank/exchange; in the project prioritization process; or as a discount or incentive in project selection.

Centering equity by providing clear geographic boundaries and guidelines for project selection and funding in the bank/exchange design is crucial because offsite mitigation may fail to benefit the communities directly impacted by a new development or those most burdened by a long-standing history of funding and development opportunities that are redirected towards wealthier and more privileged communities. Although accounting for equity in VMT mitigation is not required by SB 743 or CEQA, a recent study by San José State University’s (SJSU) Mineta Transportation Institute and recent regulation from the City of San Diego demonstrate that prioritizing equity is both critical and achievable.<sup>160</sup>

How can a VMT bank or exchange uphold equitable distribution of benefits while also reducing VMT effectively? This section will

### EQUITY STRATEGIES

To ensure mitigation bank or exchange programs account for equity considerations, program administrators should consider:

- Developing a local definition of VMT equity, including transportation, built environment, socioeconomic, and environmental factors as locally appropriate, to guide investment decision-making.
- Incorporating an equity lens at specific decision-making points, such as project prioritization and selection or a program-wide minimum investment requirement for priority areas.
- Soliciting community input on program decision-making at regular intervals, starting at the early stages of program formation and design.
- Ensuring that equity consideration aligns with efficiency of investment to the greatest extent possible.

Since a Caltrans-administered state-level bank will cover multiple regions, program administrators should consider adopting a flexible VMT equity definition to reflect regional priorities, or potentially adapting the definitions that local/regional programs develop.

first define equity in a VMT bank and exchange context, and then will examine questions of geographic boundaries and program scale, sequencing of equity-related determinations, and prioritization, followed by an example of equitable program design in practice and a discussion of a recent study. The section will conclude with recommendations for the potential VMT mitigation bank or exchange.

## A. CONTEXT FOR INCLUDING EQUITY IN VMT MITIGATION BANK/EXCHANGE DESIGN

Directly incorporating equity considerations would align VMT mitigation banks/exchanges with California's embrace of equity in its broader environmental and greenhouse gas (GHG) emissions reduction programs. In response to the potential for the state's cap-and-trade program to disproportionately leave polluting facilities in lower-income areas, the legislature enacted Assembly Bill 617 to measure and reduce emissions in areas most exposed to criteria air pollutants and other toxic contaminants.<sup>161</sup> In addition, under Senate Bill 535 and Assembly Bill 1550, the state is required to spend at least 25 percent of funds generated by the cap-and-trade program within disadvantaged communities, and five percent on projects that directly benefit low-income households in low-income communities.<sup>162</sup> The California Transportation Plan 2050, which established eight goals for achieving a balanced state transportation system, highlighted equity, accessibility, quality of life, and public health (among others), demonstrating the importance of equity-related issues in state transportation spending.<sup>163</sup> While accounting for equity is not explicitly required by CEQA or SB 743, these policies and program goals are a clear state-level statement of priority around equity concerns in the context of emission reduction and transportation investment.

Accounting for equity in the design of a bank or exchange is of particular importance because the location of impact (in this case, increased VMT) and the location of mitigation (e.g., transit access and active transportation improvements) may not be the same. For example, a land use project that generates a local uptick in VMT may mitigate its impact offsite. Perhaps the offsite mitigation will take place in the same neighborhood as the initial impact, but it may not. Depending on the boundaries set in the program design phase, the mitigation could take place quite far from the initial VMT impact, potentially saddling the community near the initial development with greater VMT-related impacts (e.g., pollution, traffic) without providing them the benefit of mitigation. Cap-and-trade models face similar scenarios, which have been discussed in literature and addressed in legislation and executive branch programs.<sup>165</sup> An analysis of where and how the VMT will be generated may be warranted in justifying the geographic area in which the VMT mitigation is conducted. Consider the situations described below.

An unintended consequence of onsite mitigation is that it continues to funnel investment into an area already attracting investment, thereby limiting benefits for lower-income and disadvantaged areas, and potentially disadvantaging individuals who will work at the site but cannot afford to live near the site. For example, a new mixed-use development with retail, commercial, and residential land uses

## CALENVIROSCREEN AND IDENTIFYING DISADVANTAGED COMMUNITIES

SB 535 directed the California Environmental Protection Agency (CalEPA) to define and map California's disadvantaged communities (DACs) in order to target climate-related investments more equitably. DACs are identified as the census tracts with the highest scores in CalEnviroScreen—a state mapping tool that identifies communities most vulnerable to environmental impacts based on indicators including pollution exposure, proximity to toxic chemicals, sensitive populations, and socioeconomic factors. Generally, census tracts in the top 25 percent of CalEnviroScreen scores, all federally recognized tribal areas, and census tracts within the top five percent of the Pollution Burden indicator qualify as DACs.<sup>164</sup>

will need a range of staff who cannot afford to live at or near the site and rarely benefit from onsite improvements. With limited options for transport and continuing increases in housing prices throughout California, workers who support daily services and needs in wealthier communities are driven to live farther and farther away, making driving the only realistic option. In this context, offsite mitigation—or onsite mitigation that is expressly designed to facilitate access to development from outlying communities—has significant potential to advance equity.

At a minimum, program designers should ensure that the bank or exchange does not exacerbate equity concerns, and ideally they should design it to address equity concerns at a deeper level. Banks and exchange developers can incorporate equity into bank design and implementation at several different points, such as by building equity thresholds into the framework of the program through a pre-approved set of projects or geographic limitations or geographic prioritization for offsite mitigation, and/or can ensure equity throughout the program’s implementation by creating minimum equity requirements for all projects to achieve or prioritizing projects on a points-based system with a category for equity. Additionally, administrative leaders can integrate thoughtful and inclusive community engagement throughout the decision-making process, such as by requiring specific, measurable engagement metrics that are tracked. With community input and partnership, administrative leaders can identify the options that best serve the needs of the jurisdiction(s) included in the bank or exchange. Finally, policy makers could commit to having diverse representation in bank/exchange management bodies and processes, such as by including a seat for at least one local community representative on any review panels or on the administrative management team itself.

This report focuses only on the time after agency leaders determine that VMT mitigation is necessary and therefore consider using a bank or exchange framework as a method of achieving offsite mitigation where onsite mitigation is not possible. However, decisions made before the engagement of the bank/exchange—for example, where to approve new development and transit infrastructure—have significant equity implications that lead agencies and developers should also evaluate.

The program design tasks described in this section are the responsibility of the administrative entity to ensure consistency in implementation within each program and establish clear rules and goals for addressing equity. However, leaders of each bank/exchange program may determine a different approach to equity, using a different combination of the options described here as well as other methods appropriate for the region’s unique needs, and some program leaders may prioritize equity concerns to a greater extent than others. Once program administrators establish local equity definitions and requirements, they will work directly with lead agencies and developers to design mitigation investments that achieve the defined equity goals.

## B. DEFINING EQUITY IN A VMT BANK/EXCHANGE CONTEXT

Before determining specific equity-focused program design elements, administrative entity leaders must define the specific components or metrics that will be used to measure VMT equity. While certain components of a VMT equity definition may be common across jurisdictions—such as racial or economic demographics—communities may also wish to add in more detailed definitions to reflect their specific circumstances.<sup>166</sup>

For example, a jurisdiction comprised of both urban and suburban areas may wish to approach geographic distribution of impacts differently than a more rural area. A VMT bank or exchange could also address inequities in distribution of transit access. Communities with fewer active and public transit options lack opportunities for healthy and safe travel options and connections to job centers, recreation, and commercial areas, which can negatively impact access to economic and social opportunity. As a result, equity targets for banks and exchanges should consider local priorities, especially if a jurisdiction has created specific targets that the bank/exchange can help accomplish, such as in a city plan or local legislation.<sup>h</sup>

Accounting for equity in bank/exchange design inherently involves tradeoffs. In some cases, VMT reductions might be achieved at lower cost per VMT when equity parameters are not factored into the equation, or perhaps the administrative burden is greater when requiring additional analyses. Nevertheless, prioritizing equity—defined based on locally relevant factors—can ensure that the program is delivered in alignment with broader social goals and community needs. Factors relevant to VMT equity decision-making may include:

- **Transit and transportation criteria** such as transit access, current VMT, safety including rates of serious injuries and fatalities, historical transportation investment, age and quality of infrastructure, and vehicle ownership rates.
- **Built environment criteria** such as neighborhood walkability, access to open space, bicycle and pedestrian safety and accessibility, and proximity to employment and critical services.
- **Socioeconomic and demographic criteria** such as income, age, employment, public health data, and housing burdens.
- **Environmental criteria** such as air quality, water quality, and proximity to hazardous waste sites.

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<sup>h</sup> As program administrators consider how to define and implement VMT equity considerations, they may need to account for the potential relationship between VMT mitigation investment and gentrification. While lower-income and disadvantaged communities should generally receive investment priority from an equity perspective, program administrators should be careful to consult with community members and secure regular feedback to ensure that investments meet local preferences and needs.

When selecting factors to define VMT equity and identify high-priority communities, banks and exchanges may wish to consider the following communities (additional factors may be appropriate depending on specific community circumstances):

- **Lower-income communities and/or communities of color:** VMT-inducing projects have the potential to create additional congestion and associated traffic impacts (decreased safety for drivers and pedestrians, increased travel time), as well as public health impacts, such as negative impacts on air quality from additional VMT, which may already disproportionately affect lower-income communities and communities of color. VMT-reducing projects can relieve and reverse some of these negative impacts by improving traveler safety, promoting public health, and supporting active transit options and transit access that these communities may be more likely to lack.
- **Lower transit access communities:** VMT-inducing projects could increase the reliance on personal vehicles in areas with low transit access, further separating residents in these areas from the health and accessibility benefits offered by public transit. VMT-reducing projects, especially those that improve transit access or other low-VMT mobility options, could reduce transit access inequities in areas underserved by existing transit systems.
- **Rural and exurban communities:** Developers in rural communities may have fewer opportunities for onsite mitigation because communities tend to be less dense and have less extensive public transit networks in existence, and projects in rural areas are less likely to induce much VMT, if any.<sup>167</sup> Therefore, developers may be tempted to pursue offsite mitigation in a denser, more urban area where they can achieve greater VMT reduction per dollar, but doing so could raise equity concerns if rural communities receive disproportionately little investment from the bank/exchange. (See [page 43](#) for a discussion of rural considerations.)
- **Total amount of geographic distance between impacts and benefits.** Developers with projects that create immediate congestion and driving-mile impacts in one part of a jurisdiction could potentially mitigate those impacts through the bank or exchange with investments in other parts of the jurisdiction. However, neighbors close to the immediate project vicinity may object to the mitigation benefits flowing to different parts of the community, when they bear the brunt of the immediate impacts. As a result, policy makers may want to prioritize mitigation projects that are closer to the project site to avoid engendering political opposition to the program, with the possible exception for cases where projects are located in high-income areas and mitigation could flow to disadvantaged communities.

To define and prioritize equity across their selected factors and communities, jurisdictions can use spatial data to determine which areas should be prioritized for additional investment or other specific program focus. CalEnviroScreen and other state and federal tools can alert administrative entities and developers

to environmental justice and underserved communities near proposed VMT-inducing or VMT-mitigating projects, and to evaluate equity-related impacts of potential projects.<sup>168</sup> As a result, they are a good starting point for VMT equity definitions.

However, the environmental equity metrics used in tools like CalEnviroScreen do not identify disproportionately burdened or underserved communities in all of California's regions because CalEnviroScreen is not a regionally based tool and is instead intended to compare communities at a statewide level. For example, the program's definition does not include any communities in the San Luis Obispo region, leading the San Luis Obispo Council of Governments to create a regional definition based primarily on socioeconomic and demographic factors.<sup>169</sup> Moreover, VMT equity may include transit access, community design, and historical investment considerations that go beyond existing environmental justice evaluations.

Although one tool alone may not be sufficient to inform decision making, spatial data can be combined to paint a clearer picture of local conditions. Administrative entities should engage community members in decision making processes, as data alone cannot describe a community's needs. While it may be true that a certain community could benefit from investment, policy makers will not necessarily know what type of investment (e.g., bike lanes, parks) would benefit the community most without direct communication.

### C. PRIORITIZING VMT EQUITY FOR SPECIFIC COMMUNITIES

In the context of VMT mitigation, equity concerns are likely to arise when the communities bearing the burden of a new development project do not receive an equal amount of benefit, or when there is unequal distribution of benefits and costs between different areas or populations. Programs that allow offsite mitigation must be especially cautious of equity considerations, as offsite mitigation could occur so far from the location of initial impact that the benefit is not received by the community. Although VMT impacts are felt at a regional scale, VMT mitigation banks and exchanges should determine which neighborhoods may merit prioritization, either by keeping more mitigation onsite or ensuring that a set amount of offsite mitigation occurs within those neighborhoods.

Keeping mitigation projects within the same geographic unit (as determined locally appropriate for the neighborhood/community boundary within a particular mitigation program) as the initial development impact could promote greater equity in terms of distribution of cost and benefits, especially for areas with high need for equity measures. In areas where inequity has been more pronounced, or where there are clearly identified areas of need that the community has agreed upon, mitigation outside of the immediate locally identified

#### A NOTE ON GEOGRAPHIC UNITS FOR EQUITY ASSESSMENT

Administrative entities should select whichever geographic unit best serves their needs (e.g., ZIP code, town or city borders) to define and evaluate VMT equity. A census tract, traffic analysis zone (TAZ), or municipal data set offers a granular level of detail on socioeconomic conditions, density, VMT per capita, and other important measurements, allowing the administrative entity to tailor the program to the specific needs of a given area. For example, the administrative entity could require that a certain portion of mitigation projects occur in the geographic areas with the highest need, or it could require that mitigation occur within the same geographic area (or an adjacent area, if appropriate) as the initial VMT-inducing impact. CalEnviroScreen scores are determined at the census tract level, and the metrics used by San José State University researchers (described later in this section) use census tract as units of analysis.<sup>170</sup> However, travel demand models often measure VMT per capita at the TAZ or municipal level. The remainder of this section will assume the use of census tracts as the unit of analysis, but other geographic units could be used if the administrative entity determines that census tracts are not the best fit for their program.

geographic boundary will likely be more appropriate. For example, a VMT-inducing development in an advantaged community may mitigate by creating a beneficial project (e.g., safer sidewalks) in a disadvantaged community, whereas VMT-inducing development in the disadvantaged community must mitigate within that community, whereas both projects may also contribute to a bank that helps to fund a transit line connecting the two.

Limiting the boundaries of offsite mitigation can prioritize beneficial projects in the most underserved areas. However, banks and exchange leaders also will need to ensure that transit investments flow to areas where residents can utilize them, or else the requisite VMT reductions are unlikely to occur. There is often overlap between areas with the greatest need and potential users of a project. However, certain VMT mitigation projects may not be appropriate in every location or for every community. VMT mitigation projects in disadvantaged communities could yield unintended negative consequences in some cases. For example, city planners may choose to promote transit-oriented development in an effort to offset VMT, but transit-oriented development may displace low-income individuals by increasing housing costs.<sup>171</sup>

To reduce the risk of unintended negative consequences, planners could commit to early and regular engagement of affected communities in the decision-making process, beginning well before any specific decision is selected. Additionally, mitigation projects located low-density or rural areas may not generate VMT reductions as substantial as those achieved by projects in denser areas. Such projects may be deprioritized if cost per VMT is a key factor in determining the eligibility and value of a project, but adding an equity lens to the decision may elevate some of these projects to a higher priority.

A key investigation of the equity implications of a VMT mitigation program using both quantitative and qualitative methods is a 2021 study conducted by researchers at San José State University's (SJSU) Mineta Transportation Institute.<sup>172</sup> The researchers noted that “equity in VMT mitigation requires an in-depth analysis of the distribution of benefits and costs,” and using mobility equity as an example, stated that “if an infrastructure improvement project is proposed to improve mobility equity, an analysis of the distribution of costs and benefits of the project on various population groups should be conducted.”<sup>173</sup>

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## SAN JOSÉ STATE VMT EQUITY RESEARCH AND RECOMMENDATIONS

The SJSU study delivers several recommendations for ensuring equity throughout the mitigation bank/exchange design and implementation process. First, they urge program designers to factor in both micro- and macro-scale elements of the built environment, as well as income levels and access to transit to build a comprehensive understanding of VMT impacts. The researchers advise that all four of these factors should be incorporated into any VMT mitigation strategy and note that prioritizing onsite mitigation in certain areas

would have a substantial VMT benefit when compared to offsite mitigation.<sup>174</sup> (However, once offsite mitigation has been deemed appropriate for a particular project, the bank/exchange should function as another filter through which to ensure the highest possible level of equity in VMT mitigation.)

The SJSU researchers find that lower-income areas with greater sprawl and poor micro-scale design elements have higher VMT than wealthier communities with the same density and micro-scale design characteristics, indicating the VMT outcomes in lower-income neighborhoods are more affected by built environment features. The researchers conclude that “allowing off-site mitigation measures for projects based in low-income places is likely to create a disproportionately undue burden on already vulnerable communities.”<sup>175</sup> Therefore, when onsite mitigation options have been exhausted and offsite mitigation is deemed appropriate, the bank/exchange plays an important role in creating more equitable outcomes for low-income areas. The SJSU researchers describe the potential for a state-managed fund that allocates a set amount of investment towards disadvantaged communities, via a regionally managed bank or exchange.<sup>176</sup>

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The SJSU study examined the “differentiation between the impact of regional (i.e., land-use and transportation patterns) vs. block features (i.e., street-level built environment characteristics) on VMT,” adding a layer of quantitative micro-scale analysis that is critical to identifying full equity impacts.<sup>177</sup> For example, the researchers also evaluated the interactions between micro- and macro-scale elements of urban design, including tree cover or sidewalk quality/quantity within the micro-scale, and broader transportation access or zoning and land use patterns at the macro-scale.<sup>178</sup> The SJSU researchers conducted a multivariate regression analysis to assess the relationship of macro- and micro-scale built environment characteristics and access to transit on VMT, controlling for socio-economic factors.<sup>179</sup> Using a random sample of 60 California census tracts (covering both advantaged and disadvantaged areas), the SJSU team analyzed the distribution of five variables across each of the selected census tracts: CalEnviroScreen score, annual household income, Sprawl Index, annual household VMT, and State of Place (SoP) index (a measure of neighborhood walkability based primarily on the proximity of housing, employment, and other destinations).<sup>180</sup> The analysis found that areas with the highest VMT tended to have lower density, lower SoP index, and higher income, while the areas with the lowest VMT had higher density, higher scores on the SoP index, higher transit access, and lower income.<sup>181</sup>

The figure below presents a potential analytical framework for analyzing VMT equity as part of the investment decision-making process. Jurisdiction A, based on the variables analyzed in the SJSU study, yields a 16-cell matrix with every possible combination of high and low SoP, transit access, income, and density. Communities with low SoP, low transit access, low income, and low density could be prioritized most in the VMT equity analysis. Jurisdiction B uses a slightly different set of criteria to evaluate VMT equity—transit access, income, and air quality—and might prioritize low-transit, low-income, low-air quality communities most. Programs could apply the same approach to a range of

criteria—for example, including safety, environmental health, historical investments, and other socioeconomic factors alongside or in place of income, transit access, density, and walkability—as appropriate based on the local definition of VMT equity and the goals of the VMT mitigation program.

## VMT EQUITY MATRIX

### Jurisdiction A

Low SoP Low Transit Low Income Low Density	Low SoP High Transit Low Income Low Density	High SoP Low Transit Low Income Low Density	High SoP High Transit Low Income Low Density
Low SoP Low Transit Low Income High Density	Low SoP High Transit High Income Low Density	High SoP Low Transit High Income Low Density	High SoP High Transit High Income High Density
Low SoP High Transit Low Income Low Density	Low SoP Low Transit High Income High Density	Low SoP High Transit Low Income High Density	High SoP High Transit High Income High Density
High SoP Low Transit Low Income High Density	High SoP High Transit Low Income High Density	High SoP Low Transit High Income High Density	High SoP High Transit High Income High Density

### Jurisdiction B

Low Transit Low Income Low AQ	High Transit Low Income Low AQ	Low Transit High Income Low AQ
Low Transit Low Income High AQ		Low Transit High Income High AQ
High Transit Low Income High AQ	High Transit High Income Low AQ	High Transit High Income High AQ

Higher VMT Equity Priority

Lower VMT Equity Priority

*Figure 5. Potential matrices describing VMT equity analysis. Table created by UC Berkeley authors, drawing on SJSU “Safeguarding Equity” Analysis. “VMT Equity Priority” terminology and hypothetical prioritization of communities are for illustrative purposes only. This diagram is based on UC Berkeley authors’ analysis and interpretation of the variables evaluated in the SJSU report.*

Program administrators could tailor design and use of such a matrix to match local needs and priorities. While the hypothetical depicts uniformly “low” ranking areas as highest priority for VMT equity, program leaders might, for example, determine that low-income, high-density areas have the highest priority for investment due to the combination of population served and efficiency of expenditure. And while the highest overall VMT areas may be high-income, low-density communities with high personal vehicle access, these will likely not be the highest overall VMT equity priority areas. Each program’s analytical tool for equity decision-making will serve as a means to apply locally appropriate definitions of VMT equity to achieve desired outcomes in VMT mitigation.

The matrices in Figure 5 are a hypothetical depiction of how program administrators might classify communities and prioritize them for investment at one or more equity decision points in a VMT mitigation program. Variables in the analysis will reflect the locally appropriate VMT equity definition (e.g., including local environmental impacts or excluding walkability) and their prioritization will reflect program investment goals (e.g., prioritizing already dense areas for efficiency of investment). And in practice, equity is one component among many in an overall investment decision-making framework, so any classifications made with this form of analysis will be central but not determinative to the process.

This framework could inform the design of a VMT mitigation bank or exchange, as administrators could determine each region’s position within the matrix and prioritize projects or allocate investment accordingly. The mitigation program could use this framework at multiple phases of the design and implementation process. During the design phase, for example, a jurisdiction could determine where each of its census tracts fall within the matrix and could designate limitations for offsite mitigation for development within the areas of greatest concern. A county implementing a VMT bank may have several areas with higher need for VMT equity measures, and several areas with relatively low need. Developers in geographic units with the highest levels of VMT equity need could be required to mitigate within the same geographic unit. Similarly, developers in geographic units with low levels of VMT equity need (i.e., the most advantaged communities) could be required to conduct any offsite mitigation in a different, more disadvantaged areas.

Alternatively, program leaders could determine that offsite mitigation may remain in a more advantaged community so long as it is likely to increase access to that community for residents of less advantaged nearby communities rather than solely providing benefits within the community (i.e., transit connection but not pedestrian infrastructure investments). Setting this threshold at the outset of the development process would ensure that more benefits are retained within the areas with the greatest need. Projects could also be filtered or prioritized based on the designation of their geographic area, with mitigation projects in high-need areas prioritized over mitigation projects in low-need areas.

#### **D. EQUITY LEVERS: BANK ENTRY THRESHOLD, PROJECT SELECTION, AND PRIORITIZATION**

Equity determinations can occur at several distinct phases of the bank/exchange program design and implementation process. Administrative leaders will need to identify the appropriate decision point(s) at which to make equity-based decisions. This section discusses different decision points at which equity evaluation may be appropriate and suggests options for establishing equity decisions throughout. In addition to the program’s local definition of VMT equity, the relative characteristics and needs of the participating jurisdictions—the balance of communities rated as “high” and “low” VMT equity priority in a given analytical framework—will help determine the best tool or tools for equity decision-making. By factoring one or more equity decision points into upfront program design and eventual program implementation, program administrators can incorporate a broader array of equity considerations into program design and delivery.<sup>182</sup>

Bank and exchange program design can account for equity in several ways and at several stages:

##### ***1. Before or at the program entry threshold***

The administrative entity can incorporate equity into the design of the bank or exchange before any developers or projects interact with

the framework by setting requirements for geography, projects, and/or community engagement:

- First, the administrative entity could **limit the geographic range** allowed for offsite mitigation, such as by requiring that offsite mitigation take place in the same census tract as the initial impact if the impacted tract qualifies as high need (based on the bank's selected definition of VMT equity).
- Second, the administrative entity could **pre-approve a set of projects** that adhere to equity standards or could establish standards which all projects must meet if they wish to participate in the bank or exchange. Ideally, the administrator could elevate mitigation projects that have already been identified as priorities by communities in the relevant region.<sup>183</sup> In some cases, the community may have engaged in past funding processes and therefore already developed a list of priority improvements and desired investments. In other cases, a community may not have had the opportunity to reflect on the projects that would benefit them most, so the administrator may wish to host a series of outreach sessions to hear from the community. **Ensuring input on the selection process (and potentially including a community representative in the program's investment decision-making process) should be built into program guidelines.**
- Finally, the administrator could **require that projects meet certain equity standards** to qualify for mitigation credit, creating an equity threshold for project entry into the program. For example, the administrative entity might require that new mitigation projects adhere to a set of equity standards (e.g., location-based limitations or demonstrate a minimum amount of community benefits like safer pedestrian crossings).

For all banks and exchanges, the administrative entity should commit to conducting early and regular community engagement, following best practices for gathering meaningful community feedback, and could establish minimum requirements for community engagement as a precondition for developers' participation in the bank or exchange.

## **2. During the program's operation**

Administrative leaders can establish equity checkpoints during the ongoing operation of the bank or exchange program.

- The administrative entity could **prioritize projects that advance equity goals**. For example, a project with support from the local community that allocates investment to an underserved area could be given priority for mitigation funds.

- Equity could also be a **point category for scoring projects and determining their eligibility for bank/exchange participation**. If a project receives a low equity score, it will not score as well overall in the rating process, and therefore project designers will be incentivized to build equity into each project. For example, the Fresno Council of Governments used such a system for recent applicants for Regional Active Transportation Program competitive grants, with escalating points based on benefits to disadvantaged communities across multiple criteria including median income and CalEnviroScreen score.<sup>184</sup>
- Similarly, the administrative entity could **assign greater weight to mitigation projects located in the areas of greatest concern** to incentivize developers in advantaged areas to prioritize mitigation investments to disadvantaged areas. For example, if deciding between two offsite mitigation project options—one in an advantaged area and one in a disadvantaged area—the administrative entity could limit itself to projects located in the disadvantaged area (or, in an exchange model, require that the developer select projects in the disadvantaged area), or could strongly incentivize selection of that project through discounts or multipliers.
- Finally, the administrator could **set a minimum amount or percentage of funding** that must go towards mitigation projects in high priority areas.

The administrative entity can elevate equity concerns throughout the bank/exchange’s management and project review processes by creating an equity review or oversight capacity with a minimum number of representatives from local disadvantaged communities. This review panel or team could periodically review the total mix of impacts and mitigation investments made through the bank/exchange, compare the aggregate and specific locations of VMT impact and mitigation and the flow of dollars, and assess whether the program is achieving its stated equity goals (or exacerbating any existing equity issues). The equity review process could be conducted in conjunction with the annual monitoring process described in Section VI. The bank/exchange could also consider a pre-approved set of projects that satisfy a certain set of criteria.

Regardless of the specific option (or combination of options) selected by the administrative entity, the bank/exchange should avoid exacerbating existing inequities and, wherever possible, should design to deliver extra investment to the communities that need it most.

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## CITY OF SAN DIEGO'S MOBILITY CHOICES PROGRAM

The City of San Diego developed and implemented an innovative approach to ensuring equity through their VMT impact fee program. The Mobility Choices program “[streamlines] development in areas of the City that are most aligned with the City’s climate goals and [invests] in active transportation infrastructure, such as pedestrian and bicycle facilities. These investments are focused in Communities of Concern, where the need is the greatest.”<sup>185</sup> The program directs VMT-reducing projects to areas of the City that are deemed “VMT-efficient,” where San Diego can gain the greatest possible VMT reduction at the lowest cost, benefitting the entire region. VMT improvements in efficient areas can have a benefit nearly 20 times greater than reductions in inefficient areas.<sup>186</sup> The Mobility Choices program reflects the latest guidelines from the Governor’s Office of Planning and Research (OPR), SB 375, and the City’s own Climate Action Plan goals.<sup>187</sup>

Recognizing that fees collected in one area may be applied in other areas to generate equitable outcomes, planners divided the City into four zones, each with its own fee collection and use rules.<sup>188</sup> Zone 1 is the downtown area, zone 2 consists of transit priority areas, zone 3 includes areas which meet a pre-specified VMT threshold, and zone 4 encompasses all other areas. Development in zones 1 through 3 incurs no required fee, although projects can opt into a fee in these zones, and projects in these zones are encouraged to pursue onsite VMT reduction measures.<sup>189</sup> Development in zone 4 must pay a fee, and onsite VMT reduction measures are prioritized less than in zones 1-3. Development fees collected from projects in zone 4 are expended in zones 1 through 3, with a minimum of 50 percent allocated towards underserved communities.

The City analyzed map data comparing the locations of underserved communities overlaid with VMT-efficient areas (i.e., areas in which the greatest VMT reduction can be achieved at the lowest cost). With this information, San Diego city planners are better able to direct investments to the communities where they are needed most. However, as is true with any program, program implementors must not assume the specific projects or investments that communities want without engaging the community in the decision-making process.

## E. PROGRAM DESIGN OPTIONS

As administrative leaders design their programs, they should:

- Define equity, drawing from the factors presented in this section, the communities and methodology developed in the SJSU “Safeguarding Equity” analysis, California’s SB 535/AB 1550 and CalEnviroScreen criteria for disadvantaged communities, and other locally relevant criteria.
- Determine the extent to which equity will be prioritized, if at all, in the design of their bank/exchange.
- Decide how equity will be prioritized, if at all, including specific mechanisms for elevating equity considerations and decision points at which equity is considered, such as:

- Establishing an equity threshold requirement for mitigation projects funded by the bank/exchange (geographic limitations, preapproved projects, minimum funding, etc.)
- Requiring developers to commit to a minimum level of community engagement and input prior to receiving approval for a mitigation project
- Setting a program-wide minimum requirement for investment in priority areas
- Requiring that project decision-making teams or review panels have diverse representation, including representation from disadvantaged communities in the bank/exchange jurisdiction
- Prioritizing mitigation investments in areas with the greatest VMT equity needs, as measured by locally appropriate equity definitions or criteria
- Requiring that mitigation take place within the same census tract as the original impact if the impact is within a priority VMT equity area



## VIII. CONCLUSION: RECOMMENDATIONS FOR POLICYMAKERS

As state, regional, and local leaders begin to develop plans for VMT mitigation bank or exchange programs, the concepts outlined in this report can help guide decision-making on design elements including geographic scope and administrative design, project prioritization and selection, pricing and fiscal matters, mitigation monitoring, additionality, and equity. In many cases, these program functions will build on or derive from existing mitigation and planning strategies already in place throughout the state. However, Caltrans (on behalf of itself and state agencies) and MPOs and RTPAs (on behalf of local and regional governments) should give particular focus to the following program elements:

- Determining the appropriate geographic scope and administrative entity. For Caltrans, this would include identifying any other state agency leads or partners for implementation and outlining strategies to manage investments regionally (where appropriate) in a state program. For MPOs and RTPAs, this would include a deliberative process to identify participating jurisdictions or (where necessary) multi-regional collaborations and development of pricing, investment priority, and equity strategies that achieve participants' goals.
- Assessing the additionality of program investments in a manner that ensures net VMT reductions in line with local targets and legal requirements in a workable fashion that comports with existing investment planning processes.
- Developing locally appropriate definitions of VMT equity that align with local investment needs and priorities, ensure that VMT mitigation efforts do not exacerbate existing inequalities in environmental health and transportation investment, and promote an equitable distribution of program funds that maximizes benefits and connectivity for local underserved communities.

To support development of robust and effective VMT mitigation programs, state lawmakers could:

- Authorize funding to support state and local/regional bank establishment and administration.
- Create and fund an office within Caltrans, the Governor's Office of Planning and Research, or CalSTA to support bank administration statewide, collect program implementation data, and develop a state website to share program formation documents, guidelines, and public reporting.

Finally, as state and local leaders implement their programs, they can provide information and feedback to policymakers and researchers to inform each iteration of program guidance and design. While this analysis highlights state and local/regional programs operating in parallel as the initial framework for mitigation banks and exchanges, over time the programs may evolve into a more fluid model that captures the most efficient, highest priority investments around the state.

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## REFERENCES

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- 1 While Caltrans and state agencies are approaching VMT mitigation strategies, a number of local and regional governments, including San Diego, San Jose, and Los Angeles, have begun to develop VMT mitigation programs and pilots that consider bank and exchange approaches. See, e.g., Fehr & Peers (prepared for SCAG and LADOT), *VMT Mitigation Program Pilot Project* (June 2021), available at <https://scag.ca.gov/sites/main/files/file-attachments/ladot-vmt-mitigation-program-report.pdf?1643075394>. The San Luis Obispo Council of Governments, City/County Association of Governments of San Mateo County, and Santa Clara Valley Transportation Authority each received Caltrans Sustainable Transportation Planning Grants to further explore VMT migration including bank and exchange frameworks. For more information see <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sustainable-planning-grants-2021/04012022-update/1-fy-2022-23-stpg-award-list.pdf>.
- 2 In addition, private and non-profit housing and development entities may wish to pursue some of the mitigation bank or exchange strategies outlined in this report.
- 3 The VMT metric was introduced in part to better align CEQA transportation analysis with state GHG goals and associated public and active transportation priorities. See SB 743 (stating legislative intent to “(1) Ensure that the environmental impacts of traffic, such as noise, air pollution, and safety concerns, continue to be properly addressed and mitigated through the California Environmental Quality Act. (2) More appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions”); SB 375 (Steinberg, Chapter 728, Statutes of 2008) (establishing local vehicle travel reduction planning to achieve state climate goals). But VMT assessments are ultimately emissions-independent – one VMT from a traditional automobile counts the same as one VMT from a battery-electric vehicle powered by renewable energy. Thus, California’s plans to transition its vehicle fleet and electrical grid away from fossil fuels will not affect VMT analysis.
- 4 See Governor’s Office of Planning and Research, *Preliminary Evaluation of Methods of Transportation Analysis* (December 2013), pp. 2-3, available at <https://opr.ca.gov/docs/PreliminaryEvaluationTransportationMetrics.pdf>; see also Jamey Volker et al., National Center for Sustainable Transportation, *Assessing Transportation Impacts Using Vehicle Miles Traveled Rather Than Level of Service Can Incentivize Infill Development* (February 2020) (policy brief), available at <https://escholarship.org/uc/item/9gc99576>.
- 5 Jamey Volker et al., “A New Metric in Town: A Survey of Local Planners on California’s Switch from LOS to VMT,” *Transport Findings* (November 2019), available at <https://findingspress.org/article/10817-a-new-metric-in-town-a-survey-of-local-planners-on-california-s-switch-from-los-to-vmt>. For non-CEQA purposes, local governments retain their general police power authority to use LOS (or other transportation metrics), as appropriate for local needs including, for example, roadway design standards.
- 6 Cal. Pub. Res. Code § 21099(b).
- 7 14 Cal. Code Regs. § 15064. This section describes specific considerations for evaluating a project’s transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, “vehicle miles traveled” refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project’s effect on automobile delay shall not constitute a significant environmental impact.”
- 8 See Caltrans Deputy Director for Sustainability Ellen Greenberg, “Caltrans policy on transportation impact analysis and CEQA significance determinations for projects on the state highway system” (September 10, 2020) (memorandum), available at <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-10-vmt-policy-memo-fnl-a11y.pdf>.
- 9 Cal. Pub. Res. Code §§ 21000 et seq. See 14 Cal. Code Regs. §§ 15000 et seq. (OPR CEQA Guidelines)

- 10 Cal. Pub. Res. Code §§ 21100 (state agencies), 21151 (local agencies); Cal. Pub. Res. Code § 21002.1 (project selection and feasibility).
- 11 See Cal. Pub. Res. Code § 21002; 14 Cal. Code Regs. § 15041. In addition, “A public agency may disapprove a project if necessary in order to avoid one or more significant effects on the environment that would occur if the project were approved as proposed. A Lead Agency has broader authority to disapprove a project than does a Responsible Agency. A Responsible Agency may refuse to approve a project in order to avoid direct or indirect environmental effects of that part of the project which the Responsible Agency would be called on to carry out or approve.” 14 Cal. Code Regs. § 15042.
- 12 Cal. Pub. Res. Code § 21002.1; 14 Cal. Code Regs. § 15370.
- 13 See, e.g., *Lotus v. Dep’t of Transportation*, 223 Cal. App. 4th 645, 655-657 (2014).
- 14 14 Cal. Code Regs. § 15064.3.
- 15 See 14 Cal. Code Regs. §§ 15064.3 (methodology), 15064.7 (significance thresholds), 15384 (substantial evidence requirement).
- 16 See generally Caltrans, *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (May 2020), available at <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf>; California Governor’s Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, (December 2018), pp. 4-6, available at [https://opr.ca.gov/docs/20190122-743\\_Technical\\_Advisory.pdf](https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf).
- 17 San Francisco Planning, *Transportation Impact Analysis Guidelines, Appendix L: Vehicle Miles Traveled (VMT)/Induced Automobile Travel*, (February 2019), p. L-5, available at [https://default.sfplanning.org/publications\\_reports/TIA\\_Guidelines\\_VMT\\_Memo.pdf](https://default.sfplanning.org/publications_reports/TIA_Guidelines_VMT_Memo.pdf).
- 18 OPR, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, supra, at pp. 8-11. See also California Air Resources Board (CARB), *2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (January 2019) (establishing basis for OPR’s 15% target), available at [https://ww2.arb.ca.gov/sites/default/files/2019-01/2017\\_sp\\_vmt\\_reductions\\_jan19.pdf](https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf). CARB’s Draft 2022 Scoping Plan Update acknowledges that the state is “not on track to achieve the VMT reduction called for in the 2017 Scoping Plan update” and sets a statewide target of 22 percent VMT reduction below 2019 levels by 2045. CARB, *Draft 2022 Scoping Plan Update* (May 10, 2022), available at <https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf>.
- 19 OPR, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, supra, at pp. 22-24.
- 20 See City of San Jose, *Transportation Analysis Handbook* (April 2020), pp. 17 (land use threshold), 52 (transportation threshold), available at <https://www.sanjoseca.gov/home/showpublisheddocument/28461/637378425915570000>
- 21 For an example of a program analysis that covers these elements, see City of San Diego, *Active Transportation In Lieu Fee Nexus Study* (April 2020), available at [https://www.sandiego.gov/sites/default/files/6\\_mobility\\_choices\\_nexus\\_study.pdf](https://www.sandiego.gov/sites/default/files/6_mobility_choices_nexus_study.pdf).
- 22 Ethan Elkind et al., *Implementing SB 743: An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks*, UC Berkeley Center for Law, Energy & the Environment (October 2018), p. i, available at <https://www.law.berkeley.edu/wp-content/uploads/2018/09/Implementing-SB-743-October-2018.pdf>.
- 23 Intersecting Metrics on behalf of the County of San Diego, “County of San Diego – Programmatic VMT Mitigation Options,” (November 2021), p. 3, on file with authors.
- 24 Ethan Elkind et al., *Implementing SB 743: An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks*, supra, p. i.
- 25 Intersecting Metrics on behalf of the County of San Diego, “County of San Diego – Programmatic VMT Mitigation Options,” supra, p. 3.
- 26 See, e.g., *Russ Bldg. Partnership v. City and County of San Francisco*, 44 Cal. 3d 839, 845 (Cal. Ct. App. 1988)
- 27 See, e.g., *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors*, 87 Cal.App.4th 99, 137-141 (Cal. Ct. App. 2001); *Anderson First Coalition v. City of Anderson*, 130 Cal.App.4th 1173, 1188-1189 (Cal. Ct. App. 2005).
- 28 Ethan Elkind et al., *Implementing SB 743*, supra; Fehr & Peers, *VMT Mitigation Through Fees, Banks, & Exchanges*, supra.

- 29 Neil Peacock, *The Potential for Regional Transportation Impact Mitigation Fee Programs and Mitigation Banks to Help Streamline the Implementation of SB 743*, Caltrans (March 2017), available at <https://static1.squarespace.com/static/5b96d09a3c3a53da0e1ba210/t/5e5ec5cf5876f47000915ddd/1583269327880/VMT+Mitigation+Precedents+Peacock+March+2017.pdf>.
- 30 Robert Liberty, *A Transaction-Based Alternative for VMT Mitigation Under CEQA*, Urban Sustainability Accelerator at Portland State University (November 2019), available at <https://static1.squarespace.com/static/5b96d09a3c3a53da0e1ba210/t/5e5ec71a961fo532348adfa4/1583269659024/VMT>.
- 31 See, e.g., Cal. Pub. Res. Code § 21082.2(c) (excluding evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment from definition of substantial evidence); 14 Cal. Code Regs. § 15064(e) (describing limited use of economic and social changes in determining significance of impacts).
- 32 14 Cal. Code Regs § 15126.4, subd. (c)(3).
- 33 Some also suggest that conservancies and community land trusts could play a central role in VMT mitigation while also improving equity, engaging communities, and addressing California's housing shortage See Chase Stone, "Easements, Exchanges, and Equity: Models for California's Climate and Housing Crises," *Hastings Environmental Law Journal* (Summer 2020), p. 306, available at [https://repository.uchastings.edu/cgi/viewcontent.cgi?article=1589&context=hastings\\_environmental\\_law\\_journal](https://repository.uchastings.edu/cgi/viewcontent.cgi?article=1589&context=hastings_environmental_law_journal) ("VMT mitigation merely promotes transit-conscious developments, efforts [that] could complement conservation trusts. VMT banking feeds funds into specific mitigation projects that can include conservation. This does not mean that VMT mitigation should be disregarded. Rather, VMT may operate similarly or alongside to a conservancy, which creates new community organizations by acquiring land or exchanging land.... [C]onservation easements may protect areas of key environmental concern and continue creating incentives to develop housing while protecting biodiversity.")
- 34 See, e.g., Fehr & Peers, *VMT Mitigation Program Pilot Project*, *supra*, pp. 27-29.
- 35 Cal. Pub. Res. Code §§ 21000 et seq.; 21002.1(b).
- 36 Cal. Pub. Res. Code §§ 21100 (state agencies), 21151 (local agencies); Cal. Pub. Res. Code § 21002.1 (project selection and feasibility).
- 37 The California Natural Resources Agency certifies and formally issues the CEQA Guidelines as regulations at 14 Cal. Code Regs. §§ 15000 et seq., available at [https://www.califaep.org/docs/CEQA\\_Handbook\\_2021.pdf](https://www.califaep.org/docs/CEQA_Handbook_2021.pdf).
- 38 See, e.g., Governor's Office of Planning and Research, *Preliminary Evaluation of Methods of Transportation Analysis* (December 2013), pp. 2-3, available at <https://opr.ca.gov/docs/PreliminaryEvaluationTransportationMetrics.pdf>.
- 39 Steinberg, Chapter 386, Statutes of 2013; Cal. Pub. Res. Code § 21099(b). The goal of the update was to promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" and "balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions" while still addressing "environmental impacts of traffic, such as noise, air pollution, and safety concerns."
- 40 14 Cal. Code Regs. § 15064.3.
- 41 The full CEQA definition of "mitigation" includes "(a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements. 14 Cal. Code Regs. § 15370.
- 42 See, e.g., *Russ Bldg. Partnership v. City and County of San Francisco*, 44 Cal. 3d 839, 845 (Cal. Ct. App. 1988).
- 43 OPR, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, (December 2018), *supra*, p. 27. See also 14 Cal. Code Regs. § 15130, subd. (a)(3).
- 44 14 Cal. Code Regs. § 15126.4(a)(1)(A)-(B).

- 45 Cal. Pub. Res. Code § 21081.6(b); 14 Cal. Code Regs. § 15126.4(a)(2).
- 46 Cal. Pub. Res. Code § 21081.6(a); 14 Cal. Code Regs. § 15097.
- 47 14 Cal. Code Regs. § 15126.4(a)(4); *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987) (essential nexus); *Dolan v. City of Tigard*, 512 U.S. 374 (1994) (rough proportionality).
- 48 See, e.g., *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors*, 87 Cal.App.4th 99, 137-141 (2001); *Anderson First Coalition v. City of Anderson*, 130 Cal.App.4th 1173, 1188-1189 (2005).
- 49 50 Cal.App.5th 467 (2020).
- 50 *Id.* at 508, 512-513; 17 Cal. Code Regs. § 95972(a).
- 51 *Golden Door Properties v. County of San Diego*, 50 Cal.App.5th 509, 513-514, 518; 17 Cal. Code Regs. § 95802 (defining “additional” as “greenhouse gas emission reductions or removals that exceed any greenhouse gas reduction or removals otherwise required by law, regulation or legally binding mandate, and that exceed any greenhouse gas reductions or removals that would otherwise occur in a conservative business-as-usual scenario.”). However, in *Save Panoche Valley v. San Benito County*, 217 Cal.App.4th 503 (2013), the Court of Appeal held that mitigation measures for a solar development and associated cancellation of Williamson Act contracts—including conservation easements and a commitment to remove installations at the end of the project’s useful life—were adequate and did not fail under CEQA because they did not include “creation of *additional* agricultural lands to compensate for the ones utilized by the project.” *Id.* at 528-529 (emphasis in original). The court concluded: “The goal of mitigation measures is not to net out the impact of a proposed project, but to reduce the impact to insignificant levels.”
- 52 *Golden Door*, 50 Cal.App.5th at 518-525.
- 53 14 Cal. Code Regs. § 15126.4(a)(1)(A)-(B).
- 54 *Preserve Wild Santee v. City of Santee*, 210 Cal. App.4th 260, 281 (2012).
- 55 *Endangered Habitats League, Inc. v. County of Orange*, 131 Cal.App.4th 777, 792 (2005).
- 56 *Communities for a Better Environment v. City of Richmond*, 184 Cal.App.4th 70, 92 (2010).
- 57 *San Joaquin Raptor Rescue Center v. County of Merced*, 147 Cal.App.4th 645, 670 (2007).
- 58 *California Native Plant Society v. City of Rancho Cordova*, 172 Cal.App.4th 603, 621 (2009) (citing *Sacramento Old City Assn. v. City Council*, 229 Cal.App.3d 1011 (1991)).
- 59 *Id.* at 622.
- 60 *Oakland Heritage Alliance v. City of Oakland*, 195 Cal.App.4th 884, 910-912 (2011).
- 61 See, e.g., *Save Our Peninsula Comm. v. Monterey Bd. Of Supervisors*, 87 Cal.App.4th 99, 139-142 (2001) (describing adequacy of in-lieu fee collection for traffic impact mitigation where sufficient planning and policy were in place to direct spending when necessary).
- 62 14 Cal. Code Regs. § 15126.4(a)(2).
- 63 14 Cal. Code Regs. § 15097(a).
- 64 14 Cal. Code Regs. § 15097(c).
- 65 *Nollan*, *supra*, 483 U.S. at 837 (“The evident constitutional propriety disappears, however, if the condition substituted for the prohibition utterly fails to further the end advanced as the justification for the prohibition. When that essential nexus is eliminated, the situation becomes the same as if California law forbade shouting fire in a crowded theater, but granted dispensations to those willing to contribute \$100 to the state treasury. While a ban on shouting fire can be a core exercise of the State’s police power to protect the public safety, and can thus meet even our stringent standards for regulation of speech, adding the unrelated condition alters the purpose to one which, while it may be legitimate, is inadequate to sustain the ban.”).
- 66 *Dolan*, *supra*, 512 U.S. at 391.
- 67 14 Cal. Code Regs. §§ 15041(a), 15126.4(a)(4).
- 68 *Ehrlich v. City of Culver City*, 12 Cal. 4th 854, 882 (1996).
- 69 *Alliance for Responsible Planning v. Taylor*, 63 Cal. App.5th 1072, 1085 (2021).

- 70 Ehrlich v. City of Culver City at 883-885 (The court rejected the city’s development fee for an office building based on the recreational value of lost tennis courts that would have been restricted for private use and not open to the general public: “Plaintiff is being asked to pay for something that should be paid for either by the public as a whole, or by a private entrepreneur in business for a profit. The city may not constitutionally measure the magnitude of its loss, or of the recreational exaction, by the value of facilities it had no right to appropriate without payment. This is not to say, however, that *some* type of recreational fee imposed by the city as a condition of the zoning and related changes cannot be justified. The amount of such a fee, however, must be tied more closely to the actual impact of the land-use change the city granted plaintiff.”).
- 71 Cal. Govt. Code §§ 66001(a)-(b), 66005. Section 66001 does not explicitly require fees to fund public facilities alone; rather, it requires identification of those facilities if they are the use of funding.
- 72 Cal. Govt. Code §§ 66006, 66007(a)-(b). A review of the limited case law covering this provision did not reveal any relevant precedent defining the nature of such accounts or construction plans.
- 73 City of San Diego, *Active Transportation In Lieu Fee Nexus Study* (April 2020), available at [https://www.sandiego.gov/sites/default/files/6\\_mobility\\_choices\\_nexus\\_study.pdf](https://www.sandiego.gov/sites/default/files/6_mobility_choices_nexus_study.pdf).
- 74 Eric Sundquist, Caltrans, “VMT Program Bulletin 21-01: VMT Mitigation Funding Status and Additionality” (August 26, 2021), available at <https://dot.ca.gov/-/media/dot-media/programs/sustainability/documents/21-01-vmt-bulletin-mitigation-funding-status-additionality-a11y.pdf>.
- 75 14 Cal. Code Regs. § 15126.6(e).
- 76 See 14 Cal. Code § 15125.
- 77 See, e.g., *Lotus v. Dep’t of Transportation*, 223 Cal. App.4th 645 (2014) (finding that an EIR cannot incorporate proposed mitigation measures into the project description and subsequently determine that the project will not generate significant environmental impacts based on those measures). See also Caltrans Environmental Management Office, “Significance and Mitigation under the California Environmental Quality Act” (November 2016) (analyzing implications of *Lotus* case), available at <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/ser/mitigation-under-ceqa-a11y.pdf>.
- 78 See *California Native Plant Society v. County of El Dorado*, 170 Cal.App.4th 1026 (2009); *Environmental Council of Sacramento v. City of Sacramento*, 142 Cal.App.4th 1018 (2006).
- 79 For an example of a relevant EIR, see City of San Diego, Final Program Environmental Impact Report for Complete Communities: Housing Solutions and Mobility Choices (May 2020), available at [https://www.sandiego.gov/sites/default/files/final\\_peir\\_for\\_complete\\_communities\\_housing\\_solutions\\_and\\_mobility\\_choices.pdf](https://www.sandiego.gov/sites/default/files/final_peir_for_complete_communities_housing_solutions_and_mobility_choices.pdf).
- 80 Cal. Govt. Code § 65080.
- 81 The California Transportation Commission issues RTP guidelines for MPOs and RTPAs which include discussion of strategies to reduce VMT and address greenhouse gas emissions, but RTPs are not focused on reducing VMT. Guidelines are available at <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/fooo9312-2017rtpguidelinesformpos-a11y.pdf> and <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2017rtpguidelinesforrtpas-a11y.pdf>.
- 82 Steinberg, Chapter 728, Statutes of 2008; Cal. Govt. Code § 65080(b)(2).
- 83 Cal. Govt. Code § 65089. For a more detailed discussion of CMP, see Elkind and Lamm, *supra*, at pp. 9-10.
- 84 Cal. Govt. Code § 65088.3. For examples of current county CMPs, see Alameda, available at <https://www.alamedactc.org/planning/congestion-management-program/> and Orange, available at <https://www.octa.net/Projects-and-Programs/Plans-and-Studies/Congestion-Management-Program/Overview/>.
- 85 49 U.S.C. § 5303(k)(3); see Michael Grant et al., Federal Highway Administration, *Congestion Management Process: A Guidebook* (April 2011), available at [https://www.fhwa.dot.gov/planning/congestion\\_management\\_process/cmp\\_guidebook/cmpguidebk.pdf](https://www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/cmpguidebk.pdf).
- 86 See Cal. Fish & Game Code §§ 1797.5 et seq.

- 87 California Department of Fish and Wildlife, *Conservation and Mitigation Banking Guidelines* (updated July 2019), p. 1, available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=79095&inline=1>.
- 88 CDFW, *California Conservation and Mitigation Banking 2020 Report*, available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=184796&inline>.
- 89 Interview with Jeff Drongesen, Betty Rambarran, and Karen Weiss, CDFW, August 24, 2021.
- 90 See 33 USC § 1344(b); 40 CFR § 230.98.
- 91 Interview with Palmer Hough, U.S. Environmental Protection Agency, August 25, 2021.
- 92 Cal. Sts. & Hwys. Code § 800.
- 93 Id.; Interview with Melinda Molnar and Stuart Kirkham, Caltrans Advance Mitigation Program, September 10, 2021.
- 94 See generally Caltrans, *Advance Mitigation Program: Final Formal Guidelines* (October 2019), available at <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/amp-final-formal-guidelines-a11y.pdf>. Caltrans also collaborated with SANDAG in an early action Environmental Mitigation Program associated with the regional TransNet transportation spending measure. For more information see <https://www.keepsandiegomoving.com/EMP-Group/EMP-intro.aspx>.
- 95 See Metropolitan Planning Commission, Resolution 4290 (June 2017) and “Bay Area Advance Mitigation Planning” (presentation) (June 9, 2017), available at <https://mtc.legistar.com/LegislationDetail.aspx?ID=3063620&GUID=41F8D156-5083-4103-A835-5035C6E5E5BD>. See also AB 2087 (Levine, Chapter 455, Statutes of 2016), Cal. Fish & Game Code §§ 1850 et seq.
- 96 Interview with Ben Botkin and Kenneth Kao, MTC, September 14, 2021.
- 97 SF Planning Code §§ 169, 169.1(g).
- 98 See SF Planning Commission, *Standards for the Transportation Demand Management Program* (Updated March 2021), pp. 5-16, available at [https://default.sfplanning.org/transportation/tdm/TDM\\_Program\\_Standards.pdf](https://default.sfplanning.org/transportation/tdm/TDM_Program_Standards.pdf).
- 99 See SF Planning Commission, *User Guide: Transportation Demand Management (TDM) Tool*, available at [https://default.sfplanning.org/transportation/tdm/tdm\\_tool\\_user\\_guide.pdf](https://default.sfplanning.org/transportation/tdm/tdm_tool_user_guide.pdf); visit <http://sftdmtool.org/> to access the tool.
- 100 The Governor’s Office of Planning and Research defines TDR as “a device by which the development potential of a site is severed from its title and made available for transfer to another location. The owner of a site within a transfer area retains property ownership but not approval to develop. The owner of a site within a receiving area may purchase transferable development credits, allowing a receptor site to be developed at a greater density.” California Governor’s Office of Planning & Research, *State of California General Plan Guidelines 2017* (July 2017), p. 237, available at [http://opr.ca.gov/docs/OPR\\_COMPLETE\\_7.31.17.pdf](http://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf).
- 101 Rick Pruetz and Erica Pruetz, “Transfer of Development Rights Turns 40,” *Planning & Environmental Law* Vol. 59, No. 6 (2007), p. 8, available at [https://smartpreservation.net/wp-content/uploads/2011/07/TDR\\_Commentary.pdf](https://smartpreservation.net/wp-content/uploads/2011/07/TDR_Commentary.pdf). In California, innovative applications of TDR include a Burbank program that requires the sending site to achieve a reduction in vehicle trips equal to the increase in vehicle trips generated at the receiving site.
- 102 In addition, private and non-profit housing and development entities may wish to pursue some of the mitigation bank or exchange strategies outlined in this report.
- 103 Interview with Mariah Thompson, California Rural Legal Assistance, February 23, 2022.
- 104 Interview with Adam Noelting and Krute Singa, MTC, November 15, 2021; Interview with Ben Botkin and Kenneth Kao, MTC, September 14, 2021; Interview with Bruce Griesenbeck and Maricela Salazar, SACOG, August 17, 2021; Shawn Megill Legendre et al., “Sustainability Tools in Action: Reducing Vehicle Miles Traveled Through Coordinated Transportation and Land Use Planning Across Levels of Government,” *Transportation Research Record* (January 2014), available at <https://journals.sagepub.com/doi/abs/10.3141/2453-04>.
- 105 National Association of Development Organizations & NADO Research Foundation, “California” (webpage), available at <https://ruraltransportation.org/about-rtpos/rtpo-states/california/>.

- 106 Interview with Marlon Regisford, Caltrans District 10, February 3, 2022.
- 107 Interview with Palmer Hough, U.S. Environmental Protection Agency, August 25, 2021.
- 108 Interview with Melinda Molnar and Stuart Kirkham, Caltrans Advance Mitigation Program, September 10, 2021; Interview with Palmer Hough, U.S. Environmental Protection Agency, August 25, 2021.
- 109 Interview with Palmer Hough, U.S. Environmental Protection Agency, August 25, 2021; Interview with Jeff Drongesen, Betty Rambarran, and Karen Weiss, CDFW, August 24, 2021.
- 110 California Department of Housing and Community Development, “Regional Early Action Planning Grants of 2021 (REAP 2.0): Draft Guidelines for Metropolitan Planning Organizations,” p. 13, available at <https://www.hcd.ca.gov/grants-funding/active-funding/reap/docs/reap2-o-mpoallocationsdraftguidelines.pdf>.
- 111 Interview with Serena Alexander and Mariela Alfonzo, SJSU and State of Place, November 10, 2021; Interview with Darwin Moosavi, CalSTA, November 19, 2021.
- 112 See generally Fehr & Peers, *VMT Mitigation Program Pilot Project*, supra.
- 113 See Ethan Elkind et al., *Implementing SB 743: An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks*, (2018), p. 15, available at <https://www.law.berkeley.edu/wp-content/uploads/2018/09/Implementing-SB-743-October-2018.pdf>; Fehr & Peers, *VMT Mitigation Program Pilot Project*, supra, pp. 19-23.
- 114 Caltrans, *SB 743: A Mitigation Playbook* (July 2022 Draft), p. 1, available at <https://dot.ca.gov/-/media/dot-media/programs/sustainability/documents/vmt-mitigation-playbook-07-2022.pdf>.
- 115 Caltrans’ framework reflects the CEQA Guidelines’ definition of mitigation, which identifies “Compensating for the impact” only after such options as “avoiding,” “minimizing,” and reducing the impact. 14 Cal. Code Regs. § 15370.
- 116 Caltrans, *SB 743: A Mitigation Playbook*, supra, p. 1.
- 117 See, e.g., Rick Pruetz and Erica Pruetz, “Transfer of Development Rights Turns 40,” *Planning & Environmental Law* (June 2007), pp. 8-9 (describing the transactional role of TDR banks, which serve a parallel function), available at [https://smartpreservation.net/wp-content/uploads/2011/07/TDR\\_Commentary.pdf](https://smartpreservation.net/wp-content/uploads/2011/07/TDR_Commentary.pdf); Bruce McKenney, Biodiversity Neutral Initiative, *Environmental Offset Policies, Principles, and Methods: A Review of Selected Legislative Frameworks* (March 2005), p. 20 (citing 2000 Army Corps of Engineers guidance), available at <https://freshwater.issuelab.org/resources/23404/23404.pdf>.
- 118 See, e.g., Alexander et al., *Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California*, San José State University Mineta Transportation Institute (November 2021), p. 10, available at <https://transweb.sjsu.edu/sites/default/files/2027-Alexander-Equity-Off-Site-VMT-Mitigation.pdf>.
- 119 Available at <https://travelcalculator.ncst.ucdavis.edu/>. Most major jurisdictions support an online calculator or other tool for project sponsors and/or lead agencies to estimate their VMT impacts prior to forming mitigation plans. See, e.g., City of San Diego Active Transportation In Lieu Fee Calculator Tool - User Manual, available at <https://www.sandiego.gov/sites/default/files/7-active-transportation-in-lieu-fee-calculator-user-manual.pdf>; San Jose VMT Evaluation Tool User Guide, available at <https://www.sanjoseca.gov/home/showpublisheddocument/28463/636691896049230000> San Francisco Transportation Demand Management Tool User Guide, available at [https://default.sfplanning.org/transportation/tdm/tdm\\_tool\\_user\\_guide.pdf](https://default.sfplanning.org/transportation/tdm/tdm_tool_user_guide.pdf).
- 120 See Council of the City of San Diego, Ordinance No. O-21274 (December 9, 2020), available at <https://www.sandiego.gov/sites/default/files/ordinance-o-21274.pdf>; San Diego Municipal Code §§ 143.1101 et seq.
- 121 See id.; Council of the City of San Diego, Resolution No. R-323281 (November 17, 2020), available at <https://www.sandiego.gov/sites/default/files/r-313281.pdf>; City of San Diego, *Active Transportation In Lieu Fee Nexus Study*, supra, at p.10; Interview with Heidi Von Blum and Sameera Rao (January 5, 2022).

- 122 See Stephen Cook, Intersecting Metrics, “County of San Diego – Programmatic VMT Mitigation Options” (memorandum to County of San Diego) (November 15, 2021), p. 4, available at [https://www.sandiegocounty.gov/content/dam/sdc/pds/advance/SB743/County%20of%20SD%20VMT%20Mitigation%20Memo\\_11-15-2021.pdf](https://www.sandiegocounty.gov/content/dam/sdc/pds/advance/SB743/County%20of%20SD%20VMT%20Mitigation%20Memo_11-15-2021.pdf).
- 123 See City of San José, Council Policy No. 5-1 (March 29, 2018), p. 14, available at <https://www.sanjoseca.gov/home/showpublisheddocument/28459/636691896044230000>
- 124 The City of San Diego, “Complete Communities: Mobility Choices” (webpage), available at <https://www.sandiego.gov/complete-communities/mobility-choices>.
- 125 The City of San Diego, *Appendix T - Mobility Choices Regulations: Implementation Guidelines*, (n.d.), available at <https://www.sandiego.gov/sites/default/files/4-appendix-t-mobility-choices-implementation-guidelines.pdf>.
- 126 Adapted from Chen Ryan Associates “Mobility Choices: Reduced VMT Unit Cost Memorandum – Technical Version,” (March 13, 2020) (on file with authors).
- 127 See Council of the City of San Diego, Ordinance No. O-21274, Resolution No. R-323281, *supra*; San Diego Municipal Code §§ 143.1101 et seq.
- 128 See San Diego Municipal Code § 143.1103(c)(6) ( If an applicant completes the active transportation and VMT reducing infrastructure and would reduce more than the development’s required VMT reduction the City Manager may grant VMT reduction credits to the applicant upon completion of the active transportation and VMT-reducing infrastructure. The VMT reduction credits expire within 5 years from the issuance of the credits. The VMT reduction credits may be assigned to other development within the City or may be used to offset another development’s Active Transportation In Lieu Fee”).
- 129 See San Francisco Planning Commission, *Standards for the Transportation Demand Management Program* (updated March 2021), available at [https://default.sfplanning.org/transportation/tdm/TDM\\_Program\\_Standards.pdf](https://default.sfplanning.org/transportation/tdm/TDM_Program_Standards.pdf).
- 130 See, e.g., San Francisco Planning Commission, *Transportation Demand Management Technical Justification* (updated January 2018), p. 33 (rejecting consideration of cost and other city policy goals straying from the core goal of VMT reduction), available at [https://default.sfplanning.org/transportation/tdm/TDM\\_Technical\\_Justification\\_update2018.pdf](https://default.sfplanning.org/transportation/tdm/TDM_Technical_Justification_update2018.pdf).
- 131 See generally Joanna D. Malaczynski and Timothy P. Duane, “Reducing Greenhouse Gas Emissions from Vehicle Miles Traveled: Integrating the California Environmental Quality Act with California Global Warming Solutions Act,” 36 Ecology L. Q. 79 (2009) (describing potential benefits of integrating a carbon offset framework into CEQA analysis for VMT mitigation purposes), available at [https://heinonline.org/HOL/Page?collection=journals&handle=hein.journals/eclawq36&id=74&men\\_tab=srchresults](https://heinonline.org/HOL/Page?collection=journals&handle=hein.journals/eclawq36&id=74&men_tab=srchresults).
- 132 See 14 Cal. Code Regs. § 15370(d)-(e) (referring to the life of the action and permanent protection in defining mitigation that reduces or compensates for impacts).
- 133 Governor’s Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA* (November 2017), p. 27, available at [https://opr.ca.gov/docs/20171127\\_Transportation\\_Analysis\\_TA\\_Nov\\_2017.pdf](https://opr.ca.gov/docs/20171127_Transportation_Analysis_TA_Nov_2017.pdf).
- 134 See Matthew J. Nahlik and Mikhail V. Chester, “Policy Making Should Consider Time-Dependent Greenhouse Gas Benefits of Transit Oriented Development,” *Transportation Research Record* No. 2502, 53-61 (2015), available at <https://journals.sagepub.com/doi/10.3141/2502-07>.
- 135 See, e.g., South Coast Air Quality Management District, *Draft Guidance Document: Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (October 2008), available at [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgattachmente.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf?sfvrsn=2).
- 136 See, e.g., City of San Jose, *Transportation Analysis Handbook*, *supra*, at p. 53 (detailing VMT budget approach that includes temporal calculation for purposes of determining significant impacts).
- 137 Interview with Jeff Drongesen, Betty Rambarran, and Karen Weiss (August 24, 2021).

- 138 A review of the CEQA statute case law did not identify any specific restrictions on application of such ratios or discounts. However, as CEQA mitigation begins to consider greenhouse gas offsets, courts may increasingly consider issues of geographic proximity between impact and mitigation. See *Golden Door*, supra, at 562 (finding that a mitigation measure violated CEQA because “it would allow a project applicant to offset 100 percent of its GHG emissions through offset projects originating outside of California”).
- 139 Interview with Heidi Von Blum and Sameera Rao (January 5, 2022).
- 140 Cal. Pub. Res. Code § 21081.6(a); see also 14 Cal. Code Regs. § 15091(d). The CEQA Guidelines detail this requirement: In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program. 14 Cal. Code Regs. § 15097(a).
- 141 See, e.g., Caltrans, *Advance Mitigation Program: Final Formal Guidelines Version 1.0* (2019), pp. 32 (describing credit tracking/management role), 34-35 (describing Caltrans’ reporting obligations), available at <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env-amp-final-formal-guidelines-a11y.pdf>; Cal. St. & Hwy. Code §§ 800.6(c) (directing Caltrans to track all implemented advance mitigation projects under the AMP), 800.6(f) (directing Caltrans to prepare biennial reports including an accounting of funds and other compliance issues).
- 142 San Francisco Planning Code §§ 169.5 (property owner reporting), 169.6(c) (planning department reporting); see also San Francisco Planning Commission, *Standards for the Transportation Demand Management Program* (August 2016), pp. 18, 23, available at [https://default.sfplanning.org/transportation/tdm/TDM\\_Program\\_Standards.pdf](https://default.sfplanning.org/transportation/tdm/TDM_Program_Standards.pdf).
- 143 See, e.g., CDFW, Cal. Fish & Game Code § 1799(c) (directing CDFW to maintain a public website for the Conservation and Mitigation Banking Program including information on the total number of each type of bank credit, the types of credits sold or obligated, the number of credits sold or obligated, the number of credits applied, the balance of each type of credit remaining, the status of the species and habitat at the bank, links to the bank’s long-term management plans, and links to the complete annual monitoring reports required by departmental policy,” available at <https://wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks>).
- 144 See <https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program> for information on the protocols for different offset project types and to access the offset credit issuance table, as well as other general program information.
- 145 See, e.g., Metropolitan Transportation Commission, *Mitigation Monitoring and Reporting Program for the Plan Bay Area 2050 EIR*, available at <https://www.planbayarea.org/sites/default/files/documents/Plan-Bay-Area-2050-MMRP-October-2021.pdf>; Kern County, *Mitigation Monitoring and Reporting Program for Kern County Oil & Gas Zoning Ordinance (2020/2021)*, available at [https://psbweb.co.kern.ca.us/planning/pdfs/eirs/oil\\_gas\\_sreir/oil\\_gas\\_sreir\\_MMRP\\_2021.pdf](https://psbweb.co.kern.ca.us/planning/pdfs/eirs/oil_gas_sreir/oil_gas_sreir_MMRP_2021.pdf).
- 146 Brian Joseph McFarland, “Carbon Reduction Projects and the Concept of Additionality,” *Sustainable Development Law & Policy* (Winter 2011), available at <https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1463&context=sdlp>; T. Ruseva et al., “Additionality and permanence standards in California’s Forest Offset Protocol: A review of project and program level implications,” *Journal of Environmental Management* (May 2017), available at <https://pubmed.ncbi.nlm.nih.gov/28477569/>; Barbara Haya and Payal Parekh, *Hydropower in the CDM: Examining Additionality and Criteria for Sustainability*, UC Berkeley Energy and Resources Group (November 2011 working paper), available at [http://bhaya.berkeley.edu/docs/Haya\\_Parekh-ER11-001-Hydropower\\_in\\_the\\_CDM.pdf](http://bhaya.berkeley.edu/docs/Haya_Parekh-ER11-001-Hydropower_in_the_CDM.pdf). Additional insights provided in interview with Charles “Muggs” Stoll and Neil Peacock, Caltrans SB 743 Working Group, September 27, 2021, and interview with Barbara Haya and Adam Millard-Ball, UCLA, October 27, 2021.

- 147 Eric Sundquist, Caltrans, “VMT Program Bulletin 21-01: VMT Mitigation Funding Status and Additionality,” *supra*.
- 148 17 Cal. Code Regs. §§ 95802, 95973(a)(2)(A).
- 149 Interview with Glenn Mueller, October 19, 2021; see generally *Golden Door Properties, LLC v. County of San Diego*, 50 Cal.App.5th at 509, 513-515 (detailing additionality requirements under CARB offset protocols).
- 150 See Eric Sundquist, Caltrans, “VMT Program Bulletin 21-01: VMT Mitigation Funding Status and Additionality,” *supra*.
- 151 See, e.g., Barbara Haya et al., Managing uncertainty in carbon offsets: insights from California’s standardized approach, *Climate Policy*, 20:9, 1112-1126 (2020), available at <https://www.tandfonline.com/doi/abs/10.1080/14693062.2020.1781035> (“Additionality would be preserved at the protocol level if total credits generated by a protocol do not exceed conservative estimates of the effect of the protocol on emissions”); WWF, *Beyond Science-Based Targets: A Blueprint for Corporate Action on Climate and Nature* (December 2020), available at [https://wwfint.awsassets.panda.org/downloads/beyond\\_science\\_based\\_targets\\_a\\_blueprint\\_for\\_corporate\\_action\\_on\\_climate\\_and\\_nature.pdf](https://wwfint.awsassets.panda.org/downloads/beyond_science_based_targets_a_blueprint_for_corporate_action_on_climate_and_nature.pdf).
- 152 See Eric Sundquist, Caltrans, “VMT Program Bulletin 21-01: VMT Mitigation Funding Status and Additionality,” *supra*.
- 153 See, e.g., Meredith Fowlie, Energy Institute, “Carbon Offsets Get a Green Light in Glasgow” (November 22, 2021), available at <https://energyathaas.wordpress.com/2021/11/22/carbon-offsets-get-a-green-light-in-glasgow/> (detailing accounting and additionality challenges for carbon offsets which may not apply to VMT mitigation).
- 154 Available at <https://ribits.ops.usace.army.mil/ords/f?p=107:2>.
- 155 Available at <https://sfplanning.org/transportation-demand-management-program#plans-monitoring>.
- 156 Interview with Palmer Hough, U.S. Environmental Protection Agency, August 25, 2021.
- 157 Interview with Jamey Volker, UC Davis, January 5, 2022.
- 158 For more information about the need to consider equity in VMT mitigation bank and exchange design, see Serena Alexander et al., *Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California*, *supra*; Ethan Elkind et al., *Implementing SB 743: An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks*, UC Berkeley Center for Law, Energy and the Environment and Institute of Transportation Studies – Berkeley, (October 2018), available at <https://www.law.berkeley.edu/wp-content/uploads/2018/09/Implementing-SB-743-October-2018.pdf>.
- 159 Administrative entities have several options for defining disadvantaged communities, including a definition aligned with CalEnviroScreen and AB 535 (De León, Chapter 830, Statutes of 2012) or potentially expanding on that definition using the framework described later in this section.
- 160 Serena Alexander et al., *Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California*, *supra*; Council of the City of San Diego, “Ordinance Number O-21274,” (December 9, 2020), available at <https://www.sandiego.gov/sites/default/files/ordinance-o-21274.pdf>; San Diego Municipal Code Division 11, §§ 143.1101, 143.1102, and 143.1103.
- 161 Garcia, Chapter 136, Statutes of 2017; Cal. Health & Safety Code §§ 42705.5, 44391.2.
- 162 De León, Chapter 830, Statutes of 2012; Gomez, Chapter 369, Statutes of 2016; Cal. Health & Safety Code §§ 39711 et seq.
- 163 See, e.g., Caltrans, California Transportation Plan 2050 (February 2021), pp. 71-79 (outlining eight goals of state’s transportation vision), available at <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/ctp-2050-v3-a11y.pdf>.
- 164 California Environmental Protection Agency, *Preliminary Designation of Disadvantaged Communities Pursuant to Senate Bill 535*, (October 2021), available at [https://calepa.ca.gov/wp-content/uploads/sites/6/2021/10/2021\\_CalEPA\\_Prelim\\_DAC\\_1018\\_English\\_a.pdf](https://calepa.ca.gov/wp-content/uploads/sites/6/2021/10/2021_CalEPA_Prelim_DAC_1018_English_a.pdf).

- 165 See, e.g., Daniel Farber, “Pollution Markets and Social Equity: Analyzing the Fairness of Cap and Trade,” *Ecology Law Quarterly*, 39(1):1-56, (January 2012), available at [https://www.researchgate.net/publication/286333016\\_Pollution\\_Markets\\_and\\_Social\\_Equity\\_Analyzing\\_the\\_Fairness\\_of\\_Cap\\_and\\_Trade](https://www.researchgate.net/publication/286333016_Pollution_Markets_and_Social_Equity_Analyzing_the_Fairness_of_Cap_and_Trade); Assembly Bill 617 (Garcia, Chapter 136, Statutes of 2017); California Air Resources Board, “Community Air Protection Program” (website), available at <https://ww2.arb.ca.gov/capp>.
- 166 Interview with Serena Alexander and Mariela Alfonso, SJSU and State of Place, November 10, 2021; Interview with Darwin Moosavi, CalSTA, November 19, 2021.
- 167 SB 743 Implementation Working Group Meeting, September 9, 2021.
- 168 California Office of Environmental Health Hazard Assessment (OEHHA), “CalEnviroScreen” (webpage), available at <https://oehha.ca.gov/calenviroscreen>.
- 169 See SLOCOG, “San Luis Obispo County Disadvantaged Communities” (webpage), available at <https://slocog.maps.arcgis.com/apps/MapSeries/index.html?appid=7947d889d85c4c94b11437d3dfaa83dc>.
- 170 See OEHHA, “Indicators Overview” (webpage), available at <https://oehha.ca.gov/calenviroscreen/indicators>.
- 171 Serena Alexander et al., *Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California*, supra, p. 14.
- 172 Id.
- 173 Id., p. 13.
- 174 Serena Alexander et al., *Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California*, supra, p. 65.
- 175 Id.
- 176 Serena Alexander et al., *Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California*, supra, p. 66.
- 177 Id., p. 4.
- 178 Id., p. 5.
- 179 For more information about the study methodology, see id., pp. 16-18.
- 180 Id., p. 22. “Sprawl Index” and “State of Place Index” are tools developed externally and may rely on proprietary datasets. The Sprawl Index was developed by University of Utah professor Reid Ewing and research assistant Shima Hamidi, along with Smart Growth America. Sprawl is measured at level the Metropolitan Statistical Area or Metropolitan Division, as defined by the Census, across four metrics: development density, land use mix, street accessibility, and activity centering (how centered people and businesses are within a certain area). For more information about the Sprawl Index, see Smart Growth America, *Measuring Sprawl 2014*, (April 2014), available at <https://smartgrowthamerica.org/wp-content/uploads/2016/08/measuring-sprawl-2014.pdf>.
- The State of Place Index measures more than 290 micro-scale built environment data points that inform the walkability of a particular area. Example metrics include sidewalks (quantity and quality), protection from sun or precipitation, types of retail available, quality and quantity of pedestrian crossing signals, and many others. These measurements are then consolidated and scored on a scale from 0 to 100 to rank a particular area’s walkability. For more information, see State of Place, “For Datageeks” (webpage), available at <https://www.stateofplace.co/datageeks>.
- 181 Id., p. 58.
- 182 Lei Zhang et al., “Are we successful in reducing vehicle miles traveled in air quality nonattainment areas?” *Transportation Research Part A: Policy and Practice* (August 2014), available at <https://www.sciencedirect.com/science/article/abs/pii/S0965856414001402>; Ruth Miller and Christopher Ganson, “Mitigating Vehicle-Miles Traveled (VMT) in Rural Development,” *Transportation Research Board* (2015 conference paper), available at [https://opr.ca.gov/docs/Mitigating\\_Vehicle-Miles\\_Traveled\\_\(VMT\)\\_in\\_Rural\\_Development.pdf](https://opr.ca.gov/docs/Mitigating_Vehicle-Miles_Traveled_(VMT)_in_Rural_Development.pdf); Austin L. Brown et al., *Driving California’s Transportation Emissions to Zero*, University of California Institute of Transportation Studies (April 2021), available at <https://escholarship.org/uc/item/3np3p2to> (describing the relative importance of VMT reduction by location, projected out to 2045).
- 183 Interview with Mariah Thompson, California Rural Legal Assistance, February 23, 2022.

- 184 See Fresno Council of Governments, *Cycle 5 2021 Regional Competitive Active Transportation Program Supplemental Application*, available at <https://2ave3l244ex63mgdyc1u2mfp-wpengine.netdna-ssl.com/wp-content/uploads/2016/01/Regional-ATP-Cycle-5-Supplemental-Application.pdf>.
- 185 City of San Diego, “Complete Communities: We’re All In” (webpage), available at <https://www.sandiego.gov/complete-communities>.
- 186 Council of the City of San Diego, “Ordinance Number O-21274,” (December 9, 2020), available at <https://www.sandiego.gov/sites/default/files/ordinance-o-21274.pdf>; San Diego Municipal Code Division 11, §§ 143.1101, 143.1102, and 143.1103.
- 187 Council of the City of San Diego, “Ordinance Number O-21274,” *supra*.
- 188 Interview with Heidi Vonblum and Sameera Rao, City of San Diego, January 5, 2022.
- 189 City of San Diego, “Complete Communities: We’re All In,” *supra*.
- 190 14 Cal. Code Regs. § 15097(c).



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