Los Angeles County
Metropolitan Transportation
Authority
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Los Angeles, CA

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PLANNING AND PROGRAMMING COMMITTEE
APRIL 17, 2024

SUBJECT: VEHICLE MILES TRAVELED (VMT) REDUCTION TARGET SETTING

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

ADOPT Scenario 1 with accelerated non-capital components to 2030 as Metro's VMT Reduction Targets and use Scenario 3 results as a County-wide Call to Climate Action for 2045 (Attachment A).

YAROSLAVSKY AND SOLIS AMENDMENT:

A. Report back to the Planning and Programming Committee on identifying a detailed framework for a regional working group to pursue funding, policy, and projects that help us to accomplish the necessary collaboration in order to achieve Scenario 3;

B. Provide a plan that identifies how to capture and track these VMT reductions in Metro's Climate Action and Adaptation Plan (CAAP) and to provide a 5-year update of the CAAP to include VMT reduction targets and to include the County of Los Angeles; and

C. Require that board reports include a new standard section that analyzes the VMT impacts of that item beginning in December 2024.

ISSUE

This report summarizes analytical work conducted by Metro staff in response to Board Motion # 45 by Directors Garcetti, Solis, Kuehl, Bonin, and Mitchell (Attachment B). The directive requested that Metro staff explore options for VMT reduction through Metro's programs and services and recommended that the agency adopt specific VMT and Mode Share targets aligned with regional and statewide GHG reduction goals. This study is an internally directed research, modeling, and analysis effort that is different from the work being conducted by other Metro staff to develop a program to mitigate VMT related to Metro highways projects. Metro is one of the first transit agencies in the US to conduct this level of analysis for VMT target setting.

BACKGROUND

Vehicle Miles Traveled is an important metric for evaluating the per capita use of private vehicles.

VMT is often expressed as the average daily miles driven by a person within a defined geographic area, such as a city, county, or state. VMT is the commonly used metric for determining greenhouse gas emissions related to using private vehicles. VMT reduction provides other benefits, including reducing congestion and decreasing air and water pollutants related to tire and brake wear.

This study evaluates Metro's ability to influence per capita VMT in LA County through the full implementation of existing plans and programs, the accelerated and increased implementation of plans and programs, and the collaboration with regional partners to establish transit-supportive growth patterns.

The goals of the study are to increase awareness of VMT as a tool in shaping climate action, quantify the impact that LA Metro can have on Countywide VMT through the agency's plans and programs, identify the most effective strategies for reducing Countywide VMT, and show how Metro can contribute to meeting VMT and greenhouse gas (GHG) reduction targets established at local and State levels.

This study explores how Metro could further reduce VMT for Los Angeles County, using a scenario approach and a 2045 time horizon. The scenarios reflect current and possible future internal Metro-controlled measures and collaborative efforts with other jurisdictions and transit agencies in Los Angeles County to shape regional growth patterns and create a stronger land use and transportation nexus.

DISCUSSION

Climate Emissions Reduction Targets

The transportation sector, which includes on- and off-road vehicles, intrastate flights, trains, water-borne vessels, and a few other smaller sources, is responsible for 41% of the GHG emissions in the State of California and about 50% of the GHG emissions in Los Angeles County. Achieving GHG reductions in the transportation sector is critical to achieving the State, County, and City climate goals and supporting the national commitment to the Paris Agreement.

The most commonly referred to target for GHG reduction stems from the 2015 Paris Agreement, established at the UN Climate Change Conference (COP21), to limit the global temperature increase in this century to 2 degrees Celsius while pursuing efforts to limit the increase even further to 1.5 degrees above pre-industrial levels. The Paris Agreement is a legally binding international treaty; 192 countries, including the United States, have joined the treaty. Limiting warming to this level, essential for preventing the most severe climate impacts, depends on mitigation actions taken during this decade.

In 2021, the United States set a Nationally Determined Contribution to reduce net greenhouse gas emissions by 50-52% in 2030, with a long-term goal of achieving net zero emissions no later than 2050. President Biden's Federal Sustainability Plan (Executive Order 14057) aims to reach net-zero emissions from overall Federal operations by 2050, including a 65 percent emissions reduction by 2030.

In California, climate action planning is driven by the 2016 Senate Bill 32 (SB 32), which establishes

targets for Statewide emissions reductions of 40% from 1990 levels by 2030 and 80% from 1990 level by 2050. Executive Order B-55-18, established by former Governor Brown in 2018, commits California to achieving total, economy-wide carbon neutrality by 2045. The California Air Resources Board (CARB), in the 2022 Scoping Plan, lays out a pathway to meet and exceed the targets in the Executive Order and establishes GHG reduction targets for various sectors of the economy.

Achieving the Paris limits and the national and state targets requires decarbonizing transportation. One part of the solution is to transition from vehicles powered by fossil fuels to carbon free sources such as renewable electricity or green hydrogen, while the other is to reduce VMT by increasing walking, biking, and transit use, establishing work structures that reduce commute trip length, and supporting land use patterns that cluster housing, jobs, and services.

The statewide transportation target is to reduce daily per capita VMT from the 2019 level of 24.6 to 17.2 by 2045, with a 25% reduction in daily VMT by 2030 and a 30% reduction by 2045. The scoping plan also establishes a target of increasing “active travel modes and transit use” from 13% to 23% of all trips.

The Southern California Associates of Governments (SCAG) in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Connect SoCal, outlines an integrated land use and transportation approach that results in a 10.8% reduction in VMT for the SCAG region and a projected daily VMT of 20.7 miles by 2045. The 2019 Los Angeles County “Our County” sustainability plan establishes daily per capita VMT targets of 20 miles by 2025 and 10 miles by 2045. The Plan also includes increasing countywide trips by foot, bike, micro mobility, or public transit to 15% of total trips by 2025 and 50% by 2045.

The City of Los Angeles Green New Deal plan includes targets for per capita VMT reduction of at least 13% by 2025, 39% by 2035, and 45% by 2050 and to increase the percentage of all trips made by walking, biking, micro-mobility / matched rides, or transit to at least 35% by 2025; 50% by 2035; and maintain at least 50% by 2050.

Current Climate Commitments and Actions

LA Metro is committed to supporting climate action and GHG reductions consistent with international, national, state, and local objectives and targets. Metro’s overall climate goal is to be zero-emissions by 2050.

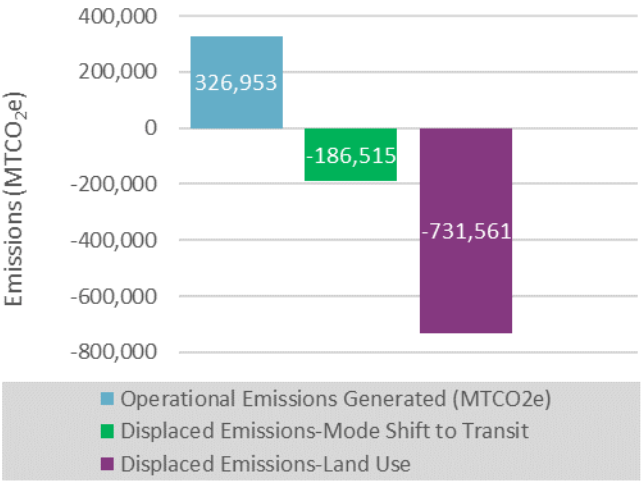
The Moving Beyond Sustainability Plan and the Metro Climate Action Plan include the target of a 79% reduction in greenhouse gas emissions from the 2017 baseline by 2045. To reduce emissions, Metro’s Moving Beyond Sustainability Plan calls for reducing energy consumption by 17% at facilities from the 2030 Business as Usual scenario, transitioning Metro’s fleet to zero emissions technology, and decarbonizing Metro’s energy and fuel supply.

Metro already contributes to VMT displacement and associated GHG reductions through its current programs and services. In a 2022 study, Metro sustainability staff evaluated the GHG benefits provided through Metro’s current services and programs. However, Metro does not currently have a VMT target as a part of either the Climate Action Plan or the Moving Beyond Sustainability Plan. Metro currently contributes to regional GHG emission avoidance by providing low- and zero-

emissions modes of transportation and through the land use changes that occur in response to the transit system. Figure 1 from the study determined that, in 2019, Metro's transportation services avoided over 900,000 metric tons of carbon dioxide equivalent (MTCO2e). An estimated 20% of these emissions were avoided as a direct result of individuals taking Metro rather than driving alone, known as mode-shift. The remaining 80% of emissions were avoided as an indirect result of changing land use patterns that result from the presence of Metro's service.

This report assists in establishing an understanding of how Metro can further support the climate commitments made by national, regional, and local agencies through VMT reduction that result from the plans, programs, and investments the agency controls.

An increase in transit ridership translates to an increase in avoided GHG emissions. A denser, mixed-use



development pattern adjacent to transit resources results in more walking and cycling and less driving, even by those who do not use public transportation.

Background Research

To initiate the analysis of possible VMT targets for Metro, a review of current literature and examples from other transportation agencies was conducted. The review identified how other agencies characterize GHG emissions, the measurement methodology, and if any targets had been adopted.

The research findings are that Metro is unique as an agency that does both planning and operations and includes highway projects within its program activities. While some other agencies have established aspirational targets for VMT or GHG reduction, no other transit agency has completed a data-driven analysis using state of the art transportation modeling tools.

To allow for comparison across state and regional agencies, VMT target information from the CARB scoping plan, SCAG's RTP/SCS, Los Angeles County Our County, and the Metro Long Range Transportation Plan (LRTP) were normalized to be expressed as daily VMT per capita. These agencies have different types of authority and geographic boundaries than Metro. The 2045 VMT

targets (some of which are data-driven and some aspirational) range from 17-21 daily miles traveled. The LA County 2045 target of 10 miles per day is the most aggressive.

While useful as reference points, the research and analysis demonstrated that Metro should determine VMT targets relevant to and aligned with the agency's operations and authority, rather than adopting targets developed for another agency with different authority and activities. It was determined that a data-driven analysis based on current best practices in transportation modeling could more accurately identify the magnitude of VMT reductions that could be achieved through actions that are within the direct control of the Agency.

Modeling Methodology

A modeling-based approach was used to test packages of plans, policies, and programs that would result in different VMT and mode share outcomes to guide Metro's target-setting effort. Metro staff worked to shape and refine a series of scenarios that were analyzed using the SCAG activity-based model. This model was chosen as it is well suited for exploring socio economic and demographically driven issues like VMT, compared to the Metro's trip-based transportation demand model. The SCAG model is also used to develop Connect SoCal.

Three scenarios (S1, S2, and S3) were developed. Each has a horizon year of 2045 to align with the SCAG 2020 RTP/SCS travel demand model. The scenarios consist of policy and programmatic levers that influence VMT and mode share. Each scenario builds upon the VMT reduction levers of the previous scenario by increasing the degree of implementation or by adding new levers. The scenarios are:

- **Scenario 1 (S1) - Adopted & Ambitious:** this scenario replicates most of what was tested in Metro's 2020 LRTP, which includes adopted projects, plans, and policies, as well as Measures R and M.
- **Scenario 2 - Expanded & Fiscally Unconstrained:** this scenario tests expands upon the implementation of projects and programs in Scenario1 if more funding were available and includes corridor and cordon pricing concepts.
- **Scenario 3 - Multi-Jurisdictional Collaboration:** this scenario includes further enhancements while also adding land use levers that are fully controlled by local agencies and pricing strategies like a VMT fee. Establishing a VMT fee would include convening a roadway pricing working group to provide leadership and support for the implementation of local, regional, or State efforts.

The progression from Scenario 1 to Scenario 3 also reflects the level of authority that Metro possesses to implement the associated levers independent of other partnerships, with Scenario 1 having the greatest degree of Metro authority to implement.

To develop the scenario framework, a list of policy, project, and programmatic levers that influence VMT and mode share was organized along a spectrum of Metro control and presented to stakeholders for feedback. Seventeen high-level levers were identified within three "control" categories: "Direct - Metro owns and decides," "Partnership - requires right-of-way," and "Influence -

Metro supports policy or funding," as shown in Figure 2 below.

Levers	Components	Scenario 1 Adopted & Ambitious	Scenario 2 Expanded, Fiscally Unconstrained	Scenario 3 Multi-Jurisdictional Collaboration
Transit Service	NextGen Route Realignment	●	●	●
	Bus Speed Improvements	●	●	●
	Bus Frequency Improvements	●	●	●
Transit Cost	Student Fare-Free Transit	●	●	●
	Expanded Fare-Free & Subsidized Transit		●	●
Countywide TDM Program		●	●	●
Joint Development		●	●	●
Transit Infrastructure	Bus-only Lanes	●	●	●
	Bus Rapid Transit	●	●	●
	Rail Lines	●	●	●
Regional Active Transportation	ATSP First/Last Mile	●	●	●
	ATSP Bikeways	●	●	●
	ATSP Pedestrian Facilities			●
	Metro Bikeshare Expansion		●	●
ExpressLanes		●	●	●
Complete Streets & Highways		●	●	●
Road Pricing	Congestion Pricing (Cordon/Corridor)		●	●
	Per-Mile VMT Fee			●
Parking	Local Parking Costs			●
	Metro Parking Costs			●
Local Actions	AT/TDM Projects & Programs			●
	TOD Land Use Change			●

Figure 2: VMT Reduction Levers Applied to the Scenarios

Stakeholder Engagement

The scenario framework was presented and workshopped through six stakeholder meetings (two internal stakeholder meetings across Metro departments, two external stakeholder meetings with staff from various local government agencies, one meeting with Metro's Sustainability Council, and one focused meeting with Metro's LRTP team). The project team incorporated the feedback provided, which resulted in adjusting, adding, or removing some levers.

An additional round of stakeholder engagement was conducted to share the modeling results. This included a meeting with internal Metro stakeholders, the external stakeholder group, and a presentation to Metro's Sustainability Council. To refine further, the input received was used to refine the descriptions of the scenarios and the results of the modeling further. Stakeholders were also

encouraged to provide suggestions on whether Metro should adopt a VMT reduction target that is aligned with the actions fully within Metro's control or include actions outside of Metro's control.

Model Results & Findings

The scenarios were run in the SCAG activity-based model to determine the effect on VMT and mode share. The model results show that each scenario produces incremental reductions in daily VMT compared to the base year. The VMT reduction is reported in relation to two different populations: 1) trips taken only by LA County residents and 2) trips taken by the LA County service population (people who live or work in LA County). The service population approach was determined to provide a more accurate representation of travel patterns in the region (sometimes described as a "full accounting" of VMT). A detailed description of the scenario modeling methodology and process is provided in Attachment C Technical Memorandum.

Using the LA County service population approach, Scenario 1 results in a daily VMT of 26.1, or a 12.3% reduction from the 2016 base year. Scenario 2 creates further improvements, resulting in a daily VMT of 25.8 and a decrease of 13.2%. Scenario 3 generates the largest reduction from the base year, with an average daily VMT of 22.8, or a 23.5% reduction.

Using the LA County resident approach, Scenario 1 results in a daily VMT of 17.3, or a 15.4% reduction from the 2016 base year. Scenario 2 creates further improvements, resulting in an average Daily VMT of 17.2 and a 16% reduction. Scenario 3 generates the largest reduction from the base year, with an average daily VMT of 14.9, or a 27.2% reduction.

	LA County Service Population		**LA County Residents**		**Active & Transit Mode Share**
	2045 Daily VMT	**VMT Reduction (compared to 2016)**	**2045 Daily VMT**	**VMT Reduction (compared to 2016)**	
CARB Scoping Plan (statewide)	*17.2 miles/person, 30% reduction compared to 2019 statewide*				*23%*
Scenario 1	26.1	12.3%	17.3	15.4%	17.2%
Scenario 2	25.8	13.2%	17.2	16.0%	18.7%
Scenario 3	22.8	23.5%	14.9	27.2%	23.3%

Regarding mode share, Scenario 1 shows that 17.2% of all trips are walking, active transportation, or transit. Each scenario shows further shifts away from single-occupant vehicles (SOV), with Scenario 3 showing 23.3% of all trips associated with walking, active transportation, and transit by 2045.

The reductions in VMT and shifts in mode share are less than, but still in line with, the 2022 Scoping Plan. The projected 23.5% reduction in Countywide VMT by 2045 approaches but does not meet either the Scoping Plan 2030 target of 25% reduction or the 2045 target of 30% reduction. Scenario 3 projected average daily VMT of 22.8 also does not meet the Scoping Plan target of 17.2 average

daily VMT.

Scenario 3 shows walking, active transportation, or transit as 23.3% of mode share, which meets the Scoping Plan target of 23%. Scenario 3 assumes certain actions and policies outside of Metro's authority, specifically land use policy, a VMT fee, and the expansion of other non-Metro active transportation infrastructure.

The modeling analysis demonstrates that Metro can significantly influence Countywide travel patterns and VMT through the agency's services and programs. These benefits will increase as the transit system expands. However, to have the level of impact identified in the Scoping Plan, Metro needs concurrent action to be taken by local agencies related to local land use policy. The modeling also shows that all the needed VMT reductions cannot be generated through service enhancement or other incentive-based approaches. Pricing programs need to be established that disincentivize driving.

Staff Recommendation

The modeling identifies the magnitude of VMT reduction that could be achieved through current, planned, and enhanced activities specific to LA Metro. Rather than directly emulating the targets established by other agencies with different jurisdictional boundaries and authority, Metro should establish targets relevant to the agency, achievable, ambitious, and reflect the urgent need in this decade for climate action.

The following targets are recommended for consideration for adoption by the Metro Board:

- Accelerate the non-capital components to 2030. Nearly all the levers in Scenario 1 are directly within Metro's control and could be implemented by the decade's end.
- Use Scenario 3 results as a County-wide Call to Climate Action for 2045. This includes reinvigorating the discussion with local jurisdictions about the importance of adopting transit-supportive development land use policies to encourage the use of the Metro system. Results from Scenario 3 can also reinforce the need for statewide action around per-mile VMT pricing.
- The adoption of targets does not require the exact implementation of specific levers or programs as they have been modeled in this study.

DETERMINATION OF SAFETY IMPACT

There are no safety related issues related to the scenario modeling conducted for this study. The report addresses the results of a transportation modeling and analysis exercise, and no recommendations are made for specific capital projects. All of the projects included in the modeling were previously identified in various Metro plans or initiatives. If any of the projects included in the modeling were to move forward, any safety issues would be addressed through the agency's

established safety protocols.

FINANCIAL IMPACT

The study has no immediate financial impact. No specific capital expenditures are recommended beyond what has already been identified in established Metro plans and programs. Scenario 2 - Expanded & Fiscally Unconstrained, could require additional service hours for transit operations and additional Metro staff positions to administer a new program. Corridor and cordon programs could include a fee structure that would provide funding support for program administration. Future budget decisions may consider the results of the analyses and recommendations provided in this report. Funding to pursue the VMT reductions will be obtained through future board action.

EQUITY PLATFORM

The beneficial impacts of Metro's programs and policies that result in VMT reduction, including GHG emissions avoidance and reduction in other air pollutants, are Countywide in scope and scale. These projects and programs will be implemented throughout Metro's service territory, and the impacts on local conditions cannot be disaggregated as a part of this analysis.

However, many programs and policies-including improved transit services and accessibility and fare free student passes-benefit transit-dependent individuals and Equity Focus Communities (EFCs). Likewise, VMT reduction does provide concurrent air quality improvements that have a locally beneficial impact, including on EFCs and disadvantaged communities (DACs) with high CalEnviroScreen scores for pollution burden (e.g., traffic impacts or diesel particulate matter) combined with high CalEnviroScreen scores for Population Characteristics (e.g., asthma emergency room visits or poverty). Finally, by addressing the factors contributing to climate change, Metro can bring awareness and action to the fact that EFCs and frontline communities will bear a disproportionate burden of the impacts of climate change in the coming decades.

To create the greatest overall benefit, any actions related to this study to reduce VMT Study through Metro's programs and projects will be evaluated by Metro staff for issues of equity concurrently and with equal consideration. Equity must be considered concurrently because some programs that advance VMT reduction may not advance equitable outcomes. Likewise, some programs that advance equity may not realize the greatest VMT reduction. To provide the greatest overall benefit, each program and project's environmental, economic, and social benefits and burdens need to be viewed holistically.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

This report supports Metro's first and fourth Strategic Plan Goals. Reducing VMT through providing high-quality transit can enable people to spend less time travelling (Strategic Plan Goal #1). Scenario 3 identifies the potential for VMT reductions through regional collaboration on linking land use policies and transit investments (Strategic Plan Goal #4).

ALTERNATIVES CONSIDERED

The analysis was conducted in response to a Board request, so no alternatives to conducting the

study were considered. The analysis evaluates several optional scenarios for reducing Countywide VMT through Metro actions.

NEXT STEPS

- Continue to Invest In & Expand Innovative VMT-Reducing Programs including the One Car Challenge, Bus Speed & Reliability Working Group, and the VMT Mitigation Program.
- Participate in interagency coordination efforts to meaningfully align regional land use and transportation policy to support use of the transit system and active transportation modes.
- Contribute to efforts to increase Statewide clarity on analysis methods, guidance on metrics, and alignment of VMT metrics across regulatory processes.

ATTACHMENTS

Attachment A - Scenario Framing
Attachment B - Board Motion 2021-0769
Attachment C - Technical Memorandum

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