



Metro

June 29, 2012

TO: BOARD OF DIRECTORS

THROUGH: ARTHUR T. LEAHY *by [signature]*
CHIEF EXECUTIVE OFFICER

FROM: KRISHNIAH N. MURTHY *[signature]*
EXECUTIVE DIRECTOR, TRANSIT PROJECT DELIVERY

SUBJECT: METRO CLIMATE ACTION AND ADAPTATION PLAN

ISSUE

Metro is the principal provider of public transportation in Los Angeles County and also the County's transportation planner and coordinator, designer, builder, and operator. Consequent to its fundamental role as a public transportation agency, Metro inherently addresses greenhouse gas (GHG) emissions and climate change impacts. Effective and efficient public transportation systems play a key role in reducing climate changing GHG emissions by creating alternatives to driving and fostering communities that enable more walking and bicycling. Public transportation systems also consume fuel and electricity and thereby produce GHG emissions; however, as evidenced by recent studies, most transit agencies (including Metro) can effectively prevent more emissions than they create.

In spite of efforts to reduce GHG emissions, there is overwhelming evidence that some degree of climate change is likely to occur over the next century. Anticipated impacts include rising sea levels, rising temperatures, and more extreme weather events. As California is likely to be affected by climate change in some capacity, it is critical that Metro works to protect its critical transit services and assets in the transportation system from these impacts.

Despite the success of Metro's sustainability efforts thus far, there remained a need to develop an overarching document to systematically outline cost-effective and feasible strategies to mitigate and adapt to climate impacts. A Climate Action and Adaptation Plan (Plan) establishes this framework and outlines a clear prioritization of future activities in an era of limited resources that will ultimately lead to reaching the goal of agency-wide sustainability. Emissions from 2010 were used as a baseline in the Plan because at the time the Plan was prepared, 2010 emissions data was the most up to date and complete data set available.

BACKGROUND

Recent scientific evidence indicates that Los Angeles County will inevitably be affected by a changing climate. Extreme temperatures and higher risk of flooding pose operational and maintenance challenges to Metro's buses and trains. Some assets may have shorter lifespans than originally envisioned, or require structural reinforcements to protect them from long term damage. Preparing for these impacts now can mitigate damage to Metro's transportation systems, and potentially save valuable resources in the future.

The American Public Transportation Association (APTA) has articulated the relationship of transit agencies to climate change in its Recommended Practice for Quantifying Greenhouse Gas Emissions from Transit (APTA Protocol). APTA encourages transit agencies to take stock of the emissions that they produce, as well as the emissions that they prevent. APTA also maintains a Sustainability Commitment, to which Metro is a signatory. Pledging to reduce GHG emissions is part of some signatories' commitments. Finally, APTA has released Guidelines for Climate Action Planning in order to encourage transit agencies to work proactively to reduce GHG emissions and prepare for the effects of climate change.

This Plan was developed using APTA's guidance to provide a framework to support Metro's role as a steward of the environment, and of Los Angeles County's transportation assets. Sustainability, including reducing GHG emissions, and fiscal responsibility are two of Metro's core business goals. Determining how to reduce our GHG emissions and best protect and preserve Metro's assets from the impacts of climate change are fiscally responsible actions.

This Plan is part of Metro's long-term Sustainability Program. The Sustainability Program was initiated with the 2008 Metro Sustainability Implementation Plan (MSIP), intended to demonstrate Metro's commitment to sustainability through fiscal responsibility, social equity, and environmental stewardship. Through effective implementation of the MSIP, Metro has made great strides in areas of policy, facilities retrofit and maintenance, energy, and climate. GHG Emissions Management was one of four sustainability projects identified in the MSIP.

Since 2008, Metro has conducted a number of studies and planning efforts under the Sustainability Program. We have also issued several policies since 2008 that support the agency's sustainability agenda. A few of the agency's sustainability policies predate the MSIP.

Development and implementation of the Plan is consistent with the "Plan-Do-Check-Act" model that was established through Metro's Environmental Management System (EMS). An EMS is a set of operational procedures that will ensure compliance with

environmental regulations and facilitate environmental stewardship. Metro committed to the establishment and use of an EMS in the 2009 Environmental Policy. The EMS has been piloted in two Metro divisions and will soon be rolled out agency-wide. Through the EMS, Metro has been identifying environmental issues of significant concern, proactively addressing those issues, implementing specific solutions to issues as they are developed, and engaging Metro management to ensure continuous improvement. Metro has also documented cost savings of about \$2M in its initial year of EMS implementation. As it rolls out its EMS agency-wide, staff predicts cost-savings of at least this much on an annual basis. Metro's EMS provides the structure for managing all environmental issues for Metro, the Climate Action and Adaptation Plan fits within this structure and provides more specific approaches to address climate change mitigation and adaptation.

Other key elements of Metro's Sustainability Program that have significantly influenced the development of this Plan include data from the Annual Sustainability Report, the 2010 GHG Emissions Cost Effectiveness Study (Cost Effectiveness Study), various detailed technical studies and plans, and all of Metro's recently adopted policies. Metro's annual Sustainability Report tracks the agency's progress on a number of sustainability indicators, including GHG emissions, energy consumption, and waste production. The Sustainability Report includes an inventory of Metro's GHG emissions, which was updated and included in this Plan. The Sustainability Report also documents successful actions and potential future actions.

Metro's Cost Effectiveness Study was the agency's first attempt to estimate its current and future capability to reduce GHG emissions through various strategies related to vehicles, facilities, and transportation demand management. The impact of current programs was analyzed on an average annual basis. The impact of potential future strategies was also analyzed on an average annual basis. The Plan incorporates many of the strategies included in the Cost Effectiveness Study, and specifically explores how much Metro can reduce emissions from operations by the year 2020 through a combination of various strategies.

The Plan complements Metro's more detailed technical studies and plans that more depth on specific types of strategies, including water saving strategies and energy management strategies. A forthcoming Sustainable Rail Plan will provide more technical guidance on the best ways to save energy in operating Metro's rail system. The Plan also builds off of Metro's sustainability policies, which codify decisions about the use of renewable energy, green construction methods, water conservation, and other environmental efforts. As a result, the Plan highlights opportunities to establish new sustainability policies in the future, which can codify any implementation actions forthcoming from the Plan.

DISCUSSION

Metro has compiled the Climate Action and Adaptation Plan to serve two primary purposes:

- 1. Create a framework to evaluate and prioritize areas of opportunity for Metro to reduce GHG emissions from operations*

Metro is the principal provider of public transportation in Los Angeles County and also the County's transportation planner and coordinator, designer, builder, and operator. As such, Metro's influence on GHG emissions extends to all of the County's transportation systems. However, as an initial step, the Plan will only focus on identifying and prioritizing actions that would affect Metro's internal operations. Strategies examined in detail are those that would reduce emissions created by Metro from its buses, trains, and facilities. Many of these are described in the Cost Effectiveness Study, which estimated the cost and emissions impacts of 17 current and potential future strategies to reduce emissions.

The Plan establishes a framework to identify the areas of greatest opportunity for Metro to reduce GHG emissions based on estimates of cost and emissions impacts. GHG reduction strategies examined in the plan will, in many cases, require further analysis before they can be implemented. All of the strategies involve some upfront cost, but several will save money for Metro over time. All of the strategies also have implications beyond GHG emissions. For example, some would require changes to the way that Metro operates and maintains its assets, while others would change the experience of Metro's riders.

The Plan also contains key steps to move each strategy toward implementation. As new opportunities to reduce GHG emissions arise and new information about strategies becomes available, the Plan can be updated to refine priorities and action steps for the agency to reduce GHG emissions. Subsequent versions of the Plan should also seek to incorporate actions to reduce travel in private vehicles into the framework.

- 2. Present an approach for responding to the likely impacts of climate change on Metro's system*

Adaptation options are based upon the ways in which climate conditions are anticipated to affect Metro's infrastructure and operations. The Plan presents a three-part analysis in identifying adaptation options for Metro: an inventory of Metro's major assets and services, the ways in which these assets and services are vulnerable to climate change, and information about expected future climate conditions pertaining to this region.

The adaptation options presented in the Plan, as well as the analysis that underlies the discussion of Metro's climate vulnerability, are based on a high-level perspective of Metro's infrastructure and operations. Thus, the Plan serves as a first step toward improving Metro's resilience to climate impacts. As Metro moves toward evaluating specific adaptive actions, more detailed information about climate impacts and adaptation options will be required in order to inform decisions.

Overall, the Plan provides a framework for analyzing Metro's opportunities to reduce GHG emissions. It demonstrates that Metro could meet a proposed goal of reducing the agency's GHG emissions per boarding by 5.0% from 2010 to 2020. Anticipated cost savings during this time period would be approximately \$8.1M.

A key takeaway of this analysis is that it demonstrates a strong link between climate impacts and Metro's ability to provide reliable service to its customers. In this context, the Plan is intended to motivate and guide future research and consideration of potential climate impacts and adaptation strategies into the discussion of Metro's daily operations. Metro's sustainability program continues to produce technical analyses that examine new options to reduce GHG emissions. This Plan can be updated as new information becomes available and new GHG reduction opportunities surface.

NEXT STEPS

Metro staff will work closely together to implement the following next steps. The mitigation aspects of the plan will include:

- Establishing an interdepartmental working group to monitor the implementation of strategies and progress towards GHG reduction goals. This group could also schedule regular check-ins on emerging technologies.
- Updating the Plan with analyses of strategies that reduce emissions from regional transportation, such as strategies that promote transit use, carpooling, and bicycling.
- Updating the Plan with new information every 5 years, or more often if significant changes in technology, policy, or legal requirements warrant more frequent updates.
- Using the annual Sustainability Report as a forum, document strategies selected for implementation and monitor progress.

The adaptation portions of the Plan include:

- Investigating climate vulnerabilities at a higher level of specificity.

- Exploring the monetary and social costs of climate impacts and adaptation options.
- Developing a strategy for communicating the adaptation component of the Plan, and subsequent adaptation activities.

In addition to the steps stated above, specific actions are currently underway to explore implementation of climate adaptation principles at the operations level through the FTA-funded Climate Adaptation Pilot Program. This pilot effort includes six additional transit agencies across the United States.

Reducing GHG emissions and implementing adaptive actions serve as a joint effort to ensure that Metro's operations are as sound and reliable as possible. Moving forward, Metro will develop a timeline of implementation concurrent with the FTA pilot effort for both mitigation and adaptation strategies.

ATTACHMENT

A. Climate Action and Adaptation Plan