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TO: BOARD OF DIRECTORS

THROUGH: ARTHUR T. LEAHY *by feg*
CHIEF EXECUTIVE OFFICER

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EXECUTIVE DIRECTOR, TRANSIT PROJECT DELIVERY

SUBJECT: 2012 METRO SUSTAINABILITY REPORT USING OPERATIONAL METRICS

ISSUE

Metro reports its sustainability performance on an annual basis to compare data with previous years in order to track our progress towards our goals for sustainability. This is important as our agency evolves and grows to include the planning, construction, operations and maintenance of capital projects and the procurement of products and services related to our expanding transportation system. The 2012 Metro Sustainability Report Using Operational Metrics (2012 Sustainability Report) provides an update on Metro's resource use and contribution to the reduction of pollutant emissions and greenhouse gases for calendar year 2011. Such a report is necessary to provide Metro's decision makers with information that can be used to improve Metro's sustainability performance.

Background

Sustainability has long been central to Metro's mission of continuously improving the effectiveness and efficiency of Los Angeles's transportation system. In 2007, sustainability became a formal part of Metro's structure with our Board's adoption of our Sustainability and Energy Policy and the formation of our Ad Hoc Sustainability and Climate Change Committee. In the summer of 2008, our Board adopted the Metro Sustainability Implementation Plan (MSIP). The document outlined specific actions to reduce our contribution to climate change and to further increase our sustainability.

In December 2008, Metro released its "Greenhouse Gas Emissions and Reduction Opportunities, 2007 Baseline Year" report, which established the agency's baseline for greenhouse gas (GHG) emissions and discussed the key role that public transportation plays in reducing those emissions. The report indicated that Metro buses, rail vehicles, and facilities emitted approximately 456,000 metric tons of carbon dioxide equivalents

(CO₂e) in 2007. To offset these emissions, Metro's public transportation service reduced vehicle miles traveled (VMT) by an estimated 954 million, which reduced CO₂e by 419,000 metric tons. As a result, Metro's 2007 net emissions of CO₂e were a net of 37,000 metric tons.

In January 2009, Metro released its "Toward a Sustainable Future: June 2009 Baseline Sustainability Report," which analyzed five key environmental performance areas – ridership, energy use, emissions, water use, and waste disposal – over a seven-year period. Additional sustainability reports have been released in 2010 and 2011 documenting our agency's performance on key metrics identified in the initial sustainability report.

In 2009, Metro became an American Public Transportation Association (APTA) Sustainability Commitment signatory. The APTA Sustainability Commitment is designed to give signatories credit for their efforts to identify sustainability as a strategic objective, to increase the sustainability of their own organizations, and to serve as a leader in sustainability agendas in their constituent communities.

Signatories are asked to measure and communicate on the results of these actions on an annual basis. The commitment establishes nine performance metrics to report:

- Water usage and pollutant discharge
- Criteria air pollutant emissions
- GHG emissions
- GHG savings
- Energy use
- Recycling levels/waste
- Operating expense
- Unlinked passenger trips
- Vehicle miles traveled

In previous years, Metro's sustainability performance documentation has taken two forms: performance documented in our sustainability reports from which data was generated to include in the APTA Sustainability Commitment report.

APTA has recently formed a Sustainability Metrics Working group in order to develop a more uniform protocol in calculating sustainability performance metrics throughout the transit industry. Metro staff has co-chaired the development and completion of these protocols. The resulting document entitled "Recommended Practice to Quantify and Report Sustainability Metrics for Transit Agencies" (Recommended Practice) was used as a guideline for the preparation of Metro's 2012 Sustainability Report to both fulfill the annual reporting of our sustainability performance as well as our commitments as an APTA Sustainability Commitment Signatory.

DISCUSSION

The “Moving Towards Sustainability: 2012 Metro Sustainability Report Using Operational Metrics” is Metro’s update to the 2011 report. The 2012 report analyzes sustainability data for calendar year 2011 to understand and compare Metro’s environmental performance, the economic cost of its core activities, and presents historical performance data to identify significant trends and issues. It compares the trends, focusing on the comparison between the previous year’s report data (2010) and this year’s report data (2011), to monitor and analyze the increases or decreases in environmental impacts and assess Metro’s progress towards sustainability. This trend analysis can then be used to identify causes, set targets, direct resources, and improve performance and sustainability in a cost effective way for future years.

Metro’s 2012 Sustainability Report covers the following nine APTA recommended indicators and seven sub-indicators (the sub-indicators were indicators in past sustainability reports):

1. Water Use
2. Criteria Air Pollutant Emissions
3. Greenhouse Gas (GHG) Emissions
4. GHG Displacement (Savings)
5. Energy Use
 - a. Fuel Use
 - b. Rail Propulsion Power
 - c. Facility Electricity Use
6. Solid Waste and Recycling
 - a. Solid Waste and Recycling
 - b. Used Oil Waste
 - c. Hazardous Liquid Waste
 - d. Non-Hazardous Liquid Waste
 - e. Anti-Freeze Waste
7. Operating Expenses
8. Unlinked Passenger Trips (UPT) Per Capita
9. Vehicle Miles Travelled (VMT) Per Capita

The following table summarizes Metro's 2011-2012 sustainability performance and compares key indicator area data from 2010 and 2011:

Indicator	Unit	2010	2011	Progress
1 Water Use	Gallons of Water	243,000,000	238,000,000	I
2 Criteria Air Pollutant Emissions	Tons of Criteria Pollutants	1,783	1,420	I
3 Greenhouse Gas Emissions	Metric Tons of CO ₂ e	476,000	457,000	I
4 Greenhouse Gas Displacement	Metric Tons of CO ₂ e	410,776	419,344	I
5 Energy Use <ul style="list-style-type: none"> • Fuel Use • Rail Propulsion Power • Facility Electricity Use 	Gallons of Gas Equivalents	46,000,000	43,000,000	I
	Kilowatt Hours	244,000,000	261,000,000	R+
6 Waste and Recycling <ul style="list-style-type: none"> • Solid Waste and Recycling • Used Oil Waste • Hazardous Liquid Waste • Non-Hazardous Liquid Waste • Anti-Freeze Waste 	Tons of Solid Waste	11,000	8,600	I
	Recycling Percentage	44	41	R+
7 Operating Expenses	Combined Dollars per Boarding	\$8.08	\$8.19	R
8 Unlinked Passenger Trips per Capita	Boardings	460,000,000	457,000,000	R
9 Vehicles Miles Traveled per Capita*	Miles	N/A	7,869	NC

* According to the most recent Highway performance Monitoring System report, Caltrans (2010)

I = Improved R = Regressed NC = No Change + = Co Benefit Achieved

Overall, Metro has achieved a very positive sustainability performance year over year.

Some specific highlights are as follows:

- Water use in 2011 was 5 million gallons less than in 2010 leading to an overall water cost reduction in 2011 by approximately \$203,000
- Total criteria air pollutant emissions dropped 362.6 tons, or 20.3%, from 2010 to 2011. This decrease was made possible by the elimination of diesel-fueled buses from the Metro fleet, decrease in transit bus miles traveled, and the increased efficiency in total rail operations in Metro.
- Greenhouse Gas Emissions in 2011 were 4% less than in 2010.
- Based solely on Mode Shift, Metro displaced nearly 420,000 Metric Tons of GHG emissions that would have been emitted by passenger cars by providing alternatives to traveling by vehicle.
- Metro's expenditures on diesel fuel were 39% less in 2011 than in 2010.

- Metro's diesel consumption decreased by 98% between 2002 and 2011 due to the switch to CNG, and by 54% from 2010 to 2011.
- The amount of power used per boarding is becoming more efficient over time because rail ridership is growing at a faster rate than rail electricity use
- The cost of electricity used to power Metro's facilities is steadily increasing due to a combination of increase price for electricity but because of a 20% increase in energy use resulting from our conversion of CNG compressors from gas powered to electric
- Metro's recycling rate dropped from 44% to 41% from 2010 to 2011. However, total solid waste output decreased by 2,346 tons from 2010 to 2011.
- Metro's waste efficiency continues to improve; solid waste production per revenue hour decreased from 2.5 pounds to 2.2 pounds of waste per revenue hour from 2010 to 2011.
- Metro's used oil waste decreased significantly in 2011 with a 17.5% decrease from 2010 resulting in a 9-year low.
- Metro produced 680,000 gallons of hazardous liquid waste in 2011, which is a 5% decrease from 2010. This decrease has been the largest change since 2002 to 2003, which can be attributed to changes in equipment maintenance and the techniques used.
- For the first time since 2007, non-hazardous liquid waste decreased by 7% in 2011 over 2010 levels, this represents a 26% increase from 2002.
- The decrease from 2010 to 2011 translated into an improved efficiency in non-hazardous liquid oil waste produced per revenue hour.
- Metro's passenger boardings and vehicle revenue miles (VRM) have decreased in 2011, but costs rose less than in previous years.
- In 2011, bus boardings remained the majority of Metro boardings; this is largely due to the fact that there is a much larger bus service area. However, of all modes, rail has seen the fastest ridership growth. Increasing transit ridership can reduce regional VMT and the associated GHG emissions. Although this may increase Metro's transit GHG emissions, these emissions will be offset by an overall regional reduction of GHG.

In addition, Metro has developed and is currently implementing two landmark policies that will affect how our agency constructs projects and operations in the region. These include the Green Construction Equipment Policy and the Renewable Energy Policy.

Staff has been active in incorporating the provisions of these policies in the planning, procurement, and construction of all capital projects.

NEXT STEPS

We will continue to report on Metro sustainability indicators annually. The follow-up to this report is to be submitted to our Board in June 2013.

ATTACHMENT

- A. Moving Towards Sustainability: 2012 Metro Sustainability Report Using Operational Metrics