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**August 6 , 2015**

**TO: BOARD OF DIRECTORS**

**THROUGH: PHILLIP A. WASHINGTON** *PAW*  
**CHIEF EXECUTIVE OFFICER**

**FROM: BRYAN PENNINGTON** *BNP*  
**EXECUTIVE DIRECTOR, ENGINEERING & CONSTRUCTION**

**SUBJECT: GREEN CONSTRUCTION POLICY IMPLEMENTATION UPDATE**

**ISSUE**

The Metro Board approved the Green Construction Policy (GCP) in 2011 to reduce the air quality impacts of Metro's construction projects in surrounding communities. Staff is required to report back to the Board periodically regarding the implementation status of the policy. This is the annual update.

**BACKGROUND**

By adopting the Green Construction Policy, Metro is committed to using greener, less polluting construction equipment and vehicles, and will implement best practices to reduce harmful emissions in all construction projects performed on Metro properties and rights-of-way. Metro's GCP applies only to Metro contractors and Metro construction projects.

The GCP mandates (a) identifying and mitigating diesel exhaust emission impacts on human health and the environment from on-road and off-road equipment used during Metro construction and development activities; and (b) implementing appropriate best management practices to complement equipment mitigations. The goal of the policy is to reduce harmful air emissions of Particulate Matter (PM10, PM2.5), Nitrogen Oxides (NOx), and Reactive Organic Gases (ROGs) during Metro construction projects while minimizing any significant impact to cost and schedule.

The GCP implementation is part of an overall Environmental and Sustainability Program overseen by Environmental Compliance and Sustainability (EC/S) staff working within the Engineering & Construction Division.

## DISCUSSION

### OUTREACH ACTIVITIES

Metro continues to schedule and facilitate GCP outreach activities across Los Angeles County with the assistance of the California Air Resources Board (ARB). Metro's EC/S staff and an ARB instructor have led all of these workshops. The purpose of the workshops is to educate and raise awareness of the potential health impacts from diesel emissions, the state of the Los Angeles basin air quality, ARB's current strategies to reduce diesel emissions, ARB enforcement programs, engine standards and diesel emission control strategies, off-road and on-road vehicle regulation requirements, public agency fleet regulations, ARB's portable equipment registration program, fugitive dust regulations and the requirements in Metro's GCP. The workshops participants have included interested stakeholders and contractors.

Metro EC/S staff also provides ad hoc updates to the Metro Technical Advisory Committee (TAC). The TAC meets every first Wednesday of the month.

Metro has conducted five (5) workshops throughout the current fiscal year in an ongoing effort to ensure that the regulated community and regional committees are aware of the ARB and South Coast Air Quality Management District (SCAQMD) requirements governing construction equipment: on-road, off-road, and generators; and to assist Metro contractors with understanding and conforming with the GCP requirements. Workshops were conducted at the following locations:

- Metro Purple Line Extension Project Field Office, Los Angeles, January 22, 2015;
- Metro Crenshaw/LAX Project Field Office, El Segundo, January 22, 2015;
- Metro Regional Connector Field Office, Los Angeles, January 23, 2015;
- Southern California Association of Governments (SCAG), Energy & Environment Committee, Los Angeles, April 2, 2015; and
- Technical Advisory Committee, Los Angeles, September 3, 2014

During the workshops with the contractors, Metro provided an overview of the following: purpose/goal of the GCP, GCP project specification requirements, best management practices, conformance reviews, available exceptions, submittal requirements and a link to Metro's Green Construction Equipment Initiative website. Metro also provided a Construction Equipment Funding Resource Guide to workshop attendees. The guide includes a program description (SCAQMD, ARB, and EPA), key deadlines to apply for grant funds to repower, replace, or retrofit aged construction equipment, and program websites.

On April 2, 2015, Metro presented the implementation status of Metro's GCP to the Southern California Association of Government's (SCAG), Energy & Environment Committee to continue to encourage the use of green construction equipment in Southern California and provide updates regarding the implementation status of the GCP. SCAG is the nation's largest metropolitan planning organization, representing six

counties, 191 cities and more than 18 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future. The Energy & Environment Committee considers environmental and energy issues of regional significance, including but not limited to air quality, water quality, solid and hazardous waste, habitat preservation, environmental justice, and environmental impact analysis.

Over 200 participants have been trained or have been made aware of the GCP during this fiscal year.

## PROJECT REVIEWS

Metro has continued to conduct project reviews in fiscal year 2015 during the execution of the Purple Line Extension, Crenshaw/LAX, Regional Connector and Universal Pedestrian Bridge Projects. As a result of the reviews, Metro has documented the following GCP implementation challenges:

- Incomplete GCP specification submittals – includes equipment lists (on-road, off-road, portable generators), compliance certification, fuel use logs, and copies of ARB/SCAQMD permits and registrations,
- Fuel use logs are not submitted monthly as required in the specifications,
- Off-road equipment observed on site without ARB registration labels,
- Off-road equipment with less than Tier 4 rated engines observed on-site, and
- Prime contractor is not documenting or providing a list of equipment or fuel use data from subcontractors.

In each non-conformance case, the contractor or subcontractors were issued corrective action requests to either provide documentation of exceptions or to remove the equipment or vehicles from the site in order to be in conformance with the GCP.

Majority of these issues have been experienced at the Crenshaw/LAX project. Only the September through October 2014 GCP data have been made available to Metro for this fiscal year. The Contractor has submitted a Corrective Action Plan to Metro on July 30, 2015 to include:

- Completion and submittal of all outstanding Green Construction Policy-related information and reports no later than September 11, 2015 and a commitment to regularly submit thereafter.
- Completion and submittal of all outstanding Sustainability Plan-related information and reports no later than August 14, 2015 and a commitment to regularly submit thereafter.

Additional requirements related to these are also going to be confirmed with a commitment to regularly submit thereafter, if there is a contractual obligation to do so.

The other major capital projects have provided timely submittals.

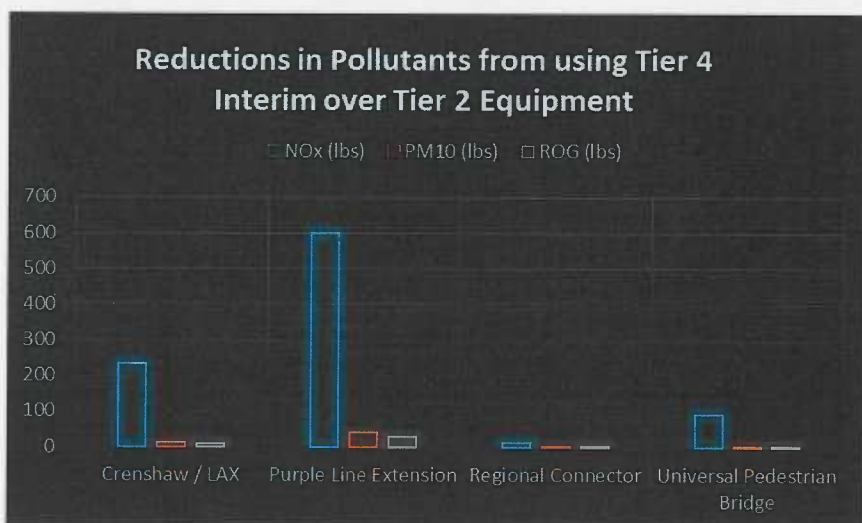
## EMISSIONS REDUCTIONS

Metro also began calculating the emissions reductions (NOx, PM10, PM2.5, and ROG) due to the use of construction equipment at the Purple Line Extension, Crenshaw / LAX, Regional Connector and the Universal Pedestrian Bridge Projects. Each of these projects utilized off-road equipment, on-road vehicles or portable generators subject to the GCP. Project specifications required fuel log submittals for the off-road equipment and on-road vehicles for each project be reviewed and tabulated to determine the emissions reductions. The following are summaries of the results:

### Off-Road Equipment

The off-road equipment emissions reductions from the use of Tier 4 Interim equipment, when compared to Tier 2 equipment, are as follows:

**Figure 1: Off-Road Equipment Emissions Reductions (pounds, lbs)**



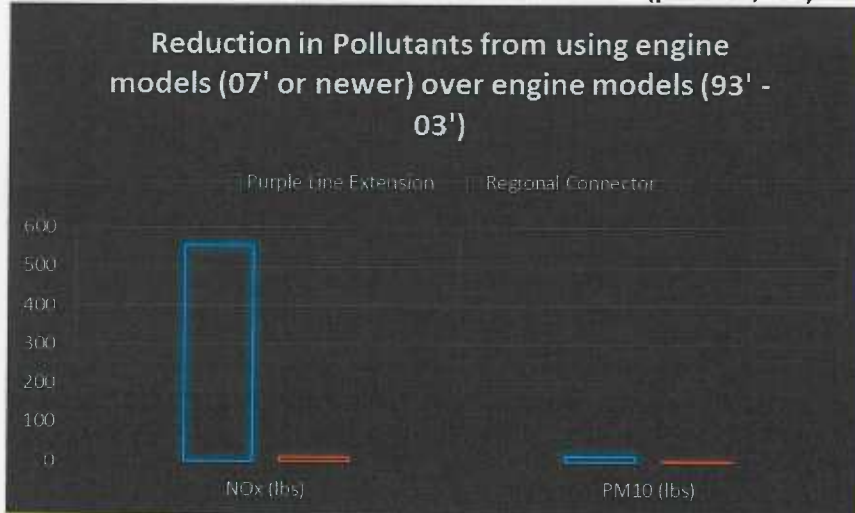
*Crenshaw / LAX Data (Sept 2014 – Oct 2014) – 2 months of data.  
Purple Line Extension Data (Sept 2013 – Feb 2015) – 18 months of data.  
Regional Connector Data (Jan 2015) – 1 month of data.  
Universal Pedestrian Bridge (Dec 2014 – Feb 2015) – 3 months of data.  
The pounds (lbs) reduced for PM<sub>10</sub> are equivalent to lbs reduced in PM<sub>2.5</sub>.*

As indicated in Figure 1, for this fiscal year's construction activities, the largest reductions from using Tier 4 Interim equipment, when compared to Tier 2 equipment, occur in NOx with a reduction of over 600 lbs on the Purple Line Extension project. The largest emissions reductions are expected to occur from January 1, 2015 and beyond based on the GCP requirement of using Tier 4 equipment.

### On-Road Equipment

The on-road vehicle emissions reductions from the use of vehicles with engine model years of 2007 and newer, when compared to engine models of 1993 – 2003, are as follows:

**Figure 2: On-Road Vehicle Emissions Reductions (pounds, lbs)**



*Purple Line Extension Data (Sept 2013 – Feb 2015) – 18 months of data.*

*Regional Connector Data (Jan 2015) – 1 month of data.*

*The pounds (lbs) reduced for PM10 are equivalent to lbs reduced in PM2.5.*

As indicated in Figure 2, the largest emissions reductions from using newer engine models, when compared to older engine models, occur in NOx with a reduction of approximately 550 lbs on the Purple Line Extension project.

In addition to the larger scale projects (Purple Line Extension, Crenshaw / LAX, Regional Connector and the Universal Pedestrian Bridge Projects), Metro has smaller projects which are checked intermittently to assess conformance with the GCP. An example of a smaller project is the Blue Line Refurbishment project. During a conformance review on 11/13/14, no off-road equipment, on-road vehicles or portable generators subject to the GCP were observed on-site. Smaller projects will continue to be monitored, depending on the nature of the construction activities, on an as-needed basis.

## **NEXT STEPS**

Metro staff will continue to implement the GCP including the following:

- Resolve specifically with the Crenshaw/LAX project in ensuring the timely submittal of the Sustainability Plan and GCP documentation;
- Coordinate and schedule additional workshops;
- Conduct construction project conformance reviews;
- Assist the contractors with meeting the GCP requirements through trainings and providing funding information;

- Quantify and report emissions reductions resulting from the implementation of the GCP;
- Review of additional submittals will increase the record of the emissions reduction data;
- Review of pending / corrected submittals will increase the record of emissions reduction data;
  
- Include emissions reduction data on the GCP website / toolbox; and
- Review and update the GCP website and toolbox.

Staff will report back to the Board at the end of FY16 to document additional progress of Green Construction Policy implementation.

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