Los Angeles County
Metropolitan Transportation Authority

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EMAC8

Metro

EXECUTIVE MANAGEMENT AND AUDIT COMMITTEE
CONSTRUCTION COMMITTEE
AD HOC SUSTAINABILITY AND CLIMATE CHANGE COMMITTEE
MARCH 17, 2011

SUBJECT: CLEAN/GREEN CONSTRUCTION POLICY UPDATE

ACTION: RECEIVE AND FILE

RECOMMENDATION

Receive and file report on staff efforts to develop a Los Angeles County Metropolitan Transportation Authority (LACMTA) Clean/Green Construction Policy.

ISSUE

LACMTA's Measure R Initiative will significantly expand the Los Angeles transit system. In addition, the 30/10 Initiative [which accelerates the construction of Measure R projects by condensing 30 years of public transit projects into a ten-year period] is also expected to significantly reduce traffic congestion and improve air quality in our region. Expediting project delivery will likely reduce overall emissions and get people out of their cars and onto transit sooner. However, the South Coast Air Quality Management District (SCAQMD) has recently voiced to the LACMTA (Letter from Barry Wallerstein, D.Env. to Arthur T. Leahy, December 8, 2010) that "the tripling of construction projects during the ten-year construction phase will create significant emissions from the traffic congestion caused by construction." The SCAQMD has recommended that the LACMTA include a requirement for the use of cleaner non-road equipment (i.e., construction equipment) in any remaining Request for Proposals for future project construction.

The concept of a Clean/Green Construction Policy (that considers cleaner non-road equipment) was advanced in a motion sponsored by Director Richard Katz and approved the LACMTA Board of Directors on December 9, 2010. This motion recognizes that reduction of harmful emissions from diesel engines used during construction can significantly reduce the harmful effects of particulate matter (PM), nitrogen oxides (NOx), and greenhouse gas emissions. An LACMTA Board approved

Clean/Green Construction Policy will facilitate agency-wide implementation of cost-effective solutions to this recognized air quality issue.

BACKGROUND

Reducing harmful emissions and particulates from diesel engines is one of the most important challenges facing California and others. Construction equipment is a large source of diesel emissions in Southern California. While federal regulations limit emissions from new construction equipment, a significant portion of the equipment inventory will not be replaced for many years.

As Los Angeles County's transportation planner, designer, builder and operator of transit systems, LACMTA contributes to the economic, social, and environmental sustainability of the Los Angeles Region. LACMTA's unique relationship in the sustainability continuum also creates opportunities to reduce environmental impacts associated with the construction and operation of transit-related developments and infrastructure.

As a leader in the sustainable future of Los Angeles County, LACMTA is in a unique position to develop and implement a policy and associated contract provisions and specifications that promote the widespread use of clean/green construction practices in general and, more specifically, for diesel emission controls. Reducing harmful emissions resulting from LACMTA-funded construction projects is consistent with LACMTA's sustainability strategy and would directly result in public health benefits.

There were several action items identified in Director Katz's motion. These action items and staff updates on those items are as follows:

Types of Diesel Equipment Used in Support of LACMTA-Funded Construction Projects:

Diesel equipment that is used in support of LACMTA-funded construction contracts can be broadly categorized as either On-Road or Off-Road Equipment. On-Road Equipment includes heavy-duty diesel fueled vehicles with a gross vehicle weight rating (GVWR) greater than 14,000 pounds and includes diesel-fueled buses, dump trucks, tractor-trailer rigs, and street sweepers.

Off-Road Equipment includes construction and agricultural-support equipment such as bulldozers, tractors/loaders, backhoes, excavators, graders, drill-rigs, and cranes. On-Road and Off-Road Equipment are subject to certain emissions requirements specified by the State of California Air Resources Control Board.

Staff is currently awaiting a response from internal stakeholders as well as from various entities doing business with our agency regarding a request for specific inventory of On-Road and Off-Road Equipment that are currently used in their activities.

Summary of Clean/Green Construction Equipment Policies/Ordinance

Clean Construction requirements already exist in New York, Illinois (Cook Co.), and Rhode Island (Providence), among others. Locally, the Los Angeles World Airports (LAWA) has incorporated Clean Construction requirements into their specifications. From an informal survey of transit agencies nationwide [through the American Public Transportation Association], it appears that only a handful of our peers have considered a clean/green construction equipment requirement. There appears to be no transit agency at this time that has adopted such a policy.

Here at LACMTA, our Board has already adopted a comprehensive Environmental Policy that commits to, among other things, operating and maintaining LACMTA vehicles and facilities to minimize negative impacts on the environment; ensure the planning, design, construction, and operation of our facilities and services consider environmental protection and sustainable features; and build relationships with our contractors, vendors, consultants, and transit partners during planning, design, construction, operation and procurement to protect and enhance the environment.

Any project at LACMTA undergoes appropriate environmental clearance and for those projects whose impacts are significant, mitigation measures are developed, implemented, and tracked. Sustainable principles are always incorporated in mitigation measures, wherever appropriate.

Additionally, our contract specifications already currently incorporate pollution control measures addressing air quality issues. We now currently require that Contractors use construction equipment designed and equipped to prevent or control air pollution in conformance with most restrictive regulations of EPA, State and local authorities. We further require that evidence of such design and equipment be maintained and made available for inspection by LACMTA or its designee.

We have advised the SCAQMD to take a proactive lead in formulating an equitable regulation to ensure the most cost-effective shift to cleaner equipment from existing stock. Without such regulation, an LACMTA Clean/Green Construction Policy would be visionary, but not necessarily effective.

Cost of Implementation

Staff has conducted research on available funding that can be used to supplement the cost for implementation of a Clean/Green Construction Policy. There are available Federal and State funding to support implementation, but they are competitive.

The US Environmental Protection Agency looked at three low cost diesel emissions reduction practices that can be strategically used to significantly reduce air emissions from existing construction equipment. These strategies are rooted in three primary areas: equipment strategies, which include the move to retrofit or purchase clean/green equipment, operational strategies, and clean fuels strategies. An outline of potential

implementation costs and benefits for each strategy is provided in Tables 1 to 3 (attached).

Operational strategies are already in place at LACMTA. Staff is not aware of any current use of clean fuels in construction equipment, retrofits, nor clean/green construction equipment being used in any LACMTA project.

Based on our recent conversation with LAWA staff, they have already incorporated Clean Construction requirements into their specifications. The cost to implement these requirements in total, including the labor associated with contractor bid costs, an Independent Third Party Monitor, environmental management contractor staff, plus the cost for retrofitting the off-road construction vehicles with diesel emission control systems, is approximately 0.3% of the overall construction costs on one of their $150 million projects. In LAWA staff's opinion, the costs to do the same level of effort would conservatively be around 0.5% on a typical construction project.

NEXT STEPS

Staff is currently completing outstanding elements of the above actions items and will be circulating the attached Draft Clean/Green Construction Policy to internal and external stakeholders for comments. Staff will complete its analysis of the overall impacts for implementation and will report back regarding the recommended Final Clean/Green Construction Policy that can be adopted by the LACMTA Board.

ATTACHMENTS

A. Draft Clean/Green Construction Policy
B. Table 1. Equipment Strategies Summary
C. Table 2. Operating Strategies Summary
D. Table 3. Fuel Strategies Summary

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Attachment 1
DRAFT: LACMTA CLEAN/GREEN CONSTRUCTION POLICY

POLICY STATEMENT

The Los Angeles County Metropolitan Transportation Authority (LACMTA) will implement best practices and technologies including retrofit of existing equipment and purchase of green construction equipment to meet or exceed air quality emission standards in all projects funded entirely or in part for construction.

PURPOSE

This policy provides guidance in 1) identifying and mitigating potential, human health, environmental, and climate change impacts generated by our construction and development activities to cost-effectively meet or exceed air emissions standards; 2) developing and implementing specific guidelines to reduce the financial impact of retrofitting, purchasing, operating and maintaining construction equipment in our projects; and 3) implementing technologies and construction techniques to minimize a construction project's potential human health, environmental, and climate change impacts.

COMMITMENT

The LACMTA is an international leader in implementing environmental and sustainability principles in all of its planning, construction, operations, and procurement. We are capitalizing on the implementation of our Environmental Policy, Sustainability and Energy Policy, Construction and Demolition Debris Recycling and Reuse Policy, and Environmental Management System (EMS) principles in our operational activities to identify cost-effective solutions to environmental issues and to ensure that our current and future construction activities would have minimal human health, environmental, and climate change impacts.

Through this Clean/Green Construction policy, the LACMTA commits to:

- Comply with all environmental, federal, State, and local laws and regulations;
- Implement cost-effective measures to reduce human exposure to diesel exhaust by controlling diesel emissions from construction equipment. These would include one or a combination of the following: retrofit technologies; replacement of vehicles and equipment, maintenance; repair, rebuild or repower engines; operational strategies and idle reduction, and use of cleaner fuels;
- Minimize cost impacts of these measures by working together with Los Angeles County cities and special jurisdictions, regulators, contractors, and vendors in developing equitable Clean/Green Construction Guidelines;
- Collaborate with all federal, state, and local representatives and regulatory agencies in the development of regulations and statutes that best serve the goal of an accelerated construction of a multi-modal transportation network in Los Angeles County;
- Promote research and development of new cost-effective practices and solutions to reduce the climate change, human health and environmental impact of existing construction equipment;
- Conduct clean construction training to raise awareness among employees, contractors, vendors, and the general public;
- Use EMS principles to implement and continually improve Clean/Green Construction Guidelines in all of our planning, design, construction, and operations, and procurement; and
- Communicate the goals and progress of this Policy to LACMTA Board Members, officers, employees and the public.

Table 1. Equipment Strategies Summary (USEPA, 2007)

Equipment Strategy	Costs	Benefits
Retrofit (Exhaust Emission Control) Technologies	Retrofit technology and installation costs, which can be subsidized with public grant money in many cases Some retrofit equipment should be used with ULSD, which may have marginally higher cost	Reduced PM, NOx, CO, and HC emissions Positioned to win new business on contracts requiring cleaner construction equipment
Engine Repower or Upgrades	Cost of replacing an engine, which can be offset with public grants in some cases Engine emissions upgrade kits cost less than replacing an engine	Reduced PM, NOx, CO, and HC emissions Lower fuel consumption Improved engine reliability and lower maintenance costs Positioned to win new business on contracts requiring cleaner construction equipment
Electrification	Costs of using grid power when it is available Purchase of electric or hybrid electric equipment	Reduced PM, NOx, CO, and HC emissions Grid power has lower per kilowatt-hour cost Hybrid electric vehicles have substantially lower fuel consumption

US Environmental Protection Agency (USEPA), 2007. Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment.

Table 2. Operating Strategies Summary (USEPA, 2007)

Operating Strategy	Costs	Benefits
Equipment Idle Reduction and Control	Low administrative costs for training and tracking of idling If on-board idle reduction equipment is used, upfront investment in equipment is required	Reduced PM, NOx, carbon monoxide (CO), and HC emissions Significant fuel cost savings Longer engine life and reduced maintenance costs
Engine Preventative Maintenance	Low administrative costs for tracking equipment maintenance needs If customized software is used to track maintenance, significant upfront investment in software may be required	Reduced PM, NOx, CO, and HC emissions Reduced fuel consumption Reduction in high cost engine failures Longer equipment life and reduced maintenance costs
Equipment Operator Training	Upfront investment in operator training – cost varies by training program	Reduced PM, NOx, CO, and HC emissions Improved operator efficiency Reduced fuel consumption

US Environmental Protection Agency (USEPA), 2007. Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment.

Table 3. Fuel Strategies Summary (USEPA, 2007)

Fuel Strategy	Costs	Benefits
Ultra-low Sulfur Diesel	Slightly higher price than regular non-road diesel	Reduces PM emissions Reduces engine wear, corrosion, and deposits May allow increased oil change interval Enables the use of advanced technologies to reduce PM and NOx
Biodiesel (B20, B5)	Slightly higher price than regular non-road diesel in most regions May increase NOx emissions Small power loss	Reduced PM, CO, and HC emissions May improve lubricity and reduce engine wear

US Environmental Protection Agency (USEPA), 2007. Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment.