

## **“Mayor Daley requires cleaner construction equipment at O’Hare”**

The O’Hare Modernization Program (OMP) will reconfigure O’Hare’s current intersecting airfield layout into a more modern, parallel configuration. This will substantially reduce delays and increase capacity at the airport. The OMP will also maintain O’Hare as the economic engine of our region and state by creating an additional 195,000 jobs and generating an additional \$18 billion in economic activity each year. O’Hare already generates 450,000 jobs and \$38 billion in economic activity for the region and state.

The City of Chicago continues to lead the nation in developing innovative approaches to address urban environmental and energy issues. Traditional regulatory programs are a core function, but many voluntary initiatives are underway that go well beyond conventional programs. The City’s programs are focused on achieving environmental improvements while providing long-term sustainability, economic benefits and improved quality of life for Chicago’s citizens and businesses.

Construction of OMP will not result in any exceedances of air quality standards, and therefore no mitigation is required.<sup>/1</sup> However, through discussions with the FAA, USEPA, IEPA, and other agencies and organizations, several potential emission reduction measures have been identified and incorporated voluntarily by the City of Chicago into the proposed improvements at O’Hare and throughout construction.

All bidding and construction contract documents for OMP include strict requirements for fuel and equipment used for construction. OMP construction equipment is required to utilize “Ultra-Low Sulfur Diesel” (ULSD) fuel, well in advance of federal mandates. In addition, all but the newest equipment must be retrofitted with oxidation catalysts or particulate filters. Idling restrictions and encouragement of cleaner personal/company transport vehicles rounds out the construction-related air quality emission reduction measures. These measures have the potential of reducing certain pollutants by as much as 90%.

These measures are a direct result of the development and implementation of the OMP Sustainable Design Manual<sup>/2</sup>, which will allow O’Hare International Airport to continue to evolve as a benchmark for environmental stewardship in design and construction. Every engineering team working on the OMP has been issued the “OMP Sustainable Design Manual” for incorporation of sustainable elements in their designs and ultimate implementation.

The OMP will embrace the best possible environmental, social and fiscally responsible practices to enhance the quality of life and maintain consistency with the overall mission and goals of the City of Chicago. We will be tracking our progress as the plan evolves to ensure that sustainable design measures are incorporated in every element of the OMP as possible.

### Additional Resources:

<sup>/1</sup> Record of Decision for O’Hare Modernization, Federal Aviation Administration, September 30, 2005.

<sup>/2</sup> [OMP Sustainable Design Manual](#)

Engineering News Record, “Big Public Works Projects Force Diesel Engine Retrofits”, August 15, 2005.

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For more information, visit our website:

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Each construction vehicle is verified for compliance with the OMP construction equipment requirements and issued a "Clean Construction Vehicle" sticker.

## equipment tracks & trends

Big Public Works Projects Force Diesel Engine Retrofits 8/15/2005  
Tudor Hampton

The federal government sets regulations for the amount of exhaust that spews from new diesel trucks and construction machines. Now, state and local jurisdictions are cracking down on older, dirtier diesels still in use.

As Chicago prepares to break ground on a \$6.6-billion upgrade at O'Hare International Airport, its contract documents require off-road diesels working there to meet federal fuel requirements for 2010. "We want to minimize the impact to the surrounding neighborhood and the environment," says Rosemarie S. Andolino, executive director of the O'Hare Modernization Program.



**Smoggy.** Forthcoming O'Hare contracts call for strict emission and idling requirements. (Photo by AP/Wideworld)

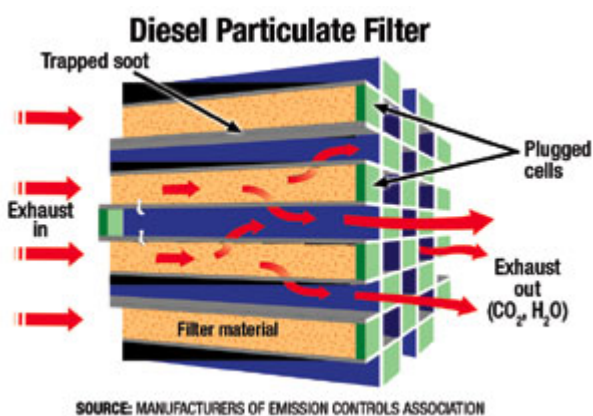
About 2,300 machines there would use ultra-low-sulfur diesel fuel. Contractors also would retrofit or replace engines not equipped with newer, "Tier 2" emission controls. Any older machines would use diesel particulate filters or oxidation catalysts to trap tailpipe emissions. In effect, the O'Hare contracts encourage buying new. "The best benefit is a new piece of equipment," Andolino says.

Kiewit Western Co., Omaha, would be the first to test the policy. The upgrade awaits the Federal Aviation Administration's approval, expected this September. Kiewit, which declined to comment, has O'Hare contracts worth \$145.3 million pending.

State and local jurisdictions are "under the gun" to clean up harmful ambient emissions, and older diesel engines are a target, says Brian Urbaszewski, director of environmental health programs for the American Lung Association of Metropolitan Chicago.



Illinois Dept. of Transportation's \$600-million Dan Ryan and \$400-million Kingery highway rehabs specify retrofitting diesel machines, new and old, along with the use of on-road diesel fuel, which has a sulfur count of 500 ppm. Contractors who choose not to retrofit must use 15-ppm, ultra-low-sulfur diesel fuel. A few other states are using contracts as an air-quality vehicle as well.



(Graphic courtesy of Cummins, Inc.)

Retrofits typically cost several thousands of dollars per machine. Repowering, or replacing the engine, can run even more, according to diesel experts. Those who fear limited competition due to the higher costs want financial assistance "in order to keep the playing field wide open," says Kenneth D. Simonson, chief economist for the Associated General Contractors of America, Alexandria, Va.

AGC is lobbying Congress for a tax provision that would allow contractors to write off retrofits rather than depreciating them. Federal grants exist for retrofits, but applications take time. Grants

"don't just show up in your mailbox," says Allen Schaeffer, executive director of the Diesel Technology Forum, Frederick, Md.

Soon though, retrofit clauses in contracts "will be a given," says Ted Woosley, vice president of O'Hare planner Landrum & Brown Inc., Cincinnati. Particulate filters can cut soot by 90% and carbon monoxide by 80%. They need less than 50-ppm fuel to do so, according to diesel engine manufacturers. Catalysts work with 500-ppm fuel.

Today's off-road fuel has a sulfur content of about 3,000 ppm and will not drop to 500 ppm until 2007. On-road diesel in the U.S. will fall to 15 ppm in 2006, followed by 15-ppm, off-road diesel in 2010.

Refineries need to catch up. Last month, they made about 4.3 million bbl a day of fuel oil. Of that, only 11,000 bbl were ultra-low-sulfur diesel.

# **CONSTRUCTION AIR QUALITY – DIESEL VEHICLE EMISSIONS CONTROLS**

## **SECTION 01111**

### PART 1 GENERAL

#### 1.01 DESCRIPTION

- A. The O’Hare Modernization Program (OMP) developed a “Sustainable Design Manual” (SDM) as an integral part of the overall design and construction standards for the OMP. (City of Chicago, O’Hare Modernization Program, Sustainable Design Manual. O’Hare Modernization Program. December 2003 can be found at [www.oharemodernization.org](http://www.oharemodernization.org), see “OMP Public Information”.) Its vision states that “O’Hare International Airport will continue to evolve as a benchmark for environmental stewardship in design and construction. The OMP will embrace the best possible environmental, social, and fiscally responsible practices to enhance the quality of life and maintain consistency with the overall mission and goals of the City of Chicago.”
- B. Section 8.5 of the OMP SDM, “Clean Fuel Construction Vehicles”, includes consideration of requiring “...that a portion of the construction vehicle fleet be clean fuel vehicles and/or incorporate clean air technologies.”
- C. The specifications herein meet and exceed the scope of Section 8.5 of the OMP SDM and will benefit the Chicagoland region by providing meaningful reductions in air emissions associated with OMP construction activity.

### PART 2 PRODUCTS

#### 2.01 FUEL USE REQUIREMENTS

- A. The fuel use requirements apply to all off-road vehicles and equipment utilized by Contractors, Subcontractors and Suppliers that are on the project site for a minimum period of fourteen (14) consecutive calendar days.
- B. The fuel use requirements apply to all on-road vehicles and equipment utilized by Contractors, Subcontractors and Suppliers that transport materials regularly to and from the Project site that exceed five (5) calendar days per month accessing the work site.
- C. The contractor must utilize Ultra Low Sulfur Diesel (ULSD) for all diesel-powered vehicles and equipment (both mobile and stationary) with engine HP ratings of 50 HP or more that are utilized on the Project site. It should be noted that ULSD fuel is readily available in the Chicagoland area. Also, it should be noted that the requirements stated herein are

compatible with, but in advance of, Federal requirements for the use of ULSD fuel for both on-road (2007) and off-road (2010) vehicles. The ULSD must conform to the American Society of Testing and Materials (ASTM) D975 with the following additional specifications:

1. ASTM D5453 15 ppm Sulfur maximum
2. ASTM D6078 Lubricity (SBOCLE) 3100g minimum
3. ASTM D613 Cetane 45 minimum

## 2.02 EQUIPMENT TECHNOLOGY REQUIREMENTS

- A. The equipment technology requirements apply to all off-road vehicles and equipment utilized by Contractors, Subcontractors and Suppliers that are on the Project site for a minimum period of fourteen (14) consecutive calendar days.
- B. These requirements do not apply to on-road vehicles and equipment, however Contractors, Subcontractors and Suppliers that transport materials regularly to and from the Project site are encouraged to follow these requirements to the best of their ability.
- C. Requirements:
  1. All off-road diesel-powered vehicles and equipment (both mobile and stationary), as applicable, with engine HP ratings of 50 HP or more, must install and or retrofit with emissions control devices that will reduce emissions prior to utilization of said equipment on the Project. The Retrofit Emission Control Devices must consist of diesel oxidation catalysts, diesel particulate filters or similar retrofit equipment control technology that
    - a. is included on the EPA Verified Retrofit Technology List (<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>) or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verdev/verdev.htm>) or
    - b. is verified by EPA or represented by the manufacturer in writing, to provide a minimum emissions reduction of 20% PM, 20% CO, and 40% HC when used with Ultra Low Sulfur Diesel fuel.

This requirement applies unless the vehicle or equipment is either EPA Tier 2 Rule compliant or meets the horsepower/model year defined in the table below:

Horsepower Range	Model Year (or newer)
50-99	2004
100-299	2003
300-599	2001
600-749	2002
750 and up	2006

### 2.03 INTERPRETATION OF REQUIREMENTS

- A. The interpretation of these requirements and any determination of lack of compliance with these requirements may be made the subject of a claim to the Director. However, the Director's decision shall be final. The Contractor may not file a dispute under Article XVII of Part 2 General Conditions.

## PART 3 EXECUTION

### 3.01 GENERAL

- A. Throughout the Project, the contractor will submit a certified monthly fuel report to the OMP CM, which lists the supplier and the amount of fuel delivered to each piece of equipment and each vehicle used on the Project to which the fuel use requirements apply. The Director has the option, in addition to any other remedies available to the City, to withhold monthly progress payments until such time as the Contractor submits the required information.
- B. All vehicles and equipment to which this requirement is applicable will be subject to random inspections to ensure full compliance with these requirements. If any equipment is found to be non-compliant, the Contractor, Subcontractor or Supplier must remove or retrofit this equipment or vehicle within 24 hours or be subject to possible impoundment by the Department of Aviation until that piece of equipment or vehicle is removed from Project.

Prior to the start of construction the contractor must submit in writing a list of equipment to the OMP CM that will be utilized as part of the Project for inspection to ensure that all of these requirements have been implemented. Equipment and vehicles brought on-site over the course of the Project must be submitted in writing on or before the date the equipment or vehicle is delivered to the site. The list(s) must include the following:

1. Contractor/sub-contractor name,
2. Equipment number, type, make, model, year, horsepower rating, and VIN,
3. EPA tier-rule compliant level or the emission control device make, model and EPA or manufacturer verification letter.

The Director has the option, in addition to any other remedies available to the City, to withhold monthly progress payments until such time as the contractor submits the required information.

C. Idling Restrictions

1. Idling of diesel powered vehicles and equipment shall not be permitted during periods of non-active vehicle use. Diesel powered engines shall not be allowed to idle for more than five consecutive minutes in a 60-minute period when the equipment is; not in use, occupied by an operator, or otherwise in motion, except only as follows:
  - a. When equipment is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,
  - b. When it is necessary to operate auxiliary systems installed on the equipment, only when such system operation is necessary to accomplish the intended use of the equipment,
  - c. To bring the equipment to the manufacturers recommended operating temperature,
  - d. When the ambient temperature is below forty (40) degrees F or above eighty (80) degrees F, or
  - e. When equipment is being repaired.

D. Clean Buses/Light Duty Vehicles

1. Contractors are encouraged to identify and incorporate any other measures that may assist in reducing air quality emissions as a result of Project construction. For example, many cleaner vehicle options now exist for employee shuttle buses and Light Duty Vehicles (LDVs) including compressed natural gas (CNG), hybrid (fuel/electric), flex fuel, and demand on displacement. The availability of cleaner vehicle options is anticipated to expand over time and over the course of the Project. Contractors working on the Project are strongly encouraged to consider these options when making purchase decisions.

PART 4 METHOD OF MEASUREMENT

4.01 MEASUREMENT

- A. Construction Air Quality and Diesel Vehicle Emissions Controls shall not be measured separately for payment, but shall be considered incidental to the overall contract.

PART 5 BASIS OF PAYMENT

5.01 PAYMENT

- A. All costs associated with meeting these requirements are incidental to the overall contract. No additional time or monies will be granted to the contractor for compliance with these requirements and any associated regulations.

**END OF SECTION 01111**