

Who Can Participate?

State departments of transportation are responsible for distributing CMAQ funds to metropolitan planning organizations (MPOs) and rural nonattainment and maintenance areas. A public sponsor, such as an MPO, city, county, or school district, is required for each project.

Examples of CMAQ-Funded Diesel Retrofit Projects

New York City, Refuse Trucks

The New York City Department of Sanitation used CMAQ funds to retrofit approximately 828 refuse trucks. Diesel particulate filters were installed on 616 trucks, while diesel oxidation catalysts were used on the remaining vehicles.

Cost: \$10 million over several years

Emissions reductions:

- 5,067.4 kg/year of NO_x
- 281.5 kg/year of PM_{2.5}
- 356.0 kg/year of PM₁₀



This refuse truck is outfitted with a diesel particulate filter.



CMAQ funds helped pay for retrofitting of CSX switcher locomotives like this one.

Chicago, Switcher Locomotives

The Chicago Metropolitan Agency for Planning funded the retrofit of seven switcher locomotives at the CSX Barr Rail Yard in Riverdale, IL.

Cost: \$9.2 million (with local match provided by CSX)

Emissions reductions:

- 12.4 kg/day of volatile organic compounds
- 308.2 kg/day of NO_x
- 8.6 kg/day of PM_{2.5}

San Francisco Bay Area, Transit Buses

The Metropolitan Transportation Commission allocated funding to 12 transit agencies in the Bay Area to retrofit nearly 1,700 transit buses with diesel particulate filters.

Cost: \$15.6 million
(\$13.8 million CMAQ; \$1.8 million local match)

Emissions reductions:

- 2,250 kg/day of NO_x
- 150 kg/day of PM

For more information, please contact:

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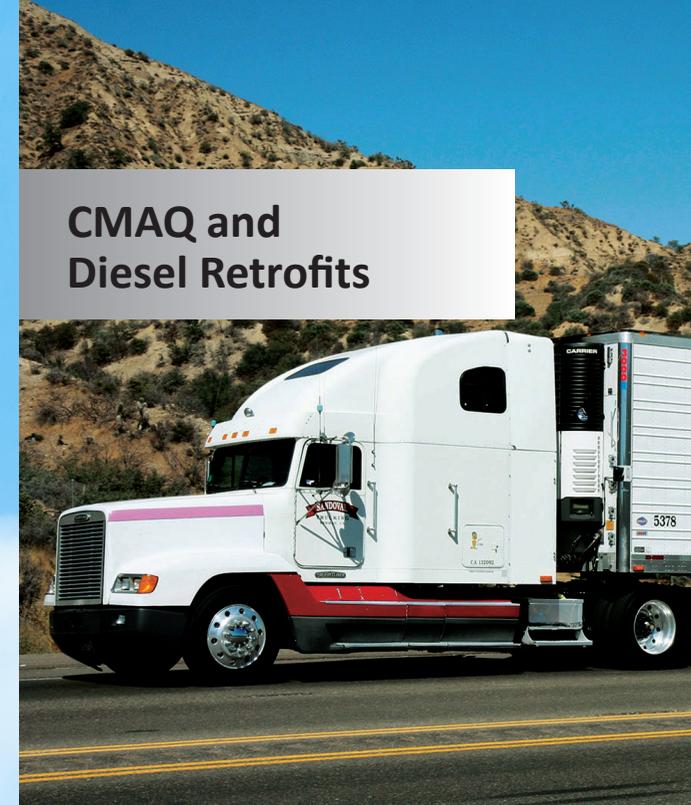
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CMAQ and Diesel Retrofits



What Is CMAQ?

Jointly administered by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), the Congestion Mitigation and Air Quality Improvement (CMAQ) Program provides a flexible funding source for transportation projects and programs that help improve air quality and reduce congestion.

State and local governments can use the funding to support efforts to meet National Ambient Air Quality Standards (NAAQS) under the Clean Air Act in both nonattainment and maintenance areas for carbon monoxide, ozone, and particulate matter.

- *Nonattainment areas* are those where air pollution levels exceed NAAQS.
- *Maintenance areas* are those that were out of compliance with NAAQS for these pollutants but now meet the standards.

For a list of nonattainment and maintenance areas, see www.epa.gov/airquality/greenbook.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) requires that States with designated nonattainment or maintenance areas for small particles, known as fine particulate matter (PM_{2.5}), use a portion of their CMAQ funds for projects to reduce those emissions.

Eligibility Requirements

To be eligible for CMAQ funding, a project must come from a conforming transportation plan and transportation improvement program (in metropolitan areas) or from a State transportation improvement program (in rural areas). State departments of transportation are responsible for distributing CMAQ funds. The Federal share for most CMAQ-eligible projects is 80 percent, but certain safety projects that include an air quality or congestion relief component, such as carpool or vanpool projects, may have a Federal share of 100 percent. The CMAQ program operates on a reimbursement basis, so funds are not provided until work is completed.

Further, all CMAQ projects must meet these three eligibility requirements:

- Have a transportation focus.
- Reduce air emissions.
- Be located in or benefit a nonattainment or maintenance area.



Diesel particulate filters like these can be installed on many types of vehicles and equipment to reduce emissions.

Why Diesel Retrofits?

Diesel engines play a vital role in key industry sectors including freight, public transportation, construction, and agriculture. However, diesel exhaust contains high levels of PM_{2.5}, which can pose significant risks to public health, including causing lung damage and premature death.

MAP-21 places considerable emphasis on select project types, including diesel retrofits, to reduce PM_{2.5} emissions. Eligible projects include acquisition of retrofitted vehicles, installation of tailpipe emissions control devices, and provision of diesel-related outreach activities. Typical diesel engines in heavy-duty trucks and equipment can last up to 30 years, and the U.S. Environmental Protection Agency (EPA) estimates that more than 11 million older diesel engines are in use today. Unlike newer models, older engines are highly polluting.

The harmful effects of diesel emissions on public health are well established. Diesel retrofits offer a cost-effective way to reduce air emissions, and more than 45 products are available and verified by EPA for use on engines built between 1960 and 2006.

CMAQ funds have been used for diesel retrofits on many types of vehicles:

- School buses
- Refuse trucks
- Transit buses
- Port-related drayage trucks
- Locomotives
- Construction equipment



A street sweeper is retrofitted with a diesel particulate filter.

What Are the Benefits?

- For diesel oxidation catalysts and diesel particulate filter retrofits—the most commonly used technologies—the cost-effectiveness ranges from \$18,700 to \$87,600 per ton of PM_{2.5} reduced.
- For selective catalytic reduction systems and engine upgrade kits, the cost-effectiveness ranges from \$1,900 to \$19,000 per ton of nitrogen oxides (NO_x), a precursor to PM_{2.5}, reduced.
- For retrofitting school buses and class 6-8b trucks, the cost-effectiveness ranges from \$11,100 to \$69,900 per ton of PM_{2.5} reduced.
- For urban bus retrofit and rebuild programs, the cost-effectiveness is about \$31,500 per ton of PM_{2.5} reduced.¹

¹Source: www.epa.gov/cleandiesel/documents/420r07005.pdf