APPENDIX 3: CONSIDERATIONS FOR DIESEL RETROFIT PROJECTS

The term diesel retrofit includes any technology or system that achieves emission reductions beyond that required by the EPA regulations at the time of engine certification. Assuming all other criteria are met, eligible diesel retrofit projects include the replacement of high-emitting vehicles/equipment with cleaner vehicles/equipment (including hybrid or alternative fuel models), repowering or engine replacement, rebuilding the engine to a cleaner standard, the purchase and installation of advanced emissions control technologies (such as particulate matter traps or oxidation catalysts) or the use of a cleaner fuel to support eligible nonroad devices. The legislation defines retrofit projects as applicable to both on-road motor vehicles and nonroad construction equipment. Retrofit strategies include:

Emissions Control Technologies
The EPA and the California Air Resources Board (CARB) have retrofit technology verification programs that evaluate the performance of advanced emissions control technologies and engine rebuild kits. CMAQ-funded diesel retrofit projects must use retrofit technologies that are verified under the EPA’s Voluntary Diesel Retrofit Program or CARB. A list of EPA-verified technologies is available at http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm. CARB’s verification program can be found at http://www.arb.ca.gov/diesel/verdev/home/home.htm. In addition, for more detailed information on the cost-effectiveness of various diesel retrofit technologies, the EPA’s study, "The Cost-Effectiveness of Heavy-Duty Diesel Retrofits and Other Mobile Source Emission Reduction Projects and Programs" can be found at: http://www.epa.gov/cleandiesel/publications.htm

Refueling
Refueling is eligible when combined with an overall diesel retrofit project for which the cleaner fuel is required. For example, ultra-low sulfur diesel (ULSD) may be purchased as part of a project to install diesel particulate filters on highway construction equipment only because these devices require ULSD to function properly.

Fuel-related technologies identified in EPA’s list of retrofit strategies are eligible only until standards for such clean fuel are effective. For example, ULSD is eligible for CMAQ only until the standard is effective. For on-road use, ULSD is mandated for use in October 2006. According to EPA’s regulatory development calendar, low sulfur diesel (500 ppm of sulfur) will be required for nonroad use in 2007, while ULSD (15 ppm of sulfur) will be required for nonroad use in 2010.

Vehicle/Equipment Replacement Projects
Replacement projects occur when older vehicles/equipment are replaced with cleaner vehicles/equipment before they would have been removed through normal fleet turnover or attrition. The vehicle or equipment being replaced should be scrapped or the engine remanufactured to a cleaner standard. For areas that want to take credit in the SIP and transportation conformity processes for these projects, see the EPA's retrofit guidance at: http://www.epa.gov/otaq/stateresources/transconf/policy.htm#retrofit.

55 23 U.S.C. §149(b)(7) (SAFETEA-LU §1808(b))
Generally, the replacement vehicle or equipment would perform the same function as the vehicle or equipment that is being replaced (e.g., an excavator used to dig pipelines or utility trenches would be replaced by an excavator that continues these duties).

In addition, the vehicle or equipment being replaced would be in good working order and able to perform the duties of the new vehicle or equipment. Removing vehicles that no longer function or are at the end of their useful life will not lead to an emissions reduction.

**Repower or Engine Replacement Projects**

Engine replacement projects involve the replacement of an older, higher emitting engine with a newer, cleaner engine. Engine replacements can also be combined with emission control technologies. The engines being replaced should be scrapped or remanufactured to a cleaner standard. As noted above, for areas that want to take credit in the SIP and transportation conformity processes for these projects, see EPA's retrofit guidance at: [http://www.epa.gov/otaq/stateresources/transconf/policy.htm#retrofit](http://www.epa.gov/otaq/stateresources/transconf/policy.htm#retrofit).

New engines also must be EPA-certified.56 For a complete list of all EPA certified large highway and nonroad engines, please consult the list at [http://www.epa.gov/otaq/certdata.htm](http://www.epa.gov/otaq/certdata.htm).

For more information on diesel retrofits, please see the EPA’s National Clean Diesel Campaign website at [http://www.epa.gov/cleandiesel/](http://www.epa.gov/cleandiesel/).

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56 23 U.S.C. §149(b)(7) (SAFETEA-LU §1808(b))