

Triangle J Council of Governments – Refuse Truck Replacements

Case Study Follow-up visit on 10-17-14

NC DENR, Division of Air Quality



One of the new 2011 Crane Carrier Company (CCC) refuse trucks purchased for the City of Durham.

Site Overview

Established in 1959 as the Research Triangle Regional Planning Commission, the Triangle J Council of Governments (TJCOG) serves the seven-county region of Chatham, Durham, Lee, Johnston, Moore, Orange and Wake counties. For this emissions reduction project, TJCOG partnered with the City of Durham's Fleet Management (receiving a sub-award from the grant), which has placed in the Top 100 Green Fleets in the United States multiple times. It also is a member of the Triangle Clean Cities Coalition.

The Trucks

The City of Durham owns and operates 78 refuse trucks for waste collection, recycling and disposal services. The average annual travel for a truck is 7,800 miles and the average annual fuel usage is 3,990 gallons. Every truck has its value rated on a 15 point scale which factors mileage, age (a truck's life expectancy is eight years) and maintenance. While the city's trucks are an assortment of models and manufacturing years, a key goal of Fleet Management is to replace their legacy diesel fleet with newer and cleaner diesel (or other alternative fuel) models at every opportunity.

Implementation

In 2011, TJCOG was awarded a Diesel Emission Reduction Grant (DERG) that went toward the purchase of two new 2011 Crane Carrier Company (CCC) side-loading refuse trucks with Cummins diesel ISC07-260 engines. They replaced a 2003 Autocar/Heil model and a 2003 CCC model, both containing Cummins 10.8L diesel engines. Both of the new trucks are used in residential recycling collection. Together, the two new refuse trucks have led to the following improvements and benefits:

- Eliminated the visible dirty smoke from the trucks' tailpipes and significantly reduced pollutant exposure, which is good for Durham residents, businesses, and city staff.
- The Cummins engines used in these new trucks were manufactured in Rocky Mount, NC. This purchase supported the North Carolina economy and helped retain jobs.
- The daily use of Diesel Exhaust Fluid (DEF) has reduced nitrogen oxide emissions even further.
- The City of Durham was able to move closer to fully attaining their sustainability goals.
- There was a gain in fuel economy, plus the 2011 model year trucks significantly reduced emissions compared to 2003 model year trucks.
- Truck drivers say the low-entry aspect of the new trucks made them more accessible.
- The community has noticed the fleet becoming more modern, and the project received news coverage from an unveiling with the mayor in attendance.

N.C. Division of Air Quality

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Adjustments and Conclusion

TJCOG and the City of Durham did not encounter any major problems related to the grant process and managed to stay within their original project budget. However, TJCOG faced delays in executing a sub-award agreement with the City of Durham due to board and city council approval requirements (these delays were expected and they began the process well in advance of the projected completion date to compensate). Despite that small inconvenience, TJCOG still met all of its timelines and would highly recommend this type of project to fleet managers who are already thinking of making a transition or updates to their fleets anyway.



The CCC's tank (above) can hold 80 gallons of diesel fuel and is adjacent to where the DEF is added. Both trucks' Cummins ISC07-260 diesel engines are "Clean Idle" certified (below) because they generate very low NOx emissions when idling.



"Replacing the 2003 diesel trucks has benefitted Durham residents and businesses alike, both by eliminating the visible dirty smoke from the tailpipe and by significantly reducing pollutant exposure."

- Kathy Boyer, Energy and Environment Program Manager

Emission Reductions

Nitrogen Oxides (tons/yr)	Particulate Matter (tons/yr)	Carbon Monoxide (tons/yr)
1.243	0.0014	0.3244

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