

**Company:** Delaware Transit Corporation

**Industry:** Public Transportation

**Location:** New Castle, Delaware

**Vehicles:** 2013 – 2018 Ford E-450 paratransit buses (165)

**Fueling:** Private infrastructure:  
(3) 4,000-gallon propane stations

**Challenge:** To exemplify Delaware state environmental leadership by building a public alternative-fuel fleet that is cost effective.

### By the Numbers:

- 165 Ford E-450 cutaways
- \$11,000 weekly savings
- 15 million pounds of carbon dioxide emissions reduced
- 100-percent propane paratransit fleet by 2020

Delaware Transit Corporation provides over 10.6 million rides per year, including about 1 million passenger trips through its DART paratransit service. The transit agency runs a shared-ride program with advanced reservation trips for people with disabilities who are unable to use regular fixed-route public transportation.

The agency, which operates the largest self-managed paratransit fleet in the nation, took on a two-year pilot program testing five propane autogas paratransit buses in 2014. The agency chose to pilot two different types of vehicles, dedicated (only operating on propane) and dual fuel (operating on gasoline or propane).

The program's success led the transit agency to purchase a total of 165 propane autogas shuttles — over half the entire DART paratransit fleet. Each of these vehicles is built on the Ford E-450 chassis with 6.8L V10 engine, and equipped with a ROUSH CleanTech dedicated propane autogas fuel system. ROUSH CleanTech has deployed more than 18,000 fleet vehicles fueled by propane autogas, including about 1,200 in the transit industry.

This propane vehicle has completed Federal Transit Administration's New Model Bus Testing Program ("Altoona Testing") and is certified for sale in all 50 states by the California Air Resources Board and Environmental Protection Agency.

"Our first five propane-fueled buses collectively traveled 450,000 miles with no fuel system-related failures, and saved \$15,000 in fuel costs alone," said John T. Sisson, chief executive

officer of Delaware Transit Corporation. “That, combined with the reduction in greenhouse gas emissions, made it an easy decision to expand the propane program with our new private fuel stations and expansion of the propane fleet.”

### **Environmental Savings**

Kept in operation for five years, each DART paratransit buses travels between 35,000 and 40,000 miles annually. Every paratransit bus consumes about 7,275 gallons of propane autogas annually, saving about 6,250 gallons of gasoline. More than 90 percent of the United States propane autogas supply is produced domestically, with an additional 7 percent from Canada.

The propane autogas paratransit buses are each emitting 91,000 fewer pounds of carbon dioxide emissions over its lifetime compared to the agency’s gasoline models — or 15 million pounds for the entire propane fleet. Propane autogas is a low carbon fuel that reduces greenhouse gases by up to 25 percent, with 60 percent less carbon monoxide and fewer particulate emissions compared with gasoline.

### **Cost Savings**

To track costs, the transit agency runs a weekly report based on the number of vehicles in service, their total mileage and gallons of propane autogas used. Based on the current price of propane autogas and gasoline, the agency then calculates its weekly savings.

In March 2018, savings averaged \$76 per bus per week. The Delaware Transit Corporation is saving about \$11,000 per week by operating a propane autogas paratransit bus fleet, equaling more than \$500,000 annually in fuel expenses alone. The agency has calculated a 36 percent cost per mile fuel savings, with 19 cents for its propane shuttles compared with 30 cents for its gasoline shuttles. Historically, propane autogas costs 40 percent less than gasoline and up to 50 percent less than diesel.

DART also has experienced maintenance savings due to the fuel’s clean-burning properties. “We’ve seen a significant reduction in engine-related problems. Overall performance of the vehicles is greater, and we have experienced far fewer engine-related breakdowns,” said Richard Walters, DART’s fleet and contract operations director.

Essential to daily operations, the transit agency installed private fueling infrastructure. DART worked with Sharp Energy, a local propane provider, to install two low-cost refill stations at different, convenient locations. Propane autogas fueling infrastructure costs less than any other transportation energy source — conventional or alternative. Sharp Energy provides the propane for the DART paratransit buses along with technical and maintenance support for the vehicles and fueling stations.

### **Best Practices in Action**

According to Walters, the agency drivers have found the switch to propane to be an “easy one, and have commented that the only difference is propane autogas has better acceleration and more power than gasoline or diesel.”

DART tested both dual fuel and dedicated propane autogas vehicles before making the decision to purchase only dedicated vehicles. “We found the dedicated system far superior to the dual fuel system,” said Walters, who recommends that other transit agencies learn from their experience.

Delaware Transit Corporation is realizing the economic and environmental savings that come with adopting propane autogas. And, the agency expects that momentum to continue as it plans to convert its entire paratransit fleet to propane autogas by 2020.

*About Delaware Transit Corporation:* As a subsidiary of the Delaware Department of Transportation (DelDOT), DTC operates DART First State. For information on bus services statewide, please visit [DartFirstState.com](http://DartFirstState.com) or call 800-652-DART.

*About ROUSH CleanTech:* ROUSH CleanTech, an industry leader of alternative fuel vehicle technology, is a division of ROUSH Enterprises based in Livonia, Michigan. ROUSH CleanTech designs, engineers, manufactures and installs propane autogas fuel system technology for medium-duty Ford commercial vehicles, and Type A and Type C Blue Bird school buses, and compressed natural gas fuel systems for Type C Blue Bird school buses. As a Ford QVM-certified alternative fuel vehicle manufacturer, ROUSH CleanTech delivers economical, clean and domestically produced fueling options for fleets across North America. Learn more at [ROUSHcleantech.com](http://ROUSHcleantech.com) or by calling 800.59.ROUSH.

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