

# Colonial Williamsburg Foundation CNG Success Story

AUGUST 2008

VIRGINIA CLEAN CITIES

WWW.HRCCC.ORG



*The Colonial Williamsburg Foundation started using natural gas in 1995 as a way to reduce smoke in the Historic Area*

## Natural Gas Good Fit for Historic Area

Over the years The Colonial Williamsburg Foundation has operated 10-25 buses to serve the Historic Area in central Williamsburg. Buses were introduced when the current Visitor Center was constructed in 1957, because it was a short distance away from the Historic Area in order to minimize the intrusion of private vehicles and was a bit too far removed to permit all guests to walk the distance. In 2007 2,258,779 passengers rode some or all of the routes.

The use of natural gas buses dates to 1995 when a decision was made to reduce the smoke emissions generated by the diesel bus fleet. Virginia Natural Gas assisted the Foundation in starting up the program and constructing a Compressed Natural Gas fueling station for the buses

on Foundation property. The existing fueling station was subsequently relocated to the new Automotive Services facility built in 2004-2005. The station consists of a gas meter at the point where a gas line enters the station, a dryer that removes condensation from the gas to ensure that the compressors are not damaged by moisture, 4 Bauer compressors that increase the pressure of the gas before it is transferred into tanks on the buses, and 8 twin fill posts with hose connections that attach to the buses. The 4 compressors are able to fuel up to 16 buses simultaneously.

The Foundation currently operates 20 transit-size natural gas buses on regular routes and has several diesel-powered minibuses that are usually used for special assignments outside of the regular routes. The fueling station is a "slow fill" facility that operates at night to take advantage of off-peak rates for the electricity used to run the compressors. The CNG fueling station has no storage tanks of any kind. The buses have sufficient on-board fuel

*"The fueling station is a "slow fill" facility that operates at night to use off-peak electrical rates to run the Bauer natural gas compressors"*

capacity to make it through the day's operation. The refueling process takes 5-8 hours. Installation of a single compressor in an existing CNG station with a concrete pad, gas meter, dryer and electrical service already in place costs in the neighborhood of \$100,000.

Costs of fueling for the natural gas transit-size buses are in the vicinity of 30 to 35 cents per mile for the gas itself and about 3 cents per mile for the electricity used to run the compressors. The Foundation no longer has up-to-date cost data for running diesel-powered transit-size buses, but information related to the minibuses suggests that the cost would be about double for a diesel-powered transit-size bus compared to natural gas.

*"It costs about 30 to 35 cents per mile for natural gas and 3 cents per mile for electricity to fuel the transit-size buses"*

Kurt Reisweber, Colonial Williamsburg Fleet Administrator, [KReisweber@CWF.org](mailto:KReisweber@CWF.org)