



WRTA NATURAL GAS REFUELING FACILITY

CHALLENGE

THE WESTERN RESERVE TRANSIT AUTHORITY IN YOUNGSTOWN, OHIO, NEEDED DESIGN AND SAFETY FEATURE MODIFICATIONS IN ORDER TO TRANSITION THEIR CURRENT FACILITIES INTO THE NATION'S FIRST INDOOR NATURAL GAS REFUELING FACILITY.

SERVICES

- Bid Review
- Construction Review
- Contractor Selection
- Design Development
- Electrical Engineering

WRTA NATURAL GAS REFUELING FACILITY

ms consultants designed facility modifications for the WRTA (Western Reserve Transit Authority) bus facilities in Youngstown, Ohio. This was the nation's first indoor natural gas refueling facility.

The objective of the engineering design and consultation was to provide economical, durable, and safe fuel storage, dispensing, leak detection, and ventilation systems for the bus facility. The project

work plan included thorough code compliance review and development of alternative designs, features, and cost estimates. The remainder of the engineering work included design development leading to equipment selection and pre-purchase of long lead time items such as the CNG (Compressed Natural Gas) compressor and cascade system. ms also provided bid review, contractor selection, and construction review services.

The indoor fueling station allows WRTA personnel to fuel, clean, and service vehicles indoors year-round, which is normal operating procedure for transit properties of any type in northern climates. Since the buses are fueled indoors, special safety precautions were provided including internal roof sensors that attach to the ventilating and automatic gas shut-off systems. Should any gas be detected, the system automatically shuts down the compressors and dispenser. ms designers worked closely with federal, state, and local fire and safety officials concerning safety advancements.

ms consultants involvement in natural gas began in 1991, when selected by the Ohio Department of Transportation to evaluate the use of the gas as a fuel. The Federal Transit Authority's three-phase project included: feasibility analysis regarding safety and costs; engineering and construction of fueling and building requirements; and purchase and operation of the vehicles. The evaluation showed compatibility for natural gas fueling and transit operations.

BENEFITS OF COMPRESSED NATURAL GAS

The advantage of CNG over diesel is that the total particulate released is less, and that the amount of carbon monoxide produced is less with compressed natural gas. When compressed natural gas is burned in an internal combustion engine, it burns in a clean burn process, which is the major by-product of carbon dioxide.