

FINAL PROJECT REPORT

Prepared for the Mobile Source Air Pollution Review Committee (MSRC)
under the AB 2766 Discretionary Work Program

Huntington Beach Union High School District

Contract No. MS16105

CNG Refueling Station

April 30, 2017

ACKNOWLEDGEMENTS

This report was submitted in fulfillment of MS16105 and Huntington Beach Union High School District CNG Refueling Station project by Huntington Beach Union High School District and AECOM Technical Services under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC). Work was completed as of 12/31/2017.

The following individuals contributed significantly to the successful construction and commissioning of the project:

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4. Lori Hammell, Director of Purchasing and Contracts
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DISCLAIMER

The statement and conclusions in this report are those of the contractor and not necessarily those of the Mobile Source Air Pollution Reduction Review Committee (MSRC) or the South Coast Air Quality Management District (SCAQMD). The mention of commercial products, and their sources or their uses in connection with material reported is not to be construed as either an actual or implied endorsement of such products.

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Project Description and Work Performed

The Huntington Beach Union High School District (HBUHSD) upgraded the District's existing CNG refueling facility located at the district's Maintenance, Operations, and Transportation facility at 7180 Yorktown Avenue in Huntington Beach, CA. The original facility had no fuel storage on site as the system is entirely a "time-fill" refueling station with 12 slow-fill fuel dispensers. The average monthly throughput was 1,928 GGE, or approximately 23,133 GGE (27,804 therms) annually. The facility was upgraded to add "fast-fill" refueling capabilities and an additional 12 time-fill posts for the District's expanded CNG fleet of student transportation vehicles, which has increased from eleven (11) CNG buses in 2016 to seventeen (17) Type D and two (2) Type C CNG buses at the time the station was commissioned in 2017 with an additional 15 Type D CNG buses on order and expected to be delivered by mid-2019.

The project replaced the existing fill station with a 30 station time-fill system as well as 2 fast-fill dispensers. The time-fill system is capable of dispensing up to 200 GGE over eight hours, with all stations occupied and filling from the fueling system. Typical fill procedure will have each bus driver park their vehicle in one of the 30 CNG stalls and prepare the bus for an overnight time-fill. Not only does this take advantage of "time of use" rates for electricity by refueling when energy costs are at their lowest, but maintains efficient operation schedules for student transportation services.

The fast-fill component of the station will allow HBUHSD to enter into refueling station access agreements with neighboring public agencies or to sell CNG at retail prices for personal vehicles, thereby improving the viability of CNG vehicles in the South Coast AQMD region. HBUHSD received verbal commitments for usage of the facility from several other public entities in the area with a need for access to CNG fuel for their own fleet of transportation vehicles. The District is currently reviewing the tax implications of becoming a retail provider of CNG, but is still planning to provide this access in the near future.

An electrical upgrade was required to accommodate the larger equipment that was installed at the new CNG station in order to facilitate the fast-fill capabilities. In addition to the expansion of the CNG station, the District took this opportunity to increase electrical capacity to potentially add Electric Vehicle (EV) charging stations at a later date. HBUHSD's new facility was upgraded with the following new components:

- Compressors (2);
- Time-fill/fast fill starter panel;
- Natural gas dryer;
- Storage containers;
- Valve panel;
- An uncovered fueling island with one dual hose fast-fill fueling dispenser;
- Fuel management System (for use with third party users at the fast-fill dispenser); and
- Fifteen (15) dual hose time-fill posts (south of the fast-fill dispenser) – For 30 total time fill hoses.

Problems Encountered

The District did encounter some scheduling issues with upgrading the gas line and electrical at the facility. These setbacks were due to utility scheduling issues with Southern California Edison (electrical upgrade) and Southern California Gas Company (gas line upgrades). In addition, the City of Huntington Beach had issued a moratorium on right-of-way permits for any work that would require excavating or cutting into Yorktown Avenue, which is the street where the new CNG refueling facility was located. The street had just been repaved the previous year, which meant that SCG had difficulty in obtaining an encroachment permit to upgrade their line which was located in the City's right-of-way.

The project was also hampered after construction was completed due to equipment issues with the utility meter installed by SCG. The old meter was misplaced and continued to send out a pulse; therefore, SCG could not activate the pulse on the new meter installed at the CNG station. HBUHSD was unable to compare estimated fuel mileage for the buses with an actual fuel bill for the first three months after the station was commissioned and operational.

Emissions Benefits

The newly expanded facility is averaging a monthly throughput of 3,851 DGE of CNG. This equates to approximately 355,609 lbs. of CO₂ diverted from the atmosphere annually.

Photographs and Outreach

The District hosted a "ribbon-cutting" on March 5, 2018. A copy of the Press Alert sent out by the District is included with this report as Attachment A. HBUHSD Board of Trustees and senior staff were in attendance, along with representatives from AECOM Technical Services, the District's consultant selected to construct the facility. Photographs from the event are included below.



Figure 1: Ribbon-cutting event held March 5, 2018.



Figure 2: HBUHSD Board of Trustees and senior staff at the ribbon-cutting for the new CNG refueling station.



Figure 3: HBUHSD Board of Trustees President Dr. Bonnie Castrey refuels at the new CNG refueling station.



Figure 4: New “Fast Fill” CNG pumping with MSRC Clean Transportation Logo

Acronyms

(CARB)- California Air Resources Board

(CO₂e) - Carbon Dioxide equivalent

(DGE) - Diesel Gallon Equivalent

(EV) - Electric Vehicle
(GGE) - Gas Gallon Equivalent
(GHG) - Greenhouse gas
(HBUHSD) – Huntington Beach Union High School District
(MSRC)- Mobile Source Air Pollution Review Committee
(RFQ) - Request for Qualifications
(SCAQMD)- South Coast Air Quality Management District
(SCE) - Southern California Edison
(SCG)- Southern California Gas Company
(U.S. EPA) - United States Environmental Protection Agency