

**City of El Monte Community Services Department  
Transportation Services Division**



**Final Grant Report  
November 12, 2009**

Contract #ML06067 - Upgrade CNG Station

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

**Acknowledgements**

The City of El Monte's key personnel associated with the Upgrade CNG Station Project:

- Veronica Dolleschel, Deputy City Manager for Community Services
  - Deborah Moraza, Transportation Services Manager
  - Gwynn Stevens, Transportation Program Specialist – Project Manager.
- (The City of El Monte would like to thank Cynthia Ravenstein and Rachel Valenzuela for their ongoing assistance, and also the Mobile Source Air Pollution Reduction Review Committee for funding approval for this worthwhile project, helping El Monte to do their part so that generation to come may breathe easier and live a healthy tomorrow.)

The city hired several contractors for this project:

- Weaver Electric, Inc., contractor for CNG Station Upgrade Project.
- Fuel Solutions, consultant hired to design and ensure compliance of contract plans and specs.
- AIMS consulting, hired as Inspector of Record and construction management consultant.

**This report was submitted in fulfillment of Contract #ML06067 and Upgrade CNG Station Project by the City of El Monte under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC). Work was completed as of October 24, 2009.**

**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, their sources or their uses in connection with material reported herein is not to be construed as either an actual or implied endorsement of such products.

**Project Description and Work Performed**

To enable the city to provide CNG fuel for existing fleet operations at its current level and anticipate for future growth, station improvement were imperative. The city's has a large CNG fleet currently, now utilizing five CNG buses on the city's fixed-route transit program, consisting of five routes operating six days a week, our a commuter shuttle operating five days a week, staff utilizing Ford F150 CNG trucks, CNG Hondas used as pool vehicles, and a plumber's van, along with backup transit vehicles, requiring additional compressor capacity, as our existing compressor was then 12 years old. To meet El Monte's growing CNG needs, the objective of funds provided by the MSRC Clean Transportation Funds was to design a station that not only would reliably support current CNG fueling needs but also provide support for future needs of the city and our community agencies.

The city applied for the MSRC Clean Transportation Funds grant on 10-6-06 and was awarded the grant on December 2006. The City then hired Fuel Solutions in 2007 as our consultant to evaluation and prepare plans and specifications to design a station to meet

city's needs. On March 27, 2008, a Notice for Inviting Sealed Bids was advertised in the San Gabriel Valley Tribune, with a closing date of March 21, 2008. On March 21, 2008, at 5:00 p.m. at El Monte's City Clerk's Office the sealed bids were opened and Weaver Electric, Inc., was the lowest bidder. City Council approved Weaver Electric as the project contractor on June 3, 2008. The Pre-construction meeting was held with the city and Weaver Electric on June 21, 2008. The contract with Weaver Electric was signed on June 27, 2008, and a Notice to Proceed was issued on July 3, 2008.

The following improvements were made:

- Upgrade of the city's Cypress facility electrical was required by Edison to enable the city to install a larger capacity compressor; this was completed by eliminating the indoor facility electrical panels and installation of one panel relocate on facility outdoors; relocating transformer, previously located on a street pole, into a ground vault on our property near the street, and all necessary wiring throughout facility.
- Installation of an ANGI compressor providing additional 260 scfm, which required a new meter set assembly by So. Cal. Gas.
- Installation of a new CNG storage fill management system to maximize fill speed and compressor capacity. This new programmable controller and new valve panel that controls the fill sequence from the three storage banks and the compressors, along with upgrading of the tubing in the valve panel and piping to the storage vessel from 3/8" to 1/2" which boosted performance providing for faster fills and not as much pressure loss. Shutoff devices were installed throughout station.
- The city installed a new 3600 psi dual-hose, fast-fill dispenser equipped with a card reader connecting to existing Fuel Force monitoring system.
- The city upgraded the station lighting by installation of a new pole light on the new fast-fill dispenser island; a canopy was built over the time-fill station with nine fire-proof lighting fixtures, three of which are on photocells and the other six on a toggle switch.
- Fire extinguishers and emergency shutoff devices were placed at the new compressor, new fast-fill dispenser and canopy area.
- A new dryer was installed - not part of grant proposal's scope of work.
- The time-fill station piping previously located on above-ground k-rails was placed underground with hoses and fueling nozzles located on new canopy islands - not part of grant proposal's scope of work.
- Station was completed on October 24, 2009, and training provided on October 29, 2009

### **Problems Encountered**

Mobilization of construction contractor's equipment and supplies began in August 2008 and construction layout began in September 2008. Issue encountered at this point of construction was that the new CNG compressor and dryer would take approximately 22 weeks for delivery. The contractor had plenty of work with the electrical upgrades to keep busy until the equipment arrived for installation, but later on in the project the delivery date was delayed even more due to requests for information and clarifications needed from the manufacturer regarding the design of the compressor, pushing back the completion date.

During trenching two lines were broken, a sewer and water line. Both lines were repaired immediately and no further lines were damaged throughout the project.

One of the two Edison electrical vaults delivered was not the proper size. It was shipped back the same day and the following day the correct vault was delivered.

We met with long delays from SoCal Gas when an analysis was requested for cost and pressure associated with connecting to a 3" gas line versus the 2" line that currently was in place. The main concern was that the 2" line in place would not allow the equipment

enough fuel pressure to run at an optimum level, but the Gas Company has assured us that it will and their numbers produced to our consultants supported their opinions. We delayed ordering the meter assembly set until a study was completed. After months of waiting with ongoing inquiry, So. Cal Gas met with the city and consultant to inform us that the 3" line previously active was deactivated during the Alameda Corridor Project on Ramona Blvd. At that time they also informed us that it would be three or four more weeks until the meter set assembly could be installed. Mike Bolin with So. Cal Gas, the city's contact, assisted us in the installation of the meter set in less time than was initially related. After the new meter set assembly was installed SoCal Gas did not cap the line at that time which delayed pouring of the concrete at the compressor site until they could return.

Due to the delay with the installation of the meter set assembly, the manufacturer was delayed several additional weeks before they were available to coming out to California for the testing of the equipment during operation.

Ongoing discussions were had regarding proposed canopy layout/design throughout project construction but design was not decided on until 2009. Canopy was designed and built with some major obstacles and delays, and although the canopy was not part of the grant funded project, the upgraded lighting in the canopy was:

- As the city began breaking ground and digging for the installation of the underground time-fill station piping and canopy footings we were met with obstacles that required two change orders. The first change order was for the breaking out and removal of a large block of concrete debris with rebar running through it which required heavy equipment, along with uncovering five underground conduits (three 1" and two 5"). We isolated these conduits and confirmed that one of the 1" conduits contained the control wires for the alarm system for the fire sprinklers; the second conduit was for the parking lot lights, and the third was not used at this time so the wiring was removed, and the remaining conduits were rerouted around the canopy footing locations. The 5" conduits were old SCE conduits and are now abandoned so they were cut and removed from the canopy footing locations.

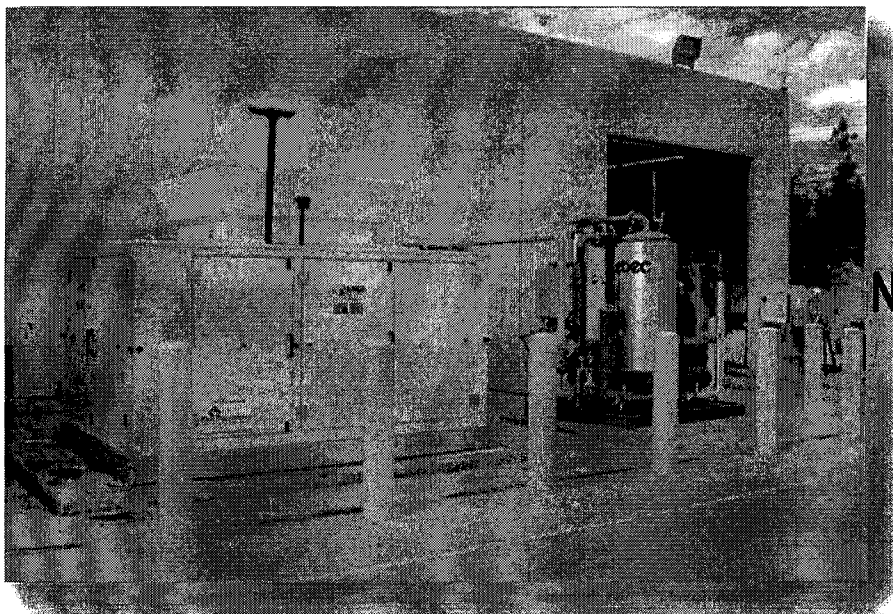
Second change order and assistance from the city's Public Works Department was required as later a fire suppression conduit was uncovered which was in the path of the second canopy footing. This conduit was not shown on any of the city as-build plans.

- In October as the canopy was being completed we had a light rain, and poor drainage became apparent in between the islands. This has been remedied by cutting a small section of each canopy and placing metal plates over each section, allowing for proper drainage.
- After the first light rain in October the canopy columns began to show rust through the paint, and the contractor repainted both columns. This problem appears to have been resolved.

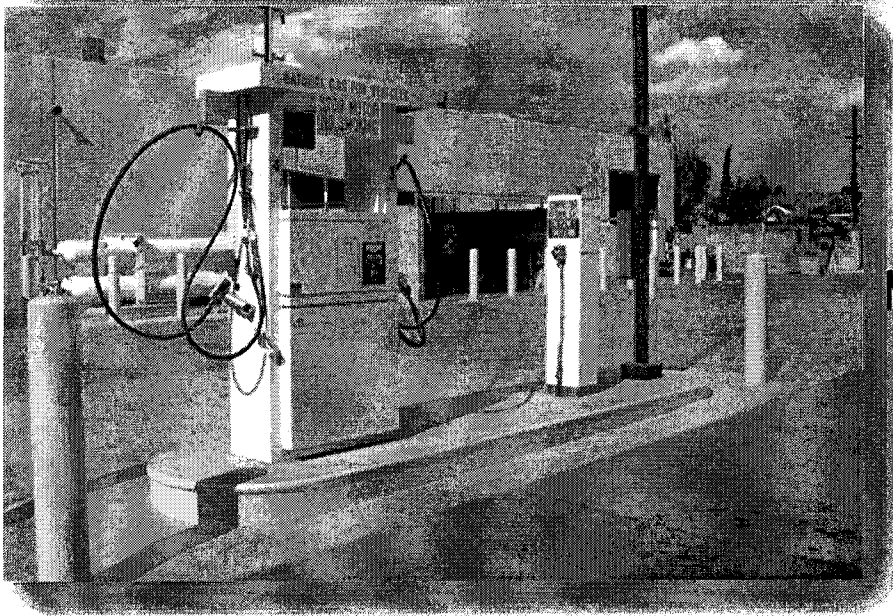
#### **Emission Benefits:**

A quantitative emission reduction cannot be determined at this time, as the increase of the city's fleet of CNG vehicles and station use by other community agencies is unknown at this time, but continual increase in both is anticipated for many years. We have only added one CNG transit bus to our fleet since our grant application was submitted, but now with a improved station performance, CNG vehicle purchases are more desirable and contract agreements with other community agencies for station use can be negotiated.

Photographs and Outreach:



New compressor and dryer.



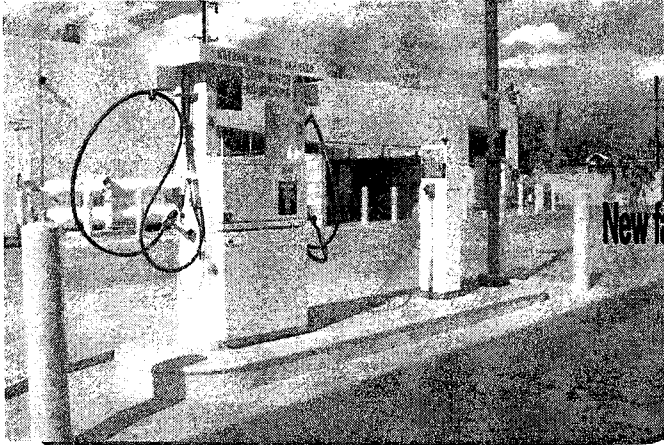
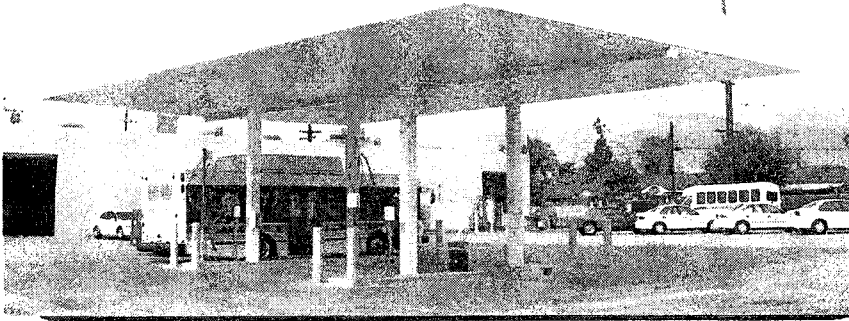
New fast-fill dispenser with monitoring capabilities.



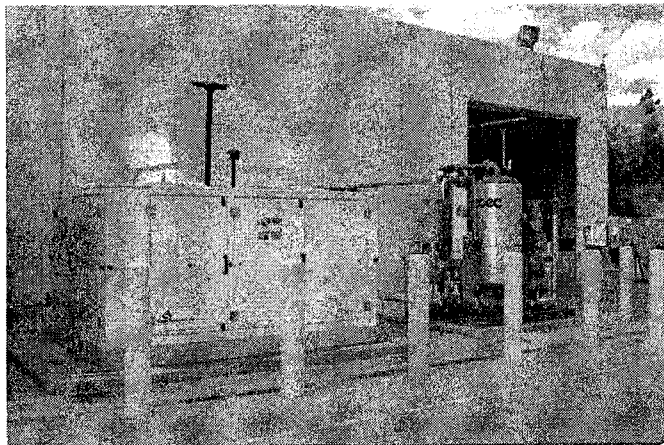
New canopy with upgraded lighting.

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New canopy with upgraded lighting.



New fast-fill dispenser with monitoring capabilities.



New compressor and dryer.

### **Summary and Conclusions:**

The old compressors' connected load of 50 scfm was increased by an additional 260 scfm with the new compressor, for a total discharge pressure of 310 scfm. This added scfm discharge pressure provides for quicker fill times, couple with additional increased capacity with the new 3600 psi dual-hose fast-fill dispenser providing for larger service range and more flexibility with routes, increases fleet performance.

Our backup compressors will be used as a redundant system which improves up time for the station. Improved up time, higher pressure (psi) and increased capacity (scfm) will allow for greater dependence on CNG as a vehicle fuel.

From a maintenance standpoint of not having to slow-fill all vehicles each night, but now utilizing the new fast-fill dispenser, we are now afforded the opportunity to provide proper cleaning of vehicles and maintenance repairs in a more timely manner.

The new station improvements have increased performance and reliability, affording the City of El Monte opportunity for increased vehicle purchases of natural gas vehicles. Increased capacity of the station has also made it possible for the City to offer CNG to other community agencies for their fleet on an emergency back-up basis or by contractual agreements.

The City of El Monte continues to strive to do our part to lessen our dependency on gasoline and diesel, making way for a cleaner tomorrow for generations to come.

The cost of the CNG Upgrade Station Project was \$959,021.26, with funds provided by MTA through Proposition C in the amount of \$830,000, and an MSRC Clean Transportation Funds Grant in the amount of \$157,957, for a total fund balance for the project of \$987,957. The project came within approved budget.

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