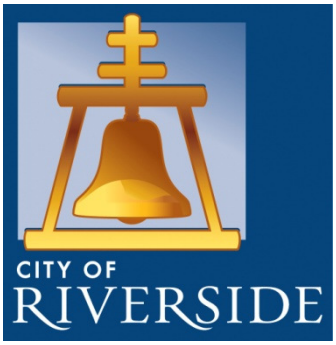


**CITY OF RIVERSIDE**
**FINAL REPORT FOR CONTRACT #ML07023**

**Prepared for the Mobile Source Air Pollution Review Committee (MSRC)**

**Under the AB 2766 Discretionary Fund Work Program**

**Alternative Fuel**

**Compressed Natural Gas (CNG)**

**Station Upgrade (Spheres)**
**Purchase of Fourteen Heavy-Duty CNG Vehicles**

January 31, 2013

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## EXECUTIVE SUMMARY

The purpose of this project was to purchase fourteen heavy-duty CNG vehicles and upgrade the City of Riverside's existing CNG fueling station at 8095 Lincoln Avenue, Riverside, California. Specifications are as specified in Attachment 1, Purchase of fourteen heavy-duty CNG vehicles and Attachment 3, Fueling Station Specifications.

Purchase of the heavy-duty vehicles was accomplished in 2009 and consisted of the purchase of three (3) CNG refuse trucks, two (2) 10-yard dump trucks, three (3) sewer vactor trucks, four (4) water service trucks and two (2) street sweepers. Completion of the CNG fueling station upgrades was completed in 2012.

The CNG station upgrade included the installation of additional CNG storage cylinders to increase storage capacity by at least 66,000 scf, resulting in a final storage capacity of at least 132,000 scf. Installation included plumbing gas supply and all necessary accessories. This project meets the needs of the City of Riverside and provides CNG for the City, community and businesses. The City leveraged AB2766 Funds to obtain a MSRC grant, which provided additional funding towards the any additional costs.

The City of Riverside advertised a competitive bid for six additional CNG steel storage spheres. The storage spheres were manufactured and delivered to the City and subsequently installed and placed into service.

Station throughput of CNG has increased from 4,000 to 80,000 gallons per month since the station opened in 2004. During 2012, the City dispensed 973,000 gallons of CNG to City departments, school buses and the general public making the City one of the largest public CNG fueling stations in the state of California. This increase in throughput is far exceeding the original station design creating excessive wear and tear on the compression equipment. The six additional storage spheres have more than doubled the CNG storage capacity from the current 544 gallons to 1,088 gallons, reduced compressor starts by 50%, reduced wear and tear, and thus reduce energy and maintenance costs. With the increased number of CNG vehicles utilizing the station, additional CNG storage was essential

## ACKNOWLEDGEMENTS

The City of Riverside would like to acknowledge the following individuals and companies that have provided support or services to make the completion of this project possible:

Former Mayor Ronald O. Loveridge
City of Riverside City Council
City of Riverside General Services Department
City of Riverside Public Works Department
City of Riverside Fire Department
City of Riverside Community Development Department Building and Safety Division
City of Riverside Community Development Department Planning Division
City of Riverside Model Clean City Committee
MSRC Project Staff

This report was submitted in fulfillment of contract ML07023 the purchase of fourteen heavy-duty CNG vehicles and the 'CNG Station Upgrade' by the City of Riverside, under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC). Work was completed as of 2012.


## DISCLAIMER

"The statement and conclusions in this report are those of the contractor and not necessarily those of the Mobile Source Air Pollution 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 wither an actual or implied endorsement of such products".

## PROJECT SUMMARY AND CONCLUSIONS

The purpose of this project was to replace some of the City of Riverside's heavy-duty fleet from diesel to CNG and upgrade the City's existing CNG fueling station at 3095 Lincoln Avenue, Riverside, California.

The CNG Fueling Station specifications include the installation of additional CNG storage cylinders to increase storage capacity by at least 66,000 scf, resulting in a final storage capacity of at least 132,000 scf. Installation included plumbing gas supply and all necessary accessories. This project meets the needs of the City of Riverside and provides CNG for the City, community and businesses. The City leveraged AB2766 Funds to obtain a MSRC grant, which provided additional funding towards the any additional costs.

The City of Riverside advertised competitive bids for the heavy-duty vehicles and the six additional CNG steel storage spheres. The vehicles were delivered are now in service. The storage spheres were manufactured and delivered to the City and subsequently installed and placed into service.

Station throughput of CNG has increased from 4,000 to 80,000 gallons per month since the station opened in 2004. During 2012, the City dispensed 973,000 gallons of CNG to City departments, school buses and the general public making the City one of the largest public CNG fueling stations in the state of California. This increase in throughput is far exceeding the original design creating excessive wear and tear on the compression equipment. The six additional storage spheres have more than doubled the CNG storage capacity from the current 544 gallons to 1,088 gallons, reduced compressor starts by 50%, reduced wear and tear, and thus reduce energy and maintenance costs. With the increased number of CNG vehicles utilizing the station, additional CNG storage is essential

The clean heavy-duty vehicles along with sufficient storage capacity at the fueling station will help continue this Clean and Green effort as the use of this alternative fuel grows in the community.

## RECOMMENDATIONS

Based on the knowledge and experience gained through the successful completion of this project, it is recommended that agencies pursuing similar projects, intended for similar applications review the following list of recommendations, as suggested by the City of Riverside.

1. During the development of the bidding documents, firm delivery parameters should be established to insure the compliance by the agency to meet the contractual requirements of the MSRC.
2. Prior to advertising the bid, sufficient investigation should be performed to insure that the equipment to be purchased is manufactured to be CARB certified and will meet MSRC requirements at the time of bidding.
3. Due to the nature of CNG stations and equipment, the equipment purchased is 'built' to order on a manufacturer's platform and may not be readily available for installation.
4. Maintenance and repair or alternative fuel facilities may require additional training of employees and modifications to repair facilities. These additional costs should be recognized and properly funded as an integral part of the project.

## *Scope of Project*

The purpose of this project was to replace diesel heavy-duty equipment and upgrade the City of Riverside's existing CNG fueling station at 8095 Lincoln Avenue, Riverside, California. Specifications are as specified in Attachment 1, Purchase of fourteen heavy-duty vehicles and Attachment 3, Fueling Station Specifications, which includes the installation of additional CNG storage cylinders to increase storage capacity by at least 66,000 scf, resulting in a final storage capacity of at least 132,000 scf. Fueling station upgrade Installation included plumbing gas supply and all necessary accessories. These projects meet the needs of the City of Riverside and provide cleaner operating vehicles and CNG for the City, community and businesses. The City leveraged AB2766 Funds to obtain a MSRC grant, which provided additional funding towards the additional costs.

## *Discussion*

The Western Riverside County Clean Cities Coalition is a partnership between the City and neighboring municipalities working to educate the public in making clean air choices, promoting the use of sustainable fuels, and making the Inland Empire a place where people can breathe clean, healthy air. Creating an effective local governing board such as a Clean Air Advisory Committee is another partnering opportunity for community members and civic leaders to direct air quality resources into programs that must benefit the City.

The City's Publically Accessible Alternative Fuel Station (CNG/LPG/Hydrogen/Electric) has provided an amazing asset for the community. The Fleet has increased the CNG fueling dispensing from 741,872 gallons in 2008 to 973,457 gallons last year, at an average cost of $1.20 per gallon, the lowest priced fuel in Southern California. Thereby reducing air emissions for our citizens as well as reducing the operating costs for the City's fleet and surrounding business and residents. In addition to public, larger notable customers include: AT&T, Burrtec, and Student Transportation of America. We are committed to a cleaner environment, and maximizing the use of all resources, including human, capital, and natural to reach and exceed the goals set for our community and region.

Riverside and its community partners have actively and aggressively adopted programs focused on improving air quality. Some of these programs are:

- City Pass Program - The City Pass provides all City employees free rides on any RTA bus by simply showing their City employee identification card. The City has approximately 2,800 employees that can take advantage of this program.
- Clean Car/Clean Air Rebate Program- The program provides a rebate to employees and residents who purchase a qualified electric vehicle ($2,500), hybrid and/or CNG vehicles ($2,500).

Local Public Access Alternative Fuel Facility-The City of Riverside operates an alternative fuel facility at the City's Corporation Yard. The alternative fuel facility serves 100 percent of the City's fleet and is open 24/7 to serve Riverside, businesses and government agencies. The City also provides publically accessible electric vehicle charging stations and propane motor fuel for sale.

## *Public Outreach*

1. The City has produced and aired a series of alternative fuel vehicle program informational videos which covers the City's CNG, electric, hydrogen and propane fuels. These routinely run on the City of Riverside's award winning Government Television (GTV).

2. The City works with Western Regional Council of Governments (WRCOG) to provide alternative fuel vehicle displays concerning 'Advancing the Choice' and other alternative fuel events throughout the region.

3. The City recently worked with WRCOG and Clean Cities to provide a First Responder Safety Training sponsored by the National Alternative Fuels Training Consortium (NAFTC), Clean Cities and the U.S. Department of Energy. This alternative fuel vehicle safety training was provided NAFTC along with the City's contribution of alternative fuel vehicle displays and a presentation by the City's Fleet Operations Manager concerning the use of alternative fuel.

4. In order to educate and engage the community, Riverside launched the weekly "Green Power Report" radio show and GreenRiverside.com website in 2007. Both award-winning media outlets provide Riverside residents with updates on City efforts to improve sustainability as well as information about simple ways to "go green", upcoming green events such as Earth Day, and Riverside's myriad incentive programs. Riverside created the Sustainability Workbook, available on the GreenRiverside.com website, which provides hundreds of tips and ideas on how to go green. The City also maintains a Twitter account, Facebook page and YouTube channel which provide updates on City events, sustainability measures and projects throughout Riverside and opportunities to get involved.

5. The City's Green Leadership Summit event, held on February 1st, 2012, gathered over 60 representatives of local groups, schools, public and private entities to discuss progress toward the achievement of sustainability, as well as future steps. The Green Leadership Summit provides a venue for the sharing of experiences, expertise, strategies and ideas, and encourages collaboration for the development of a healthier city.

6. The City also held a Green Jobs Summit to discuss short- and long-term strategies for supporting local green business as well as attracting new green business to the area. Many of these strategies are now being implemented.

7. The Seizing Our Destiny Initiative-which is the Agenda for Riverside's Future, is on the Mayor's website. A Livable Community is the website section where the Clean & Green Riverside tab takes you to all of the City's Green initiatives from the beginning with endorsement of the Sustainable Riverside Policy Statement. The Policy Statement leads to the Clean & Green Task Force, the Green Riverside Action Plan, the Task Force Report and the Mayor's Call to Action for a Sustainable Riverside. The Mayor speaks regularly around the City and about the importance of sustainability and what Riverside is doing.

8. The Fleet Operations Manager, regularly provides information to departments about trends in the sustainability arena. Martin and other General Services staff work with Public Utilities, Public Works, Parks and other departments to let them know what types of AFVs are available for their use and emerging technologies.

9. Riverside's Public Utilities manages the City's electric vehicle program and has a wonderful website that shares information with staff and the community about the alternative fuel vehicle rebate program. Managed by the Public Works Department, the Alternative Fuel Vehicle Rebate Program is designed to encourage the purchase of alternative fuel or hybrid vehicles and to increase awareness of the benefits associated with driving a clean and green vehicle. This benefit is available to City employees.

10. Directional signage was installed by Caltrans on the 91 freeway to inform staff and the public about the types, price and location of alternative fuel fueling stations at the City's Corporation Yard.

## EMISSION BENEFITS

The City has reduced the amount of particulate and high carbon emissions by the reduction of fossil fuels by 973,000 gallons of domestically produced low carbon, clean burning natural gas in the last year.

Riverside remains committed to improving the public health, safety and welfare, including air quality. While some sources of air pollution are outside of the City's control, Riverside has become a recognized leader as a model clean air city. To this end, Riverside works to improve air quality through various strategies, including: encouraging use of alternative fuels, promoting increased use of public transit, minimizing commuting times and vehicle idling times, implementing measures to reduce ambient particulate matter, improving the urban forest, and diversifying energy resources. Since the 1980s, Riverside and its community partners have actively and aggressively adopted programs focused on improving air quality.

- The Western Riverside County Clean Cities Coalition is a partnership between the City and neighboring municipalities working to educate the public in making clean air choices, promoting the use of sustainable fuels, and making the Inland Empire a place where people can breathe clean, healthy air. Creating an effective local governing board such as a Clean Air Advisory Committee is another partnering opportunity for community members and civic leaders to direct air quality resources into programs that must benefit the City.