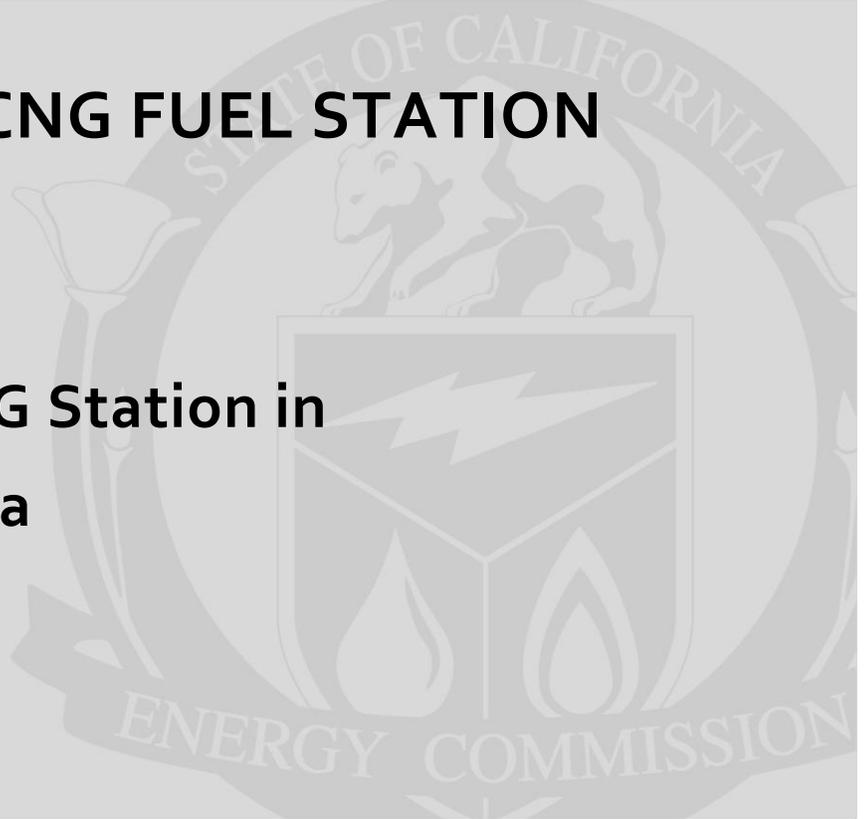


**Alternative and Renewable Fuel and Vehicle  
Technology Program**

**FINAL PROJECT REPORT**

**COTA STREET CNG FUEL STATION  
EXPANSION**

**Expansion to CNG Station in  
Corona, California**



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

Prepared by: **City of Corona**



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**#MS11019**

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**Agreement Number:** *MS11019 - Funding for CNG  
Station Expansion*

**Prepared for:**

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## **ABSTRACT**

Compressed natural gas offers many benefits to the world, including cleaner and less expensive fuels. With its increased popularity, one problem is that there are not a lot of facilities to offer these services. The City of Corona owns the only CNG fuel station expansion within a 12 mile radius. As a result, the City sought to successfully expand the fueling station located near the intersection of the I-15 and CA-91 by increasing the storage capacity and adding a dual hose fast fill dispenser. This will allow more convenient and faster fueling services to the community, traveling public and corporate fleet services, as well as allowing for the reduction of diesel consumption and vehicle emissions in California.

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## EXECUTIVE SUMMARY

Under this grant agreement, the City of Corona expanded its existing public access Compressed Natural Gas (CNG) Fueling Station located at 430 N. Cota Street. The existing public access CNG fuel station was opened in 2003. The station offers 24 hour access to CNG fuel for the community, traveling public and corporate fleet services.

This CNG Fueling Station is the only one located within a 12 mile radius. In addition, the City of Corona's existing CNG Fuel station facility consisted of only two Greenfield C3U gas compressors delivering a maximum throughput of 764 cu. ft. per minute, with a storage capacity of 36,000 cubic feet. This system served an existing public access CNG Fuel Station with a single fast fill dispenser with two hoses. The City's goal was to add an additional 36,000 cu. ft. of compressed natural gas storage (total of six tanks at 72,000 cu.ft of storage) and an additional 2-hose fast fill dispenser at the public CNG Fuel Station. The City of Corona's contractor Go Natural Gas Inc. was responsible for the construction of the CNG Station facility upgrade, which became operational in September 2014.

The objective of the City of Corona's in constructing this station is to provide the additional necessary infrastructure to provide more convenient and faster fueling services to the community, traveling public and corporate fleet services, as well as allowing for the reduction of diesel consumption and vehicle emissions in California.

The successful expansion of this fueling station will provide the necessary infrastructure to fuel natural gas vehicles from the City and traveling public. This will promote a healthier environment by the use of compressed natural gas instead of gasoline.

# CHAPTER 1: Project Background and Objectives

## Project Background

City of Corona owns and maintains the only Compressed Natural Gas (CNG) Station within a 12 mile radius. The address of the station is 430 N. Cota Street near the I-15 and SR-91. The station provides convenient fueling for resident, traveling public and corporate fleet. The station was constructed in 2003 and since then the fueling demands have constantly been increasing to the point that during the rush hours consumers wait for more than half an hour in order to get fuel. Due to this increase in demands the City became interested in expanding the station to provide greater compressed natural gas fueling capacity.

**Figure 1: Previous Congested Conditions of CNG Station**



## Objectives

- Increasing the storage capacity for compressed natural gas and the installation of an additional dual hose fast fill dispenser;
- Making the necessary civil, mechanical, and electrical upgrades to support the expansion of the station
- Providing an incentive for corporate fleet services to use the facility; and
- Reducing air pollution from vehicles and implementing the California Air Act.

## CHAPTER 2: Scope of Work

City of Corona's scope of work under contract MS11019 included the installation, operation, and reporting of the Cota Street CNG Fueling Station. The CNG expansion doubled the existing storage capacity of 36,000 cf of compressed gas. This allowed for the installation of an additional dual hose fast fill dispenser. The Dispenser was an ANGI Series II dispenser with an Advanced LCD display & electronics, integrated micro-processor mass flow, sequential and display electronics which eliminated remote components, weights and measures certified, three-bank sequencing, temperature compensation, and OPW P36 fill nozzles. Go Natural Gas Inc., working under the direction of the City, was responsible for the construction of the project:

### Technical Tasks

The City of Corona completed several tasks in order to complete the proposed upgrades to the station.

#### Task 1: Project Management Plan

Design plans were completed by Fuel Solution Inc. under the direction of the City of Corona. There was a timeline for the project from planning to commissioning, but through the length of the project it changed. The project costs stayed close to the original proposed amount.

#### Task 2: Station Construction

The City of Corona procured and installed three storage vessels, a dual hose fast fill dispenser, card reader, and priority valve panel. The City managed the installation and implementation of all equipment by all subcontractors.

**Figure 2: New Dual Hose Fast Fill Dispenser**



**Figure 3: New Storage Vessels and Priority Valve Panel**



### Task 3: Station Commissioning

The project was completed and opened to the public on September 17, 2014. The City of Corona is working on the final report. City of Corona performed the start-up activities and all required testing to ensure the expanded fueling station was working properly.

### Task 4: Station Operation and Maintenance

The City of Corona continues collect and analyze data on the station throughput and associated project emission benefits.

### Site Location

Figure 3: CNG Station Located in 430 N. Cota Street, Corona, CA 92880

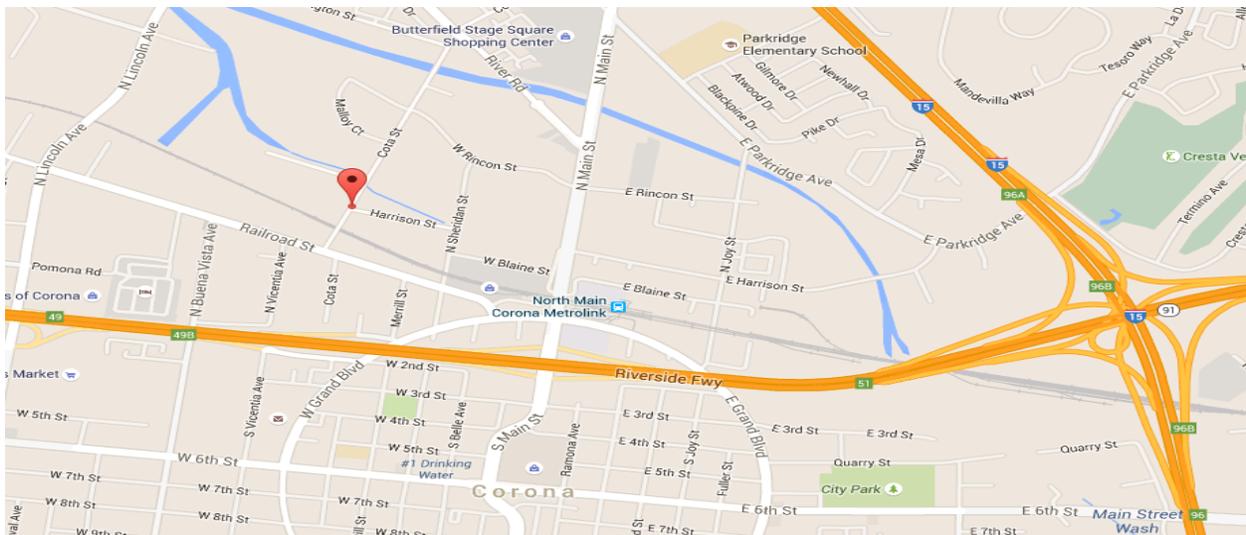


Photo Credit: Google Maps

## Fuel Throughput

The City of Corona's compressed natural gas fueling station became operational and opened to the public on September 17, 2014. As a result of the expansion of the facility more CNG vehicles are able to utilize the facility.

**Table 1: Total Gasoline Gallon Equivalent (GGE) Consumed**

Month	Total Gallons Metered GGE	Transaction Count	Public Transaction Count	City Transaction Count	Timefill GGE	Facility Uptime	TOTAL GGE CONSUMED
August	39,421.30	4791	4514	277	1701	100%	41,122.00
September	33,794.32	4132	3868	264	4451	100%	38,245.32
October	42,357.58	4755	4517	238	3,863	100%	46,220.80
November	36,985.45	4322	4131	191	4129	100%	41,114.45
December	38,606.70	4482	4405	213	2176	100%	40,783.20
January	39,255.58	4688	4482	206	1299	100%	40,554.58
February	37,919.63	4366	4168	197	1052	100%	40,996.58
March	42,950.10	4874	4657	217	958	100%	43,908.10
April	44,872.63	4773	4592	181	978	100%	45,850.63
May	42,621.81	4625	4435	190	972	100%	43,593.82
June	44,080.39	4606	4469	137	1564.8	100%	45,645.19
July*	42,221.89	4305	4299	191	0.2	100%	42,222.09
<b>Average</b>	40,423.95	4,583.09	4,385.27	210.09	2,103.98	100%	42,548.61

\*July - Transit Test, did not use Timefill

Source: City of Corona's CNG Station.

Based on the average throughput of approximately 40,423.95 GGE consumed per month, the City of Corona is responsible for a high level of emission reduction benefits for the area as well as the state of California.

## **CHAPTER 3: Results**

The City of Corona completed the installation of the storage vessels and an additional dual hose fast fill dispenser. The station is open serving the residents of Corona, traveling public and corporate fleet services. The fueling station is now able to serve more consumers at the same time and in a faster time.

### **Problems**

During the design phase of the project, there were some delays due to sub-consultants not performing and to the amount of time the different parties were taking for the review of the plans. During the construction everything ran smoother; the concrete pad was built for the storage vessels; vessels were installed; lights were relocated; fast-fill dispenser and card reader were installed; and other required civil improvements were constructed. There were minor issues that were addressed in a rapid and efficient way.

First, the CNG dispenser shipping container was received in damaged condition as it fell during transport however; there are no obvious signs of damage. The City contacted the manufacture immediately upon receipt. The Manufacture has stated they would address any problems with the dispenser in an expeditious manner if any problems were found. Then on Saturday September 13, 2014th, the CNG Station started experiencing issues with pressure drops. The Contractor modified some of the pressure settings and was able to get the system stable and operational. On September 15th the installation of the new dispenser was completed, tested, and fully operational. On September 17th the credit card reader and business account was established and the dispenser was opened to the general public and fully commissioned. The next day, the dispenser had issues with the westerly hose plus the dispenser was making a loud noise. The dispenser was temporarily shut-down and repaired immediately. Even though, there were some minor problems, all of them were addressed and the station is fully functional.

### **Benefits**

The Cota Street CNG Fuel Station Expansion provided increased storage capacity of compressed natural gas as well as an additional fast fill 2-hose dispenser. This upgrade allows for the convenient use of more CNG vehicles, which benefit the environment and public health. CNG burns cleaner than natural gasoline or diesel and produces fewer emissions of hydrocarbons, oxides of nitrogen, carbon monoxide, and carbon dioxide. CNG is also less expensive than either gasoline or diesel.

## **CHAPTER 4: Conclusion**

The City of Corona remains dedicated to reducing emissions as evident with the expansion of its current facility. It still has expansion capabilities on the Public side to increase storage volume which will produce more efficient and effective fills for its customer base.