CITY OF SCOTTSDALE
ARIZONA

CITY AUDITOR'S OFFICE

Fuel Costs and Controls

November 8, 2012   **AUDIT REPORT NO. 1305**

12/7/2012: corrected typos in Table 5 on page 13 (FY 2010/11 label and transposition in column total).

CITY COUNCIL
Mayor W.J. "Jim" Lane
Lisa Borowsky
Suzanne Klapp
Robert Littlefield
Ron McCullagh
Linda Milhaven
Vice Mayor Dennis Robbins

November 8, 2012

Honorable Mayor and Members of the City Council:

Enclosed is the audit report, *Fuel Costs and Controls*, which was included on the Council-approved FY 2012/13 Audit Plan. This audit was conducted to review processes and controls related to City fuel costs, including those monitoring and responding to variables such as fuel usage and price fluctuations.

The City buys fuel in bulk using a state contract, and Fuel Program staff monitors fuel levels and contract rates to maximize discounts. However, despite increasing fuel costs, the City has not reduced fuel consumption from approximately 1.3 million gallons per year. Further, Fleet Management uses a cost-based markup to recover overhead costs, which serves to compound the budget impact. Formal policies and additional citywide conservation measures should emphasize the need to reduce the City's fuel costs.

If you need additional information or have any questions, please contact me at (480) 312-7867.

Sincerely,

Sharron Walker, CPA, CFE
City Auditor

Audit Team:

Brad Hubert — Internal Auditor
Tara Lennon, PhD — Audit Consultant
Joanna Munar, CIA — Senior Auditor

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EXECUTIVE SUMMARY

This audit of *Fuel Costs and Controls* was included on the Council-approved Fiscal Year (FY) 2012/13 Audit Plan. The audit reviews the processes and controls related to the purchase and use of fuel for City vehicles and equipment.

Despite the rapid increase in per-gallon fuel costs in recent years, the City has not effectively limited fuel use through citywide policies or other initiatives. During the past three fiscal years, the City has continued to consume approximately 1.3 million gallons of fuel annually. Therefore, increasing per-gallon costs have driven the fuel budget, which has grown from almost $3 million in FY 2009/10 to more than $5 million in FY 2012/13.

While some City divisions and service areas have reduced fuel consumption, these efforts have been offset in other areas, with the Police Department, Solid Waste Management, and the Scottsdale Trolleys as the City's largest fuel consumers. As well as implementing citywide fuel savings initiatives, Fleet Management can also improve its distribution of fuel use and cost information so that fuel users are better able to make cost-effective choices.

The Fuel Program staff monitors fuel tank levels and per-gallon costs to maximize contract discounts for the City's bulk fuel orders. Fleet Management then charges City fuel users the cost of fuel plus a 10% markup, which is used to recover administrative costs. However, with rising fuel costs, the markup rate recovers approximately $250,000 more each year than actual administrative costs. In addition, Fleet Management's fuel budget forecasts incorporate a 15% fuel markup rate, thus further magnifying the negative budget impact of rising costs. Changing from a percentage of cost markup to a fixed amount per-gallon would lessen the impact of rising fuel costs on the City's budget.

The City's trolley contractor can manually override the City's vehicle identification transmitter (VIT) system when fueling the City-owned trolleys. Trolley operator staff relied extensively on the manual override from July to September 2012 for three trolleys. Also, fuel logs reflected several instances of consecutive fuelings of the same trolleys within minutes. Fleet Management should ensure that the City trolleys' automated fueling systems work properly and should remove the contractor's ability to override the fuel system controls.

BACKGROUND

The Fleet Management department of the Public Works Division is responsible for the City's Fuel Program, which manages the fueling of approximately 950 city owned vehicles and more than 200 pieces of equipment. The Program operates eight fueling sites throughout the city providing the following fuel inventories:

Fleet Management is comprised of five programs: Fleet Management Administration, Fleet Management Operations, Fleet Management Parts Supply, Fuel, and Vehicle Acquisition.

Compressed Natural Gas (CNG) – CNG can only be used in specially adapted vehicles, but its cost per gas-gallon-equivalent is about half that of unleaded or diesel fuels.

Diesel/B20 – Diesel is primarily used in larger vehicles, such as fire engines, solid waste trucks, buses and trolleys. The City uses B20, a blended fuel that is 20% biodiesel and 80% petrodiesel and can be used by any diesel vehicle. The city's current fuel supplier provides B20 at the same cost as diesel.

E85 – This alternative fuel option is 85% ethanol and can be used in place of unleaded gasoline in vehicles that are designated by the manufacturer as flex fuel capable. While the cost per gallon is about 5% less than unleaded fuel, E85 has an 80% efficiency rate - meaning a vehicle gets 80% percent of the miles-per-gallon compared to unleaded fuel.

Unleaded gasoline – The most commonly used fuel by City fleet and equipment. Unleaded is also the fuel that has been most subject to cost volatility.

The City acquires fuel in bulk at a state contracted cost that is less than the retail price.[1] Fuel Program staff monitors its fuel tank levels and the weekly published rack (base) prices to maximize bulk discounts when making fuel purchases. As shown in Figure 1, the City has purchased approximately 1.3 million gallons of fuel annually for the past three fiscal years. During this time, the cost increased about $1.2 million, from $3.3 million in fiscal year (FY) 2009/10 to $4.5 million in FY 2011/12.
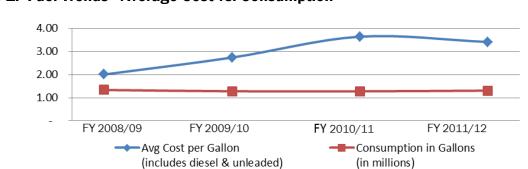
Figure 1. Fuel Trends - Average Cost vs. Consumption

SOURCE: Auditor analysis of SmartStream general ledger and FASTER reports.

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[1] The state contract provides a discount of $0.04 per gallon off of the wholesale cost when the City buys more than 4,000 gallons in a day.

As experienced in the retail market by consumers, the City's cost for unleaded and diesel fuel has increased substantially. The City's average cost for unleaded rose 34.6%, while diesel rose 15.6% during the past three fiscal years. However, as shown in Table 1, the City's fuel consumption did not change during this time period with approximately 1.3 million gallons of diesel and unleaded fuels being used each year.

Table 1. Cost of Fuel vs. Fuel Consumption

	FY 2009/10	FY 2010/11	FY 2011/12	Change
Fuel Consumption (in millions of gallons)				
Diesel	0.67	0.68	0.69	→
Unleaded	0.61	0.60	0.61	→
Total	1.28	1.28	1.30	
Average Cost Per Gallon				
Diesel	$2.88	$3.83	$3.33	↑
Unleaded	$2.60	$3.45	$3.50	↑

SOURCE: Auditor analysis of SmartStream financial reports and Fuel Program reports.

As evident in Table 2, the City's fuel expenditures have increased each year from FY 2009/10 to FY 2011/12. For FY 2012/13, the City's adopted fuel budget is $5.18 million, marking an almost 75% increase since FY 2009/10.

Table 2. Budget and Actual Fuel Expenditures (in millions)

	FY 2009/10	FY 2010/11	FY 2011/12
Adopted Fuel Budget	$ 2.97	$ 3.75	$ 3.46
Actual Fuel Expenditures*	$ 2.95	$ 3.78	$ 4.37
Unleaded	1.29	1.56	1.85
Diesel	1.59	2.18	2.48
CNG	0.07	0.04	0.03
E85	-	-	0.01
Variance	$ (0.02)	$ 0.03	$ 0.90
% Variance	-0.63%	0.82%	26.15%

*Expenditures do not include fuel purchased with Voyager gas cards.

SOURCE: Auditor analysis of Adopted Operating Budget, SmartStream financial reports, and Southwest Gas invoices for CNG.

The Police Department and Solid Waste Management department are the largest fuel users in the City, together purchasing more than half of the total fuel used in FY 2011/12, at 30% and 27%, respectively. Similarly, the Scottsdale Trolley Program is the second largest user of diesel, using more than 100,000 gallons annually in fiscal years 2010/11 through 2011/12.

Despite increasing fuel prices, Table 3 shows that most divisions have continued to use approximately the same amount of fuel during the period from fiscal year 2009/10 to 2011/12. However, the Community Services Division, particularly the Parks & Recreation department, decreased its fuel use during those same three fiscal years by analyzing its use and implementing fuel savings procedures.

Table 3. Fuel Consumption by Service Area, (in thousands of gallons)

	FY 2009/10	FY 2010/11	FY 2011/12
Police	403.58	392.77	406.13
Solid Waste Management	345.32	359.40	354.85
Community & Economic Development	157.49	163.62	170.37
Public Works without Solid Waste	156.01	146.68	155.58
Water Resources	89.13	91.68	92.09
Fire	86.59	85.81	89.05
Community Services	57.04	54.21	53.89
Admin. Services & Other	6.77	6.16	6.10
Total	**1,301.93**	**1,300.33**	**1,328.06**

SOURCE: Auditor analysis of Fuel Program reports.

Due to the citywide budget reductions, rising fuel costs and previous audit findings, Fleet Management staff pursued efforts to reduce fuel costs beginning in fiscal year 2009, including:

- *More CNG Vehicles in Fleet Inventory:* Four solid-waste vehicles that run on CNG have been recently added to the fleet. An additional nine solid-waste vehicles and four full-size vans that run on CNG have been ordered. This is significant as the solid-waste vehicles use large quantities of fuel and CNG is about half the price of other available fuels. The Fleet Director explained that CNG vehicles are currently more available for purchase than in prior years, and his staff has ongoing discussions with manufacturers to stay current with fleet purchase options.

- *Fewer Fuel Cards:* By reducing the number of fuel cards issued to vehicle users from 193 in 2008 to 106 currently, less fuel is purchased at full retail cost.

- *More Vehicle Information Transmitters (VIT)*: Fuel transactions from City fuel pumps via VIT automatically record the vehicle identification and fuel quantity, thus allowing better monitoring of fuel use.

- *Motor Pool*: Fleet Management has established a motor pool of shared vehicles to reduce the City's number of underutilized vehicles. A limited number of motor pool vehicles are now available at the North Corporation Yard, McKellips South Yard, and One Civic Center.

- *Life-Cycle Analysis:* Fleet management has refined its vehicle replacement calculation to take into account life-cycle analysis, including repair history, asset condition, actual utilization, and budget considerations. This Life-Cycle analysis will help optimize vehicle inventory, thereby reducing fuel use and other operating expenses.

- *Limiting Fuel Purchases for BiFuel Vehicles:* For a brief period, to compel bifuel vehicle users to use more CNG, Fleet Management blocked their ability to purchase unleaded fuel. Due to fueling problems at the City's CNG fuel site, this initiative was short lived. However, the current CNG fuel site at the North Corporation Yard is being refurbished and Fleet Management expects to gain greater reliability.

Beginning in FY 2011/12, Fleet Management directly bills City divisions for their actual fuel purchases. Divisions pay the City's fuel cost plus an additional 10% mark-up to offset the Fuel Program's administrative costs. For example, the current cost-per-gallon of fuels along with mark-up prices billed to users is shown in Table 4.

Table 4. Cost and Price Per Gallon by Fuel Type (as of October 18, 2012)

	CNG*	Diesel	E85	Unleaded
Cost to Fuel Program	$1.51	$3.72	$3.23	$3.41
Price to Division Includes 10% Markup	$1.66	$4.09	$3.55	$3.75

*Price per gas-gallon-equivalent for CNG.

SOURCE: Auditor analysis of Fuel Program reports and Fuel Program staff analysis of system data, calculated on a moving average.

Fuel Program staff distributes monthly fuel usage reports electronically to the City divisions that are assigned fleet or equipment. All designated Fleet Liaisons receive a standard report, entitled *Percent CNG Used by Bifuel Equipment,* which summarizes the percent of CNG used in bifuel vehicles compared to their use of unleaded fuel and the number of times unleaded fuel was put into the vehicle at the North Corp Yard. (Detail by month and vehicle is available in the report for each listed department; only one department/vehicle is expanded in the following example.) The purpose of this report is to encourage increased use of CNG, which is about half the cost of unleaded fuel.

Percent CNG Used by Bifuel Equipment

FY 2013 Through September

Dept #	Center/Months/Unit #	GL CNG	GL UNL	% CNG	Unl at NCY Times
100-20600	CAPITAL PROJECT MANAGEMENT	68.2	720.1	8.65%	33
	07 (July)	31.9	330.5	8.81%	15
	9075	0.0	60.7	0.0%	1
	9076	0.0	22.5	0.0%	0
	9077	31.9	17.5	64.6%	5
	9080	0.0	114.6	0.0%	6
	9430	0.0	115.2	0.0%	3
	08 (August)	36.3	389.6	8.51%	18
	9075	0.0	61.2	0.0%	1
	9076	0.0	41.7	0.0%	0
	9077	36.3	18.9	65.74%	7
	9080	0.0	146.3	0.0%	8
	9430	0.0	121.5	0.0%	2
100-20904	BUILDING MAINTENANCE AND REPAIR	9.7	144.6	6.29%	8
100-20907	CONSTRUCTION SERVICES	42.9	26.3	62.01%	15
100-21840	CODE ENFORCEMENT	16.1	848.6	1.87%	25
100-25100	PRESERVE PLANNING & ADMINISTRATION	0.0	104.8	0.0%	1
100-25403	STADIUM OPERATIONS	0.0	146.0	0.0%	0
	DETAIL OMITTED	DETAIL OMITTED			
100-25406	MAINTENANCE-SCOTTSDALE RANCH PARK	0.0	146.6	0.0%	8
100-25412	MEDIANS & RIGHT-OF-WAY MAINTENANCE	0.0	229.9	0.0%	0
100-25416	MAINTENANCE-ELDORADO PARK	0.0	438.4	0.0%	1
100-25426	MAINTENANCE-SCOTTSDALESPORTSCOMPLEX	0.0	48.2	0.0%	0
100-25428	MAINTENANCE-HORIZON PARK	0.0	294.1	0.0%	3
100-25430	MAINTENANCE-MCCORMICK-STILLMN RR PK	0.0	90.5	0.0%	3
100-25432	MAINTENANCE-MOUNTAIN VIEW PARK	7.1	175.2	3.88%	11
	City Totals	**181.0**	**5,467.0**	**3.2%**	

Note: Includes use from July through September 2012.

SOURCE: Excerpt of Fuel Program's CNG usage report.

As well, an *E85 Usage* report is automatically sent monthly to liaisons to encourage use of E85 as an alternative to unleaded fuel.

E-85 Usage

Dept	Equip #	E85	UNL	Percent E85
100-20903	1	85	341	20.0%
100-20905	1	19	154	10.8%
100-21840	1	32	86	27.0%
100-22000	1	-	226	0.0%
100-22100	4	27	392	6.5%
100-22200	28	1,445	18,122	7.4%
100-22202	5	68	1,348	4.8%
100-22204	2	81	742	9.8%
100-22209	1	-	105	0.0%
100-22213	2	116	394	22.7%
100-22400	9	187	827	18.5%
100-22401	2	-	374	0.0%

SOURCE: Excerpt of Fuel Program's E-85 usage report.

A select group receives the Citywide fuel trend report, shown on page 9, which compares by service area the quantity of fuel used in gallons for the current fiscal year-to-date to the same period in the prior fiscal year. (The monthly detail by vehicle is available for each listed department; only one department/vehicle is expanded in this example.)

Other fuel reports are made available to limited City staff through the City's Report Manager System. Fuel Program staff sometimes send these reports directly to the applicable fleet liaisons; however, their distribution is not automatic or consistent.

Citywide Fuel Usage CFYTD PFYTD

(Through the End of the Prior Month)

Dept. #	Dept Desc / Eq. # / Month	Current Fiscal Year Gallons	Previous Fiscal Year Gallons
100-20600	CAPITAL PROJECT MANAGEMENT	3,666.5	4,253.2
	1004124	147.0	313.9
	Jul	59.9	1.0
	Aug	52.1	159.0
	Sep	35.0	153.9
	1005102	271.7	209.0
	1005104	197.1	202.6
	1005105	422.8	308.8
	1006056	118.5	180.7
	1006101	240.6	239.6
	1006110	232.6	300.9
	1007107	269.8	306.1
	12113	151.9	0.0
	9073	0.0	130.8
	9074	0.0	228.6
	9075	163.4	155.3
	9076	108.1	184.2
	9077	183.7	194.5
	9079	439.8	585.2
	9080	387.1	395.3
	9430	332.4	317.7
650-20525	TRANSFER STATION OPERATIONS	1,170.7	1,096.8
650-20531	COMMERCIAL COLLECTION	16,534.6	16,597.8
	Detail Lines Omitted	*Detail Lines Omitted*	
650-20532	ROLL-OFF COLLECTION	3,312.3	3,732.9
700-20700	FLEET MANAGEMENT ADMINISTRATION	449.2	1,005.8
700-20706	FLEET MANAGEMENT OPERATIONS	439.9	693.2
700-20720	FLEET VEHICLE ACQUISITIONS	465.3	1,100.4
710-23700	RISK MANAGEMENT	11.5	12.8
	CITY TOTALS	**344,312.7**	**339,602.5**

Note: As of October 2012 (includes use from July through September).

SOURCE: Excerpt of Fuel trend report.

OBJECTIVES, SCOPE, AND METHODOLOGY

An audit of *Fuel Costs and Controls* was on the City Council-approved fiscal year (FY) 2012/13 Audit Plan. The audit objective was to review processes and controls related to City fuel costs, including those monitoring and responding to variables such as fuel usage and price fluctuations.

To gain an understanding of the compliance requirements and the data used to manage the City's acquisition and use of fuel, we reviewed:

- The City's bulk fuel contract with Supreme Oil Company, procured through the Arizona State Procurement Office.

- Administrative Regulations (AR) 125, *Authorization and Operation of City Owned Vehicles,* and AR 226, *Capital Assets – Acquisition, Inventory and Disposal.*

- Fleet Management's written policies and procedures related to Fuel Program activities.

- Fleet Management's FASTER system, used to track fuel consumption by vehicle, equipment, and fuel type.

- Fuel expenditures and revenues recorded in SmartStream, the City's accounting system, for bulk fuel acquisition (expenditures) and internal fuel rate charges (revenues).

To help assess risks commonly associated with fuel purchase activities, we reviewed recent audit reports completed by other auditors. We interviewed staff from the Public Works Division who are responsible for the Fuel Program, including the Fleet Management Director, Fleet Coordinator, and Senior Customer Support Representative to identify fuel controls and data at the central level. We also interviewed staff from the divisions of Community & Economic Development (Transit), Community Services (Parks & Recreation), Public Safety (Police), and Public Works (Solid Waste) regarding their programs' fuel use and related initiatives.

To evaluate the City's fuel costs and controls, along with initiatives toward the reduction of fuel use, we:

- Analyzed historical fuel price trends using data from the Energy Information Administration for FY 2009/10 through FY 2012/13 (to September 2012), for comparison to the City's bulk fuel rate.

- Reviewed the City's adopted fuel budget for FY 2009/10 through FY 2012/13, as well as Fleet Management's 5-Year Financial Plan fuel forecast of costs and revenues generated from fuel users.

- Conducted a fuel survey of City Fleet Liaisons and key staff members regarding their use of fuel reports as well as their related information needs and fuel reduction initiatives.

- Evaluated a sample of fuel purchases made at City fuel sites and electronically recorded by vehicle identification transmitters (VIT) and fuel purchases made with Voyager gas cards at retail gas stations to identify exceptions and verify review.

- Analyzed the City's fleet composition by vehicle class and type of fuel used, including those removed from service as result of fleet reduction efforts from FY 2009/10 to FY 2011/12.
- Analyzed City divisions fuel use by vehicle/equipment, by department/service area, and by fuel type, as well as miles-per-gallon and cost-per-mile data. Completeness of data used in our analysis was verified to FASTER reports produced by Fleet Management staff.

Based on these audit procedures, we found the City's cost of fuel trended equivalent with the historical price of fuel as reported by the Energy Information Administration. The City acquires fuel in bulk at state contracted cost that is less than retail prices, and Fuel Program staff maximizes discounts when purchasing fuel. Overall, City vehicle drivers have not reduced fuel consumption despite the increasing cost per gallon of unleaded, the City's primary fuel. Further, Fleet Management's 10% rate, which is added to the cost per gallon, exacerbates the cost increases. Moreover, internal fuel rates recover administrative fees in excess of Fuel Program administrative costs

We conducted this audit in accordance with generally accepted government auditing standards as required by Article III, Scottsdale Revised Code, §2-117 et seq. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Audit work took place from August through October 2012, with Brad Hubert, Tara Lennon, and Joanna Munar conducting the work.

FINDINGS AND ANALYSIS

1. Fuel cost increases have driven the budget as fuel use has not been reduced.

Despite an almost 75% increase in fuel budget the City's fuel use did not decline between fiscal years (FY) 2009/10 and 2012/13, and citywide initiatives encouraging conservation, such as a formal no-idling policy, were not established.

A. Table 5 illustrates the trend of the City's fuel cost per-gallon compared to fuel consumption during FY 2009/10 through FY 2011/12. As per-gallon fuel costs increased, the City continued to use the same quantity of fuel.

Table 5. Bulk Fuel Purchases, Quantity and Cost (in thousands)

Fuel Type	Avg Cost per Gallon*	FY 2009/10		FY 2010/11		FY 2011/12	
		Quantity	Cost	Quantity	Cost	Quantity	Cost
CNG	$ 1.64	22	$ 41	26	$ 44	18	$ 25
Diesel	$ 3.17	674	$ 1,745	664	$ 2,191	694	$ 2,518
E85	$ 3.05	-	-	-	-	5	$ 15
Unleaded	$ 2.83	604	$ 1,466	598	$ 1,691	614	$ 1,997
Total		1,300	$ 3,252	1,288	$ 3,926	1,331	$ 4,555

*The City's average cost-per-gallon for diesel, E85, and unleaded fuels and per-gas-gallon-equivalent for CNG over the three fiscal years.

SOURCE: Auditor analysis of Fuel Program reports.

Some individual departments, such as Community Services, have made efforts to reduce fuel consumption through the vehicle reduction and redeployment efforts. At the same time, other divisions have increased their fuel use as shown in Table 3 on page 5.

Some fuel-saving measures could be implemented citywide through policy while others may be accomplished with new signage and improved data sharing. For example, according to the U.S. Department of Energy, passenger vehicles waste between a quarter to half gallon of fuel per hour by idling.

Individual City departments, including Community Services, Solid Waste, and the Police Department, stated that they discourage employees from leaving their vehicles running while idle. However, a formal policy prohibiting vehicle idling without a valid reason, such as a police unit with a canine, has not been implemented.

The fuel efficiency of a sedan commonly used by the City was 11.7 miles per gallon (MPG), or approximately 30% lower than the 17 MPG national average for city-driving by that vehicle. This lower efficiency for City vehicles may be due in part to idling practices.

SOURCE: Auditor analysis of Fuel Program reports and US Dept. of Energy data.

Additionally, posting fuel prices on the City's fuel pumps would aid fuel users in making better choices, such as use of CNG rather than unleaded fuel. Also, formal policies have not been adopted for emphasizing CNG use and improving the availability of fuel cost and use data.

B. City staff driving bifuel vehicles increases the City's fuel costs when they bypass the less expensive CNG pump at the City's North Corporation Yard fuel site to use the unleaded fuel pump. Based on a Fuel Program report, this occurred 1,254 times during FY 2011/12. Taking into consideration the 80% efficiency conversion rate, if CNG had been used in these vehicles rather than unleaded, the City could have saved approximately $47,000 during FY 2011/12. This estimate is shown in Table 6.

Table 6. Missed CNG Savings Opportunity for North Corporation Yard Fueling

Fiscal Year 2011/12	CNG	Unleaded	Total
Amount used in bifuel vehicles	2,289	33,096	35,385
Proportion of bifuel vehicle use	6.47%	93.53%	
Approximate price per gallon	$1.46	$3.25	
Actual Cost	$3,342	$107,563	$110,905
Unleaded gallons converted to CNG gallons @ 80% efficiency	41,370		
Cost with unleaded converted to CNG	$63,742		($63,742)
Missed Savings Opportunity by existing bifuel vehicles			$47,163

SOURCE: Auditor analysis of Fuel Program reports.

Citywide, bifuel vehicles' CNG use dropped from 23% in fiscal year 2009/10 to just 7% in fiscal year 2011/12. For the first three months of the current fiscal year, only 3% of fuel purchased has been CNG. The Fleet Management Director's goal is for bifuel capable vehicles to be using at least 20% CNG.

For every division assigned a bifuel capable vehicle in fiscal year 2011/12, CNG comprised 15% or less of the total fuel purchases for those vehicles. As shown in Table 7, the Public Works and Water Resources divisions purchased the greatest percentages of CNG, at 15% and 6%, respectively.

Table 7. CNG Consumption by Bifuel Vehicles (Fiscal Year 2011/12)

Division	Total	CNG	%	Unleaded	%	# of Unleaded Purchases
Public Works	10,103	1,528	*15%*	8,574	*85%*	611
Community & Economic Development	6,590	64	*1%*	6,526	99%	125
Community Service	10,864	263	*2%*	10,601	98%	219
Water Resources	7,828	434	*6%*	7,394	*94%*	299
Total	35,385	2,289	6%	33,095	94%	1,254

SOURCE: Auditor analysis of Fuel Program reports.

Although the City fleet includes 45 bifuel vehicles, approximately half of the vehicles are assigned to users working in the southern area of the City. The City's only CNG pump is located at the North Corporation yard, making it less convenient for the bifuel vehicle drivers to use CNG fuel. During FY 2011/12, the Community Services Division, Parks & Recreation department, shifted its vehicle assignments to place its bifuel vehicles nearer the CNG fueling site.

C. Fuel use and cost statistical data is not consistently distributed to departments' fleet liaisons, and some fleet liaisons indicated they are not disseminating the information they do receive to managers in their divisions.

Only limited data has been reported to fuel users to inform them of options and encourage behavior modification. For example, miles-per-gallon and fuel cost-per-mile data would help fuel users make better choices when options are available, such as using CNG rather than unleaded fuel.

Fuel Program staff prepares reports on fuel usage by department, vehicle, and fuel type. Some of these reports are automatically emailed to fleet liaisons, while others are available in the City's Report Manager system for retrieval as desired. However, 88% of respondents to the fuel survey conducted for this audit stated they do not receive or review the Fleet fuel reports. More significant, approximately 82 to 87% of the respondents stated they do not share fuel reports and information with their department management. As a result, City managers who are responsible for day-to-day operations, including the use of City vehicles, are not receiving information that can assist them in achieving fuel savings.

In addition, the majority of the fleet liaisons responding to the survey (62%) indicated they would like to receive additional data on a monthly or periodic basis, including the number of miles driven, the quantity of fuel used, each vehicle's miles-per-gallon performance and cost-per-mile. Survey respondents also said they would like to receive general information regarding the cost of fuel and the benefits of hybrid and alternative fuel vehicles compared to unleaded fuel and diesel vehicles. Such information can help staff make appropriate vehicle and fuel use decisions.

For example, when purchasing vehicles, Fleet Management could provide City departments with comparative costs associated with fuel efficiency. As shown in Table 8, in FY 2011/12, the City's lighter weight pickup trucks had 15% greater fuel efficiency than the heaviest, which resulted in the lighter trucks averaging a 22% lower cost per mile.

Table 8. Comparative Efficiency of City Pickup Trucks

Vehicle Class Group	Miles Per Gallon	Cost Per Mile
1/2 Ton and 3/4 Ton Pickups	11.2	$0.32
"Super Duty" Pickup	9.7	$0.41
% Difference	+15%	- 22%

SOURCE: Auditor analysis of Fuel Program reports for fiscal year 2011/12.

Recommendations:

The City Manager and Public Works Executive Director should direct appropriate staff to develop and implement citywide fuel reduction measures, including:

- A citywide no-idling policy to reduce unnecessary use of fuel.

- Establishing a minimum expected use of CNG by bifuel vehicles and related procedures and controls for monitoring its use.

- Automatic distribution of fuel use and cost reports to Fleet liaisons and/or department managers.

2. The 10% fuel markup rate recovers more than the program's administrative costs and exacerbates fuel cost increases.

The fuel overhead rate recovers more than the Program's administrative costs, and an even higher rate is used in developing fuel budget forecasts.

A. The Fuel Program charges City fuel users a price that is cost plus a 10% markup. This markup enables the Program to recover operating costs, such as staff and supplies, and capital improvement projects, such as building and renovating the fuel stations. The current 10% markup on budgeted fuel expenditures for FY 2012/13, will recover approximately $522,000 compared to the Program's estimated administrative cost of $149,000, or $373,000 more.

Program staff explained that the overhead markup is intended to recover a greater portion of the Fleet Management Administration budget rather than just fuel program costs. However, the other operating areas, including Maintenance & Operations, Parts, and Vehicle Acquisitions, each have their own internal service markup rate. For FY 2012/13, the Fuel Program constitutes about 7% of Fleet Management's $2.1 million administrative costs, but the 10% fuel markup rate will generate approximately 21% of the planned revenue to cover those costs.

According to Fuel Program staff, they are currently working to determine the actual administration cost and adjust the markup accordingly. Because the administrative costs of running the fuel program do not fluctuate with fuel costs, Fleet Management staff indicated they are considering replacing the current percentage markup with a fixed per-gallon rate.

The use of a fixed rate per-gallon would provide a better mechanism for recovering fixed administrative costs using a more stable predictor—the number of gallons used annually—rather than the fluctuating cost of fuel. For example, in FY 2011/12, the Fuel Program collected approximately $455,000 through the 10% markup. If a $0.15 per-gallon fixed rate had been used for this period, the service areas would have paid just under $200,000 for administrative costs, a savings of more than $255,000 for the overall city fuel budget.

Furthermore, with the 10% overhead markup, the City's price for unleaded fuel exceeded the Energy Information Administration (EIA) average retail prices for the western states region in two recent quarters during FY 2011 and FY 2012.[2] Also, with the 10% markup, the City's diesel price exceeded EIA average retail prices in six recent quarters: once in FY 2010, three times in FY 2011, and twice in FY 2012.

B. While a 10% markup rate is applied in charging fuel users, a 15% markup is used in developing the fuel budget. Table 9, an excerpt from the Fleet Management's 5-Year Financial Plan, which is used to develop the City's fuel budget, shows the budget impact from using the 15% markup rather than the 10% markup that is actually charged. This inflated overhead charge adds an additional $1.2 million in excess revenue over the five year forecast period.

Table 9. 5-Year Financial Plan, Forecasted Fuel Expenditures and Revenues
(in millions)

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17
Fuel Expenditure (Base Fuel Cost)	$5.18	$5.33	$5.39	$5.49	$5.60
Fuel Revenue: (Charge to Fuel Users)					
15% Markup (Per 5-Year Plan)	$5.95	$6.13	$6.19	$6.31	$6.31
10% Markup (Actual Charge)	$5.70	$5.87	$5.93	$6.04	$6.16
Difference in Markups	**$0.25**	**$0.26**	**$0.26**	**$0.27**	**$0.15**
	5-Year Difference in Forecast vs. Actual Markup: $1.2 million				

SOURCE: Auditor analysis Fleet Management's Internal Service Fund, 5-Year Financial Plan.

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[2] The western states region included in these average retail pump prices include: Alaska, Arizona, California, Hawaii, Nevada, Oregon, and Washington.

This higher percentage-based markup exacerbates the impact to the City's budget during fuel cost spikes. As shown in Figure 2, while fuel use remained stable between fiscal years 2008/09 and 2011/12, the revenue from the 10% markup increased significantly because it was tied to fuel costs.
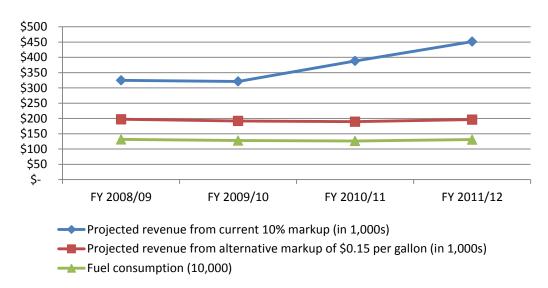
Figure 2. Fuel Cost and Projected Revenue

SOURCE: Auditor analysis of Fleet Management's planning documents, estimates for fiscal year 2012/13 fuel rate structure and allocation of administrative costs.

The cost-based fuel markup contributes to the increasing Fleet Management Fund balance. The fiscal year 2011/12 fund balance is $11.9 million, a gain of approximately $2 million over the FY 2009/10 balance. The City Auditor's 2010 audit report, *Fleet Management Rates* (No. 1105), also recommended reviewing the overhead markup rates to ensure they only recover necessary amounts.

Recommendation:

The City Manager and Public Works Executive Director should, prior to FY 2013/14 budget development, direct Fleet Management staff to develop and implement a cost-based methodology for the fuel markup rate so that it more closely recovers actual Program expenses and lessens the negative impact of fuel costs on the City's budget.

3. Manual overrides of the automated fueling system weaken internal controls over trolley fuel transactions.

The trolley operator's ability to manually override the City's automated fueling system and instances of same-day multiple fuelings leave the City unable to verify whether city-provided fuel is being used appropriately.

A. City vehicles, including the trolleys, are equipped with a vehicle information transmitter (VIT) that activates City fuel pumps and automatically updates fuel usage data and vehicle mileage to the fuel tracking database. When the contracted Trolley operator reported problems with the VITs, approximately in November 2009, Fleet Management provided them with manual keys and codes to override the automated system.

Based on the three year period reviewed, we verified that the trolley vendor uses the manual override function to purchase fuel. Although these keys and codes were intended for use when the automated system fails, the trolley operator exclusively used the manual override process to fuel three trolleys from July to September 2012, rather than having their VITs repaired timely.

B. Auditors identified approximately 280 occasions during FY 2011/12 when fueling records indicate that individual City trolleys received two large amounts of fuel within minutes. On four of these occasions, the total amount of fuel dispensed exceeded the trolley fuel tank's capacity. Based on reported trolley odometer readings and fuel records, these trolleys' fuel efficiency dropped nearly in half on the days when the trolleys received multiple fuelings. For example, trolleys that normally achieved five to six miles-per-gallon appeared to have decreased fuel efficiency of two to three miles-per-gallon.

Providing manual override ability circumvents controls established to help control City fuel use.

Recommendation

The Fleet Management staff should ensure the VIT system is repaired so that it operates correctly. Further, the trolley operator should be required to return the keys and codes used for manual override of the City's fuel system.

MANAGEMENT ACTION PLAN

1. **Fuel cost increases have driven the budget as fuel use has not been reduced.**

   Recommendation(s):
   The City Manager and Public Works Executive Director should direct appropriate staff to develop and implement citywide fuel reduction measures, including:

   - A citywide no-idling policy to reduce unnecessary use of fuel.

   - Procedures and controls for the minimum required use of CNG by bifuel vehicles.

   - Automatic distribution of fuel use and cost reports to Fleet liaisons and/or department managers.

   MANAGEMENT RESPONSE: Agree

   PROPOSED RESOLUTION:
   - Fleet staff will distribute information to departmental fleet liaisons concerning the fuel use of vehicles while idling in order to encourage voluntary reduction of fuel usage in city vehicles.

   - With input of the Executive Committee, the minimum required use of CNG by bifuel vehicles will be developed and communicated to users of bifuel vehicles. Also, the Fleet Systems Coordinator will assure the "Percent CNG Used by Bi-fuel Equipment" report is distributed monthly to the fleet liaisons. This report itemizes the gallons of unleaded gasoline and the gas gallon equivalent of CNG used in bi-fuel vehicles by department for the current fiscal year.

   - The Fleet Systems Coordinator will automate the distribution list of key fuel usage reports. Additionally, the average cost per gallon, or equivalent, by fuel type will be distributed to the fleet liaisons.

   RESPONSIBLE PARTY: Public Works Executive Director and Fleet Systems Coordinator

   COMPLETED BY: 01/31/2013

2. **The 10% fuel markup rate recovers more than the program's administrative costs and exacerbates fuel cost increases.**

   Recommendation(s):
   The City Manager and Public Works Executive Director should, prior to FY 2013/14 budget development, direct Fleet Management staff to develop and implement a cost-based methodology for the fuel markup rate so that it more closely recovers actual Program expenses and lessens the negative impact of fuel costs on the City's budget.

   MANAGEMENT RESPONSE: Agree

   PROPOSED RESOLUTION: Fleet Management will apply a "fixed amount per gallon" mark-up to each respective fuel type to cover the overhead cost of the fuel program.

RESPONSIBLE PARTY: Fleet Systems Coordinator and Fleet Director

COMPLETED BY: 11/12/2012

3. **Manual overrides of the automated fueling system weaken internal controls over trolley fuel transactions.**

   Recommendation(s):
   The Fleet Management staff should ensure the VIT system is repaired so that it operates correctly. Further, the trolley operator should be required to return the keys and codes used for manual override of the City's fuel system.

MANAGEMENT RESPONSE: Agree

PROPOSED RESOLUTION:
- VIT systems on the Trolleys have been repaired.

- Fleet is creating a process to check for and correct errors much sooner. Also, Fleet Management will work with the Contract Administrator to develop procedures to monitor fuel use and use of the fuel key to override transactions.

RESPONSIBLE PARTY: Fleet Director, Fleet Systems Coordinator, and Fleet Senior Customer Support Representative

COMPLETED BY: 01/31/2013

The City Auditor's Office provides independent research, analysis, consultation, and educational services to promote operational efficiency, effectiveness, accountability, and integrity in response to City needs.