



Audit of Fleet Maintenance Operations

Project #13-20

Prepared by
Office of the Inspector General

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

June 12, 2014

Audit and Finance Committee Members:

Mr. Jim Moran, Chair
Mr. Glenn Waldman, Member
Mr. Juan Portuondo, Member

Re: Audit of Fleet Maintenance
Operations - *Project No. 13-20*

This audit was performed pursuant to the Inspector General's authority set forth in Chapter 20.055, F.S. Our objectives primarily focused on determining whether there is an adequate process in place to ensure that fleet maintenance operations are performed effectively and efficiently. Jankie Bhagudas and I prepared this report.

Sincerely,

A handwritten signature in blue ink, which appears to read "J. Timothy Beirnes".

J. Timothy Beirnes, CPA
Inspector General

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BACKGROUND

In accordance with the Office of Inspector General's Fiscal Year 2013 Audit Plan, we conducted an Audit of Fleet Maintenance Operations.

At the beginning of Fiscal Year 2014, the District's fleet consisted to 952 vehicles: 727 of the fleet are assigned to the Operations, Maintenance and Construction Division and 225 are assigned to other resource areas. The District's fleet inventory is comprised of the following:

Equipment Type	Number
Sedans	20
Light Trucks	477
Medium Trucks	66
Heavy Trucks	65
Heavy Equipment (e.g., dozers and excavators)	65
Marine (e.g., boats, towboats, and airboats)	122
Trailers	114
Tractors	23
Total	952

Equipment data such as description, equipment number, location, area assignment, maintenance plans, fuel usage, and mileage, are maintained in the District's SAP Plant Maintenance (PM) module. The SAP Plant Maintenance module is used to automatically schedule preventive maintenance and track planned and unplanned maintenance and repair activities via a work order system that contains details on resources and captures costs. A work order is created for each maintenance or repair activity in SAP Plant Maintenance module and is used as a notification, planning, scheduling, and executing tool by fleet staff. Following are different types of work orders:

- PM01 – Unplanned repairs; for example, unscheduled work and breakdowns
- PM02 – Planned repairs; for example, replace tires and check brakes
- PMPL – Scheduled and automatically created in SAP based on a preventive maintenance plan

- PMPR – Planned repairs resulting from deficiencies identified during a preventive maintenance inspection

Our analysis of work orders completed during the period October 1, 2011 to August 7, 2013, disclosed that the District spent over \$5.7 million to maintain its light, medium, and heavy trucks, heavy equipment, marine equipment, tractors, and trailers.¹ The hours charged to fleet work orders, labor and fringe benefit costs, and external costs for parts and services are summarized in the following table.

Work Order Cost	Work Orders # & Percentages		# of Hours Charged & Percentages		Amount for Labor + Fringe Benefits** (38% of Labor Costs)		External Costs (Parts and Services)
Internal Labor Only	5,515	43%	20,462	27%	\$667,967	27%	
Internal Labor & External Cost	7,308	57%	56,149	73%	\$1,843,163	73%	\$3,214,410
Totals	12,823	100%	76,611	100%	\$2,511,130	100%	\$3,214,410
Total Costs					\$ 5,725,540		

** - The District's fringe benefit rate is 38% of salary.

Based on our analysis, 48% of the total costs were incurred by the Okeechobee and West Palm Beach Field Stations. It is important to note that about 43% of fleet work orders are completed by District staff without incurring any external costs. The details for each fleet unit are shown in the following table.

¹ Our analyses did not include sedans which accounted for about 585 work orders totaling \$207,000 because most of these work orders (485) were under \$500.

Field Station	# of Work Orders	Total Hours	Salary + Fringe Benefits **	External Costs	Total Cost
Clewiston	1,582	9,022	\$268,633	\$397,712	\$666,345
Labor Only	638	2,492	74,930		74,929
Labor + External Cost	944	6,530	193,703	397,713	591,416
Fort Lauderdale	748	5,960	\$213,616	\$202,690	\$416,306
Labor Only	314	921	34,164		34,164
Labor + External Cost	434	5,039	179,452	202,690	382,142
Homestead	758	7,719	\$250,594	\$254,213	\$504,807
Labor Only	283	1,530	49,501		49,501
Labor + External Cost	475	6,189	201,093	254,213	455,306
St. Cloud	1,066	6,144	\$203,970	\$245,171	\$449,141
Labor Only	358	1,138	37,893		37,893
Labor + External Cost	708	5,006	166,077	245,171	411,248
Miami	1,184	14,144	\$466,840	\$329,797	\$796,637
Labor Only	586	5,294	175,145		175,145
Labor + External Cost	598	8,850	291,695	329,797	621,492
Okeechobee	2,690	13,819	\$459,388	\$870,734	\$1,330,122
Labor Only	899	2,709	88,218		88,218
Labor + External Cost	1,791	11,110	371,170	870,734	1,241,904
West Palm Beach	4,430	17,690	\$582,577	\$809,235	\$1,391,812
Labor Only	2,160	5,139	169,006		169,006
Labor + External Cost	2,270	12,551	413,571	809,235	1,222,806
Big Cypress Basin	365	2,112	\$65,512	\$104,858	\$170,370
Labor Only	277	1,238	39,111		39,111
Labor + External Cost	88	874	26,401	104,858	131,259
Total	12,823	76,610	\$2,511,130	\$3,214,410	\$5,725,540

** - The District's fringe benefit rate is 38% of salary.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objectives primarily focused on determining whether there is an adequate process in place to ensure that fleet maintenance operations are performed effectively and efficiently.

To accomplish our objective, we obtained an understanding of fleet maintenance operations by interviewing fleet staff at the District's eight field stations, SAP Solutions Center's staff responsible for the SAP Plant Maintenance Module, and other relevant staff. We analyzed fleet purchases, ranked the vendors by goods and services procured, and obtained justifications from each fleet unit why services were procured from the top ranking vendors, for the period October 1, 2011 to August 7, 2013. In addition, we selected a sample of work orders from each fleet unit and requested the fleet units to provide justifications for using the selected vendors. We also determined whether the fleet units could purchase aftermarket parts at better prices.

We determined whether preventive maintenance scheduled for completion, during the period October 1, 2012 to October 3, 2013, were completed in a timely manner. We also determined whether the Operations, Maintenance, and Construction Division's maintenance goal for fleet work orders to be 80% planned and 20% unplanned was being achieved. Further, we analyzed fleet staff's time charges at each of the eight field stations, for the period October 1, 2011 to June 30, 2013, to determine whether time worked was primarily charged to work orders. Lastly, we determined whether work orders are classified correctly.

We conducted this performance audit in accordance with generally accepted government auditing standards. 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 RESULTS

Executive Summary

Overall, the District has an adequate process in place to ensure that fleet maintenance operations are performed effectively and efficiently; however, we noted that improvements can be made in some areas. We found that most fleet units used the same vendors for certain types of parts and repairs. Specifically, our audit disclosed that \$2,223,764 of purchases totaling \$3,939,526 (56%) by all District fleet units were made from 27 different vendors out of approximately 850 vendors from which fleet parts and services were purchased. These purchases ranged from \$250,868 to \$25,170 and the 27 vendors comprised of manufacturer dealers, aftermarket parts retailers, and State, District, and local vendors. We also selected a sample of 49 work orders totaling \$346,976 from the different fleet units and concluded that vendor selections were adequately justified, staff complied with District procurement policies, and the fleet units maintained price quotes / estimates.

However, several field stations can increase their efforts to be more cost efficient by comparing prices for aftermarket parts and purchasing them at cheaper prices. According to District fleet staff, price is not always the primary factor in determining which vendor to use. Other factors; such as availability, vendor location, and delivery timeliness are taken into consideration. However, some of the parts could have been purchased from Carquest² at lower prices. In addition, the West Palm Beach, Fort Lauderdale, and Big Cypress Basin Field Stations could improve efforts to obtain better prices for aftermarket parts.

Most preventative maintenance inspections of the District's fleet were performed in a timely manner. Specifically, for the period October 1, 2012 and October 3, 2013, we analyzed 1,926 preventive maintenance work orders that were required to be completed, by comparing the scheduled completion dates to the actual completion dates. We concluded that 1,426 (74%) of the work orders were completed within less than 14

² The State of Florida and General Parts Distribution LLC d.b.a. CARQUEST Auto Parts (Carquest) entered into an alternative source contract for certain automotive parts and services.

workdays and that the Okeechobee, West Palm Beach, and Clewiston Field Stations completed most inspections within a reasonable timeframe. Other field stations cited staffing and coordinating issues as primary reasons for delays.

Further, planned maintenance (PMPL) work orders, completed during October 1, 2011 to August 7, 2013, disclosed that repairs identified during maintenance inspections are not always resolved via planned repair (PMPR) work orders as required. Specifically, based on the number of hours charged, cost of parts and services, and the work order task operations, repairs are incorporated in the maintenance inspection work orders.

The Operations, Maintenance, and Construction Division's maintenance goal for fleet work orders is for 80% of work orders to be planned and 20% to be unplanned. However, the Division is not achieving its goals since 72% of repairs were planned and 28% were unplanned. We found that the Miami, West Palm Beach, Okeechobee, and Big Cypress Field Stations have higher percentages of unplanned repairs.

Employees performing fleet related activities are required to primarily charge time worked to fleet work orders; time can be charged to fleet work orders in 15 minutes increments. Our analysis of time charges by fleet technicians and planners/schedulers, during the period October 1, 2011 to June 30, 2013, disclosed fleet technicians at the Okeechobee, Clewiston, and Homestead Field Stations charged anywhere from 92% to 98% of time worked to work orders. However, there were areas of inconsistencies at other field stations and some fleet technicians' time charges to work orders were as low as 57% and 77%. For example, in some instances, technicians did not charge the time spent procuring fleet parts and services to work orders as required. In addition, three planners/schedulers with some fleet related responsibilities at three field stations charged only between 2% to 10% of time worked to work orders. Further, one planner/scheduler assigned exclusively to fleet activities charged only 28% of time worked to work orders.

Adequate Justification for Vendors Selected for Major Fleet Purchases and Repairs

Our analysis of SAP procurement data (purchase order data and procurement card purchases) disclosed that the District spent \$3,939,526 on fleet related repairs and maintenance of construction equipment, heavy, medium, and light trucks, marine equipment, tractors, and trailers, during the period October 1, 2011 to August 7, 2013. Purchases were made from approximately 850 different vendors. Spending by field station is listed in the following table.

Field Station	Purchase Amounts / Percentages	
Okeechobee	\$1,092,446	28%
West Palm Beach	993,946	25%
Clewiston	499,898	13%
Miami	389,697	10%
Homestead	295,055	7%
St. Cloud	284,814	7%
Fort Lauderdale	226,119	6%
Big Cypress Basin	157,551	4%
Total	\$3,939,526	100%

As part of our audit, for each fleet unit we ranked the total purchases by vendors and determined the common reasons for purchases from those vendors where total purchases exceeded \$5,000. We found that most fleet units used the same vendors for certain types of parts and repairs. Specifically, our audit disclosed that \$2,223,764 of the \$3,939,526 in total purchases (56%) by all District fleet units were made from 27 different vendors. Total purchases from these 27 vendors ranged from \$250,868 to \$25,170. These 27 vendors were comprised of manufacturer dealers, aftermarket parts retailers, and State, District, and local vendors. According to fleet staff, authorized manufacturer dealers are used for several reasons; for example, they provide specialized services and original equipment manufacturer parts (OEM parts) that are not available elsewhere and are sometimes better than the aftermarket equivalent. In addition, fleet staff explained that certain repairs are performed by dealers because the District does not have the specialized tools required to perform certain repairs and staff do not have the

required training. Staff also explained that based on their knowledge and experience OEM parts are sometimes better than aftermarket parts. Further, vendors are sometimes used to reduce repair backlog. Local vendors are used for various reasons; however, we question certain fleet unit's reasons for using some local vendors for aftermarket parts. This issue is discussed in detail in a subsequent section of this report.

Eight vendors represent 45% of fleet purchases (\$1,775,471 of the \$3,939,526 in total purchases). These consist of one State contract for tires, five equipment/vehicle manufacturers (purchases were made from various dealers), and two retail parts vendors. Details are presented in the following table.

Contracts / Manufacturer / Vendors	Amount of Purchases / % of Total Purchases		Examples of Dealers / Types of Parts
State Contract with Goodyear Tire and Rubber Company	\$352,187	9%	Tiresoles of Broward, Akron Tire Co., Wingfoot Commercial Tire, Christensen Enterprises, Inc.
Caterpillar Inc.	\$292,024	7%	Kelly Tractor Company and Ring Power Corporation
John Deere	\$274,770	7%	Nortrax Inc., and Everglades Farm Equipment
Ford	\$247,941	6%	Al Packer Ford East, Al Packer Ford West, Sunrise Ford, and Palmetto Ford Truck Sales Inc.
General Motors / Chevrolet / Buick	\$160,200	4%	Gilbert Chevrolet, Lauderhill Auto Investors, and Bob Taylor Chevrolet
International Trucks	\$140,093	4%	Rechtien International Trucks, Inc., Sun State International of Central Florida, LLC
Glades Parts Company / Original Equipment Company	\$190,782	5%	Original equipment manufacturer (OEM) and aftermarket parts
NAPA Auto Parts / Genuine Parts Co	\$117,474	3%	Aftermarket parts
Total	\$1,775,471		
Total Fleet Purchases / Percentages	\$3,939,526	45%	

We selected a sample of 49 work orders totaling \$346,976 from the different fleet units and determined the following:

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- Whether there was adequate justification for selecting the vendors, compliance with District procurement policies, and
 - Whether there was adequate documentation to substantiate purchases.

Overall, we did not find any exceptions during our audit and concluded that vendor selections were adequately justified, staff complied with procurement policies, and the fleet units maintained price quotes / estimates.

Fleet Units Need to Improve Efforts to Obtain Better Prices for Aftermarket Parts

Our analysis disclosed that field stations could increase their efforts to be more cost efficient by comparing prices and purchasing aftermarket parts at cheaper prices. District fleet staff explained that price is not always the primary factor in determining which retailer to use. Fleet staff explained that in some cases they prefer to buy parts at higher prices from a vendor who has the parts in stock rather than from a vendor with lower prices who does not have the parts readily available. They also take other factors into consideration such as vendor location and timely delivery. Further, staff stated that waiting for parts sometimes result in a loss of staff productivity and an increase in vehicle downtime. In addition, staff stated that due to limited resources and increased workloads it is not always practical and cost efficient to obtain quotes for all parts. While this may be true due to the various types of parts used by the fleet units, it would still be beneficial to obtain price quotes and check availability among different vendors for commonly used aftermarket parts. It should be noted that it is relatively easy for fleet staff to obtain online price quotes and item availability from vendors.

While the issues pointed out by fleet staff may be valid, our audit disclosed that some fleet units acknowledged that they can improve efforts to obtain better prices for aftermarket parts (St. Cloud and Fort Lauderdale Field Stations). In addition, other fleet units need to consider increasing diversification efforts by obtaining prices quotes from different vendors and purchasing parts from vendor with the lowest prices, if practical (West Palm Beach and the Big Cypress Basin Field Stations). The following sections discuss these findings in further detail.

St. Cloud Field Station

The St. Cloud Field Station made most of its fleet purchases from NAPA Auto Parts during the period October 1, 2011 to August 7, 2013. Specifically, purchases from NAPA Auto Parts accounted for approximately \$49,000 of the \$284,814 (17%) of total fleet purchases. Items purchased included filters, batteries, belts, brake pads, hoses, and wiper blades. Fleet staff cited the vendor's proximity to the field station, excellent customer service, timely deliveries, and competitive pricing as reasons for using NAPA Auto Parts.

It should be noted that the State of Florida and General Parts Distribution LLC d.b.a. CARQUEST Auto Parts (Carquest)³ entered into an alternative source contract for certain automotive parts and services. District management encouraged the fleet units to use this contract for certain aftermarket parts that were cheaper when compared to other vendors. Carquest offers similar products to NAPA Auto Parts. Further, a store is located about 12 miles from the field station and also offers free delivery. Purchases from Carquest totaled only \$2,050 (less than 1% of total fleet purchases) during the review period. Staff stated that Carquest is not always reliable. However, it appears that the amount of purchases was not sufficient to reach such conclusion.

Audit procedures entailed selecting 13 work orders where the St. Cloud Field Station made purchases from NAPA Auto Parts and compared NAPA Auto Part's prices to Carquest's prices to determine whether Carquest's prices for any of the parts were cheaper. Our price comparison disclosed that in some instances Carquest offered better prices than NAPA Auto parts for items such as filters, batteries, and hoses. We found that comparable filters offered by Carquest were cheaper by as much as \$18.31 and \$50.40 for a battery. Further, seven different filters were purchased for a particular work

³ The agreement was procured by North Carolina County of Mecklenburg on behalf of other government agencies and made available through the U.S. Communities government purchasing alliance. The State of Florida is a member of U.S. Communities and as such, is authorized to participate in the U.S. Communities contracts.

order from NAPA Auto Parts for \$159. However, comparable filters could have been purchased from Carquest for \$84; a saving of \$75 on a single work order – almost half the price.

In sum, based on our review of the 13 work orders, we found that certain aftermarket parts purchased from NAPA Auto Parts costing \$1,188 could have been purchased from Carquest for \$891, which could have resulted in savings totaling \$297 or 25% less than the amount paid.

It should be noted that a review of the St. Cloud Field Station's fleet unit's procurement card purchases disclosed numerous filter purchases. Thus, price comparisons could result in substantial savings. It should be noted that during our audit, Carquest and St. Cloud Field Station staff met and discussed procuring parts from Carquest more frequently. Further, fleet staff stated that they also compare prices among vendors.

West Palm Beach Field Station

The West Palm Beach Field Station made most of its fleet purchases from Glades Parts Company/Country Auto Parts/Original Equipment (Glades Parts Co.) during the period October 1, 2011 to August 7, 2013. Specifically, purchases from Glades Parts Co. accounted for approximately \$158,105 of the \$993,947 (16%) of total fleet purchases. Fleet staff explained that the vendor is reliable and carries a wide selection of quality parts (e.g., Motorcraft and ACDelco) and other aftermarket parts. It should be noted that purchases from Carquest totaled approximately \$12,654 (1.27% of total purchases) during the review period. In addition, based on staff's knowledge and experience Glades Parts Co.'s prices are competitive and parts are delivered quickly. Fleet staff explained that Carquest did not always have parts in stock and customer service was poor. It should be noted that due to staffing constraint the fleet unit does not have a planner/scheduler to assist with procuring parts and services. As a result, the fleet technicians are responsible for this function.

Audit procedures entailed selecting 11 work orders where purchases were made from Glades Parts Co. and compared Glades Parts Co.'s prices to Carquest's prices to

determine whether aftermarket parts could have been purchased at cheaper prices. To ensure that the Carquest parts were comparable we used relevant information; for example, year, make, model of vehicles for which the purchases were made, and the Glades Parts Co. part specification information. It should be noted that we did not include price differences in our analysis for certain dealer parts; for example, ball joints and rotors, since the decision to purchase original equipment manufacturer parts or aftermarket parts is debatable and usually based on the fleet technician's professional experience. The aftermarket prices for these parts were usually cheaper. However, we did compare prices of other dealer parts, such as oil, air, fuel and cabin filters, since these are common aftermarket parts.

Our price comparison disclosed that in some instances Carquest offered better prices than Glades Parts Co. for aftermarket parts such as filters, batteries, hoses, and shocks. Further, in some instances Carquest offered the exact items cheaper and the price differences for these items ranged from \$5.88 to \$46.20. For example, a hydro booster with the same material number was \$209.99 at Glades Parts Co. and \$163.79 at Carquest.

In sum, based on our review of the 11 work orders we found that certain aftermarket parts purchased from Glades Parts Co. costing \$2,547 could have been purchased from Carquest for \$1,959, which could have resulted in savings totaling \$588 or 23% less than the amount paid.

Fort Lauderdale Field Station

The Fort Lauderdale Field Station's fleet purchases from NAPA Auto Parts and Carquest, during the period October 1, 2011 to August 7, 2013, accounted for approximately \$20,423 (9%) and \$3,819 (2%) of total fleet purchases, respectively. Fleet staff cited discounted parts, quality, and excellent customer service as the reasons for the NAPA Auto Parts purchases. However, during our audit, staff stated that they will start doing more price comparisons and use Carquest in instances where parts are cheaper and available.

Big Cypress Basin Field Station

The Big Cypress Field Station fleet purchases from John Collins Auto Parts and Carquest, during the period October 1, 2011 to August 7, 2013, accounted for approximately \$13,862 (9%) and \$1,604 (1%) of total fleet purchases, respectively. Fleet staff cited selection, location, and excellent customer service as the reasons for the John Collins Auto Parts purchases. However, the vendor's prices are not necessarily the cheapest and regular online price quotes from different vendors are not being performed.

Other Observations

Some District fleet staff stated that Carquest was not always reliable and parts were not always in stock as reasons for using other vendors; however, we found that the Okeechobee Field Station made purchases totaling \$32,333 from Carquest and only \$7,008 from NAPA Auto Parts, during the period October 1, 2011 to August 7, 2013. Okeechobee Field Station fleet staff stated that NAPA Auto Parts' prices are usually higher than other aftermarket parts vendors.

In addition, during our audit, fleet staff informed us that compared to other vendor Carquest's prices for filters were usually the cheapest. As a result, we compared Carquest's, Glades Parts Co.'s, and NAPA Auto Parts' prices for 21 different filters. In all instances Carquest's prices were the cheapest. Total prices for the 21 filters were as follows:

- Carquest - \$174.76
- Glades Parts Co. - \$298.58
- NAPA Auto Parts - \$305.08

It should be noted that Operations, Maintenance, and Construction Division's management expected to be notified by the fleet units about any issues with Carquest but were not. As a result, issues with the vendor could not be corrected. Further, it appears feasible that some of the District's fleet units can improve cost efficiency by doing more price comparisons and purchasing certain comparable aftermarket parts from vendors with the lowest prices. Fleet staff explained that sometimes they buy aftermarket parts at

higher prices because the parts are needed the same day to complete repairs. This scenario implies that improved planning efforts should be considered to obtain the best prices for aftermarket parts when possible.

In addition, our review of work orders and discussions with fleet staff disclosed that in some instances OEM parts are purchased even when comparable aftermarket parts are available. We found that aftermarket parts were cheaper by as much as 59% when compared to dealer parts; for example,

- The dealer cost for a rotor was \$59 while the aftermarket part cost \$25 or \$34 less (58% less).
- The dealer cost for a capiler was \$61 while the aftermarket part cost \$45 or \$16 less (26% less).

Fleet staff explained that based on their knowledge and experience OEM parts are sometimes better than aftermarket parts. Nevertheless, increased efforts should be made to purchase aftermarket parts when practical.

Most Preventive Maintenance Inspections Performed in a Timely Manner

Most preventative maintenance inspections of the District's fleet are performed in a timely manner. Each piece of equipment in SAP has maintenance plans. The service intervals are based on time or mileage/hours. As of October 2013, there were over 2,850 fleet maintenance plans. Preventive maintenance work orders are automatically generated when certain time or usage criteria have been met. Fleet staff are required to ensure that the inspections are completed. Most planned inspections are outsourced (e.g., light trucks assigned to the West Palm Beach and the Okeechobee Field Stations); however, some are performed by District fleet staff (e.g., light trucks assigned to the St. Cloud and the Fort Lauderdale Field Stations).

We analyzed 1,926 preventive maintenance (PMPL) work orders that were required to be completed, during the period October 1, 2012 and October 3, 2013, by comparing the scheduled completion dates to the actual completion dates. We concluded that 1,426 (74%) of the work orders were completed within less than 14 workdays of the

planned schedule completion date indicated in SAP and 1,366 (71%) were completed within less than five workdays. However, some were not completed timely. The results of our analysis are summarized in the following table:

Preventive Maintenance Inspection Work Orders October 1, 2012 to October 3, 2013		
Number of Workdays from Scheduled Completion Date to Actual Completion Date	Number of Work Orders / Percentage	
Less than 14	1,426	74%
15 – 30	187	10%
31 – 100	254	13%
101 – 244	59	3%
Total	1,926	100%

Most preventive maintenance inspections and oil changes for light trucks are outsourced; and inspections for other vehicle are either performed by staff or outsourced. The Okeechobee, West Palm Beach, and Clewiston Field Stations completed most inspections within a reasonable timeframe. However, for the remaining field stations we noted the following:

- **Fort Lauderdale Field Station:** 83 of the 107 PMPL work orders (78%) were completed over 30 workdays past the scheduled completion date. The fleet crew chief stated that staff performs most of the preventive maintenance and the backlog was due to illnesses that resulted in staff being out of work for extended periods. In addition, there is only one fleet technician and the crew chief to perform repairs. It should be noted that due to the small fleet at this field station staff performs most inspections.
- **Miami Field Station:** 90 of the 140 PMPL work orders (64%) were completed over 30 workdays past the scheduled completion date. Fleet staff stated that they perform most of the preventive maintenance and the delays were attributed to staffing downsizing and frequent towboat repairs that require a dedicated fleet technician.

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- **Homestead Field Station:** 61 of the 103 PMPL work orders (59%) were completed over 30 workdays past the scheduled completion date. The fleet crew chief explained that some inspections may have been completed but work orders were not closed until time charges were posted and others were delayed due to shop backlog. In addition, at least eight vehicles must be ready for inspections before the inspection/oil change vendor will perform any inspections services and one of the fleet technicians was out sick for about six months. A new process was implemented to better manage these types of work orders.
 - **Big Cypress Basin Field Station:** 21 of the 66 PMPL work orders (32%) were completed over 30 workdays past the scheduled completion date. It should be noted that due to the small fleet at this field station staff performs most inspections.
 - **St. Cloud Field Station:** 23 of the 133 PMPL work orders (17%) were completed over 30 workdays past the scheduled completion date. Staff performs most of the preventive maintenance inspections. The fleet crew chief stated that some vehicles/equipment were being used by other departments and could not inspected due to scheduling conflicts and others may have been overlooked. Staff is working to address this issue.

It is important that preventive maintenance work orders be completed in a timely manner since planned maintenance delays can lead to breakdowns, unplanned repairs, increased repairs costs, increased vehicle downtime, and loss of employee productivity. In sum, effective preventive maintenance minimizes repair costs, extends the useful life of vehicles and heavy equipment, and can result in lower repair costs.

Incorrect Work Order Classifications

Based on discussions with fleet staff, fleet preventive maintenance inspections are documented via PMPL work orders and resulting deficiencies identified during inspections are addressed via PMPR work orders. Fleet staff typically use a checklist to document inspections. Further, if the inspections are performed by fleet staff, the cost

reflected in the PMPL work orders should primarily reflect labor costs and the time charged to the PMPL work order should be minimal. However, our review of PMPL work orders completed during October 1, 2011 to August 7, 2013, disclosed that costs associated with repairs identified during maintenance inspections are not always charged to PMPR work orders. Specifically, based on the number of hours and cost of parts and services charged to PMPL work orders repairs are incorporated in PMPL work orders. Our examination of the work order task operations supports this conclusion. Listed below are just a few examples:

Field Station	Equipment Type	Word Order Number	Hours Charged	Salary Cost	External Costs	Total Cost
Clewiston	Construction	4274380	22.00	\$457	\$179	\$636
St. Cloud	Construction	4271655	17.50	\$393	\$522	\$915
Miami	Heavy Truck	4273470	69.00	\$1,957	\$6	\$1,963
Miami	Light Truck	4286009	43.00	\$1,075	\$585	\$1,660
Miami	Marine	4278843	107.50	\$2,601	\$3,385	\$5,986
Okeechobee	Construction	4275784	31.00	\$741	\$1,265	\$2,006

Failure to track inspection repairs via PMPR work orders distorts hours and other costs of routine preventive maintenance, fleet staff productivity, and number of repairs resulting from PMPL work orders.

Fleet Units Need to Ensure Work Orders Reflect Accurate Costs

We identified some instances where the St. Cloud Field Station's fleet unit used parts to complete certain fleet repairs; however, the costs of the parts were not included in the work order costs; only internal labor costs were included. Based on the work order descriptions, repairs required the following: replace/change filters, replace blades and hydraulic hose, change ball joints, repair damage, replace overflow tank, repairs accident damage, replace winches, and replace tires. Fleet staff acknowledged that these work orders should have included the cost of replacement parts that were purchased to complete the repairs. We also found a few similar instances at other field stations. It is possible that the parts used to complete these repairs may have been purchased with

procurement cards and the work orders were not linked to the purchases. The purchases may have been charged to other work orders. It is essential that all work order repair costs be accounted for since fleet maintenance costs result in being understated and these costs are used to determine vehicle replacement.

Work Orders Ratio Goals for Planned vs. Unplanned Maintenance Not Achieved

The Operations, Maintenance, and Construction Division’s maintenance goal for fleet work orders is for 80% to be planned and 20% to be unplanned. To determine whether this goal is being achieved, we analyzed fleet work orders that were classified as technically completed in SAP for the period October 1, 2011 to August 7, 2013. We concluded that the Division is not achieving its goals since 72% of all repairs were planned and 28% repairs were unplanned. The results of our analysis are detailed in the following table.

October 1, 2011 to August 7, 2013					
Field Station	# of Planned WOs / %		# of Unplanned WOs / %		Total WOs
Clewiston	1,236	78%	346	22%	1,582
Fort Lauderdale	593	79%	155	21%	748
Homestead	561	74%	197	26%	758
St. Cloud	838	79%	228	21%	1,066
Miami	684	58%	500	42%	1,184
Okeechobee	2,005	75%	685	25%	2,690
West Palm Beach	3,136	71%	1,294	29%	4,430
Big Cypress Basin	239	65%	126	35%	365
Total	9,292		3,531		12,823
Average %		72%		28%	

Note that planned fleet work orders are classified as PM02, PMPL, and PMPR and unplanned fleet work orders classified as PM01.

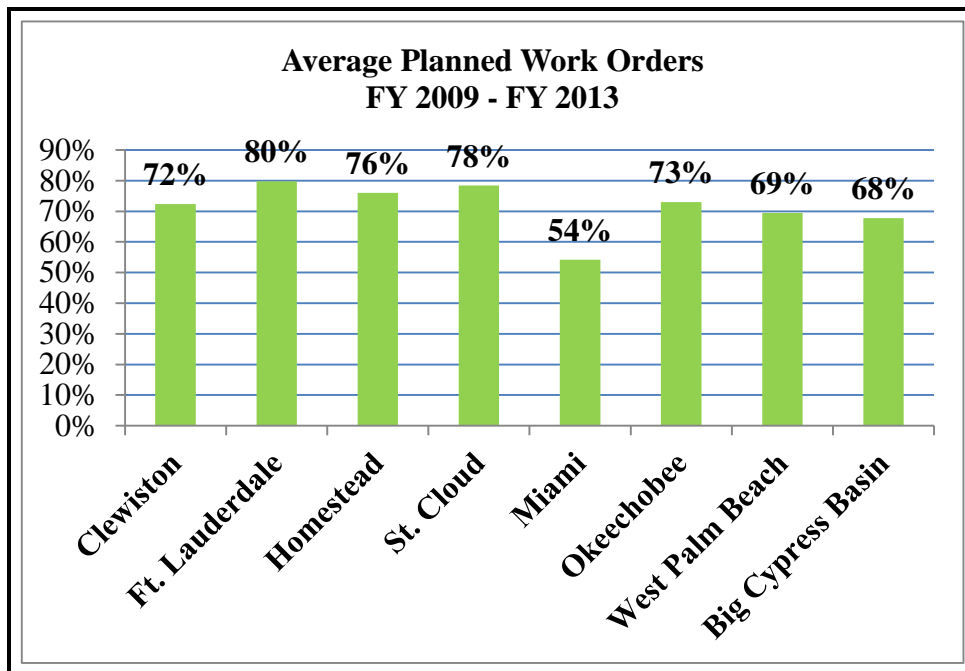
Issues were identified in several fleet units. For example, unplanned work orders accounted for 42% of total work orders at the Miami Field Station and 35% at the Big Cypress Field Station. We also determined whether there have been any improvements

in the first three quarters of Fiscal Year 2013 (October 1, 2012 to June 30, 2013). Overall, the planned and unplanned ratios were the same, as shown in the following table.

October 1, 2012 to June 30, 2013					
Field Station	# of Planned WOs / %		# of Unplanned WOs / %		Total WOs
Clewiston	532	84%	102	16%	634
Fort Lauderdale	223	77%	65	23%	288
Homestead	219	76%	70	24%	289
St. Cloud	316	75%	106	25%	422
Miami	272	57%	207	43%	479
Okeechobee	804	72%	308	28%	1,112
West Palm Beach	1,416	72%	550	28%	1,966
Big Cypress Basin	89	66%	46	34%	135
Total	3,871		1,454		5,325
Average %		72%		28%	

Staff attributed the high number of unplanned work orders at the Miami Field Station to frequent towboat repairs. Due to the age of the towboats and the nature of work in which they are used, unplanned repairs are common. Specifically, we found that during the period October 1, 2011 to August 7, 2013, 171 of the 500 unplanned work orders (34%) at the Miami Field Station were for towboat repairs. Further, staff acknowledged that planned and unplanned goals will not be achieved in the future due to lack of funding to replace the District's aging fleet, which will continue to result in unplanned repairs and increased maintenance costs.

Based on work order data obtained from Fleet Management, we concluded that during Fiscal Year 2009 to Fiscal Year 2013, several field stations have not achieved the 80% planned fleet work order goal, as illustrated in the following graph.



Time Charged to Fleet Work Orders Need Consistency and Improvement

Employees performing fleet related activities are required to primarily charge time worked to fleet work orders.⁴ Time can be charged to fleet work orders in 15 minute increments. As part of our audit, we analyzed time charges, during the period October 1, 2011 to June 30, 2013, to determine whether fleet technicians and planners/schedulers charged their time to work orders or cost centers. It should be noted that we analyzed only time worked and excluded annual leave, holidays, and other absences. Our review disclosed that fleet technicians at the Okeechobee, Clewiston, and Homestead Field Stations charged anywhere from 92% to 98% of their time worked to work orders. However, we identified some areas of inconsistencies at other field stations. Specifically, we noted the following:

⁴ Some employees also charged a very small amount of time work to project activities and other types of orders. Since these charges were immaterial, we considered them charged to fleet orders for purposes of our analysis.

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- **West Palm Beach Field Station:** Six of the eight technicians⁵ charged only 57% to 82% of their time worked to work orders. The OMC Professional Supervisor for Fleet explained there is no planner/scheduler designated to assist the technicians. As a result, the technicians are responsible for certain activities that are not charged to the work orders; such as, obtaining price quotes for parts and services, entering purchasing data in SAP, and preparing and reconciling credit card purchases. The supervisor considers all these activities administrative in nature and stated that time spent on administrative activities is charged to cost centers and only actual time spend working on vehicles is charged to work orders. However, based on analysis and discussions with other field station staff, time spent procuring parts and services are charged to work orders.

 - **St. Cloud Field Station:** Time charged to orders by two technicians is inconsistent. One technician charged only 77% to work orders while the other charged 92%. According to the Fleet Crew Chief, he will ensure that time charges reflect activities performed.

 - **Miami Field Station:** Time charged by the four technicians ranged from 78% to 91% of time worked. The OMC Professional Supervisor for Fleet explained that for a period of time the fleet unit did not have a planner/scheduler. As a result, one of the technicians assisted with certain administrative activities and others spent time obtaining price quotes for parts and service. The supervisor stated that these activities were not charged to work orders.

 - **Fort Lauderdale and Big Cypress Basin Field Stations:** The two technicians charged about 75% of time worked to work order activities. The Fort Lauderdale Crew Chief explained that the technician assigned administrative duties for a period of time. The Big Cypress Basin fleet technician stated that he has administrative duties including meetings and credit card reconciliation.

⁵ The remaining two technicians work on fleet and other activities (pump station and diving). Therefore, they were not included in our analysis.

In addition, three planners/schedulers with some fleet related responsibilities at three field stations charged only between 2% to 10% of time worked to work orders. Further, one planner/scheduler assigned exclusively to fleet activities charged only 28% of time work to work orders.

Incorrect time charges can distort actual internal labor costs spent on vehicle maintenance, which in turn can impact budgeted costs and future resource allocations. Accurate labor charges also allow management to monitor staff's productivity; for example, how long does it take to perform a maintenance inspection on a light truck. It is also used to measure average cost of corrective and preventive maintenance. Correct time charges also indicate adequate controls over time and that supervisors responsible for approving time are aware of their staff's activities. Further, time incorrectly charged to cost centers cannot be used to assess maintenance costs.

Recommendations

- 1. Require fleet units to increase planning efforts so that price quotes can be obtained for aftermarket parts. At minimum, quotes should be obtained for commonly used parts.**

Management Response: The Procurement Bureau obtained a district-wide list of the most widely used automotive parts, and solicited bids from vendors under a price agreement. The Procurement Bureau received prices from Original Equipment, Carquest, Cold Air Distributors, and O'Reilly Auto Parts. Prices from NAPA Auto Parts are pending. With these vendors the need to receive quotes elsewhere diminishes since they demonstrably have the lowest prices.

Responsible Division: Field Operations and Land Management Division, and Procurement Bureau

Estimated Completion: June 30, 2014

2. Consider using procurement staff to obtain price quotes and procure parts when practical.

Management Response: Fleet Management is working with the Procurement Bureau Chief to have procurement technicians receive quotes for automotive parts and spot check prices as discussed in Recommendation #1.

Responsible Division: Field Operations and Land Management Division, and Procurement Bureau

Estimated Completion: June 30, 2014

3. Encourage fleet units to procure filters using the Carquest alternative source contract.

Management Response: With the price agreement established with Carquest and the other vendors, fleet personnel and procurement technicians will have no alternative but to buy filters from Carquest when they are less expensive. Fleet supervisors will be required to report on this process to their respective superintendent each quarter to ensure that the District is buying at the lowest cost.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

4. Instruct fleet unit supervisor to inform appropriate Procurement Bureau management of any issues with contractors/vendors.

Management Response: This will be in Fleet Management's Maintenance Standard Operating Procedures (SOPs). Superintendents will require quarterly report on vendor performance.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

5. **Consider using aftermarket parts instead of original equipment parts when possible.**

Management Response: This was discussed at the Stan Team meeting and incorporated in our SOP. Specific SAP reports will be generated to ensure that this procedure is being adhered to.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

6. **Ensure that preventive maintenance inspections be monitored and completed in a timely manner.**

Management Response: This was discussed at the Stan Team meeting and incorporated in our Preventive Maintenance SOP. SAP Report IW39 will be generated on a monthly basis to ensure that this procedure is being adhered to.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

7. **Ensure that fleet staff understands the importance of closing preventive maintenance work orders after inspections are completed.**

Management Response: This was discussed at the Stan Team meeting and incorporated in our Preventive Maintenance SOP. Specific SAP reports (IW39 and IW33) will be generated on a monthly basis to ensure that this procedure is being adhered to, as discussed in response to Recommendation #6.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

8. Instruct fleet staff to ensure that repairs identified during maintenance inspections are completed through PMPR work orders.

Management Response: This was discussed at the Stan Team meeting and incorporated in our Preventive Maintenance SOP. Specific SAP reports (IW39 and IW33) will be generated on a monthly basis to ensure that this procedure is being adhered to.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

9. Require fleet staff to make sure that work order costs include all cost of parts and services used.

Management Response: This was discussed at the Stan Team meeting and incorporated in our Preventive Maintenance SOP. Specific SAP reports (IW39 and IW33) will be generated on a monthly basis to ensure that this procedure is being adhered to. Field Station Superintendents will enforce this recommendation.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

10. Increase efforts to ensure that the maintenance goals for planned and unplanned work orders are achieved.

Management Response: The 80% Preventive Maintenance to 20% Unscheduled Maintenance objective presents a challenge due to the District's aging fleet and extensive unscheduled repair requirements of our towboats. Each maintenance facility is working hard to achieve this objective. It is an ongoing process. Fleet Management will continue to perform statistical analysis of repair and maintenance data as a means of monitoring maintenance goals and objectives.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

11. Require that activities charged to fleet work orders are consistent among all fleet units.

Management Response: Fleet Management is in the process of developing a list of chargeable activities that will serve as the basis for charging time at District Fleet Maintenance facilities.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

12. Consider holding a workshop for relevant fleet staff responsible for making purchases to discuss their experiences regarding vendors' prices and service.

Management Response: The Fleet Management Stan Team will facilitate a workshop that will include discussion of vendors' automotive prices and services, and training for staff responsible for automotive parts procurement and acquisition. Procurement Bureau staff will be involved in this process.

Responsible Division: Field Operations and Land Management Division, and Procurement Bureau

Estimated Completion: June 30, 2014

13. Require managers (time approvers) to closely review their staff's timesheets to ensure that time charges reflect actual activities performed.

Management Response: This will be discussed at the next division meeting and it will be incorporated in the Fleet Maintenance SOP. Monthly reports will be generated to ensure that time allocations accurately reflects actual work. Shop

supervisors will be held accountable for time allocation and will be expected to perform daily checks. SAP Report IW47 will be generated to ensure this is being followed.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

14. Ensure that fleet employees understand the importance of charging time worked to the correct activities.

Management Response: This will be discussed at the next division meeting, and it will be incorporated in our Preventive Maintenance SOP. Monthly reports will be generated to ensure that time allocation accurately reflects actual work. Shop supervisors will be held accountable for time allocation, and will be expected to perform daily checks. SAP Report IW47 will be generated to ensure this is being followed.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014

15. Instruct fleet unit supervisors to utilize existing SAP fleet work order monitoring reports or consult with the SAP Solutions Center to develop required reports to improve management of the work order issues.

Management Response: This was discussed with Fleet Unit supervisors at the Fleet Stan Team meeting. Fleet Management will incorporate this process in the Preventive Maintenance SOP as a means of reinforcing this recommendation. Also, utilizing the following reports will give our supervisors tools to better manage the work order process: Work Order Processing (IW39), Work Order Detail (IW33), and Confirmation / Timekeeping (IW47). Fleet Management has a SAP representative at the Stan Team meetings to address issues involving reports.

Responsible Division: Field Operations and Land Management Division

Estimated Completion: June 30, 2014