

# Law Enforcement Fleet Consolidation Committee

## Vehicle/Fleet Management/Logistics

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presented by

Major Brett Norton  
Florida Fish and Wildlife Conservation Commission  
Division of Law Enforcement

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### Document prepared by the Law Enforcement Fleet Consolidation Committee

Committee Sponsor: Chief Gerald Monahan, Port Orange Police Department

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Law Enforcement Fleet Consolidation Committee

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## EXECUTIVE SUMMARY

The goal of the fleet consolidation committee was to identify deficiencies in current fleet management programs in state law enforcement and opportunities for improvement.

Past studies by OPPAGA and the Mercury Associates have focused on identifying ways to reduce the overall state vehicle fleet and were not specific to law enforcement vehicles. (Appendix I)

The members of this committee included both sworn law enforcement officers from different state agencies (FHP, FWC, OALE, FDLE, DOC, and DEP) and non sworn budgetary and fleet managers from those agencies. The committee sponsor is the police chief from Port Orange Police Department representing the Florida Police Chiefs Association. We also had the Bureau Chief from DMS Fleet Management on the committee. The diversity of committee members helped to make a better product.

It was obvious from the first meeting that some of the differences between agencies were caused by miscommunication and inconsistent application of current policies, procedures and rules. This issue was addressed by having an open dialog with the DMS representative and prompted the recommendation to have a group of law enforcement fleet managers meet on a regular basis after the transition committee work is complete.

For the majority of state law enforcement officers, the rigging and outfitting of their vehicles is centralized at DHSMV and FWC facilities depending on the type of vehicle to be outfitted. This ensures consistency in the fleet and provides for better officer safety. If the DEP and OALE officers are merged with FWC, there would be additional efficiencies to rig their vehicles at the FWC facility.

The most obvious issue identified and addressed by this committee is the lack of funding to replace vehicles in a timely manner and a long term and consistently executed replacement plan. These issues combined may cause safety issues to the general public and the officer as a result of higher incidents of mechanical failures while responding to emergency calls and during routine law enforcement operations. The committee has identified a long term solution to the funding problem that will ensure we have a reliable fleet and each law enforcement agency is funded properly.

## BACKGROUND

In accordance with the guidelines set by Chapter 2011-66 establishing the Law Enforcement Consolidation Task Force, the Fleet Consolidation Committee was formed to conduct a review of the fleet management and logistic programs in state law enforcement.

The scope of this team included:

- The evaluation of available fleet resources and pros and cons of refurbishing aging vehicles as opposed to replacing them.
- To determine if primary fleet vehicles are being passed effectively and efficiently on to the secondary fleet at the appropriate time.
- Is the schedule (frequency) for vehicles being replaced negatively affecting the fleet as a whole?

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- What is the manner and methodology of assignment of vehicles and the extent of vehicle standardization within and across agency lines?
- What is the methodology of budgeting for vehicles?
- Are vehicles being serviced by private vendors or by state agency mechanics?
- Are the aforementioned resources being shared?

### EFFICIENCY OPPORTUNITIES

- Based on current replacement criteria, over one-third (38%) of state law enforcement land vehicles (e.g., cars, trucks, SUVs, vans, and motorcycles) are eligible for replacement. Within one year, it is estimated that approximately two-fifths (42%) of these vehicles will be eligible for replacement. (Appendix II)
- Currently there are inconsistent funding sources and amounts of funding for vehicle replacement within state law enforcement agencies. This causes a situation where some agencies have been able to replace their vehicles in a timely manner and others have fleets that are in dire need of replacement. Due to recent budget cuts, all agencies are now in a situation where significant investment is required to restore the fleet to a safe operational level. Identifying and combining a permanent revenue source to replace all state law enforcement vehicles will ensure that each agency has a safe and reliable fleet that will not break down during a pursuit or while responding to an emergency call.
- Due to the increased mileage and age of existing law enforcement fleets, the cost to maintain and operate pursuit vehicles is increasing dramatically. Because many of the state law enforcement agencies use their vehicles regularly to tow boats or trailers and operate in rough terrain and saltwater environments, the lifespan of the vehicle is shortened. Often, the cost of maintenance and repairs exceeds the value of the vehicle, as described in the attached Mercury Associates and OPPAGA reports.
- Currently surplus vehicle sale proceeds are not deposited into a trust fund for the replacement of law enforcement vehicles.
- Currently there is no committee of state law enforcement fleet managers who regularly meet to assess which vehicles are best suited for law enforcement use.
- Currently pursuit vehicles are defined by the Department of Management Services as vehicles that have received that rating from the manufacturer. Pursuit vehicles have a different replacement criteria than all of the other specialty vehicles that do not have this manufacturer's rating but are used routinely for pursuit and law enforcement patrol activities (such as pick-up trucks and SUVs).
- Currently there is no standard spare vehicle ratio with state law enforcement agencies. Some agencies have very few spare vehicles in their fleet which causes significant operational problems when the front line vehicles are out of service and the officer is not able to respond to an emergency call for service in a timely manner.
- When pursuit vehicles exceed law enforcement replacement criteria, many agencies are reassigning the vehicles to a less demanding, secondary fleet. Other types of law enforcement vehicles (such as trucks and SUVs) that are still in a useable condition are reassigned to other non-law enforcement divisions of their agencies.

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For example, drivable FWC patrol trucks are internally reassigned to biologists to use for their research activities as they have no acquisition funds to purchase vehicles.

### CONSOLIDATION OPPORTUNITIES

Most law enforcement rigging/up-fitting of new vehicles is already consolidated at the two largest patrol agencies, FHP and FWC. With the MCCO/FHP merger last year, all the MCCO and FHP vehicles are now processed through the FHP facility in Middleburg. Most of these vehicles are patrol sedans for highway enforcement. FHP has also already partnered with FDLE to rig/up-fit their vehicles. (Appendix III)

FWC currently rigs/up-fits all of their specialty patrol trucks, all terrain vehicles and vessels at their facility in Tallahassee. If the DEP/Ag Law merger with FWC occurs this year, there would be an efficiency gained if the rigging/up-fitting of these additional vehicles was done at the FWC facility because of the specialty configuration of these vehicles. The DEP/Ag Law vehicles, vessels and ATVs are similar to the FWC vehicles with their specialty configuration. (Appendix IV)

Vehicles processed through the FWC/DHSMV facilities are rigged/up-fitted consistently, proficiently and with officer safety in mind. The committee has determined this process is efficient and cost effective to the state. The FWC/DHSMV facilities have the physical capacity to assume the rigging/up-fitting for additional state law enforcement agencies but would require an increase in the number of full-time positions to ensure the vehicles are processed in a timely manner.

The vehicles used for state law enforcement patrol are not always police ready and in some cases may be civilian vehicles that are up-fitted for law enforcement use. We attempt to purchase vehicles that are prewired for law enforcement use. The manufacturers do not up-fit the vehicles for police use at the factory. We have found the installs that are completed at the FWC and DHSMV facilities are more reliable and cost effective than those done at local dealerships or private vendors.

In the past, agencies have tested the concept of leasing vehicles and it has proven unsuccessful. Because of the extensive modifications needed to up-fit the vehicle with consoles, blue lights, radios, and antennas, the leasing companies are hesitant to allow those types of changes to their vehicles.

## RECOMMENDATIONS

- The committee recommends that a permanent funding source be identified to purchase all state law enforcement vehicles each year. The funding should be maintained in a specific trust fund managed by DHSMV or DMS and the funding distributed to each agency based on DMS replacement criteria. The estimated recurring amount to purchase replacements for a reliable law enforcement fleet is approximately \$33 million per year. This amount covers replacing 20% of the 5,196 vehicle fleet (including the cost of rigging/up-fitting supplies) and \$4 million per year for vessel and boat motor replacements. Any recurring appropriation in an individual law enforcement agency budget specifically for the acquisition/replacement of patrol vehicles/vessels should be removed from that agency and sufficient funding should be appropriated solely to the agency responsible for managing the centralized trust fund. This trust fund could primarily be funded by redirecting a registration fee, like the General Revenue received for Decal on Demand.
- The committee recommends that all vehicle and vessel sale proceeds be deposited in the trust fund listed above to augment the dedicated revenue source for purchasing new vehicles and vessels.
- The committee recommends that a group of state law enforcement fleet managers be formed that will meet at least bi-annually to discuss what vehicles are suitable for law enforcement use, work with DMS to develop the annual law enforcement vehicle contract and continue the efficiencies gained by this task force process. This group will ensure the quality, efficiency and integrity of the state's fleet program. This group will act as a cohesive advisory body and provide mutual oversight on a variety of areas to include but not be limited to budget, parts, maintenance, training, and facilities. The oversight includes maintaining quality control, providing interagency advice, and technical assistance for the purpose of efficient operations, while ensuring that individual agency objectives are met.
- This committee recommends that DMS in conjunction with the Fleet Managers Group clarify the definition of pursuit vehicles in the vehicle replacement criteria to include all law enforcement vehicles used for pursuit or patrol activities and to establish the appropriate replacement criteria based on the type and use of the vehicle. Any necessary rule changes should be made by DMS and new guidelines distributed to all agencies.
- This committee recommends that each state law enforcement agency establish and maintain a spare vehicle ratio of 15% of their operational fleet to ensure that law enforcement officers can respond to the needs of the citizen in a safe and efficient manner at all times.
- The committee recommends that FHP continue the Pilot Project into Outsourced Fleet maintenance and report back to the ongoing Law Enforcement Fleet Managers Group with its findings. (Pilot will be completed by 12/31/2011)
- The committee recommends that FHP continue the Pilot Project into refurbishing vehicles and returning them to service in other uses and report back to the ongoing Law Enforcement Fleet Managers Group with its findings.
- The committee recommends a statutory change stating that all Law Enforcement vehicles (marked and unmarked) be exempted from SunPass charges.

## APPENDIX I

### Mercury Associates and OPPAGA reports

- See attached separate documents for each report.

## APPENDIX II

Law Enforcement Vehicle Replacement Eligibility  
Summary

Vehicle Type	Vehicle Count	Number of Vehicles Eligible for Replacement as of October 2011	Estimated Number of Vehicles Eligible for Replacement in September 2012 <sup>1</sup>	Percent Eligible for Replacement as of October 2011	Estimated Percent Eligible for Replacement in September 2012
Cars	3,527	1,659	1,905	47%	54%
Trucks	904	172	128	19%	14%
SUVs and Vans	716	109	150	15%	21%
Motorcycles	49	21	13	43%	27%
<b>Sub-Total</b>	<b>5,196</b>	<b>1,961</b>	<b>2,196</b>	<b>38%</b>	<b>42%</b>
Boats & Airboats	428				
Other	253				
<b>Total All LE Vehicles</b>	<b>5,624</b>				

<sup>1</sup> Estimated Number of Vehicles Eligible for Replacement in September 2012 is a calculation of the total number of vehicles that are projected to meet eligibility for replacement by September 2012, less the estimated number of new replacement vehicles that will be placed in service between October 2011 and September 2012 (using the same number of vehicles that were placed into service during FY2010-2011).

Law Enforcement vehicles used for this report are those vehicles that have been marked in the Equipment Management Information System (EMIS) with assigned use code C2 or E2:

**C2 Assigned Use Code** = Law enforcement (assigned to employee who is subject to emergency calls from his residence for law enforcement).

**E2 Assigned Use Code** = Law enforcement support (vehicle is used to support law enforcement activities, but is not available for general use, and is not assigned to an employee)

Replacement eligibility for cars, trucks (up to and including 1 ton pickups trucks), SUVs/Vans, and motorcycle was determined for this report by using the Replacement Eligibility Factor (REF) calculation. The REF score is calculated by the Equipment Management Information System (EMIS) using the following factors: age, life odometer, condition, days down, lifetime maintenance costs, and maintenance costs for last 12 months, life cost per mile, and vehicle operational status. Vehicles with a minimum REF score of 300 points are deemed eligible for replacement. Replacement eligibility for boats, airboats, and "Other" type vehicles was not calculated for this report.

Data source for this report: EMIS data extracted October 17-24, 2011.

Law Enforcement Fleet Consolidation Committee

**Law Enforcement Vehicle Replacement Eligibility  
Cars**

Agency	Vehicle Count	Number of Vehicles Eligible for Replacement as of October 2011	Estimated Number of Vehicles Eligible for Replacement in September 2012 <sup>1</sup>	Percent Eligible for Replacement as of October 2011	Estimated Percent Eligible for Replacement in September 2012
Highway Safety Motor Vehicles	2,201	1,304	1,497	59%	68%
Fish & Wildlife	51	21	22	19%	13%
Department of Law Enforcement	272	20	29	7%	11%
State Attorney Districts	349	89	96	26%	28%
Financial Services	183	61	68	33%	37%
Environmental Protection	34	1	6	3%	18%
Business and Professional Reg.	147	59	68	40%	46%
Department of Corrections	96	73	76	76%	79%
Office of the Attorney General	75	0	0	0%	0%
Agriculture & Consumer Services	94	13	23	14%	24%
Department of Transportation	16	14	15	88%	94%
Public Defender Districts	8	4	5	50%	63%
School for the Deaf & Blind	1	0	0	0%	0%
<b>Total</b>	<b>3,527</b>	<b>1,659</b>	<b>1,905</b>	<b>47%</b>	<b>54%</b>

<sup>1</sup> Estimated Number of Vehicles Eligible for Replacement in September 2012 is a calculation of the total number of vehicles that are projected to meet eligibility for replacement by September 2012, less the estimated number of new replacement vehicles that will be placed in service between October 2011 and September 2012 (using the same number of vehicles that were placed into service during FY2010-2011).

Law Enforcement vehicles used for this report are those vehicles that have been marked in the Equipment Management Information System (EMIS) with assigned use code C2 or E2:

**C2 Assigned Use Code** = Law enforcement (assigned to employee who is subject to emergency calls from his residence for law enforcement).

**E2 Assigned Use Code** = Law enforcement support (vehicle is used to support law enforcement activities, but is not available for general use, and is not assigned to an employee)

Replacement eligibility for cars, trucks (up to and including 1 ton pickups trucks), SUVs/Vans, and motorcycle was determined for this report by using the Replacement Eligibility Factor (REF) calculation. The REF score is calculated by the Equipment Management Information System (EMIS) using the following factors: age, life odometer, condition, days down, lifetime maintenance costs, and maintenance costs for last 12 months, life cost per mile, and vehicle operational status. Vehicles with a minimum REF score of 300 points are deemed eligible for replacement.

Data source for this report: EMIS data extracted October 17-24, 2011.

Law Enforcement Fleet Consolidation Committee

**Law Enforcement Vehicle Replacement Eligibility  
Trucks**

Agency	Vehicle Count	Number of Vehicles Eligible for Replacement as of October 2011	Estimated Number of Vehicles Eligible for Replacement in September 2012 <sup>1</sup>	Percent Eligible for Replacement as of October 2011	Estimated Percent Eligible for Replacement in September 2012
Highway Safety Motor Vehicles	56	14	-6	25%	-11%
Fish & Wildlife	604	112	77	19%	13%
Department of Law Enforcement	59	6	12	10%	20%
State Attorney Districts	21	5	8	24%	38%
Financial Services	66	12	19	18%	29%
Environmental Protection	59	6	-3	10%	-5%
Business and Professional Reg.	19	11	10	58%	53%
Department of Corrections	1	0	0	0%	0%
Office of the Attorney General	0	N/A	N/A	N/A	N/A
Agriculture & Consumer Services	19	6	11	32%	58%
Department of Transportation	0	N/A	N/A	N/A	N/A
Public Defender Districts	0	N/A	N/A	N/A	N/A
School for the Deaf & Blind	0	N/A	N/A	N/A	N/A
<b>Total</b>	<b>904</b>	<b>172</b>	<b>128</b>	<b>19%</b>	<b>14%</b>

<sup>1</sup> Estimated Number of Vehicles Eligible for Replacement in September 2012 is a calculation of the total number of vehicles that are projected to meet eligibility for replacement by September 2012, less the estimated number of new replacement vehicles that will be placed in service between October 2011 and September 2012 (using the same number of vehicles that were placed into service during FY2010-2011).

Law Enforcement vehicles used for this report are those vehicles that have been marked in the Equipment Management Information System (EMIS) with assigned use code C2 or E2:

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Replacement eligibility for cars, trucks (up to and including 1 ton pickups trucks), SUVs/Vans, and motorcycle was determined for this report by using the Replacement Eligibility Factor (REF) calculation. The REF score is calculated by the Equipment Management Information System (EMIS) using the following factors: age, life odometer, condition, days down, lifetime maintenance costs, and maintenance costs for last 12 months, life cost per mile, and vehicle operational status. Vehicles with a minimum REF score of 300 points are deemed eligible for replacement.

Data source for this report: EMIS data extracted October 17-24, 2011.

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**Law Enforcement Vehicle Replacement Eligibility  
SUVs & Vans**

Agency	Vehicle Count	Number of Vehicles Eligible for Replacement as of October 2011	Estimated Number of Vehicles Eligible for Replacement in September 2012 <sup>1</sup>	Percent Eligible for Replacement as of October 2011	Estimated Percent Eligible for Replacement in September 2012
Highway Safety Motor Vehicles	132	24	34	18%	26%
Fish & Wildlife	45	9	7	20%	16%
Department of Law Enforcement	254	20	42	8%	17%
State Attorney Districts	37	9	13	24%	35%
Financial Services	51	11	7	22%	14%
Environmental Protection	71	5	13	7%	18%
Business and Professional Reg.	17	13	15	76%	88%
Department of Corrections	29	10	5	34%	17%
Office of the Attorney General	15	0	0	0%	0%
Agriculture & Consumer Services	57	7	15	12%	26%
Department of Transportation	0	N/A	N/A	N/A	N/A
Public Defender Districts	7	1	-1	14%	-14%
School for the Deaf & Blind	1	0	0	0%	0%
<b>Total</b>	<b>716</b>	<b>109</b>	<b>150</b>	<b>15%</b>	<b>21%</b>

<sup>1</sup> Estimated Number of Vehicles Eligible for Replacement in September 2012 is a calculation of the total number of vehicles that are projected to meet eligibility for replacement by September 2012, less the estimated number of new replacement vehicles that will be placed in service between October 2011 and September 2012 (using the same number of vehicles that were placed into service during FY2010-2011).

Law Enforcement vehicles used for this report are those vehicles that have been marked in the Equipment Management Information System (EMIS) with assigned use code C2 or E2:

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**E2 Assigned Use Code** = Law enforcement support (vehicle is used to support law enforcement activities, but is not available for general use, and is not assigned to an employee)

Replacement eligibility for cars, trucks (up to and including 1 ton pickups trucks), SUVs/Vans, and motorcycle was determined for this report by using the Replacement Eligibility Factor (REF) calculation. The REF score is calculated by the Equipment Management Information System (EMIS) using the following factors: age, life odometer, condition, days down, lifetime maintenance costs, and maintenance costs for last 12 months, life cost per mile, and vehicle operational status. Vehicles with a minimum REF score of 300 points are deemed eligible for replacement.

Data source for this report: EMIS data extracted October 17-24, 2011.

Law Enforcement Fleet Consolidation Committee

**Law Enforcement Vehicle Replacement Eligibility  
Motorcycles**

Agency	Vehicle Count	Number of Vehicles Eligible for Replacement as of October 2011	Estimated Number of Vehicles Eligible for Replacement in September 2012 <sup>1</sup>	Percent Eligible for Replacement as of October 2011	Estimated Percent Eligible for Replacement in September 2012
Highway Safety Motor Vehicles	49	21	13	43%	27%
Fish & Wildlife	0	N/A	N/A	N/A	N/A
Department of Law Enforcement	0	N/A	N/A	N/A	N/A
State Attorney Districts	0	N/A	N/A	N/A	N/A
Financial Services	0	N/A	N/A	N/A	N/A
Environmental Protection	0	N/A	N/A	N/A	N/A
Business and Professional Reg.	0	N/A	N/A	N/A	N/A
Department of Corrections	0	N/A	N/A	N/A	N/A
Office of the Attorney General	0	N/A	N/A	N/A	N/A
Agriculture & Consumer Services	0	N/A	N/A	N/A	N/A
Department of Transportation	0	N/A	N/A	N/A	N/A
Public Defender Districts	0	N/A	N/A	N/A	N/A
School for the Deaf & Blind	0	N/A	N/A	N/A	N/A
<b>Total</b>	<b>49</b>	<b>21</b>	<b>13</b>	<b>43%</b>	<b>27%</b>

<sup>1</sup> Estimated Number of Vehicles Eligible for Replacement in September 2012 is a calculation of the total number of vehicles that are projected to meet eligibility for replacement by September 2012, less the estimated number of new replacement vehicles that will be placed in service between October 2011 and September 2012 (using the same number of vehicles that were placed into service during FY2010-2011).

Law Enforcement vehicles used for this report are those vehicles that have been marked in the Equipment Management Information System (EMIS) with assigned use code C2 or E2:

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**E2 Assigned Use Code** = Law enforcement support (vehicle is used to support law enforcement activities, but is not available for general use, and is not assigned to an employee)

Replacement eligibility for cars, trucks (up to and including 1 ton pickups trucks), SUVs/Vans, and motorcycle was determined for this report by using the Replacement Eligibility Factor (REF) calculation. The REF score is calculated by the Equipment Management Information System (EMIS) using the following factors: age, life odometer, condition, days down, lifetime maintenance costs, and maintenance costs for last 12 months, life cost per mile, and vehicle operational status. Vehicles with a minimum REF score of 300 points are deemed eligible for replacement.

Data source for this report: EMIS data extracted October 17-24, 2011.

Law Enforcement Fleet Consolidation Committee

**Law Enforcement Vehicle Replacement Eligibility  
Boats/Airboats and Other**

<b>Agency</b>	<b>Boats / Airboats</b>	<b>Other</b>	<b>Other Type</b>
Highway Safety Motor Vehicles	0	171	Aircraft, Trailer, Bus, Semi/Heavy Truck, Motorhome
Fish & Wildlife	402	8	Trailer, Bus, Semi-Truck, Swamp Buggy, Forklift
Department of Law Enforcement	0	15	Aircraft, Bus, Semi/Heavy Truck, Motorhome
State Attorney Districts	0	1	Bus
Financial Services	0	48	Trailer, Semi/Heavy Truck, Motorhome
Environmental Protection	25	1	Bus
Business and Professional Reg.	0	0	
Department of Corrections	0	0	
Office of the Attorney General	0	0	
Agriculture & Consumer Services	1	9	X-Ray Truck, Outboard Motors, ATV
Department of Transportation	0	0	
Public Defender Districts	0	0	
School for the Deaf & Blind	0	0	
<b>Total</b>	<b>428</b>	<b>253</b>	

1 Estimated Number of Vehicles Eligible for Replacement in September 2012 is a calculation of the total number of vehicles that are projected to meet eligibility for replacement by September 2012, less the estimated number of new replacement vehicles that will be placed in service between October 2011 and September 2012 (using the same number of vehicles that were placed into service during FY2010-2011).

Law Enforcement vehicles used for this report are those vehicles that have been marked in the Equipment Management Information System (EMIS) with assigned use code C2 or E2:

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**E2 Assigned Use Code** = Law enforcement support (vehicle is used to support law enforcement activities, but is not available for general use, and is not assigned to an employee)

Replacement eligibility for boats, airboats, and "Other" type vehicles was not calculated for this report. Replacement eligibility for cars, trucks (up to and including 1 ton pickups trucks), SUVs/Vans, and motorcycle was determined for this report by using the Replacement Eligibility Factor (REF) calculation. The REF score is calculated by the Equipment Management Information System (EMIS) using the following factors: age, life odometer, condition, days down, lifetime maintenance costs, and maintenance costs for last 12 months, life cost per mile, and vehicle operational status. Vehicles with a minimum REF score of 300 points are deemed eligible for replacement.

Data source for this report: EMIS data extracted October 17-24, 2011.

## APPENDIX III

### General efficiencies at FHP operated rigging/up-fitting facility in Middleburg, FL:

- Initial receiving point for vehicles and equipment
- Provides for uniformity of equipment installation
- Provides for quality control
- Allows us to fabricate needed brackets/materials that are not readily available on open market for new vehicles
- Allows us to fabricate items without need for purchasing from private vendor, who would mark up price
- Allows us to take advantage of volume pricing by purchasing in bulk quantities
- Provides simple/distinct organizational structure with clear lines of responsibility for rigging/up-fitting
- Allows us to assist other agencies with rigging/up-fitting needs without charging them for it, thereby saving the state money, whenever our resources permit
- Uses inmate labor to strip old patrol cars and prep for auction at great savings to the state
- Serves as a service center to refurbish used parts to reuse in new vehicles
- Houses the Troop G impound lot for seized vehicles

## APPENDIX IV

Benefits, efficiencies and cost saving measures as a result of the FWC North Florida Shop:

- Quality control (have tried “out-sourcing” with negative results).
- Consistency / uniformity of statewide fleet.
- Fabrication of brackets and other accessories as needed.
- Central receiving location for all statewide L.E. fleet, vehicles, vessels and boat motors.
- Central receiving location for surplus fleet to be stripped (recycling) for auction.
- Centralized parts distribution center for mechanics, radio technicians and computer mounting accessories.
- Bulk purchases and volume discounts from vendors.
- Custom rigging/up-fitting to fit special needs of equipment assignment.
- Reconditioning / refurbishing / re-painting of vessel hulls to extend use.
- Ensure all useable parts are recycled from turn-in vehicles and vessels and used while rigging/up-fitting new equipment
- Organized special rigging/up-fitting details to expedite delivery to the field.
- Custom fabrication of non-fleet related equipment for division use.

**REPORT ON A  
FLEET OPERATIONS REVIEW  
FOR THE**

**FLORIDA  
DEPARTMENT OF  
TRANSPORTATION**



**APRIL 2007  
PRESENTED BY**

**MERCURY  
ASSOCIATES, INC**



April 13, 2007

Dear Sirs:

Mercury Associates, Inc. is pleased to submit this report on our study of the Florida Department of Transportation's (FDOT) fleet management operations. The objective of our study was to identify ways that FDOT can save money, improve efficiency in the delivery of services to the public, and enhance the productivity of State employees.

The report that follows is the product of hundreds of hours of work by a team of eight consultants. While we have found significant cost saving opportunities for FDOT, we also have identified areas that have suffered from consistent under-funding that will require future investments by FDOT if fleet operations are to be optimized. We also are recommending fundamental changes in the way that FDOT organizes and finances its fleet management program, as well as changes in a number of fleet related policies.

Mercury's study represents a snapshot of a period in time. Since Mercury completed the study and submitted its draft reports, improvements in fleet management are already occurring. Such positive and rapid response, where it has proven possible, is to be commended.

We would like to thank FDOT staff and employees at all of the agencies that participated in this study. The cooperation and courtesy extended to our staff by all State employees involved in this study was much appreciated.

Very Truly Yours:

A handwritten signature in black ink that reads "Randall G. Owen". The signature is written in a cursive, slightly slanted style.

Randall G. Owen  
Senior Vice-President

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### EXECUTIVE SUMMARY

This report presents the results of Mercury Associates' strategic review of fleet management activities in the Florida Department of Transportation. FDOT owns a comparatively large fleet of over 7,000 assets (when all units with motors and/or wheels are included in the count). We estimate that the costs for FDOT to own and operate its large and diverse fleet exceed \$55 million each year.<sup>1</sup>

Mercury's study represents a snapshot of a period in time. Since Mercury completed the study and submitted its draft reports, improvements in fleet management are already occurring. Such positive and rapid response, where it has proven possible, is to be commended.

All large service organizations operate sizeable fleets of vehicles, of course, and it is no exaggeration to say that the business of State government in Florida could not be accomplished without a fleet of vehicles and other motorized equipment. Our focus in conducting this study for FDOT, therefore, was on identifying ways to improve management of fleet assets in order to provide necessary services in the most efficient manner possible, leverage economies of scale, reduce redundancies, and save money.

In the following sections of this Executive Summary we highlight the most important findings and recommendations from our study, with a focus on strategic issues that will have the greatest impact on the cost and quality of fleet services in FDOT. A complete list of study recommendations is also provided at the end of this section of our report.

#### STRATEGIC IMPROVEMENT OPPORTUNITIES

- ✓ From a strategic perspective, the most pressing problem facing FDOT in the area of fleet operations is the lack of an adequate fleet replacement planning process that secures sufficient funding to replace fleet assets. The replacement funding limit of \$8 million per year, a recurring cap which requires a legislature budget request to increase, has resulted in large segments of FDOT's fleet exceeding standard industry replacement criteria by a large margin. In truth, even before this limit was imposed, FDOT was not devoting adequate resources to replacing fleet assets. During the past seven years, the average funding to replace FDOT vehicles has been \$9.5 million. With a replacement value of \$277 million, FDOT needs to appropriate an average of around \$30 million each year to replace its vehicles. The gap between funding needed and funding provided is also steadily growing. Whereas 35% of funding needs were met in 2000, only about 13% of the funding required was actually provided in 2006.

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<sup>1</sup> Inclusive of asset depreciation, replacement of fleet assets, maintenance and repair, fuel, personnel costs, and overhead costs. Total of \$5,000 per Vehicle Equivalent Unit, as explained in the full report.

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While FDOT and State officials should be concerned that the funding gap is growing, even more alarming is the large backlog in replacement funding that has accumulated over the years. Our analysis shows that 62% of the vehicles in FDOT's fleet (4,500 units) now exceed the Department's established replacement criteria. Replacing these units will cost \$145 million. The facts are inescapable: \$8 million per year in funding is entirely inadequate to fund replacement of a \$277 million fleet.

This lack of adequate funding to replace the fleet has led to high operating costs, excessive vehicle downtime, lost employee productivity, and "fleet creep" as many organizations have accumulated spare vehicles to compensate for unreliable front-line units. Consequently, while decision makers in the past may have believed that they were saving the State money by limiting funding for replacing FDOT's fleet assets, in reality this action simply deferred a significant funding obligation to future years and has ultimately cost, rather than saved, the State money.

FDOT needs to develop a long-range fleet replacement plan that has the following elements:

- Establishes defensible fleet replacement criteria that are based on an analysis of life-cycle costs;
- Forecasts future year funding requirements so that a multiple year strategy can be developed to reduce the funding backlog;
- Explores alternative financing approaches.

We have provided the outline of such a plan in the body of this report. Given the size of the replacement funding backlog, we believe that FDOT has little choice but to borrow the funds required to replace its fleet. This will make reducing the funding backlog much more affordable, will spread the cost of owning the fleet over the useful life of the assets, and will impose fiscal discipline by establishing an adequate recurring funding plan.

- ✓ Another significant problem in FDOT's fleet operations is a lack of centralized, coordinated, and consistent management. While a centralized fleet management program exists (i.e., under auspices of the Program Resources Division of the State Maintenance Office (SMO)), coordination of fleet activities is mostly passive and inconsistently applied. In reality FDOT has nine separate fleet management programs (7 Districts, headquarters, and the Turnpike Enterprise) which each organization has largely developed to meet its own needs under the loose policy guidance provided by SMO. There is also a high degree of variability in fleet practices even within each District.

The organization, roles, and responsibilities related to fleet management in FDOT today are fractionalized, blurred, and overly diffuse. This situation has promoted

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short-term thinking and parochial interests over a strategic perspective of what is best for FDOT as a whole. Improving FDOT's fleet management practices will require considerable focus and effort. This undertaking will not be successful, in our view, without creation of a more centralized approach that establishes clear lines of authority and responsibility over management of FDOT's fleet assets.

- ✓ Our analysis indicates that FDOT's maintenance and repair costs are double industry benchmark levels. This is likely related for the most part to the age of the fleet and to inadequate oversight of shop operations. Lowering maintenance and repair costs to industry standard levels would produce annual savings of around \$11 million.
- ✓ FDOT would be well served by taking steps to own a newer, smaller fleet. Adoption of an optimized fleet replacement planning and funding strategy should enable FDOT to reduce the size of its fleet by around 350 units in the short-term. This reduction would conservatively produce savings and cost avoidance of approximately \$4.2 million over the next five years. Additional reductions in future years will be available as the need for most spare vehicles is eliminated and FDOT implements our recommendations for development of a cost charge-back system and for a strengthened on-going utilization management program.
- ✓ Financial management practices is another area that requires improvement if FDOT is to optimize its fleet program. FDOT uses the State-wide Equipment Management Information System (EMIS) to track its fleet costs and other statistics. However, the manner in which costs are tracked in this system has resulted in FDOT significantly understating its fleet operations costs. This had led the organization to make significant management decisions (regarding the costs and benefits of outsourcing and keeping older vehicles in service, for instance) based on inaccurate cost and other performance data. It has also led FDOT to under-recover revenue from reimbursable jobs (from the federal government and the Turnpike Enterprise for instance).

FDOT needs to develop a standardized costing model for use by all shops coupled with development of a charge-back system to accurately distribute fleet related costs to fleet users, programs, and activities. Structuring fleet financial practices to operate on a cost reimbursement basis will provide a number of positive benefits for FDOT including:

- Improved recognition of cost by FDOT fleet employees as services are sold rather than given away (or sold for less than their fully burdened cost);
- Improved recognition of costs by fleet users as price signals are consistently provided through the cost charge-back process;
- Better activity based costing of FDOT functions as the fully burdened cost of fleet services are added to organizational costs;

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- Better shop management decisions as service offerings are based on an analysis of competitiveness with alternative service providers; and
  - Better fleet asset management decisions based on market economic principals and life-cycle cost analysis.
- ✓ Maintenance practices vary to a significant degree from District to District and from shop to shop. Some shops outsource all preventive maintenance services and perform all repair work in-house. Others do completely the opposite. Still others outsource all services. Most shops fall somewhere between these extremes to varying degrees. Internal shop operating procedures are all over the map, to such an extent that as we visited District shops it was often not apparent that shops were part of the same parent organization.

These differences in approach are not the product of a rational analysis of local needs. Rather, differences have grown over time due to a lack of central direction, arbitrary decisions made by managers who have long ago retired, inaccurate cost data, and poor management reporting. SMO should take steps to make fleet maintenance practices more consistent by developing processes to identify best practices, taking an active role in consistently applying these practices across all Districts and organizations, and developing key performance indicators and management reports. SMO should also expand and update the Mobile Equipment Manual (MEM) to provide improved policy guidance to FDOT staff.

- ✓ The State's EMIS system is outdated, difficult to use, and as currently implemented does not provide sufficient value to FDOT to justify the effort and cost required to operate the system. Much of the information contained in the system is inaccurate (which may contribute to incorrectly imputed values, such as charge-back rates) and a number of needed reports are not available (generally because requests for such reports have not been made). We recognize that report writing features are available to any user who has access to the EMIS Reporting component, but users do not take advantage of the functionality, which may raise questions about how friendly it is for users in the field or the need for training. In any event, the adage that "if you can't measure it, you can't manage it" applies to management of FDOT's fleet operations. Consequently, acquisition of a centralized fleet management information system must be, in our opinion, a near term strategic initiative for FDOT.
- ✓ We have also provided a number of tactical recommendations to improve existing fleet related business processes in a number of areas, including maintenance management, policy and procedure development, and vehicle acquisition and disposal.
- ✓ We do not mean to leave the impression that FDOT's fleet management program is entirely dysfunctional. A number of aspects of FDOT's fleet management program are working well and the employees whom we met during this review were all

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dedicated fleet professionals focused on doing their best for the organization. Their efforts are, however, hampered by a number of factors, including an ineffective organizational alignment, parochial attitudes, inaccurate cost information, outdated practices, inconsistent processes, and poor management systems.

- ✓ FDOT should develop a formal plan for implementing the recommendations contained in this report. This plan should include the following elements:
  - Assignment of priorities, responsibilities, and timelines to each recommendation for improvement;
  - Development of a model action and task plan for implementing a particular business process improvement strategy that could then be replicated by work teams of FDOT, DMS, and/or other State employees assigned to tackle specific improvement initiatives;
  - Development of a process for measuring the impact of improvement initiatives on fleet costs and service levels;
  - Scheduling of quarterly implementation progress review meetings and reports to FDOT and DMS management on the status of cost reduction and business process reengineering efforts;

### LISTING OF RECOMMENDATIONS

1. *Strengthen the role of SMO in overseeing the agency's fleet management program and provide appropriate resources to SMO to fulfill its expanded mission*
2. *Centralize supervision of fleet operations in each District under the District Fleet Manager.*
3. *Develop a cost charge-back system to meet the following goals:*
  - *Recover all direct and indirect costs associated with providing fleet services;*
  - *Comply with federal costing standards as detailed in OMB (Office of Management and Budget) Circular A-87;*
  - *Avoid cross-subsidization among service activities, vehicle types, and rate payers;*
  - *Treat all rate payers equitably;*
  - *Promote cost recognition by sending clear price signals to vehicle users thus providing incentive for the proper operation and care of valuable State assets;*
  - *Develop rates that are intuitive and easily comparable to private sector alternatives; and*

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- *Provide transparency by developing rates and rate model that are clear and well documented.*
4. *Update rates each and every year.*
  5. *Update equipment rental rates (for allocating fleet costs to jobs and programs) yearly and develop an annual report that compares total fleet costs by District against costs distributed through the rental rates.*
  6. *Develop improved cost reporting practices that include monthly and annual department-wide fleet cost reports. These reports should compare Districts, outsourced shops versus FDOT shops, and track trends year to year.*
  7. *Develop a long-term fleet replacement planning program which provides a systematic, quantifiable, and, hence, defensible foundation for year-to-year replacement spending proposals. FDOT should prepare and update each year a multiple year (10 to 20 years) fleet replacement plan for all vehicles in order to precisely calculate future year funding requirements.*
  8. *Determine the feasibility of increasing fleet replacement funding levels through a change in capital financing approaches from cash to a debt financing approach that spreads the cost of vehicles over their useful life.*
  9. *Centralize fleet replacement planning, budgeting, and decision making within the SMO. While District staff should have appropriate input into the replacement planning process, SMO should set priorities to replace the vehicles each year that will provide FDOT with the greatest financial and operational benefits.*
  10. *Develop a FDOT-wide points system for determining which vehicles to earmark for replacement to enable the replacement of the worst vehicles across the organization, rather than district or yard specific.*
  11. *Standardize the points system for application statewide. Program the system into a software package (such as Microsoft Excel) and implement it as one of a standard suite of fleet management tools accessible statewide. Develop and implement training in how to use the points system (via Webinar for interactive training or an on-line training module for access as needed by users).*
  12. *Develop a procedure for handling unplanned replacements, which would include a process for substituting vehicles requiring immediate replacement (e.g., accidents) in place of those already earmarked via the replacement planning process.*
  13. *Establish a process for mid-year replacements. Perhaps create a reserve fund at HQ or establish a lease contract which could be bought out after the annual funding allocation is available. Assess use of the motor pool as a vehicle replacement resource. Gather several years of data on the total number and types of vehicles requiring unplanned replacement and determine whether some vehicles added to the motor pool annually could meet unexpected replacement needs.*

14. Evaluate the criteria for “totaling” a vehicle by performing a cost study to identify the optimum point at which a vehicle should be replaced rather than repaired. Develop a model into a software package (such as Microsoft Excel) and implement it as one of a standard suite of fleet management tools accessible statewide. Develop and implement training in how to use the cost analysis tool.
15. Convene a vehicle standardization working committee with representatives from each FDOT organization and include both operating and fleet people. Identify a few job classifications (those that are both numerous and common in every District) that could logically use a standardized type of truck and gather input from the working committee to allow the development of complete, detailed specifications for the chosen vehicle types. This should be a step by step, ongoing effort.
16. Provide additional training for all FDOT fleet management personnel in the area of vehicle selection and specification to enable them to communicate more effectively with vehicle users and FDOT fleet management, and to educate them regarding the value of vehicle standardization. Fleet shop supervisors are the “first line of defense” against uncontrolled vehicle customization.
17. Solicit top management support for standardization efforts by explaining the extent of the customization problem and its associated costs and the benefits of standardization. Such support will be needed to create the policies and procedures necessary to cause the individual Districts to accept standardized vehicles.
18. Establish a financial structure where auction revenues directly offset vehicle purchases in order to incentivize fleet users to be more cost-conscious in evaluating decisions to send a vehicle to auction versus scrapping or cannibalizing it for parts.
19. Conduct an analysis of the cost and benefits of establishing contracts with multiple auction companies throughout the State to decrease average days to sale and to minimize costs related to transportation of surplus vehicles to Tampa for sale.
20. Establish FDOT-wide standard procedures with performance metrics to ensure that disposal request paperwork is processed in a timely manner to minimize lag time between out-of-service dates and auction.
21. Establish FDOT-wide guidelines for prepping vehicles for auction to maximize sale prices.
22. The SMO Fleet Manager should take steps to enforce the utilization management policies and procedures already in place in the MEM.
23. Revise the MEM to improve utilization management policies and procedures to better structure the “idle days” report, and to standardize minimum utilization levels for each District. The standards should vary according to the urban/rural nature of the District, or the type of operation such as Turnpike or MCC.

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*Standards should also vary by vehicle/equipment type, although many types can be aggregated into larger “groups” such as “light duty”, or “heavy construction equipment”.*

- 24. Initiate a program of rotating vehicles when practical. Rotating helps even out vehicle use in terms of miles or hours. If a particular vehicle is newer and mileage is higher than other vehicles, it could be rotated with vehicles with lower mileage or hours and hasten its depreciation and disposal.*
- 25. Establish or expand motor pools where practical.*
- 26. Establish equipment rental contracts so Districts can use renting instead of purchasing for equipment that is used infrequently and has low utilization. Private contractors would rent low use vehicles and equipment as required, but FDOT tends to own everything despite low usage.*
- 27. Perform a complete, detailed utilization study that is supported by the top levels of FDOT management and use the results to rightsize the fleet.*
- 28. Develop policy documents targeted in writing style and content to respective key audiences.*
- 29. Provide policy documents on line with “key word” search capabilities and links to forms and sources of information relevant to the audience.*
- 30. Clarify and strengthen appropriate policy areas that are overly vague in setting protocol or procedures.*
- 31. Develop or flesh out manual areas on a) driver qualifications and safety, b) accident management, c) environmental compliance, d) accounting codes that shops should use, e) shop-related work to be outsourced, f) duties of District fleet managers, and g) motor pool management.*
- 32. Strengthen the quality assurance program through more specific performance measures and provision of explanations of how to develop such measures.*
- 33. Develop compliance scorecards for the quality assurance program and incorporate into the policy manual information on requirements and procedures for reporting on and meeting the measures. Include in the policy a discussion of the standards for levels of performance (e.g., pass/fail or red/amber/green) and required actions to mitigate low performance.*
- 34. Convene a fleet maintenance task force to review the Preventive Maintenance Program with the goal of setting improved schedules, establishing uniform task lists for ABC levels of PM work, and establishing guidelines for which types of maintenance work should be performed in FDOT shops versus outside commercial repair shops. The task force should also establish expectations and quality assurance standards to ensure consistency in shop management relating to forms, parts and vendor service, purchasing, operating hours, training, shop physical plant, tools and equipment, etc. Each District should contribute one experienced maintenance representative to the task force.*

35. *Establish a business-case analysis model for assessing whether to outsource all or any part of the fleet maintenance program. Develop a process for obtaining approval for this fundamental change in fleet maintenance. Develop performance measures pertinent to an outsourced fleet maintenance program and obtain reports of those measures regularly (a task which should be undertaken immediately for those shops already outsourced in District 4).*
36. *Adopt a uniform process (through EMIS or otherwise) to track repair cost avoidance due to warranty work performed at no cost. Even though warranty repairs carry no direct cost, dealer shops that perform the work will provide, upon request, a cost summary “no-charge” invoice for the work that shows how much the repair would have cost had been a charge. Require all shops to collect this information to enable FDOT HQ fleet management to evaluate and compare shop performance in this area during QAR reviews. Shops showing low warranty-cost avoidance merit further investigation.*
37. *FDOT HQ fleet management should work with DOT Fiscal to address the rules covering the purchase of vehicle repair parts and services to minimize the administrative process(es) that causes an inordinate amount of vehicle downtime.*
38. *Require use of the “Work Code” in EMIS to track instances of field breakdowns and the time and cost associated with them (we understand there may already be such a code; specifically, the repair code "C" [Road Call] indicates a field breakdown. Two other codes can further distinguish this issue. The Discovery Code "E" [Breakdown] and one of the Cause codes which gives a simple reason for the breakdown). The aforementioned fleet maintenance task force should carefully define how all work codes are to be used and provide examples. This information should be published in the updated version of the Mobile Equipment Manual (MEM).*
39. *The fleet maintenance task force should develop and communicate a standardized process for when and how to process work orders. Include the standards in the MEM.*
40. *Investigate the reason(s) for low productive hours per mechanic.*
41. *Establish a model for shop staffing and undertake an annual review of staffing levels based upon the model. Use the model and the review as one source of information in managing shop and maintenance program performance.*
42. *Undertake a more thorough examination of actual fleet maintenance costs based on financial reports. Simple, comprehensive fleet cost reports are needed. Performance metrics such as cost per VEU (Vehicle Equivalent Unit, which is fully explained in the full report, which follows) should be re-calculated each year and tracked over several years (at least a five year look-back) to determine whether costs are increasing, declining, or remaining steady. This will also provide a valuable tool to assess the effects of any fleet management changes implemented by FDOT.*

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43. *Develop a system of key performance metrics and require regular calculation and tracking of the measures. Assess conformance with the performance monitoring system as part of the QAR. An annual "State of the Fleet" report should be consistently prepared.*
44. *Establish and align mechanic and fleet personnel training with the performance standards against which they will be measured.*
45. *Establish reasonable, standardized levels of parts and service purchasing authority to all shops. These should be made part of the policy in the MEM.*
46. *Study parts management and identify ways to improve parts management to reduce cost and improve productivity.*
47. *Initiate a revision of the QAR Program to consolidate the language into a uniform document and ensure that any changes in policies and/or procedures have been included.*
48. *Increase the factors audited in the quality assurance reviews to include such fleet management performance measures as, at a minimum, those shown in Table 12 of the report.*
49. *Continue the current schedule of vehicle and shop inspections with improvements recommended in this report implemented to ensure no deterioration of current standards and performance.*
50. *Impose a fuel surcharge to recover costs to build, maintain and service fueling site facilities and equipment. Via the surcharge, other agencies' purchases can help to offset FDOT administrative and capital costs for fueling.*
51. *Revise bulk fuel reports to provide sufficient detail to enable shop personnel and District Fleet Managers to easily identify other agencies' fuel use to ensure FDOT is reimbursed accurately.*
52. *Explore the feasibility of reducing fuel costs by committing to higher volume fuel purchases and leveraging the combined volume of two or three Districts.*
53. *Continue to monitor, via the QAR process, the way FDOT shops enter work order information to ensure that the data is as accurate and complete as possible.*
54. *Endorse efforts by DMS to provide an improved fleet management information system.*
55. *Work with the FDOT Comptroller's office to define and develop meaningful and comprehensive fleet management cost reports.*

# INTRODUCTION

## BACKGROUND AND SCOPE

In September 2006, the State of Florida contracted Mercury Associates to perform a comprehensive review of FDOT's fleet operations and Florida DMS, Division of Fleet Management's policies and procedures. This report details findings and recommendations *specific to FDOT fleet operations*. Our review of DMS policies and procedures is addressed in a separate report, a draft of which was submitted to the State on March 13, 2007.

FDOT is decentralized in accordance with legislative mandates and is comprised of seven Districts, a Turnpike Enterprise, and various headquarters organizations. FDOT's equipment inventory of approximately 7,300 vehicles accounts for 29% of the State's total inventory of approximately 25,000 pieces of fleet equipment. Other State agencies are similarly decentralized, have access to the same statewide contracts, operate under the same general policies, and receive comparable levels of fleet support from DMS. Therefore, our analysis of FDOT's fleet operations provides a microcosmic perspective on management practices, operational challenges and savings opportunities that are likely pervasive statewide.

To assist the State in setting the strategic direction for its fleet program and maximize fleet cost effectiveness, our review of FDOT examined, from a relatively high level, the diversity and commonalities among FDOT's Districts/enterprise organizations' informal policies and practices and approaches for implementing State-mandated procedures. Findings and recommendations derived through this project pertain to fleet management, in general, as well as specific fleet functions, such as acquisition, disposal, sourcing of parts and services, fueling, and optimizing vehicle utilization.

## APPROACH AND METHODOLOGY

Our approach to working with the FDOT was, as it is with all of our clients, highly interactive. We recognize that in a decentralized organization such as FDOT, there are several different stakeholders who have an interest in the outcome of this project. To that end, our consulting team met with FDOT fleet management and maintenance representatives from each District and the Turnpike Enterprise organization.

Our work plan included the following seven tasks:

- Task 1: Initiate and Manage the Project
- Task 2: Collect and Review Information
- Task 3: Analyze Data and Benchmark Conditions and Performance
- Task 4: Conduct Interviews, Site Visits, and Focus Group Sessions

- Task 5: Evaluate Fleet Management-Related Legislation, Regulations, and Policies
- Task 6: Conduct Best Management Practices Evaluation
- Task 7: Present Findings and Recommendations

### **Study Methodology**

We began this project by providing FDOT with a written information request which identified the specific quantitative data and documentary material pertaining to fleet operations and management practices necessary for the analysis. We then used the quantitative information collected via this request to examine the condition, utilization, cost, and other performance indicators relative to vehicles and equipment in FDOT's fleet as well as the organizations that manage and maintain these assets.

Examples of the quantitative data requested include:

- A fleet inventory containing the following information on each vehicle/piece of equipment: year, make, model, serial number (VIN), license plate number class code, user agency name and code, vehicle in-service date, original purchase price and/or current book value, life-to-date maintenance and repair cost, current meter reading, utilization during a recent 12-month period, maintenance and repair costs during a recent 12-month period (broken out by labor, parts, and subcontractor charges), type of fuel used, and gallons (or gallon equivalents) of fuel consumed in a recent 12-month period;
- A mechanic roster showing, by mechanic, hours charged to work orders, overtime hours worked, hours of training received, and hours of paid leave, all in a recent 12-month period; and current certifications;
- An inventory of bulk fueling facilities, and the number and capacity of storage tanks and gallon of fuel dispensed, by product type, in a recent 12-month period;
- Disposal/auction records to detail cost to prepare, transport, and sell vehicles relative to vehicle book value.

Much of the quantitative data we requested was available via EMIS or through other systems, such as those used for payroll and procurement.

The information gathered also identified a wide array of documentary material that we used to assist us in developing an understanding of FDOT-specific policies, directives, procedures, and practices in the fleet management area.

Examples of the materials in our original request included:

- Operating and capital budgets

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- Charge-back rate model and rates
- Organization charts and personnel rosters
- Position descriptions
- Mission documents and annual reports
- Policy and procedure documents
- Commonly used recordkeeping forms and management reports
- Sample vehicle specifications, contracts, purchase orders, and vendor invoices

We used the quantitative data collected in this task to analyze fleet-related conditions, costs, and performance levels. Analysis of this data helped us identify specific fleet management activities for which opportunities for cost reduction and/or performance improvement appear attainable.

We conducted a number of face-to-face interviews and meetings with FDOT staff in Tallahassee as well as District and Turnpike Enterprise personnel. During these meetings, we focused on understanding overarching fleet issues relative to FDOT, in general, and to the District/Turnpike Enterprise, specifically. We believed that it was essential for our project team to obtain varying perspectives about the history of the fleet services program, past success and challenges, the current fiscal situation, political issues and considerations that we need to be aware of, and the general perceptions of management officials regarding the organization and operation of fleet services activities. These insights not only enabled us to conduct the project more efficiently, they also helped to ensure that we did not overlook issues that are of interest to important stakeholders.

Our team also toured nearly all of the maintenance facilities and yards for each District/Turnpike Enterprise to obtain insight into workflow, staffing levels, age and quality of equipment/tools and depth of parts and supplies among the various FDOT operations. We find that valuable information is typically obtained through informal discussions with the mechanics, parts clerks and front line supervisors.

Finally, this study benefited from the separate, but concurrent review of DMS policies and procedures (also conducted by Mercury). Insights obtained through information gathered as part of that initiative via interviews, research and a survey of Fleet Steering Committee members supplemented our knowledge and understanding of FDOT fleet operations in and of themselves as well as relative to its sister agencies and the State as a whole.

Although the scope for and nature of this FDOT Fleet Management Assessment is relatively high level, our findings and recommendations provide a “road map” for specific, near-term initiatives to lead to cost-savings, efficiencies and overall improved

management and maintenance of FDOT's fleet resources – many of which may be translatable to other State agencies as well. Additionally, we identify several functional areas in which FDOT should conduct further review and analysis to garner greater cost savings and greater efficiencies, such as through a comprehensive, unit-by-unit vehicle utilization review to identify specific equipment to retain, replace, dispose of or redeploy, or a fleet maintenance operational review of staffing, services, parts and outsourcing options for maintaining FDOT's vehicles.

### Guiding Principals

In assisting FDOT in identifying opportunities to reduce costs and improve service in all or some fleet activities, our project team was guided by four key principles that we have found to be critical to managing and operating a fleet of any size and composition effectively and efficiently. Each of these is discussed briefly below.

**Quality Matters.** Low-quality fleet assets and services directly affect the cost *and* quality of services that FDOT provides to the citizens and taxpayers of Florida. The quality of the services provided by fleet management and maintenance sections within each FDOT organization is of paramount importance because, without vehicle and equipment users, there would be no need for such organizations. In a word, meeting the needs of FDOT for vehicles and equipment is the reason for the existence of fleet management and maintenance personnel. Thus, the most important indicators of performance pertain to the results or *outputs* of fleet management efforts, namely, the safety, availability, suitability, reliability, efficiency, and environmental soundness of the vehicles, equipment, and related goods and services FDOT uses to perform their mission. We recognize the potential risk of emphasizing the importance of service quality in a fleet study project focused primarily on achieving cost savings, but the single-minded pursuit of cost savings absent a full understanding of the impact of cost reductions on fleet quality would not only ignore the fundamental purpose of a fleet management program, but run the risk of actually *increasing* overall State costs.

**Costs Must be Controlled.** Any organization can provide high-quality services if cost control is no object. Unfortunately, few have the luxury of working for organizations – whether in the public or private sectors – in which this is the case. Managing the costs of the vehicles and services provided by an organization is important for two reasons. First, all public-sector organizations have a fundamental fiduciary responsibility to use taxpayers' money wisely, regardless of whether they deliver a high-profile, "front-line" service such as law enforcement, or a behind-the-scenes, "support" service such as fleet management and maintenance. Second, in contrast to a lot of the jobs performed by State employees, many fleet management activities are capable of being outsourced to the private sector if they cannot be performed cost effectively in house. Consequently, the need to provide services that are competitive in cost as well as quality with those offered by contractors and vendors is an inescapable reality of public-sector fleet management in the 21<sup>st</sup> century.

**Fleet Management is Tactically Demanding.** Fleet services organizations have always had to perform many different vehicle-related activities every day: scheduling vehicles for maintenance and repair services, assigning work orders to mechanics, farming out certain jobs to vendors, ordering parts, submitting warranty claims, supervising mechanics, processing vendor payments, preparing management reports, and so forth. Moreover, technological, regulatory, and other developments over the last decade or so have significantly increased the attention fleet organizations must devote to organizational management activities. High-performance fleet organizations today must be multi-faceted and multi-talented, handling demands encompassing everything from contract negotiation and vendor performance control to risk management and human resources management; and from information technology to cost accounting and financial reporting. Under these circumstances, it is common for such organizations to get caught up in the demands of performing some tactical activities – simply repairing vehicles, for instance – while neglecting others. Such neglect, however, can have serious consequences, such as when an improperly trained, supervised, and/or equipped mechanic injures himself on the shop floor, or performs a vehicle repair incorrectly, resulting in an accident. Managing a fleet operation well requires mastery of a very large number of disciplines and processes, many of which have nothing to do with “turning wrenches” per se.

**A Strategic Approach is Essential to Success.** A strategic approach to fleet management is one in which the interrelationships among, and between, the many *vehicle* management and *business* management functions that the FDOT must perform to optimize fleet performance and costs is both understood and managed. For example, optimizing vehicle performance requires effective acquisition, operation, maintenance, and replacement processes. Deficiencies in any one of these areas can undermine fleet performance no matter how good an organization’s practices are in the other three. Moreover, effective performance in each of these areas requires collaboration or, at a minimum, coordination with non-fleet management organizations. It is difficult to maximize mechanic efficiency and productivity, for instance, if a fleet maintenance organization is hamstrung by employee classification, compensation, evaluation, and other policies and procedures that create disincentives for employees to improve their performance. Similarly, it is difficult to ensure a high degree of vehicle reliability or availability, no matter how vigilant mechanics and operators are, if budget and finance organizations cannot ensure that there is sufficient funding to replace all vehicles in a timely manner. A strategic perspective is critical for tying together the myriad, interdisciplinary and inter-departmental responsibilities, authority, policies, and procedures that collectively determine the efficiency and effectiveness of a fleet operation.

## FDOT FLEET OPERATIONS REVIEW

### FLEET MANAGEMENT ROLES AND RESPONSIBILITIES

FDOT's fleet management activities are largely decentralized, which is in keeping with the Department's general organizational structure. While a central fleet management organization exists within the Program Resources Division of the State Maintenance Office (SMO), there is no Department fleet manager per se. SMO staff (four positions) provide high level policy oversight and coordination of fleet activities in the Department and do not generally involve themselves in the details of how DOT Districts manage their fleets.

FDOT's Mobile Equipment Manual (MEM) describes the roles and split of responsibilities between SMO and Districts. SMO's responsibilities are described as follows:

1. Set Policy and promulgate Procedures for all equipment and vehicle related matters for the FDOT Statewide.
2. Review and approve all equipment and vehicle acquisitions.
3. Coordinate training of personnel whose positions primarily relate to equipment and vehicles.
4. Quality Assurance of all vehicle and equipment related matters statewide. This includes approval and monitoring of District Quality Control programs and activities.
5. Coordinate the following vehicle and equipment related activities with the SMO Information and Analysis section, (I. & A.), who shall be responsible for their accomplishment.
  - a. Management of the statewide Automated Fuel Accounting System, including fuel system maintenance contracting, data collection and reduction, and providing system use keys to state agencies other than FDOT. I. & A. will procure keys for FDOT offices which are statewide, such as Tolls, Turnpike, Materials, and MCCO. I. & A. will process all requests for fuel credit cards.
  - b. Gathering and sorting of data relating to utilization, down time, operating cost, and other information necessary for the management of the FDOT equipment fleet.
6. Any other vehicle and/or equipment related function which can be handled with better cost effectiveness from a central location than from a District
6. Any other vehicle and/or equipment related function which can be handled with better cost effectiveness from a central location than from a District.

SMO fleet staff also performs the following functions:

- Liaison with the Department of Management Services on fleet related issues;
- Licensing of new vehicles;

## **FDOT Fleet Operations Review**

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- Determining distribution of available capital funding to replace DOT vehicles each year (according to an established formula);
- Supporting the fleet service requirements of central DOT organizations in Tallahassee.

While a casual reading of the above duties might suggest that SMO plays an active role in the management of FDOT's fleet, this is not the case. SMO's role is limited and, for the most part, passive. The following points illustrate this issue:

- While SMO calculates the distribution of capital funding each year, Districts choose the actual vehicles that are replaced with no input from SMO. The lack of an organization-wide perspective may result in vehicles that are less important to the successful fulfillment of FDOT's mission being replaced in one District while critical needs are not met in others. Moreover, Districts are able to manipulate the funding process by holding back and not replacing older vehicles. This practice, readily admitted to by some Districts, increases the average age of a District fleet, thereby resulting in an increased share of annual funding.
- The QAR process, while excellent, is limited in scope to mainly maintenance issues. Critical asset management activities and issues are not reviewed;
- The Motor Equipment Manual is limited in its scope and has only had one minor update in the past decade;
- Few performance measures are monitored and trends are not tracked over time. SMO cannot tell if FDOT fleet costs are decreasing or increasing year to year; and
- FDOT staff involved in fleet management activities rarely get together to discuss issues and share best practices. No training is conducted and fleet staff do not participate in professional fleet management associations.

The limited role of SMO has, in our view, contributed to the lack of a standardized approach to managing DOT fleet operations that we observed during our review (this issue is discussed in detail in subsequent sections of this report). In reality FDOT has nine separate fleet management programs (7 Districts, headquarters, and the Turnpike Enterprise) which each organization has largely developed to meet its own needs under the loose policy guidance provided by SMO. To make matters worse, there is a high degree of variability in fleet practices even within each District. Most District shops do not report to the District Fleet Manager but instead to Yard Engineers. This reporting relationship means that fleet practices are largely the product of local decisions rather than a considered analysis of actions that will result in the most efficient and effective fleet operations for FDOT as a whole.

We in no way intend the above discussion as a criticism of FDOT fleet staff. The employees that we met during this review were all dedicated fleet professionals focused on doing their best for the organization. Their efforts are, however, hampered by a

## **FDOT Fleet Operations Review**

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number of factors including an ineffective organizational alignment, parochial attitudes, out dated practices, inconsistent processes, and poor management systems.

We do not mean to suggest that fleet management activities in FDOT should be organizationally centralized under SMO. We are, however, recommending that fleet management activities transition to more administrative centralization with SMO assuming a more expansive and active role in managing the fleet. Under this arrangement, SMO would take on additional duties and an expanded responsibility for managing FDOT's fleet assets by:

- Focusing on the asset and financial management aspects of fleet that will have the greatest impact on lowering the total cost of ownership for FDOT;
- Developing processes to identify best practices;
- Taking an active role in consistently applying these practices across all Districts and organizations;
- Developing and updating fleet related policy and procedure manuals;
- Developing key performance indicators;
- Developing effective data analysis, reporting, and communication processes;
- Auditing compliance with all fleet activities (not just maintenance), and
- Developing and maintaining an annual business plan and "state of the fleet" report.

SMO will require additional resources to effect these changes and improvements. These resources can be in the form of new staff positions, positions transferred from Districts, contract staff/vendors, or a combination of approaches.

FDOT should also consider consolidating management of field shops under the appropriate District Fleet Manager. Yard Engineers do not need to directly supervise shops in order to be provided an appropriate level and priority of service. Having a single central point of management for fleet assets in each District will clarify roles and responsibilities, streamline reporting relationships and communication with SMO, and facilitate implementation of more consistent fleet management practices.

The organization, roles, and responsibilities related to fleet management in FDOT today are fractionalized, blurred, and overly diffuse. This situation has promoted short-term thinking and parochial interests over a strategic perspective of what is best for FDOT as a whole. Improving FDOT's fleet management practices will require considerable focus and effort. This undertaking will not be successful, in our view, without creation of a more centralized approach that establishes clear lines of authority and responsibility over management of FDOT's fleet assets.

### Recommendations

1. *Strengthen the role of SMO in overseeing the agency's fleet management program and provide appropriate resources to SMO to fulfill its expanded mission.*
2. *Centralize supervision of fleet operations in each District under the District Fleet Manager.*

### FLEET FINANCIAL MANAGEMENT

In this section of the report we review issues such as cost reporting and control and the distribution of costs to end users. In our experience, implementation of an accurate cost charge-back system is one of the most powerful tools that an organization can implement to control fleet related costs. Such systems clarify the total cost of ownership for an organization by aggregating all fleet costs into a single cost pool. If costs are charged-back to end users in a transparent manner that users can understand, then market economic forces are created that exert downward pressure on overall costs.

FDOT's practices in this area are, unfortunately, severely lacking. As a rule, costs are not charged back to end users of fleet vehicles. Where costs are charged back, such as to the Turnpike Enterprise or fuel charges to other State agencies, the process for calculating rates produces inaccurate charges. Perhaps the clearest indication that FDOT's fleet related financial practices require improvement is that no one in the organization could readily tell us what total fleet costs were this year, last year, or any year for that matter.

### Background and Industry Best Practices

There are basically two ways that *operating* funds can be provided to a fleet management organization to support the management, maintenance, and fueling of a fleet: through direct appropriations to the organization or through the use of a charge-back system which recovers the organization's costs through charges to other organizations for the goods and services it provides them.

Similarly, there are two ways that *capital* funds can be provided to support the acquisition of new and replacement vehicles: lump-sum amounts can be appropriated to the fleet management organization or to the departments it serves on an ad hoc basis, or capital costs can be amortized over the lives of the vehicles in the fleet through the use of a reserve fund and charge-back system or a debt financing arrangement such as a lease-purchase program.

There are three reasons why the use of a cost charge-back system is preferable to the direct appropriation of funds to a fleet management organization, a fleet user department, or some combination of the two. One is that properly designed charge-back systems improve the consumption and provision of fleet resources by 1) illustrating

linkages between the behavior of vehicle users and the costs of the vehicles and related services they consume; and 2) encouraging fleet users to hold fleet management organizations accountable for the quality and costs of the goods and services the latter provide.

The second reason for implementing a charge-back system is to promote equitable treatment of fleet users. Since users pay only for the resources they consume, there is no cross-subsidization of fleet costs under a properly designed and implemented charge-back system. One of the implications of this benefit is that fee-supported departments and programs pay the full cost of the fleet resources they consume and do not receive any subsidies from the general fund, which often occurs when a fleet management organization is part of the General Fund.

The third reason for implementing a charge-back system is to ensure the timely replacement of capital assets. Using a charge-back system to accumulate replacement funds allows for vehicle capital costs to be amortized over several years thereby making it easier to accommodate peaks in annual fleet replacement spending requirements which usually cannot be accommodated by (generally static) operating revenue sources.

Since using a charge-back system to finance a fleet operation means *selling* vehicles and related services rather than *giving* them away, fleet users behave much more cost effectively than they do when such resources are given to them. For the same reason, users also put much more pressure on fleet management organizations to charge competitive (with comparable organizations and the private sector) prices for goods and services than they do when they receive these resources free of charge.

The use of charge-back rates is often associated with establishment of an Internal Service Fund. These funds are used by state and local governments to account for the financing of goods and services provided by one department or agency to other departments or agencies, and to other government jurisdictions, on a cost-reimbursement basis. The use of Internal Service Funds has the following advantages:

- The ability to identify and accumulate the total cost of a support activity, including the depreciation of capital assets;
- Facilitates costing and pricing of support services;
- Allows for the accumulation of funds for equipment replacement; and
- Allows the allocation of General Fund overhead costs to the Internal Service Funds for redistribution to the benefiting programs.

The design and management of ISFs and charge-back systems should comply with the guidelines of the Federal Office of Management and Budget (OMB) *Circular A-87*. OMB A-87 establishes principles and standards for determining costs for federal awards

carried out through grants, cost reimbursement contracts, and other agreements with state and local governments. The purpose of OMB A-87 is to provide a uniform approach for determining allowable costs incurred by local governments. To the extent that the Florida DOT receives any federal funding, either directly or on a pass-through basis, the guidelines of OMB A-87 must be followed – at least for calculating the fleet service costs that are charged to federally subsidized programs. Even where no federal funding is involved, many cities have adopted OMB A-87 guidelines as the de facto standard for the design of charge-back systems and the management of internal service funds.

Basic principles articulated in this circular (and OMB *Circular A-21* for institutions of higher education) require that charge-back-funded organizations (they need not be classified as internal service funds) operate on a break-even basis; recover only allowable costs from federally funded customer organizations; make adjustments for under and over recovery of costs (preferably through adjustments to future billing rates); bill all users at the same rate for similar services; utilize billing units which represent services provided or benefits received; and not improperly utilize revenues generated by one type of service to finance the delivery of another type of service. ISF's are permitted to have fund balances (reserves) that are being accrued for the purpose of asset replacement as well as to finance near-term working capital requirements. Any reserves being accumulated for financing operations are limited to three months' worth of operating expenditures by OMB A-87 guidelines.

The purpose of a charge-back system is not merely to recover the costs of providing a good or service. If it were, this objective could be achieved far more easily by appropriating all of the funds needed to operate a fleet to one agency, which would then be responsible for delivering fleet resources to whoever needed them (that is, by financing fleet operations the old-fashioned way). Internal service funds and charge-back systems were invented, first and foremost, to promote cost recognition and control. In other words, fleet cost charge-back systems should be designed to enable and encourage fleet users to see, care about, and control fleet costs (for example, to purchase the least costly vehicle for a given job, to keep the size of their fleet to the minimum size possible, and to care for vehicles properly). This requires that the rate structure and billing process clearly illustrate the linkage between fleet user behavior and fleet costs.

Usage (i.e. by the mile or engine hour) and time-based (i.e. monthly) systems do a poor job of illustrating this linkage because they treat vehicle costs as either entirely fixed (in the case of time-based rates) or entirely variable (in the case of usage-based rates), when some vehicle costs are fixed while others are variable. In addition, they base charge-back rates on the costs of an average vehicle, which few individuals or agencies actually operate. The development of rates by class often results in inequitably high rates for new assets and inequitably low rates for older assets, which usually require more maintenance and repair. Users are thus misled as to the appropriateness of replacing older, higher maintenance assets in a timely manner.

Service-based charge-back rates make it easier for both fleet users and fleet management service providers to see how much specific goods and services cost. Insofar as transaction-specific costs are itemized on customer bills, this type of rate structure encourages the efficient provision and consumption of fleet resources and services. Time and usage-based rates, in contrast, make it difficult to discern what portion of a user agency's monthly charges is attributable to vehicle maintenance, fuel, other fleet management services, and so forth.

A good charge-back system promotes efficiencies in both the provision and consumption of fleet resources. Conversely, a poorly designed charge-back system is a constant irritant, and will do nothing to allay concerns about the legitimacy of user charges, the efficiency of shop employees, and the cost competitiveness of maintenance services.

### **Analysis of Current FDOT Practices**

In terms of cost reporting and control, practices within FDOT vary widely. In a few Districts we observed very good cost reporting practices with budgets and expenditures monitored on a consistent basis. However, even in these situations costs were reported by cost center (i.e. yard/shop) and not rolled up into a total District fleet account. Moreover, most District Fleet Managers are not provided with budget and expenditure information for cost centers that they do not manage. Consequently, only one District that we visited had a comprehensive view of fleet costs and this was mainly because the fleet manager is also the budget manager for the District.

SMO staff also does not monitor Department-wide fleet costs. No budget and expenditure trends are tracked. District costs are not compared to each other. Life-cycle costs are not analyzed. The absence of these types of activities impacts the effectiveness of efforts to control costs.

In terms of cost allocation practices, FDOT does not typically distribute costs back to fleet users. Rather, Districts receive a lump sum budget allocation for fleet operating costs (i.e. maintenance, repair, fuel) and do not charge costs back to other organizations. The lump sum allocation includes funds for providing services to the Turnpike Enterprise and Motor Carrier Compliance organizations. However, because the process and basis for determining fleet costs is flawed and greatly understates actual fleet costs (discussed in detail below), the allocations are not accurate. This is especially problematic for the Turnpike organization, which, as an enterprise fund, should pay its actual costs rather than receive subsidies from the FDOT general fund.

Fuel costs are billed back to State departments outside of FDOT but costs do not include any burden to recover administrative and infrastructure costs. Consequently, FDOT is providing "free" fuel services to other State agencies.

Fleet capital costs are not distributed directly back to operating units and programs. However, replacement costs are included in rental rates that are used to distribute equipment costs to jobs through the department's Maintenance Management System. While the MEM states that rental rates will be updated annually, we were told that an update had not been completed in at least five years. Moreover, since FDOT does not reconcile charges allocated to jobs through rental rates against actual fleet costs, it has no way of knowing if rates require updating.

The MEM contains a section on calculating hourly labor rates (page 43). The process described is simplistic and not in keeping with industry best practices. The method for calculating the cost basis understates fleet costs because many indirect and no overhead costs are included. Productive hours are estimated rather than based on an analysis of actual time for mechanics. No markups are mentioned for the parts, sublet or fuel service lines of business.

Evidence that the process for calculating shop rates is flawed is provided by the range of hourly rates resulting from application of the methodology. Existing rates, which have not been updated in at least a decade, range from a low of \$19.26 per hour to a high of \$55.00 per hour – a difference of nearly 300%. Most shop labor rates are in the \$20 to \$30 range, which would have been low in the 1990s when they were calculated and are unbelievably low today. Because these rates are used to bill services to FDOT jobs and programs - some of which are reimbursable by the federal government, other State agencies, and FDOT enterprise funds – inappropriately low shop rates results in FDOT understating its fleet costs and under recovering legitimate reimbursements. In other words, inaccurate fleet financial practices and rate development processes cost FDOT money.

Another problem with the current cost reporting and rate development processes is that FDOT cannot determine if its fleet costs are competitive with alternative service providers – whose costs are fully burdened. Since FDOT has already outsourced fleet maintenance services in a number of Districts, it has done so without a full understanding of the cost implications of this action because no accurate baseline was established to compare against contractor costs. Consequently, FDOT cannot know with any reasonable degree of certainty if outsourcing has saved or cost the organization money.

Optimizing cost management and control depends upon an organization's ability to accurately accumulate, track, and report cost information. Accounting structures and practices that understate costs do not promote good management because decisions are often based on incomplete or inaccurate cost information. Structuring fleet financial practices to operate on a cost reimbursement basis will provide a number of positive benefits for FDOT including:

## FDOT Fleet Operations Review

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- Improved recognition of cost by FDOT fleet employees as services are sold rather than given away (or sold for less than their fully burdened cost);
- Improved recognition of costs by fleet users as price signals are consistently provided through the cost charge-back process;
- Better activity based costing of FDOT functions as the fully burdened cost of fleet services are added to organizational costs;
- Better shop management decisions as service offerings are based on an analysis of competitiveness with alternative service providers; and
- Better fleet asset management decisions based on market economic principals and life-cycle cost analysis.

A service based (direct) charge-back system, which charges customers for the actual costs of the products and services that they consume, would provide FDOT with all of the benefits detailed above. We recommend the following rate structure:

- Labor – Fully burdened hourly rate;
- Parts – Cost plus percentage mark-up for administrative costs;
- Vendor services – Cost plus percentage mark-up;
- Fuel – Cost plus cents per gallon markup for administrative costs;
- Vehicles – Replacement cost per month;
- Fleet Administration – Monthly cost per vehicle;
- Fleet replacement fee – Monthly cost per vehicle.

An Internal Service Fund for fleet operations would enable FDOT to accumulate reserves for the future replacement of fleet assets and would facilitate accurate pricing of fleet services.

### Recommendations

3. *Develop a cost charge-back system to meet the following goals:*

- *Recover all direct and indirect costs associated with providing fleet services;*
- *Comply with federal costing standards as detailed in OMB Circular A-87;*
- *Avoid cross-subsidization among service activities, vehicles types, and rate payers;*
- *Treat all rate payers equitably;*
- *Promote cost recognition by sending clear price signals to vehicle users, thus providing an incentive for the proper operation and care of valuable State assets;*

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- *Develop rates that are intuitive and easily comparable to private sector alternatives; and*
  - *Provide transparency by developing rates and rate model that are clear and well documented.*
4. *Update rates each and every year.*
  5. *Update equipment rental rates (for allocating fleet costs to jobs and programs) on an annual basis and develop an annual report that compares total fleet costs by District against costs distributed through the rental rates.*
  6. *Develop improved cost reporting practices that include monthly and annual department-wide fleet cost reports. These reports should compare Districts, outsourced shops versus FDOT shops, and track trends over time.*

### FLEET REPLACEMENT PLANNING AND FUNDING

In this section of the report we provide our analysis and recommendations relative to FDOT's fleet replacement program. In our view, the advanced age of FDOT's fleet and the absence of a consistent and rational approach to planning for the replacement of vehicles is the most pressing fleet management related problem facing the organization.

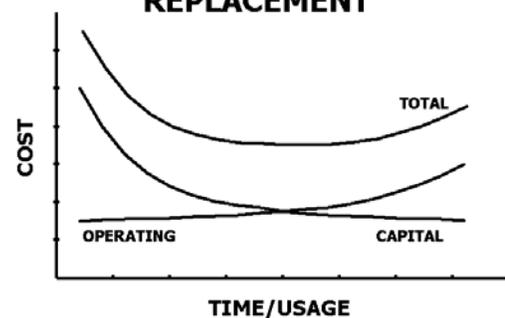
This section begins with a conceptual discussion of the major elements of an effective fleet replacement program. This discussion lays out the "philosophical" framework our project team used in approaching the review and evaluation of the current fleet replacement program. In this task we also assessed the average annual and long-term replacement costs of the fleet, compared these costs with actual replacement funding levels over the last five years or so, and explored the fiscal and economic benefits of alternative capital financing approaches such as leasing and lease purchasing.

#### Background and Key Concepts

The economic theory of equipment replacement is well known to fleet managers, and is illustrated graphically in the diagram below at right. As a vehicle ages, the capital cost of the unit diminishes, and its operating cost increases. The combination of these two costs produces a U-shaped total cost curve. Ideally, a piece of equipment should be replaced around the time that its annual operating costs begin to outweigh its annual capital costs – that is, when the two cost curves intersect and the total cost curve begins to turn upward.

Thus, deferring replacement purchases to accommodate temporary budget constraints does not necessarily increase total fleet costs immediately. However, if an organization traditionally has not done a good job of replacing

#### ECONOMIC THEORY OF VEHICLE REPLACEMENT



equipment in a timely manner, even a temporary reduction in replacement spending can result in immediate increases in fleet operating – principally maintenance and repair – costs. Thus, decision makers who assume that cutting replacement purchases is a good way to help balance the budget need to understand that such cuts may not only *transfer* fleet costs from the capital to the operating side of the general ledger, but may also actually increase overall fleet costs. Regardless of its net effect on current fleet costs, the deferral of replacement purchases unquestionably increases future replacement spending needs, often resulting in growing and increasingly unmanageable equipment replacement backlogs.

The total cost curve is different for every type of vehicle. This variability is caused by differences in the design and engineering of different types of vehicles, the effects of differences in operating environments, the quality of care the vehicle receives, and other factors. As a result, most organizations develop recommended replacement cycles for a class or type of vehicles, which will approximate the optimal replacement cycle for most of the units in that particular class. This is most often accomplished in an informal manner based on discussions with mechanics and drivers, and a comparison of replacement cycles with peer organizations.

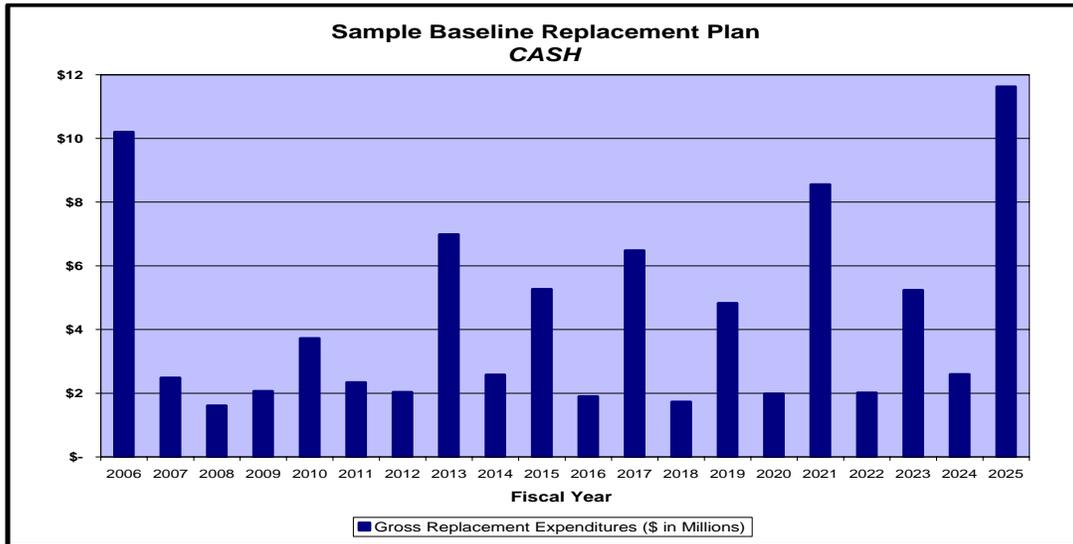
Even the best replacement cycle estimation efforts (or policies, for that matter) will not ensure the timely replacement of vehicles, however, if an organization does not make funds available to replace vehicles in accordance with established guidelines or policies.

Even during good economic times, securing sufficient funds to replace vehicles and equipment in a timely manner is a challenge for many organizations. This challenge stems less from a lack of appreciation of the importance of vehicles or of the need for them to be regularly replaced than from the difficulty of dealing with year-to-year replacement spending needs that are inherently *lumpy* in most organizations. The “Cash” graph below shows the annual replacement costs over a period of 20 years of a government fleet of about 600 vehicles and pieces of equipment<sup>2</sup>. As can be seen, year-to-year fleet replacement spending requirements are quite volatile, with peaks and valleys of varying magnitude occurring routinely throughout the 20-year period. Note that funding requirements in 2013 are over three times more than in 2008. This unevenness is common in virtually all mixed-vocational fleets.

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<sup>2</sup> This fleet is used for illustrative purposes only but is consistent with most governmental fleet operations.

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The biggest impediment many organizations face to replacing vehicles in a timely manner is the lack of a replacement financing program that can effectively deal with fleet replacement spending needs that fluctuate from year to year. Specifically, they do not have a good mechanism for accommodating year-to-year changes in spending requirements when the source of funds for such expenditures is relatively static. The solution to this problem lies in pursuing one of two courses of action: eliminating the volatility in fleet replacement *spending* requirements, or eliminating the volatility in replacement *funding* requirements.

The “Cash” graph shown earlier illustrates the *funding* requirements associated with financing the replacement costs of a particular fleet using a particular type of financing approach: annual, ad hoc appropriations or allotments of cash. Under this financing approach, the entire capital cost of each asset in the fleet is paid at the beginning of the asset’s service life. Consequently, if year-to-year replacement spending requirements are lumpy, the funding requirements associated with financing these expenditures also will be lumpy.

Most organizations that utilize a cash financing approach have difficulty dealing with fluctuations in fleet replacement spending needs because the amount of funds they can devote to the purchase of vehicles and equipment each year generally does *not* fluctuate. In fact, while the number of fleet assets that need to be replaced may “zig” upward in a given year, government or departmental revenue in that year not only may not increase by a corresponding percentage, but also may actually “zag” downward. When this happens, some fleet replacement purchases must be deferred and a backlog of replacement spending needs begins to accumulate.

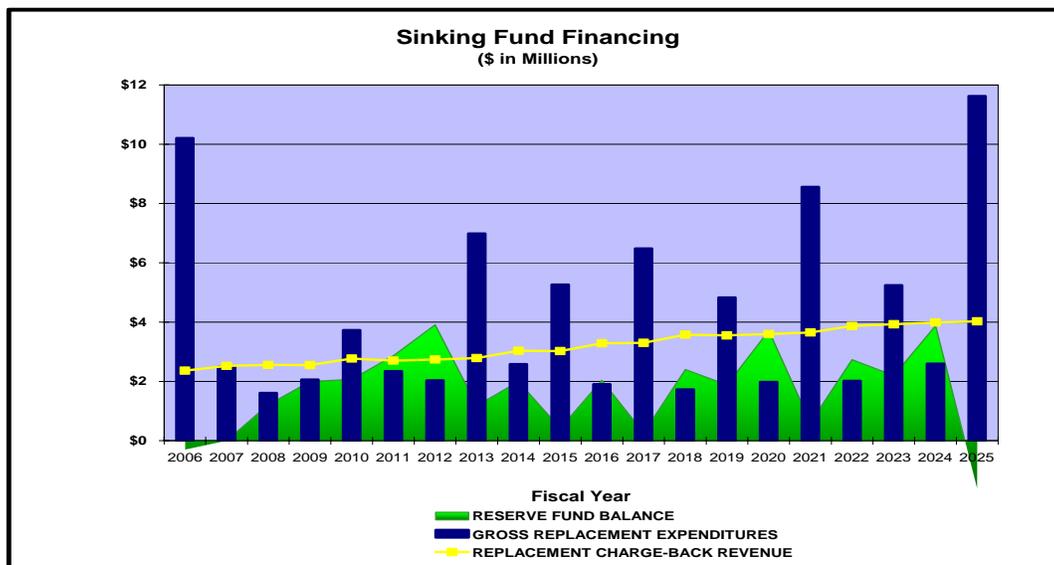
There are two other fleet replacement-financing approaches, both widely used by public-sector jurisdictions, which allow an organization to spread the capital cost of each

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vehicle and piece of equipment over its useful life. For example, rather than require an organization to budget \$60,000 every tenth year for the replacement of a truck and \$0 in the intervening years, they allow it to budget about \$6,000 every year for the replacement of the vehicle. Such financing approaches make year-to-year fleet replacement funding requirements relatively smooth and predictable. This, in turn, reduces the likelihood that critical equipment replacement purchases will be deferred to avoid paying the full cost of an asset in a single year or because typical funding levels are insufficient to accommodate an upswing in spending needs that results from the necessity of replacing more vehicles than usual in a particular year.

The “Sinking Fund” graph below shows the long-term funding requirements associated with financing the replacement costs of the 600-vehicle fleet shown earlier in the “Cash” graph using one of these two alternative financing approaches: a sinking fund and charge-back system. Although replacement spending requirements are identical to those shown in the earlier graph, funding requirements (represented by the yellow charge-back revenue line) are not at all volatile. This is because using a sinking fund permits vehicles to be paid for incrementally; it is a true pay-as-you-go approach to fleet replacement financing. As shown in this graph, the sinking fund-balance (the green shaded area) ebbs and flows in correspondence with peaks and valleys in spending needs.

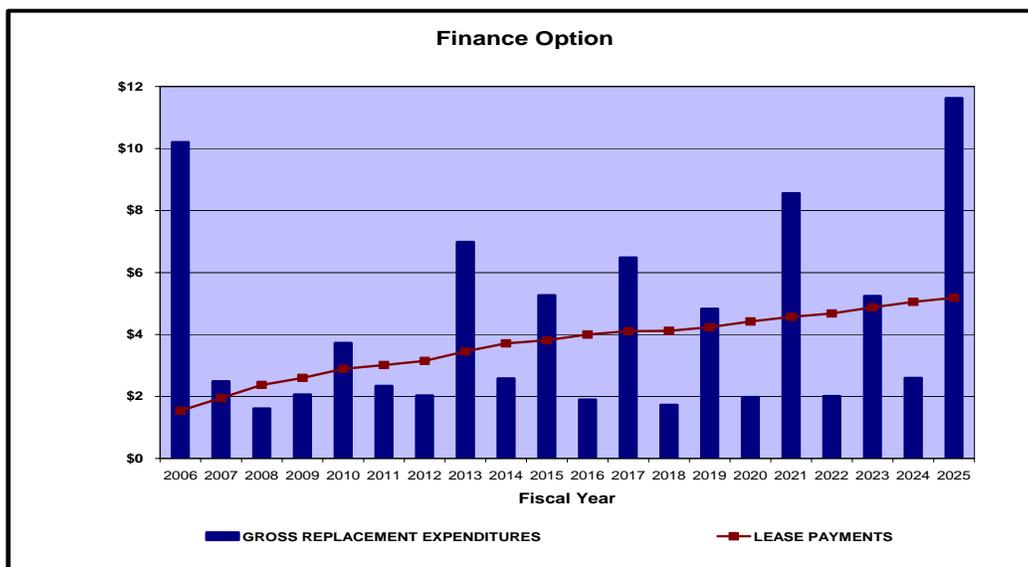


One of the challenges of managing a reserve fund properly is calculating charge-back rates so that the reserve fund balance does not get too big or too small. Many government jurisdictions with which we have worked in this area have either depleted their reserve fund balance or built up unnecessarily large fund balances due to improper rate setting. Another challenge of using this financing approach is that some jurisdictions find it difficult to restrain themselves from raiding the fleet replacement fund “piggy bank” when budget dollars get tight. The fleet user agencies that diligently pay

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internal fleet replacement charges month after month and year after year sometimes discover that their vehicles and equipment cannot be replaced on time after all.

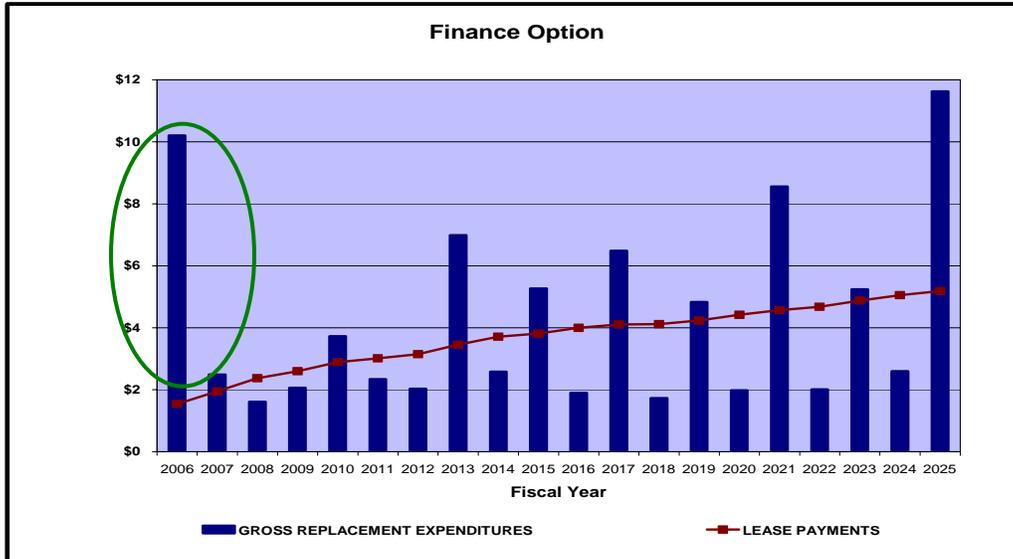
The other fleet replacement financing approach that makes year-to-year funding requirements smooth and predictable by spreading the capital cost of each asset in the fleet over its useful life is debt financing or lease purchasing. This approach is widely used in the private sector and is attractive to many organizations that use it because not only does it eliminate the need to manage a replacement fund balance, but because making the switch from cash financing or a sinking fund to debt financing can produce very large budget savings in the near term.



The “Finance Option” graph shows the funding requirements associated with financing the replacement of our sample 600-unit fleet using lease-purchase financing. Under this approach, the purchase of every vehicle and piece of equipment in the fleet would be financed over a period of years equal to the replacement cycle.

As in the two previous graphs, the bars represent projected annual replacement spending requirements. The red line in the “Finance Option” graph illustrates projected lease payments and, consequently, the fleet’s replacement funding requirements. Although the volatility of future spending needs has not changed, funding requirements clearly are smooth and predictable under this financing approach.

This example illustrates the primary benefit of using a form of debt to renew a fleet – the ability to replace a significant portion of the fleet for a minimal upfront investment. In the first year of this plan, this organization could replace just over \$10 million worth of fleet assets at a cost of under \$2 million as depicted in the green oval. This pay-as-you-go approach lets the organization spread the capital cost of the asset over its useful life. It also frees up cash to meet other needs.

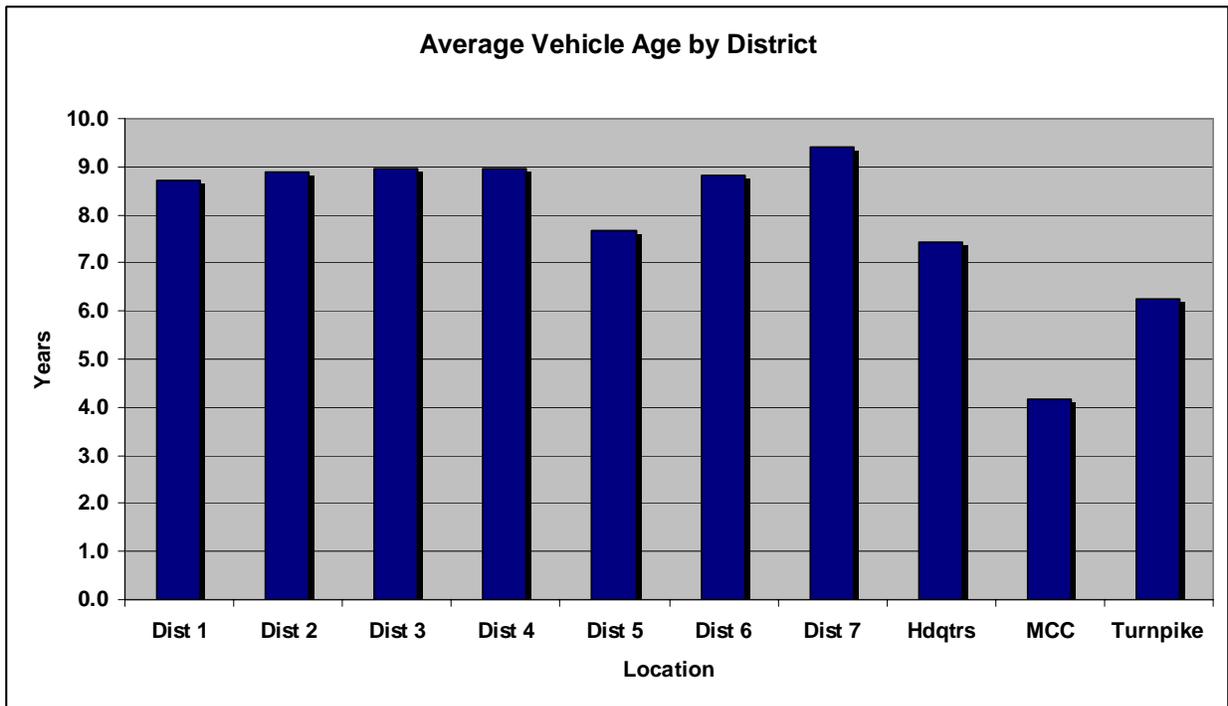


There is also no need to develop a fleet-replacement reserve fund. However, the problem with this approach is that it becomes difficult to change back to a cash based replacement approach once an organization has committed to debt financing. There is also a cost of money (interest) that actually increases the total cost of a unit, albeit minimally, considering net present value of the money and the opportunity cost (ability of the organization to make funds available for other needs) that may be involved.

**Analysis of Current FDOT Practices**

FDOT has developed replacement criteria for each of its major classes of vehicles and mobile equipment. These criteria, which are generally expressed in age and use (miles or engine hours), have been generally set at higher/longer levels than the official State vehicle replacement criteria as promulgated by DMS. We were told that this was done years ago to demonstrate that FDOT was a particularly good steward of State funds and, thus, there is no business case basis for this practice. In fact, it is our opinion that FDOT’s longer replacement cycles cost rather than saved the State money.

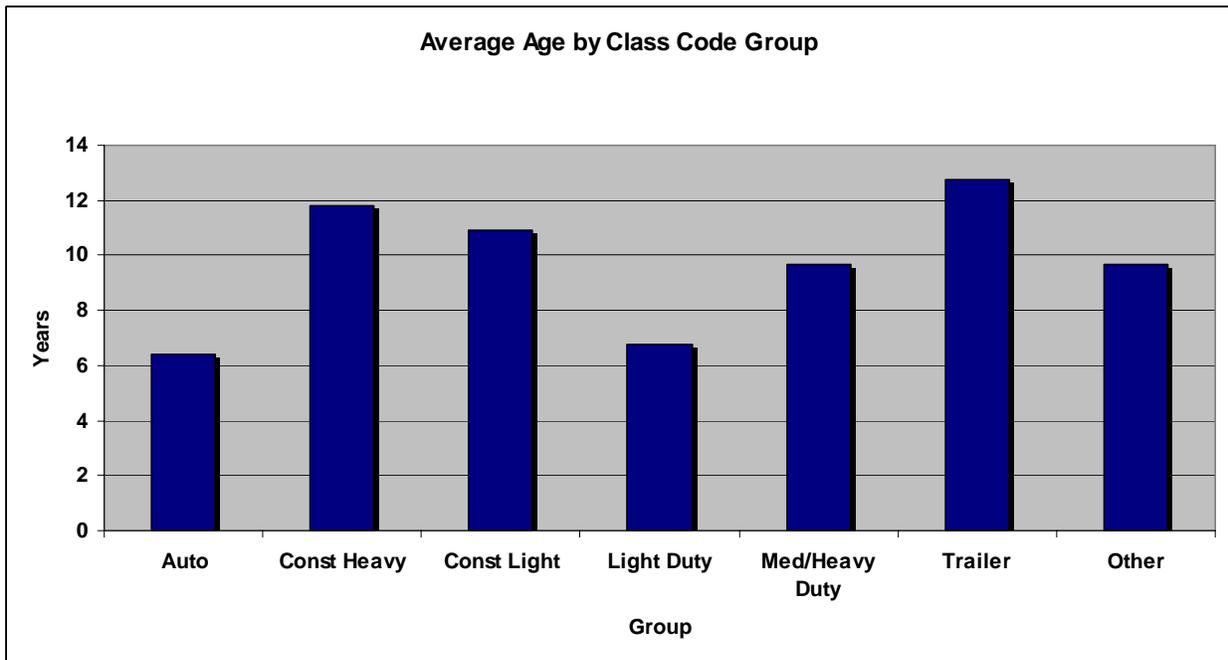
SMO uses an algorithm to determine how much money each District and organization will receive each year for vehicle and equipment replacements. The algorithm incorporates an assessment of how many vehicles in each organization exceed the “Trade Criteria.” Our review of the average age of the fleet in each FDOT organization indicates that the algorithm seems to work reasonably well in terms of fairly distributing the limited amount of money available for acquisition of replacement vehicles. The following chart shows the average age of the fleet in each organization:



The Turnpike Enterprise and Motor Carrier Compliance both have a lower average fleet age, but this is understandable considering their fleet composition which is mostly light duty vehicles with a shorter life cycle than the Districts which have a much greater number of heavy vehicles and equipment with longer life cycles.

The review of average fleet age by vehicle class confirms that larger trucks and construction equipment have a longer life cycle as shown on the next chart.

## FDOT Fleet Operations Review



Our work with hundreds of fleet organizations (including 35 states) has shown that the average age of a mixed vocational public sector fleet should be between 3.5 and 4.5 years. The average of FDOT's fleet is 8.25 years, indicating that the fleet is old by industry standards.

Funding for replacement of FDOT vehicles is currently capped at \$8 million per year by legislative mandate. This funding level is not adequate (by far) to replace vehicles in accordance with FDOT's established replacement criteria. The following table illustrates the actual funding versus the needs of the Department:

## FDOT Fleet Operations Review

**Table 1: FDOT Historical Fleet Replacement Funding Versus Needs**

	2000	2001	2002	2003	2004	2005	2006
<b>Light Equipment Due for Replacement</b>	892	904	820	678	757	738	798
<b>Heavy Equipment Due for Replacement</b>	859	946	915	840	943	1112	1213
<b>Funding Requirement</b>	\$39,543,970	\$40,871,746	\$40,081,470	\$36,211,264	\$43,010,628	\$49,029,470	\$57,595,937
<b>Actual Funding Provided</b>	\$13,836,936	\$13,029,109	\$ 9,560,000	\$ 7,000,000	\$ 8,000,000	\$ 7,884,274	\$ 7,720,000
<b>Backlog of Funding</b>	<b>\$25,707,034</b>	<b>\$27,842,637</b>	<b>\$30,521,470</b>	<b>\$29,211,264</b>	<b>\$35,010,628</b>	<b>\$41,145,196</b>	<b>\$49,875,937</b>

During the seven year period shown above, the average funding to replace FDOT vehicles has been about \$9.5 million whereas the full funding required has averaged \$43.7 million. The gap between funding needed and funding provided is steadily growing. Whereas 35% of funding needs were met in 2000, only about 13% of the funding required was actual provided in 2006

While FDOT and State officials should be concerned that the funding gap is growing, the more alarming aspect of the situation is the large backlog in replacement funding that has accumulated over the years. Our analysis shows that 62% of the vehicles in FDOT's fleet (4,500 units) now exceed established replacement criteria. Replacing these units will cost \$145 million.

The replacement value of FDOT's fleet is approximately \$277 million. This means that FDOT needs to appropriate, on average, around \$30 million each year to comply with its established replacement criteria. Each and every year that the State fails to appropriate sufficient funds to FDOT, the backlog in replacement funding will grow. Our projection is that if the current inadequate level of funding is maintained, the backlog will pass \$200 million in just three years.

It took FDOT many years to develop this acute problem and the dilemma will not be solved overnight. The first step towards resolving this situation is to develop a long-range fleet replacement plan that quantifies future year funding requirements based on supportable replacement criteria. The development of a systematic vehicle replacement program provides an organization with more stable and predictable operation costs, a safer fleet, increased user satisfaction, improved vehicle reliability, a potential reduction in fleet size, and increased accountability for total fleet related costs. In the next part of this section of the report we describe our efforts in this area.

### FDOT Replacement Planning

FDOT replacement planning is limited to an annual forecast of vehicles that meet trade criteria. No long-range, multiple year plans are developed. The primary value of a long-term replacement plan lies in its ability to help fleet managers educate decision makers as to the magnitude of fleet replacement costs and the inherent lumpiness of such costs over time. It specifically helps fleet management organizations and their customers address two misconceptions held by many nonprofessionals that often are major factors behind an organization's failure to devote enough funds to fleet replacement, which is the primary impediment to, in turn, replacing vehicles and equipment in a timely manner.

One is the belief that fleet replacement costs are quasi discretionary and that there is no compelling reason to fill 100% of the requests for fleet replacement funds that line organizations make each year. The other is the belief that it is not necessary to vary to any significant degree the amount of funds devoted to fleet replacement spending from year to year.

A good fleet replacement planning process not only quantifies the cost of replacing the fleet over the long term so that management and budget decision makers can see that this is a significant, recurring cost of doing business. It also illustrates the consequences of underfunding replacement expenditures by translating spending shortfalls into future spikes in, and backlogs of, replacement spending needs.

While our scope of work did not include a task to develop a formal long-range fleet replacement plan for FDOT, we elected to develop the outlines of a plan given the importance of this issue to the organization. Additional work will be required to flesh out and finalize a plan for FDOT, but we have provided sufficient information to illustrate the issues, document the consequences of historic underfunding, and chart a course for solving the problem.

### Development of Vehicle Life-Cycles

Earlier in this report we discussed the economic theory of vehicle replacement and provided a graph illustrating this concept. Note that in the graphic, the bottom of a vehicle's total life cycle cost curve is relatively flat. This means, in practical terms, that there is not a single *point* in time at which a vehicle should be replaced. Rather, there is a *period* of time during which the combination of capital and operating costs are at or near their lowest point. Depending on how old a vehicle – or a fleet – is, delaying its replacement somewhat may or may not have a material impact on the total life cycle cost of that vehicle or fleet. For example, for the typical sedan and other light-duty vehicles in a fleet, this flat section usually represents a period from age 5 to 7 years or from 75,000 to 100,000 miles.

The total cost curve is different for every type of vehicle. This variability is caused by differences in the design and engineering of different types of vehicles, the effects of differences in operating environments, the quality of care the vehicle receives, and other factors. As a result, most organizations develop recommended replacement cycles for a class or type of vehicles, which will approximate the optimal replacement cycle for most of the units in that particular class. This is most often accomplished in an informal manner based on discussions with mechanics and drivers, and a comparison of replacement cycles with peer organizations.

Some organizations, however, employ an empirical approach to determining fleet replacement cycles. This approach, which is known as life-cycle cost analysis (LCA), involves modeling the stream of costs associated with acquiring, maintaining, and disposing of vehicles over various replacement cycles, and then determining the cycle with the lowest cost. To determine the minimum cost cycle, the equivalent annual cost (EAC) of each cycle is computed and compared. The EAC of a capital asset such as a vehicle is a uniform dollar amount, expressed in today's dollars that one could pay to produce the net present value of a stream of future costs associated with owning and operating the asset. It is a useful statistic for comparing the costs of alternative replacement cycles (i.e., streams of future costs of different durations) for an asset in order to determine which cycle results in the lowest cost.

As part of this project, we were tasked to conduct an analysis of life-cycle costs for a representative sampling of FDOT vehicles. The classes of vehicles in the sampling included small sedans, compact pickups, light duty pickups, medium duty trucks, dump trucks, and front end loaders. As noted above, the objective of this process was to determine the most economical replacement cycles for each class included in our LCA analysis.

Although DMS established detailed criteria to establish the replacement cycles for vehicles and equipment, FDOT has in recent years extended most of the cycles for their vehicles. The extension is, in most cases, an increase in the meter thresholds, thus placing less emphasis on the number of years in service. For example, the DMS meter criterion for replacement of an intermediate sedan is 80,000 miles whereas FDOT replaces the same sedan at 95,000 miles. It is important to note that neither criterion has been based on an analysis of all of the cost factors of ownership and a determination of the best economic cycles for replacement.

We applied detailed cost information supplied by DMS and FDOT to the proprietary model that we have developed to analyze EAC of the classes of vehicles included in our analysis. Detailed results from our LCA model may be found in the Appendix. A summary of results of our analysis is shown in the following table:

**Table 2: EAC Results**

Type of Vehicle	Current Meter	Current Age	Recommended Meter	Recommended Age
Compact Sedan	95,000 miles	96 months	51,000 miles	72 months
Comp. Pickup	95,000 miles	96 months	40,000 miles	48 months
Full Size Pickup	95,000 miles	96 months	62,000 miles	60 months
Medium Truck	150,000 miles	120 months	71,000 miles	84 months
Dump Truck	250,000 miles	120 months	68,000 miles	72 months
Front Loader	6.000 hours	120 months	2,000 hours	72 months

As can be seen, there are some significant differences between the current cycles and the cycles recommended for best economic replacement; however, one must remember that the LCA models consider all costs including depreciation, residual values, maintenance and operating costs such as fuel and parts. The benefit of calculating these costs is that one can also determine the cost savings if vehicles are replaced accurately. The table below illustrates the annual savings associated with the six classes we analyzed:

**Table 3: LCA Savings**

Vehicle Type	Savings
Compact Sedan	\$ 309,451
Comp. Pickup	\$ 623,294
Full Size Pickup	\$ 307,345
Medium Truck	\$ 758,302
Dump Truck	\$ 1,807,698
Front Loader	\$ 1,193,203
<b>Total</b>	<b>\$ 4,999,292</b>

The savings total of nearly \$5 million annually is substantial in that the six classes of vehicles that we analyzed represent only 20% of the total FDOT fleet. Clearly, not all classes in the fleet will realize this level of savings; however, with the proper replacement cycles applied to a greater percentage of the fleet, the savings could increase rapidly. Moreover, because the State does not provide FDOT with sufficient funding to comply with established replacement criteria, actual savings from implementing LCA based replacement cycles would likely be much higher than shown in this analysis.

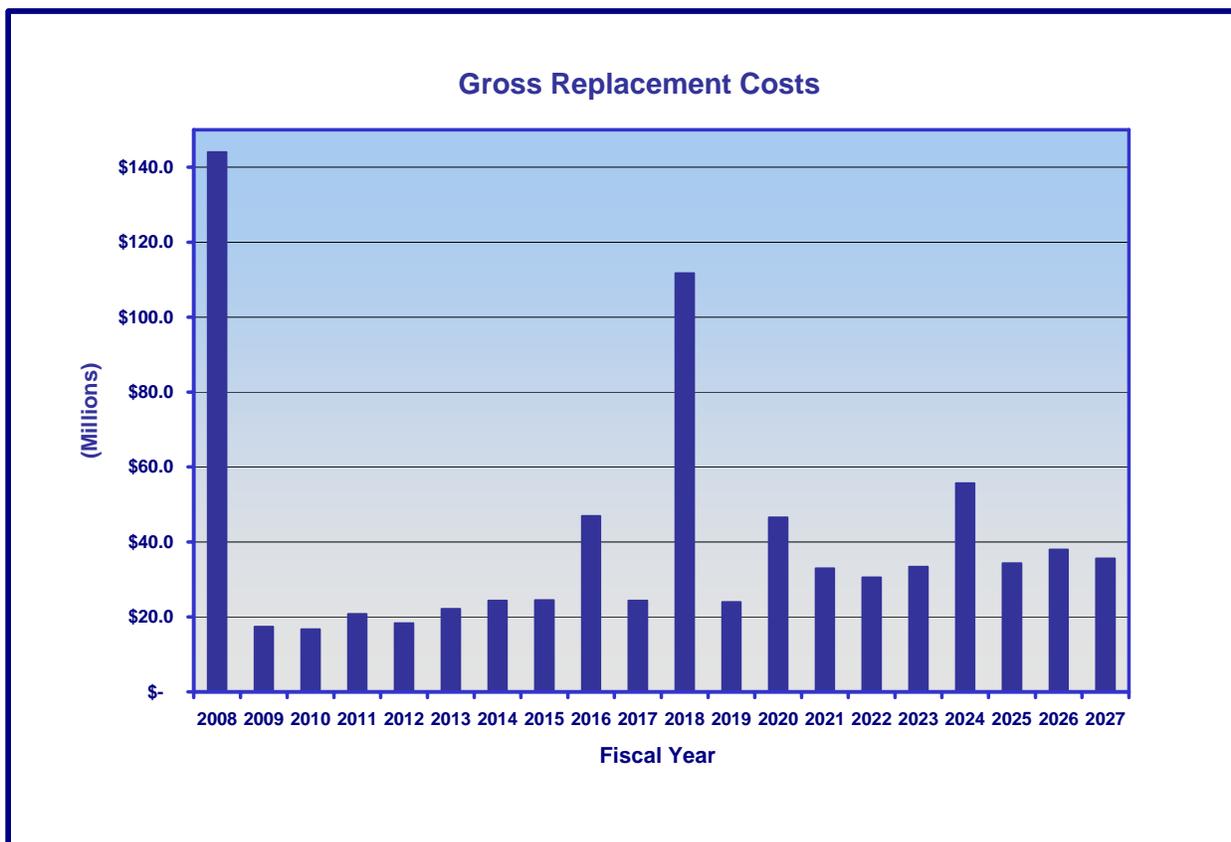
Forecasting Future Year Replacement Costs

Mercury Associates uses a proprietary program called *CARCAP™ (Capital Asset Replacement Cost Analysis Program™)* to develop fleet replacement plans and

## FDOT Fleet Operations Review

compare alternative financing approaches. This program allows us to project the remaining life, and future replacement dates, replacement costs, residual values, and depreciation costs of *each* vehicle and piece of equipment in a fleet, which are then rolled up into division, department, fund, and jurisdiction-wide totals for a user-defined planning period.

In this task, we only developed a baseline plan. The baseline reflects future year funding requirements that are necessary to bring the fleet into conformance with the replacement cycles used in the plan. It is important to note that the model assumes that each vehicle will be replaced with a comparable vehicle in the future. For example, a marked police patrol sedan will be replaced with a similarly equipped sedan at the appropriate time. There is also no anticipation of fleet growth within the model, thus the fleet size is “frozen” at its current level for purposes of this analysis. The following graph illustrates the replacement funding requirements for FDOT using existing established fleet replacement criteria:



The first year requirements are substantial, about \$145 million. The reason for this is primarily the large backlog of vehicles and equipment that were eligible to be replaced but not funded for replacement in recent years. The funding backlog also includes more than 4,500 vehicles. Even if \$145 million in funding were available, it would be nearly

impossible for this number of vehicles to be ordered and processed in a reasonable time. Consequently, additional analysis that is beyond the scope of this study is required to develop a rational sequencing of replacements that is both financially affordable and logistically feasible.

As mentioned earlier, this baseline plan represents the condition of the FDOT today and presumes that the size and composition of the fleet would remain static. If FDOT were to initiate a comprehensive analysis of fleet utilization and subsequently reduce the size of the fleet, the size of the problem would also be reduced. Further, a refinement of the plan that would even out the required expenditures to recognize funding limitations and practical limitations as far as processing vehicles for auction and bringing new vehicles on line, would also lower near-term funding requirements. When we are commissioned to develop a fleet replacement plan for an organization we spend a considerable amount of time and effort “smoothing” the replacement plan by deferring replacement of lower priority vehicles to future years.

### Financing Alternatives

As explained earlier, fleet organizations generally have three alternatives for financing fleet replacements: direct cash outlays, the use of a “sinking fund” that is replenished through charge-backs to users, and debt financing. The possibility of FDOT using the direct cash outlay method would seem to be unlikely in that the requirement would consume a significant portion of the entire budget. Moreover, it is our experience that the cash option is the least effective method for funding replacement of capital assets and certainly has not served FDOT well in the past.

The second method, development of a sinking fund, would be even less plausible in that not only would FDOT need to fully fund the vehicle replacements but would also need to ensure that departments were granted adequate funding to pay the charge-back rates over the lifetime of the vehicles. For example, FDOT Districts would require an additional \$13.5 million or so in funding for charge-back rates along with the \$145 million for actual replacements in the first year. In short, the development of a long term fund balance to support future replacements would be even more painful for FDOT.

The third option, debt financing, appears to be the most promising alternative for FDOT. This of course is predicated on FDOT’s ability to incur long term debt for this purpose. Present State fleet policies provide for long term payment plans that include interest; therefore, we assume that the legislation and policies are in place to allow this type of financing.

Like a revolving fund, debt financing allows organizations to spread the capital costs of fleet replacement purchases over the service lives of the vehicles in the fleet. Debt financing is similar to a reserve fund in that it eliminates most of the year-to-year volatility in replacement funding requirements. This reduces the likelihood that fleet

## FDOT Fleet Operations Review

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replacement spending will be subordinated to other priorities and needs, particularly during lean budget years.

Rather than accumulating cash in a reserve fund to pay for replacement vehicle purchases, however, this approach involves borrowing money from the capital markets and repaying it after vehicles have been placed in service. Debt financing instruments take many forms, including certificates of participation and other bond programs in which a government jurisdiction issues its own securities for sale to investors; master lease agreements, revolving lines of credit, and fixed-term loans available through banks and other commercial finance companies; and leases offered by fleet management companies and the financing arms of major vehicle and equipment manufacturers.

One of the perceived drawbacks of this financing approach is the cost of borrowing money; i.e., real or imputed interest charges. There is a perception among many people that it is fiscally irresponsible to use debt to finance the purchase of fixed assets such as vehicles that are “used up” relatively quickly. There is no question that interest charges increase the total purchase price of a vehicle. However, to the extent that debt financing enables an organization to replace vehicles that it otherwise would keep in service for excessive periods of time due to its inability to accommodate all fleet replacement funding requests each year, interest payments may actually result in lower vehicle life-cycle costs. In other words, interest expenses may be more than offset by higher vehicle residual values and lower vehicle operating costs resulting from more affordable (i.e., budgetarily manageable) and, thus, more timely vehicle replacements.

While preparing a financing plan for FDOT’s fleet was beyond the scope of this project, we have developed an estimate based on our experience doing this work for other states (including the Virginia and New Mexico DOTs in the past six months). Using reasonable assumptions for interest rates (4%) and financing terms (72 months), we have developed the following estimated annual debt service costs related to a fleet renewal plan for FDOT.

**Table 4: Illustrative Fleet Financing Plan (figures in millions)**

	2008	2009	2010	2011	2012	Total
<b>Adjusted Plan</b>	<b>\$64.9</b>	<b>\$57.0</b>	<b>44.5</b>	<b>\$26.2</b>	<b>\$20.1</b>	<b>\$212,768,343</b>
<b>Debt Service</b>	<b>\$ 7.3</b>	<b>\$15.3</b>	<b>\$23.3</b>	<b>\$26.4</b>	<b>\$29.4</b>	<b>\$101,633,968</b>
<b>Units Replaced</b>	<b>1,682</b>	<b>1,640</b>	<b>1,828</b>	<b>702</b>	<b>682</b>	<b>6,534</b>
<b>Avg Age of Fleet</b>	<b>101</b>	<b>66</b>	<b>47</b>	<b>30</b>	<b>32</b>	

As can be seen, using a debt financing approach over a five year period, FDOT would be able to replace 6,500 vehicles with a replacement value of \$212 million for total payments of \$101 million. This would drive the average age of the fleet down to industry standard levels and provide FDOT with all of the associated benefits discussed above in this section of the report. Please note that the numbers used in this analysis are estimates and are for illustrative purposes only. While we are confident that the

underlying principals are sound, actual annual costs would have to be confirmed as part of developing a long-range fleet replacement and financing plan for FDOT.

### **Recommendations:**

7. *Develop a long-term fleet replacement planning program which provides a systematic, quantifiable, and, hence, defensible foundation for year-to-year replacement spending proposals. FDOT should prepare and update each year a multiple year (10 to 20 years) fleet replacement plan for all vehicles in order to precisely calculate future year funding requirements.*
8. *Determine the feasibility of increasing fleet replacement funding levels through a change in capital financing approaches from cash to a debt financing approach that spreads the cost of vehicles over their useful life.*
9. *Centralize fleet replacement planning, budgeting, and decision making within the SMO. While District staff should have appropriate input into the replacement planning process, SMO should set priorities to replace the vehicles each year that will provide FDOT with the greatest financial and operational benefits.*
10. *Develop a FDOT-wide points system for determining which vehicles to earmark for replacement to enable the replacement of the worst vehicles across the organization, rather than District or Yard specific.*
11. *Standardize the points system for application statewide. Program the system into a software package (such as Microsoft Excel) and implement it as one of a standard suite of fleet management tools accessible statewide. Develop and implement training in how to use the points system (via Webinar for interactive training or an on-line training module for access as needed by users).*
12. *Develop a procedure for handling unplanned replacements, which would include a process for substituting vehicles requiring immediate replacement (e.g., accidents) in place of those already earmarked via the replacement planning process.*
13. *Establish a process for mid-year replacements. Perhaps create a reserve fund at HQ or establish a lease contract which could be bought out after the annual funding allocation is available. Assess use of the motor pool as a vehicle replacement resource. Gather several years of data on the total number and types of vehicles requiring unplanned replacement and determine whether some vehicles added to the motor pool annually could meet unexpected replacement needs.*
14. *Evaluate the criteria for “totaling” a vehicle by performing a cost study to identify the optimum point at which a vehicle should be replaced rather than repaired. Develop a model into a software package (such as Microsoft Excel) and implement it as one*

*of a standard suite of fleet management tools accessible statewide. Develop and implement training in how to use the cost analysis tool.*

### **VEHICLE ACQUISITION AND DISPOSAL**

#### **Vehicle Acquisition**

Owning/leasing vehicles and equipment represents the single largest cost component of fleet operations, easily eclipsing expenditures for maintenance, fueling (although this has been catching up recently) and other components. The methods used to acquire and dispose of vehicles and equipment directly impact fleet performance and cost.

Organizations should design their acquisition processes to balance fleet users' transportation and mobility needs with economies derived from a) volume purchasing and b) standardization of vehicle types. Disposal practices should ensure vehicle replacement at a point that minimizes life-cycle costs and in a manner that maximizes residual value.

The acquisition process begins with development of vehicle specifications that define the technical attributes and configuration, and/or the functional capabilities of a vehicle or piece of equipment. How an organization develops and employs specifications affects a) cost effectiveness, b) suitability of the purchased vehicles for fleet users' needs, and c) the level of effort and amount of time required to acquire vehicles.

An effective specification process systematically incorporates information on user needs and maintenance experience with particular types of vehicles and components and subsequently balances custom design requirements with standard features. As one would expect, the more customized the design, the longer it takes to develop the specification and the more expensive the respective vehicle is.

After a vehicle has reached the end of its useful life, the procedures to remove it from service and to dispose of it should be designed to a) maximize residual value, b) avoid unauthorized retention and use of officially replaced assets, and c) ensure the removal of unneeded replacement parts from inventory.

#### **Analysis of Current FDOT Practices**

Fleet users, such as the Operations Superintendents, typically communicate their needs for new vehicles with the local fleet shop supervisor or the Shop Superintendent who in turn coordinates vehicle replacement planning and specifications with the District Fleet Manager. The District Fleet Manager then coordinates with the SMO Fleet Manager to compile vehicle requests by type and quantity and communicates with DMS. DMS is then responsible for the acquisition and delivery of the vehicles which normally go directly to the shop that will be maintaining the vehicle. Further information regarding the acquisition process is available in our report on DMS fleet management. Although

most replacements are like for like, vehicle models change year by year and some fleet staff stated they need training in the area of specifications.

Most types of vehicles are specified in a basic configuration (for example, ½ ton pickup with extended cab) using the selector list provided by DMS based on the State bid results. However, our interviews and observations revealed that many trucks are substantially “upfitted” by the local fleet shop after they are delivered, and that these upfitting modifications are frequently charged to the vehicle’s maintenance record.

The HQ Fleet Manager indicated that DOT tries to buy “turnkey” vehicles, meaning they are ready for service as delivered. However, we found this not to be true in many Districts. One Shop Superintendent told us that pickups never come with trailer hitches/wiring, tool boxes, fire extinguishers, or light bars. Shops have to install all of this equipment, which is, as noted above, normally charged to the equipment as maintenance. We observed major up-fitting of a welding truck where the shop was adding the welder, crane, custom built bins etc. to a stake-bed truck, which was charged as maintenance. Capitalizing these “minor” expenses is reportedly not allowed by DOT Fiscal. There is also no work code for upfitting in EMIS, but it does have a repair code "E" (Capital expenditures) which, if used, would apply all costs associated with up-fitting to the equipment's acquisition cost and not to its maintenance costs. DOT apparently chooses not to use this code.

One reason given by the Districts for the practice of upfitting vehicles following their delivery and charging the cost to maintenance is the severe shortage of capital replacement funds. If “bare bones” trucks can be bought, then *more* new trucks can be bought with limited funds and later upfitted with maintenance funds that appear to more readily available.

We suspect that almost all work trucks acquired by FDOT are somewhat “customized” in response to user demands once they are received by the local shop. Items such as trailer hitches, light bars, tool boxes, etc. are needed by every District, so it makes sense that a considerable amount of standardization could take place for many types of vehicles, thus lowering the overall cost of vehicle acquisition. In fact, certain operations job classifications should be able to adopt a suitably equipped, standardized truck without *any* additional modifications needed. A focused effort on standardization is needed, which will likely result in an overall savings of hundreds of thousands of dollars annually.

### Recommendations

- 15. Convene a vehicle standardization working committee with representatives from each FDOT organization, and include both operating and fleet people. Identify a few job classifications (those that are both numerous and common in every District) that could logically use a standardized type of truck and gather input from the working*

*committee to allow the development of complete, detailed specifications for the chosen vehicle types. This should be a step by step, ongoing effort.*

*16. Provide additional training for all FDOT fleet management personnel in the area of vehicle selection and specification to enable them to communicate more effectively with vehicle users and FDOT fleet management, and to educate them regarding the value of vehicle standardization. Fleet shop supervisors are the “first line of defense” against uncontrolled vehicle customization.*

*17. Solicit top management support for standardization efforts by explaining the extent of the customization problem and its associated costs and the benefits of standardization. Such support will be needed to create the policies and procedures necessary to cause the individual Districts to accept standardized vehicles.*

### **Vehicle Disposal**

For vehicle disposal, FDOT must use DMS' established auction company and vehicle transport contracts. Nearly all vehicles are transported to the Tampa headquarters of the auction company, where they are sold at a monthly auction.

For most Districts, the Yard Supervisor and/or District Fleet Manager are responsible for determining whether a vehicle is in appropriate condition to go to auction or to sell as salvage. The District Maintenance Engineer fills out a form 6401 to justify/request a vehicle disposal through auction. The information on the form is reviewed by DMS for compliance with replacement criteria. Districts are typically notified via letter from DMS when disposal is approved.

Once disposal is approved, the District Fleet Manager, Yard Maintenance Supervisor or other personnel at the District or yard level contacts SunState to transport that vehicle to Tampa for auction via "movement orders." SunState must receive "movement orders" at least 30 days before the scheduled auction date. Districts report that the process typically takes about two months from notice to auction. However, as a few Districts noted, sometimes paperwork can get bogged down at DMS, and/or SunState is notified shortly after the 30-day cut-off; in those instances vehicles may be out of service and sitting idle for three or four months before they are auctioned.

Moreover, Districts with operations a great distance from Tampa feel they are mandated to incur disproportionately high transportation costs because all auctions are channeled through the one location. Regional auctions at four or five locations throughout the State may be more cost-effective and expedient, particularly as fuel prices increase and force higher transport fees.

Districts also report that auction prep processes and standards vary among the yards as well as among the Districts. Whereas one District yard uses inmate labor to virtually detail sedans and pickups prior to auction, another District indicated that because

## FDOT Fleet Operations Review

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auction proceeds do not impact their budget, they do not believe that the added effort to clean vehicles provides any return on investment of staff time.

Several Districts suggested that FDOT or the State should create an internal clearinghouse for exchanging equipment and/or create regionally located heavy equipment pools for equipment that have remaining service life but are not used regularly by an agency or operating group, but needed only on occasion. One District suggested that FDOT could manage a regional pool operation that could be used by other State agencies or even counties or municipalities.

In response to our information request, we received a report on August 2006 auction volume, costs and proceeds. During that month, FDOT auctioned 50 pieces of equipment for \$108,450 in gross proceeds. Of which, FDOT paid 25.86% for transport and auction services. Comparatively, among other State agencies that use the same disposal services, the service fees ranged from a low of 12.9% to a high of 116.2% (a 16.2% loss).

**Table 5: Auction Statistics**

	Units	Dollars	% of Proceeds
Gross proceeds from auction	50	\$ 108,450	
Sales to political sub-divisions	0	\$ 0	
Total gross sales	50	\$ 108,450	
Contractor's fee (9%)		\$ 9,621	
DMS administrative fee (3%)		\$ 3,254	8.87%
DMS travel expenses		\$ 173	3.00%
Key/battery/decal expense		\$ 120	0.16%
Title expense		\$ 0	0.11%
Transportation expense		\$ 14,878	
Total net proceeds		\$ 80,406	13.72%
Average per unit		\$ 1,608	74.14%

FDOT Districts unanimously expressed that they believe net auction proceeds should be returned to FDOT, at minimum, and to the District, at best, to help fund replacement purchases and to serve as an incentive for FDOT and the Districts to maintain equipment and to dispose of it at more optimal times to garner higher residual values. (Notably, DMS budget personnel indicate that auction proceeds *are* distributed back to each agency, including FDOT. However, because application of the returned proceeds within the agency budget is determined in the budget process and not made readily apparent as a line item in the allocation, FDOT cannot easily identify or verify the degree to which its proceeds have been applied to its fleet budget.)

To our knowledge, DMS has not conducted an analysis of auction sale proceeds, nor do the transport or auction vendors have performance requirements stipulated in their

contracts.

Because much of the disposal process is mandated at the State level, FDOT has limited options for optimizing the disposal process on a macro level. (We provide specific recommendations for statewide improvements in the disposal process in our review of DMS policies and practices.) Therefore, our recommendations to contain disposal costs and improve efficiencies focus on those things that can be accomplished at the agency level or by the Districts.

### Recommendations

- 18. Establish a financial structure where auction revenues directly offset vehicle purchases in order to incentivize fleet users to be more cost-conscious in evaluating decisions to send a vehicle to auction versus scrapping or cannibalizing it for parts.*
- 19. Conduct an analysis of the cost and benefits of establishing contracts with multiple auction companies throughout the State to decrease average days to sale and to minimize costs related to transportation surplus vehicles to Tampa for sale.*
- 20. Establish FDOT-wide standard procedures with performance metrics to ensure disposal request paperwork is processed in a timely manner to minimize lag time between out-of-service dates and auction.*
- 21. Establish FDOT-wide guidelines for prepping vehicles for auction to maximize sale prices.*

### FLEET UTILIZATION AND RIGHTSIZING

The most obvious indicator of the business need for a vehicle is the amount of its use. Usually, but not always, vehicles that are genuinely needed to support the performance of employees' jobs are used frequently, and that usage is statistically demonstrated in the number of miles or hours such vehicles are driven or operated. As every fleet manager knows, however, mileage statistics are not always a good indicator of the need for a vehicle. Some vehicles are heavily used even though they do not accumulate many miles. This is particularly true in the case of vehicles that are used for security, emergency response, or within the relatively limited confines of a facility.

While high mileage readings usually are a good indication that a vehicle is needed and should be retained, the opposite cannot necessarily be said of low mileage rates. Low-mileage vehicles are not necessarily low-usage or low-importance vehicles. They may or may not be vital to the performance of employees' jobs. In scrutinizing seemingly under-utilized vehicles, however, one must develop information on their use and importance to an agency or its organizational components that simply cannot be reflected in a single metric such as weekly, monthly, or annual mileage.

More often than not, fleets focus on underutilization of vehicles far more than over utilization, primarily because they fall prey much more quickly to the political scrutiny of elected officials. However, over utilization can prove to be more costly if a fleet manager fails to ignore this element of utilization. Using up a fleet asset before its predetermined life-cycle subjects fleet managers to fluctuating replacement expenses and loss on sale related to the vehicle at the time of disposal.

Utilization is usually measured by a meter and in terms of mileage or hours. Sometimes utilization is also tracked by time periods. The inventory file that was provided for this study did not distinguish among these variables, simply offering an odometer reading, so we made assumptions that the correct meter measured utilization for the appropriate type of asset. By definition, meters include but are not limited to odometers, hour meters, and hub meters. Most people are familiar with odometer use. Hour meters are usually employed on construction equipment and fixed assets, and hub meters are usually placed on trailers. For our review, we assumed that asset use was measured and reported correctly.

As a note of caution, we mention that underutilization can be a sign that an organization is hoarding vehicles due to the age of the fleet and the high maintenance and downtime related to older, unreliable vehicles.

The current method of determining and defining vehicle utilization by FDOT should be reviewed before making decisions regarding the fate of a broad group of vehicles and equipment.

### **Analysis of Current FDOT Practices**

The size of the FDOT fleet changed from 7,311 in December, 2002 to 6,705 in March, 2007, an overall decrease of 606 units. However, another inventory list dated September, 2006 showed 7,171 units, so the actual number is unclear but obviously rises and falls as new vehicles are received and old vehicles auctioned. We understand that the number of vehicles in Districts has decreased, and additional vehicles have been added to the Turnpike Enterprise and the Office of Motor Carrier Compliance via legislative approval. At the time this report was prepared, we did not have details regarding the fleet size changes in individual organizations.

FDOT has documented procedures for monitoring and controlling the size of the fleet by examining vehicle utilization. The Mobile Equipment Manual (MEM) states:

“Districts are specifically required to document that the EMIS "EQUIPMENT COST AND UTILIZATION SUMMARY" has been run and studied by the District Fleet Manager each month for all equipment in the District, and that any seemingly excessive maintenance costs have been reconciled and/or explained.”

## **FDOT Fleet Operations Review**

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The MEM also refers to a Utilization Report which details the idle time and miles or hours of usage in equipment number order. The MEM goes further to specify a procedure to be used for identifying and taking action on potentially under-utilized vehicles and equipment.

None of the people we interviewed stated that they are performing the utilization review process required by the MEM, despite our direct questioning regarding utilization and other types of cost and performance monitoring.

Utilization in terms of miles or hours of use is captured in EMIS. There is also an “idle days” report which is extracted from the MMS system. The idle days report is set to identify vehicles with more than “X” idle days per month, but there does not seem to be any standard for what constitutes too many idle days. An idle day is considered a day with no activity reported in Maintenance Management System. Since FDOT operations are on a four ten-hour day work week, and Friday is considered an idle day for this report, each vehicle starts off with about four idle days per month. Some do not like the idle vehicle utilization report because they believe that it does not accurately capture use.

Fleet personnel also stated that there have been instances where operations staff has falsely reported their vehicles or equipment as “in the shop” to avoid the discovery that they were simply not being utilized. Furthermore, if a vehicle must go to the shop for a minor repair such as a headlight replacement, it may be reported in the MMS system as idle for the entire day. The correct process to report vehicle use is to report “down” when a vehicle is in the shop for the entire day and to report “idle” when the vehicle is available for use but is not used for the entire day. When a vehicle goes to the shop for a minor repair and is back in service the same day, use of the vehicle should not be reported as “idle” for the day. Obviously, the “idle days” reporting requirements and report parameters need improvement.

EMIS has the ability for a user to indicate the weekly schedule that a piece of equipment is on. Currently, a user can make one of 3 choices: 7 day, 5 day, and 4 day weeks (EMIS could easily include other choices). The intent of capturing this information is to better indicate an equipment's usage. Having the weekly schedule of the equipment input can enable EMIS to show in percentages the availability of the equipment. However, this feature was only implemented in late 2005, and DOT has not yet updated all its records to be able to take full advantage of the functionality.

Some Districts are more aggressive than others in monitoring utilization. For example, one District Fleet Manager reviews vehicle utilization via vehicle logs and down-time reports in MMS (no reference to the above MEM process) and when he notes low utilization, he brings it to the attention of the yard personnel who oversee those vehicles. Cost center managers are typically cooperative with his suggestions to swap or rotate equipment to even out utilization.

## **FDOT Fleet Operations Review**

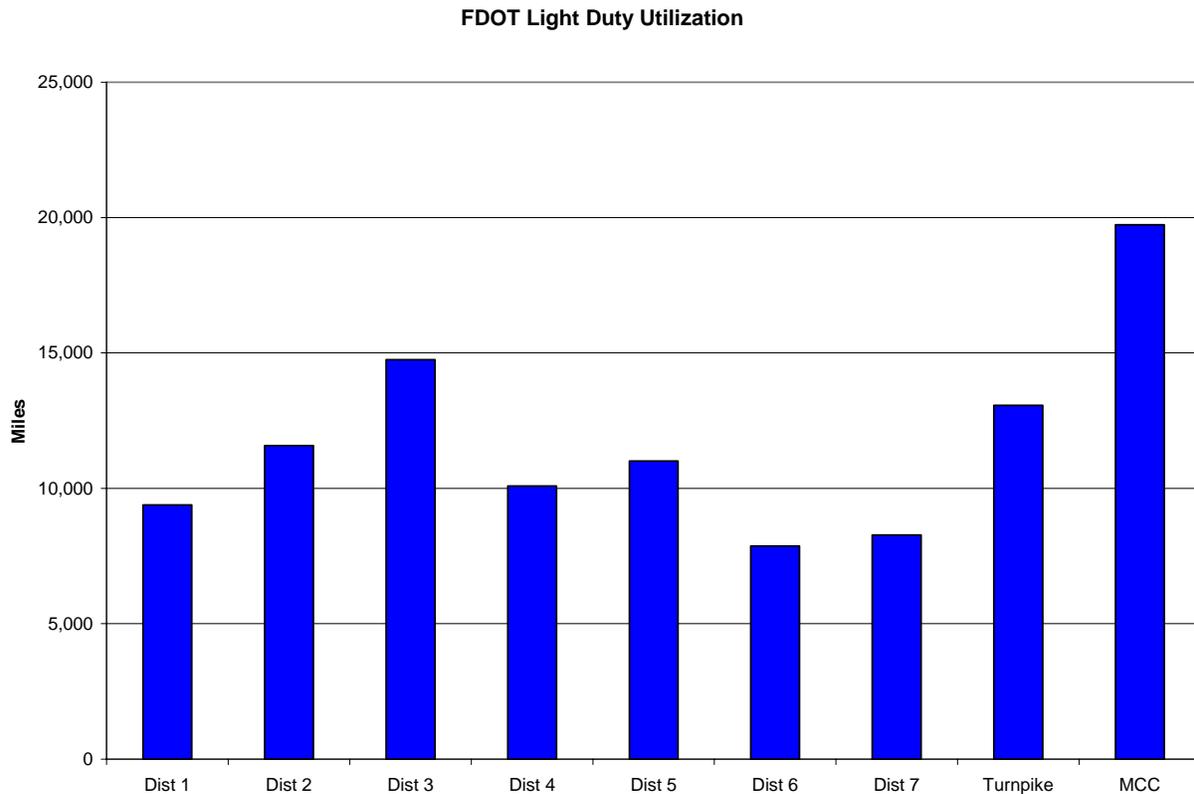
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District 3 staff looks at utilization each month and questions vehicles that appear to have low use. Low use vehicles are occasionally moved to higher use assignments within the District. The District 3 standard for utilization is 350 miles per month. If a vehicle is under-used for 3 consecutive months, the Fleet Manager investigates. The users may lose the vehicle to another yard.

During our interviews with FDOT fleet personnel, they indicated that the operations groups rarely rent vehicles or equipment. Our data analysis showed many examples of large, expensive equipment such as 2-Yard Wheel Loaders that had very low average utilization. It is unclear why FDOT chooses to own such equipment instead of renting it as needed because that type of equipment is readily available in most locations.

In addition to EMIS, FDOT operates two systems, Motorlog and the Maintenance Management System (MMS), which electronically upload mileage data into EMIS through a scheduled batch process. Mileage data is entered into the new Motorlog system as well as the MMS system, which is a labor and equipment utilization program designed to track costs in relationship to projects/jobs. Each Yard enters its own data into each system. According to one Fleet Manager, these two systems are “data entry monsters,” meaning they require a large amount of time and effort.

Our review of records from EMIS revealed the following utilization levels for the FDOT organizations:



In general, *average* levels of utilization for the light duty fleet are fairly good. District 6 and District 7 have lower levels of utilization but that is to be expected given that they are primarily the Miami and Tampa Bay metropolitan areas. Average utilization for District 3, the Turnpike Enterprise and Motor Carrier Compliance are predictably high due to the geographic characteristics of their operations.

Within the fleet industry, commonly used thresholds for assigning individual vehicles to either the acceptable or questionable need category are: 80% of formally established minimum monthly (or annual) utilization levels or 50% of the mean annual utilization by type of asset. Vehicles that fall below the standards typically are targeted for further review, with the end result being one of several options such as:

- Retention due to mission necessity;
- Turn in to motor pool for sharing or reassignment;
- Replacement with a more appropriate type of vehicle;
- Disposal without replacement.

## FDOT Fleet Operations Review

For this study, Mercury opted to use 50% of the mean because it was more appropriate given the large number of older vehicles and the large number of vehicles in the fleet, which necessitates a high-level overview.

As the tables below illustrate, utilization varies widely across the Districts. This type of variance generally indicates the need for greater fleet management oversight with the aim of rotating vehicles from high-utilization applications to low-utilization applications, thereby extending the useful life of vehicles. We recognize that such a program for FDOT would be a challenge to implement, given the budgeting process. However, the data appears to indicate that cost savings could be realized. At the very least, utilization requires further study to a) right-size the fleet, which might result in fewer vehicles and significant cost savings and b) ensure the right number of types of vehicles are in the right locations.

As shown in the following table, about 20% of the FDOT fleet appears to register low utilization based on the number and value<sup>3</sup> of assets that are less than, or equal to, 50% of the average annual use for all organizations.

**Table 6: Summary of Apparent Low Use Vehicles**

Asset Type	Total Asset Count	Number of Assets Less Than or Equal to 50 % of Average Annual Use	% of Total Asset Count	Value of Assets Less Than or Equal to 50 % of Average Annual Use
Autos	1,277	82	6%	\$1,186,537
Light Duty Van and Truck	2,002	174	9%	\$3,247,618
Med-Heavy Truck	1,018	177	17%	\$10,812,037
Construction – Heavy	311	72	23%	\$1,291,473
Construction – Light	581	243	42%	\$3,022,594
Trailer	395	198	50%	\$1,640,752
Other ATVs Boats Signs Etc	594	321	54%	\$3,926,706
Total	6,178	1,267	21%	\$25,127,717

Note that many of the “under-utilized” assets are those types for which usage is often not tracked, such as light construction equipment, trailers, and “other”. We caution that this analysis is only as good as the data provided, and we have a lower level of confidence in the data on these types of equipment.

<sup>3</sup> Value means the original purchase cost.

## FDOT Fleet Operations Review

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Nevertheless, if we only focus on Autos, Light Duty Vans and Trucks, Medium/Heavy Trucks, and Construction Equipment, the combined value of these potentially underutilized assets exceeds \$16.5 million. Clearly, a much more thorough investigation of utilization is needed, along with a specific plan for right sizing the FDOT fleet.

The following table, which is displayed by FDOT organization, shows the total value of assets that met the criteria for underutilization.

**Table 7: Value of Underutilized Assets by Organization**

Organization	Value of Underutilized Assets
District 1	\$4,208,261
District 2	\$5,681,314
District 3	\$3,144,765
District 4	\$2,888,945
District 5	\$2,205,333
District 6	\$1,843,564
District 7	\$2,193,622
Turnpike	\$2,126,869
Headquarters	\$313,155
Motor Carrier Compliance	\$521,889
Total	\$25,127,717

Districts 1, 2, 3, and 4 have potentially underutilized assets that total in value from nearly \$3 million to well over \$5 million. These Districts would obviously be ideal candidates for a detailed utilization review.

Additional detail on utilization is shown in the Appendix. The purpose of the tables in the Appendix is to take the first step toward a utilization analysis of the fleet. Such an analysis gives management a tool for controlling the size of the fleet. This is an important management responsibility that the FDOT and the State should quickly undertake.

Given that we were commissioned only to do a high level review of fleet utilization to identify whether fleet rightsizing opportunities exist, our analysis was not extensive enough to document savings available from rightsizing the FDOT fleet. However, based on our experience working with other fleet organizations and the extent of low use units

in FDOT, we conservatively estimate that the fleet could be downsized by 5% with no adverse operational impacts. This translates to a reduction of around 350 vehicles. A reduction of this magnitude would generate around \$700,000 in auction revenue (at an average sales price of \$2,000) and also produce savings in depreciation, maintenance, and fuel of an additional 700,000 per year (\$2,000 per vehicle). Consequently, savings over a five year period would be \$4.2 million. Please note that these savings estimates are conservative and do not consider the impact of renewing the fleet, which could generate significant additional opportunities to reduce the size of the fleet.

### Recommendations

22. *Take steps to enforce the utilization management policies and procedures already in place in the MEM.*
23. *Revise the MEM to improve utilization management policies and procedures to better structure the “idle days” report, and to standardize minimum utilization levels for each District. The standards should vary according to the urban/rural nature of the District, or the type of operation such as Turnpike or MCC. Standards should also vary by vehicle/equipment type, although many types can be aggregated into larger “groups” such as “light duty”, or “heavy construction equipment”.*
24. *Initiate a program of rotating vehicles when practical. Rotating helps even out vehicle use in terms of miles or hours. If a particular vehicle is newer and mileage is higher than other vehicles, it could be rotated with vehicles with lower mileage or hours and hasten its depreciation and disposal.*
25. *Establish or expand motor pools where practical.*
26. *Establish equipment rental contracts so Districts can use renting instead of purchasing for equipment that is used infrequently and has low utilization. Private contractors would rent low use vehicles and equipment as required, but FDOT tends to own everything despite low usage.*
27. *Perform a complete, detailed utilization study that is supported by the top levels of FDOT management and use the results to rightsize the fleet.*

### MOBILE EQUIPMENT MANUAL

FDOT’s Mobile Equipment Manual (MEM) has both plusses and minuses. On the plus side, we note that it is clearly organized in terms of the logical flow of topics, that it designates responsibilities, that it spells out operational steps intended to guide users in complying with many policies, and that it contains useful fleet and maintenance information needed by personnel in various fleet functions, including FDOT managers, shop personnel and drivers. The last feature is also a minus, however.

Policy manuals are of little value if they aren’t regularly read and applied. This requires targeted information supplied in a user-friendly format. Best-practice organizations develop policy documents to address specific audiences rather than combine

information for all audiences into the same communication instrument. For example, vehicle and equipment operators should receive information directed to them, such as checklists for vehicle inspections, rather than have such information incorporated into a policy document written to stipulate the responsibilities and operational steps SMO is to fulfill.

FDOT has combined management guidelines with specific administrative and operator procedures in a 60-page document. Separating policies and operational information, and employing language appropriate for each audience, will support the fundamental policy goal, which is to communicate effectively. At a minimum, FDOT should establish policy and operating procedure documents for District fleet managers, DOT shop supervisors, and drivers and operators.

To further improve policy communication, FDOT should make its policy documents electronically available and searchable, incorporating links to forms and sources of information relevant to each audience. For example, a link to vehicle inspection checklists that users can print would ensure that organizations statewide follow the same operating procedure. The manual includes numerous forms, most of which could be accessed through links incorporated into the respective policy document. Links for management should include rapid access to relevant environmental laws and regulations, professional guidance on fleet management, points of contact to get answers to questions, to name a few.

In general, the policy is short on management specifics and confusing in structure insofar as the relevant audience addressed shifts throughout the document. In addition, it has not been updated in some time<sup>4</sup> so some key policies are not up to date such as the fuel management section.

To strengthen consistency, FDOT should clarify and strengthen policy areas that are presented in general terms or referred to as “guides.” For example, in the preventive maintenance section, the guide first refers the reader to the DMS PM schedule; then it indicates this schedule is only a guide and should be considered a minimum. Next, it provides examples of what else should be done, what is done in some areas, and finally indicates discretion should be used. The reader is definitely left with the impression that more should be done, but it is not clear what “more” is needed. While one can appreciate the need for use of sound judgment in the field, minimum PM guidelines should be clearly and simply stated.

We also note additional instances where the manual “strongly recommends” a practice instead of establishing a uniform policy that is in the best interest of fleet operation. For example, in the area of securing fuel from commercial vendors, the manual states: *“Certain commercial petroleum companies supply invoices on magnetic tape to the*

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<sup>4</sup> We understand the last complete revision was 13 years ago – in 1994; however some items appear to have been changed as recently as 2004.

*Central Office so that fuel costs can be distributed to the users. A list of these vendors can be obtained from the Office of the Comptroller. It is highly recommended that the Districts require all fuel purchases to be made from these companies.”* Rather than this recommendation, a department-wide policy should be established.

The manual includes discussion of motor pools but offers scant guidance on motor pool management, other than to say that the “assigned motor pool manager” shall “strictly” control certain situations. Information on how to assess motor pool utilization is lacking.

We find several areas where the manual is mostly silent, including:

- Driver qualifications and safety
- Accident management
- Environmental compliance
- Accounting codes that all shops should use
- Shop-related work to be outsourced
- Duties of District fleet managers

In a policy re-write, FDOT should address these topics, recognizing that each audience requires different information relevant to the topic. For example, a driver manual should include safe-driving information, whereas a supervisor’s manual should include information on how to minimize exposure to risk and reduce accidents, while SMO should be tracking all accident-related variables (such as driving conditions, weather conditions, light conditions, employee length of service, hours on duty at time of accident, and other key variables usually buried in accident report forms rather than analyzed) as a means of making policy and program decisions. Discussion of accounting codes should include how shops are to use them and examples for guidance. Discussion of outsourcing should include what work DOT shops should outsource (e.g., body and paint work and, in particular, engine rebuilds, which Mercury observed being done) versus what work DOT shops should normally perform (e.g., preventive maintenance).

During our field research, we observed wide variation in responsibilities for and work performed by District fleet managers. This position is fundamental to the state’s fleet management program. The duties and responsibilities should be reviewed and performance requirements spelled out in greater detail.

Policies and procedures require management mechanisms to ensure compliance. FDOT should determine what constitutes satisfactory performance for its policies and procedures and ensure that processes for monitoring compliance and performance are in place. In some instances, reports can be provided; in other instances, on-line data

can validate compliance; in some cases, field audits should be undertaken. Assigning responsibilities and spelling out procedures are of no value if oversight is lacking.

Although SMO is to develop policies and procedures for the quality assurance program, no performance measures or explanations of how to develop such measures are included. The manual stipulates that “District monitoring is being carried out often enough to assure the veracity of documentation” of the minimum requirements of the quality assurance program. We applaud the inclusion of quality assurance in the manual; however, we believe significant improvement is possible, particularly if a more robust fleet management information system is incorporated into the State’s fleet management program. A compliance scorecard can be developed without such a robust system, but an electronic compliance scorecard is possible with such a system and will give a push to improving fleet management and putting some teeth into policies and procedures.

### **Recommendations**

- 28. Develop policy documents targeted in writing style and content to respective key audiences.*
- 29. Provide policy documents on line with “key word” search capabilities and links to forms and sources of information relevant to the audience.*
- 30. Clarify and strengthen appropriate policy areas that are overly vague in setting protocol or procedures.*
- 31. Develop or flesh out manual areas on a) driver qualifications and safety, b) accident management, c) environmental compliance, d) accounting codes that shops should use, e) shop-related work to be outsourced, f) duties of District fleet managers, and g) motor pool management.*
- 32. Strengthen the quality assurance program through more specific performance measures and provision of explanations of how to develop such measures.*
- 33. Develop compliance scorecards for the quality assurance program and incorporate into the policy manual information on requirements and procedures for reporting on and meeting the measures. Include in the policy a discussion of the standards for levels of performance (e.g., pass/fail or red/amber/green) and required actions to mitigate low performance.*

### **VEHICLE MAINTENANCE AND REPAIR**

All vehicles and other pieces of motorized equipment require maintenance and repair during their life. Because a fleet service organization’s primary mission is to maximize the availability of vehicles and equipment so that its customers can productively do their jobs, the focus of maintenance management needs to be on developing practices that minimize unscheduled incidents of repair and that return vehicles requiring repair to service as quickly as possible. The performance of any fleet maintenance program is

also affected by the number of personnel employed to deliver services and how they are organized and deployed to accomplish their mission. Organizational structures should reflect reasonable spans of control and channels of communication that are consistent with formally defined authority and responsibilities. Staffing levels should be consistent with the effort required to deliver desired services productively, efficiently, and effectively.

Work orders should be used to document all maintenance and repair performed on a vehicle. Procedures also are needed to monitor the progress and, where necessary, to expedite the completion of work. These include protocols for passing work from one shift to the next, from one technician or shop to another, and from an in-house garage to a vendor. Procedures also are needed for following up on repairs taking more time than promised or anticipated or where parts delivery is overdue.

The service writer or other individual opening a work order should estimate the time and services required to complete work by referencing appropriate flat-rate manuals or in-house time and task standards. They should also estimate the cost of the repair. Work authorization procedures should ensure that appropriate controls are in place over the services and costs provided by a vendor. Such controls are particularly important as vehicles approach their planned replacement dates. To ensure cost-effective utilization of in-house maintenance resources and to minimize maintenance and repair turn-around time and downtime, a shop should have processes in place for scheduling work in advance and for performing minor repairs while the driver/operator waits. Service hours and scheduling processes should be flexible enough to accommodate vehicle users' work schedules, but also should seek to maintain a steady flow of work to technicians and avoid peaks and valleys associated with unplanned service demands.

Procedures should be in place to distribute work to technicians so as to promote high levels of technician productivity, efficiency, and effectiveness and to minimize repair turn-around time; and to assign work to a specific technician based on an assessment of technicians' availability and skills. Additionally, priority systems are often used to identify vehicles to be moved ahead in the repair queue based on their importance to the organization.

Vendors may be relied upon to perform fleet maintenance and repair services for a variety of reasons, including managing in-house work backlogs; avoiding costly investments in facility construction, tooling, training, and staffing; meeting low volumes of service demand in remote areas or for specialty repairs; and achieving a degree of flexibility (e.g., in terms of locations, hours of service, etc.) in the provision of services that is not possible with in house system constraints and sizable investments in fixed fleet maintenance infrastructure. The cost-effective use of vendors requires, however, that procedures be followed for:

1. Determining the comparative cost effectiveness of performing a service in house or using a vendor;

2. Managing and controlling vendor performance relative to individual service orders and ongoing service levels (in the case of contract providers of services); and
3. Capturing all relevant information on vendor-performed services so as to maintain a complete record of vehicle maintenance history and costs and provide for timely user billing via a charge-back system.

Quality assurance procedures are used to ensure that requested repair services are performed properly. When repairs are completed incorrectly, the vehicles are often returned, resulting in “comeback” repairs, which are costly and annoying, and need to be tracked and investigated. Comebacks should be identified and handled properly for several reasons:

- In all likelihood, the vehicle user is not pleased that the vehicle had to be returned to the shop;
- The comeback may have occurred because:
  - The initial defect report failed to clearly describe the problem. If this is the situation, a review of the original service request with the service writer and/or operator may be in order;
  - The technician may have improperly diagnosed and/or performed the repair and, therefore, some retraining may be needed; and/or
  - The parts used may have been defective and some follow-up with the supplier may be needed.

The best strategy for managing comebacks is to avoid them. This usually involves some form of post-repair review process. Quality checks can range from simple road-tests, to quality checklists, to complete observation of the repair. No matter what procedure is used, good quality programs are integral to ensuring customer satisfaction.

The development and analysis of management information enables managers, supervisors, and trades workers to develop insights into aspects of their performance and to identify opportunities for improvement that might otherwise be undetected. Accurate, complete, detailed, and timely collection of maintenance activity and cost data through work orders is the foundation on which maintenance performance measurement and improvement processes rest.

The centerpiece of any vehicle maintenance program is its preventative maintenance (PM) program. An effective PM program drives the cost of fleet operations down and promotes efficiencies throughout the organization. A good PM program minimizes breakdowns and unscheduled maintenance, thereby enabling vehicles to remain in service as much as possible and maximizing their availability to the customers.

PM services should be scheduled on the customer’s timetable. Often this is after normal working hours or at times when the vehicle may be idle for a period of time. The

PM program should also incorporate multiple echelons of progressive services. That is to say that tasks particular to a specific level of PM service be included in each subsequent level of PM performed. For instance, PM A tasks are incorporated into PM B tasks. PM B tasks are incorporated into PM C tasks.

PM intervals should be based on certain “triggers” that meet manufacturers’ recommendations or standards. In most cases that is some interval of time or some interval of usage. When one or more of the triggers is met, the need to schedule the PM becomes the focus of the operation. Without documentation of meeting stated or recommended PM intervals, manufacturers may deny a warranty if made aware that the vehicle or piece of equipment is not being properly maintained.

### **Analysis of Current FDOT Practices**

Our review of FDOT fleet maintenance practices began with a review of basic performance metrics that are common in the fleet industry. The underlying information that supports such a review must necessarily rely on the quality and completeness of data that shops in the field enter into the EMIS and/or financial system daily.

Most of the shops we reviewed appear to be diligent about entering vehicle repair information into EMIS. However, when we requested information from the FDOT Comptroller’s office, the cost information for fleet maintenance did not align with that from EMIS. We also note that costs are not a component of the QAR reviews at each shop in each District. Thus, although FDOT fleet maintenance operational details are relatively clear (but not consistent across the organization); *cost* information appears to be inaccurate.

The highly decentralized FDOT organizational structure complicated our review of many aspects of fleet maintenance and other fleet management functions. However, we have attempted to highlight gaps between FDOT’s maintenance operations and industry best management practices that will enable FDOT focus on areas of potential improvement. The long-established culture of FDOT decentralization may impede rapid transformation of fleet management towards best practice processes, but it should be possible to take the initial steps necessary to begin standardizing and improving the business of fleet maintenance. Our fleet maintenance review covered these functional areas:

- Fleet Maintenance Overview
- Shop Staffing Levels
- Fleet Maintenance Cost, Quality, and Timeliness
- Other State’s DOT Fleet Maintenance

### Fleet Maintenance Overview

Fleet management personnel at the maintenance shops almost always report to local yard-maintenance management. Thus, even within a District, fleet maintenance practices can vary significantly, and our consultants encountered a wide variety of approaches to fleet maintenance management. The scope of services provided by each shop is inconsistent in that some shops are staffed with FDOT technicians while others are staffed with contract personnel. Still others simply outsource all their work to local commercial repair shops.

No process exists for determining which fleet maintenance repair activities FDOT shops *should* engage in. Consequently, we found significant variability in practices which have not been driven by business case analysis. For example, some shops do only PM's and outsource all repair work, while some outsource all PM work and do only repairs. One Yard in District 3 closed the shop and outsourced all maintenance work to a variety of vendors. Another Yard in District 2 outsourced vehicle maintenance to the City of Jacksonville.

At least three shops have been outsourced, but no business case analysis was found for any of these fleet maintenance program decisions. Whether this is a good or poor practice is unclear, and we were unable to uncover comparative costs for the outsourced operations.

Inconsistencies in shop management extend to forms, parts and vendor service, purchasing, operating hours, training, shop physical plant, tools and equipment, etc.

The size and condition of FDOT shops also varies substantially. We noted during our site visits that some shops are relatively modern structures and clean, organized and well equipped, while others exist in poor structures and may cause productivity problems because the housekeeping is poor and/or they lack the major shop tools and equipment, lighting, etc. needed to assure mechanics are productive.

FDOT fleet maintenance shops do not charge for the services provided for FDOT vehicles. Funds for vehicle maintenance are allocated each year to each shop. Thus, the operating units within FDOT perceive that maintenance is "free" and they encounter no financial consequences for misuse of vehicles and equipment.

We found this to be true despite language in FDOT's policy manual that indicates some type of vehicle and equipment billing system is in operation (presumably to charge projects for the cost of the associated equipment used). We note, for example, the discussion of equipment operating rates and the discussion of equipment shop rates under section (10) Billing Rates.

Similarly, FDOT shops cannot provide maintenance for other State organizations, primarily because they lack an established method of charging and recovering the cost

for such services, even though fuel is dispensed to non-FDOT agencies and the cost is recovered. There may or may not be a large demand for inter-agency fleet maintenance services, but there are undoubtedly many occasions when minor repairs could be handled quickly and efficiently for non-FDOT vehicles. More discussion of charge-back rate systems is included in a subsequent section of this report.

### **Preventive Maintenance Program**

FDOT shops appropriately focus on good Preventive Maintenance (PM) management. Compliance with PM schedules is excellent. We believe this is largely due to the scrutiny and emphasis placed on the PM program during the QAR reviews, confirming the adage “what gets measured, gets done.”

The schedule currently calls for a basic PM service to be done every 5 months or 5,000 miles for most light duty vehicles, which is reasonable, although the schedule could be extended to 6 months or 6,000 miles, which would still comply with most manufacturers’ requirements and would provide the benefits of reduced petroleum consumption and downtime. Maintenance shops have the option to perform PM’s more frequently than the schedule recommends, such as 3,000 miles or 3 months, if the vehicles operate in an extreme-duty area. When PM work is performed too frequently, the result is wasted taxpayer dollars, and inconvenience and wasted time for the vehicle operators, which translates into reduced productivity. This issue should be closely monitored via the QAR process.

The PM program has A-B-C echelons, meaning that the extent of the work tasks performed increases at appropriate intervals. However, our review of the task lists for PM work indicates that an update is needed (they have not been updated since 1988).

EMIS records for 2006 show the following number of PM inspections for the 6,200 vehicles and equipment maintained by FDOT:

***Table 8: 2006 PM Service Totals***

<b>PM Type</b>	<b>Count</b>
PM Inspection A	12,361
PM Inspection B	2,666
PM Inspection C	3,436

Only minor improvements are needed in the PM program. These and other recommendations are shown in the Summary of Recommendations at the end of this section of the report.

### **Warranty Management**

The extent to which warranty work is performed is unknown, although EMIS has a “Warranty” Reason code. Our review of maintenance records from EMIS in 2006 shows only 118 instances of Warranty Services recorded. This seems very low, especially given the size of the fleet.

EMIS notifies shop personnel regarding possible warranty situations in that the opening screen of creating a work order displays all the warranty information of the equipment. It also will indicate whether the warranty has expired or not. FDOT does not use the system to capture warranty cost avoided. Although warranty repairs carry no direct cost, dealer shops that perform the work will provide, upon request, a cost summary “no-charge” invoice for the work that shows how much the repair would have cost had there been a charge. All shops should be required to collect this information to enable FDOT HQ fleet management to evaluate and compare shop performance in this area during QAR reviews. Shops showing low warranty-cost avoidance relative to the number of vehicles maintained merit further investigation.

The State no longer purchases extended warranties on vehicles because an internal study revealed that the cost of the extended warranties exceeded the cost savings. Based on our experience, we believe this conclusion was probably correct.

Recalls are handled on an ad hoc basis. As the shops receive the recalls, they make phone calls to schedule repairs. Our review of maintenance records from EMIS in 2006 shows 66 instances of Recall Services recorded.

### **Outsourcing**

As noted previously, the methods used to determine what types of vehicle maintenance gets outsourced to commercial repair shops varies widely among the Districts and even among the shops within a given District. This inconsistent approach to outsourcing very likely results in excessive repair costs because some shops may be performing work for which FDOT mechanics have minimal qualifications. Conversely, some work may be outsourced that could be performed by FDOT more quickly and at a lower cost.

Most shop personnel interviewed stated that vendor choice is determined by service, quality, location, and responsiveness, with price being the least consideration. Shops were found to have sole source letters where appropriate – e.g. John Deere dealers for John Deere equipment, a practice which DOT Fiscal allows.

The limit for approving a part or service purchase by the shop supervisor without higher management approval varies significantly from shop to shop because some Districts have chosen to control expenditures more closely than others. All shops are subject to DOT Fiscal rules for getting competitive quotes for purchases above \$500 and soliciting M/BE vendors for purchases above \$1,000. However, several shops told us they do not go through the prescribed process due to the time delays inherent in the process and the subsequent vehicle downtime that would result. Clearly, many shops have

developed a process to work around onerous purchasing/accounting rules (promulgated by DOT Fiscal) so that they don't delay required repairs. FDOT HQ fleet management should work with DOT Fiscal to address these issues and strive to minimize the administrative process(es) that causes an inordinate amount of vehicle downtime.

### **Shop Staffing Levels**

We use a technique known as Vehicle Equivalent Unit (VEU) analysis to benchmark fleet organization costs and staffing levels. This technique allows us to compare fleets of dissimilar size and composition. With this technique, each piece of equipment is equated to the average amount of maintenance effort required to keep a typical sedan in a fleet in good repair. The amount of this maintenance effort is expressed as one VEU. Each general class of vehicles is then assigned a vehicle equivalency that expresses the service effort required to maintain that vehicle class as a multiple of fleet sedans.

For example, a law enforcement vehicle used around the clock equates to 2.5 vehicle equivalents (compared to 1.0 VEU for a typical administrative sedan), meaning that it takes about two and one-half times as much maintenance effort per year to maintain the average patrol car as it does to maintain the average fleet sedan. A backhoe, on the other hand, is 4.0 VEU. By reducing a fleet to its equivalent in terms of sedans, we are able to establish reasonable comparisons with other fleet operations.

For FDOT, we have determined that the nearly 6,200 vehicles it maintains represent 11,489 VEU's.

Shop staffing may not be allocated properly from shop to shop, and the method for establishing shop staffing levels is unclear.

The following table clearly shows the problem. In particular, note the following key measures:

- VEU's per Mechanic, a metric that shows the workload in terms of Vehicle Equivalent Units being handled by each Mechanic at that location;
- % Outsourced by \$, a metric which shows how much work is being sent to outside repairs shops in terms of repair cost;
- State Labor Hours per Mechanic, a metric derived from dividing the number of DOT labor hours charged in EMIS by the number of mechanics. Mechanics should be expected to charge around 1400 to 1500 hours per year.

In general, each mechanic should be able to handle around 110 VEU's. Outsourcing costs should be around 20% of the total cost of fleet maintenance for in house shops. If the VEU/mechanic ratio is high, we would expect more work to be outsourced.

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Conversely, if the VEU/mechanic ratio is low, we would expect very little work to be outsourced.

We note the Bartow shop, **highlighted in green** below, as an example. It represents good performance ratios that are close to standards. On the other hand, the shops **highlighted in orange** are considerably out of line because the number of VEU's per mechanic is low while the amount of work outsourced is high. It is unclear whether this is a data accuracy issue, or poor shop management.

The shops **highlighted in turquoise** are understood to outsource maintenance.

**Table 9: Shop Statistics**

Dist #	Shop #	Shop Location	Total Staff	# Of Mechs.	State Labor Hours	State Labor Hours Per Mech	VEU's	VEU's Per Mech	% Out-Sourced By \$
1	310	Bartow	9	6	8620	1437	599	100	13%
1	311	Sebring	0	0			171		0%
1	312	Fort Myers	5	3	2871	957	383	128	22%
1	313	Labelle	2	2	1242	621	147	73	20%
1	314	Sarasota	4	2	2402	1201	266	133	20%
1	315	Arcadia	3	1	2095	2095	147	147	8%
2	321	Gainesville	14	8	12136	1517	576	72	15%
2	322	Lake City	10	6	7082	1180	810	135	33%
2	323	Perry	3	1	2588	2588	218	218	23%
2	324	Jacksonville	2	1	1084	1084	366	366	73%
2	326	Chiefland	2	1	2220	2220	198	198	26%
2	327	St. Augustine	3	2	2027	1014	312	156	34%
3	330	Defuniak Springs	0	0	2745		220		36%
3	331	Panama City	4	2	2684	1342	263	131	26%
3	332	Midway	3	2	1515	757	449	224	38%
3	333	Marianna	3	1	933	933	369	369	35%
3	334	Milton (see Pensacola)	0	0			64		0%
3	335	Pensacola	3	1	747	747	297	297	86%
3	336	Chipley	2	1	2267	2267	181	181	9%
4	340	Fort Pierce - FVS	4	0	0	0	363		100%
4	341	Fort Lauderdale - FVS	2	1	0	0	667	667	100%

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Dist #	Shop #	Shop Location	Total Staff	# Of Mechs.	State Labor Hours	State Labor Hours Per Mech	VEU's	VEU's Per Mech	% Out-Sourced By \$
4	346	W. Palm Beach	7	6	2942	490	521	87	25%
5	350	Cocoa	6	3	1528	509	164	55	30%
5	351	Deland	6	3	4090	1363	470	157	26%
5	352	Leesburg	5	3	2429	810	208	69	14%
5	353	Oviedo	2	2	2790	1395	212	106	27%
5	354	Orlando	5	2	2746	1373	330	165	27%
5	355	Ocala	4	2	3108	1554	200	100	15%
6	360	South Dade	10	5	2501	500	401	80	24%
6	361	North Dade	6	3	1374	458	344	115	16%
6	362	Marathon	0	0	501		116		43%
6	363	District 6 Office	4	2	821	411	154	77	28%
7	376	Tampa	8	5	6522	1304	686	137	28%
7	378	Brooksville	3	3	593	198	272	91	7%
7	379	Pinellas	6	3	3066	1022	353	118	22%
<b>TOTAL(excluding outsourced)</b>			150	83	90,264	1,087	9373	117	30%
<b>INDUSTRY STANDARD</b>						<b>1,456</b>		<b>110</b>	<b>20%</b>

Note that the average number of hours charged to work orders by mechanics is only 1,087, far below the expected productive time of 1,456 hours per year (i.e., 70% of 2,080 hours per year). The ratio of labor hours to VEU is also low at 9.3 compared to an industry average of 15 labor hours per VEU considering the age of the fleet. We note that the metric for productive time that we've applied differs from the MEM's "Theoretical Available Hours" of 1,381, but the outcome remains the same - comparatively low productive hours. While the overall average number of VEU's handled by each mechanic is slightly above average at 117, the amount of work outsourced is also high at 30% by dollar volume. The reason for such low productive hours per mechanic needs further investigation.

During our reviews, we noted that little overtime was being used in some shops, which is a likely indicator of over-staffing. For example, the North Dade shop, with a staff of 3 mechanics, had an annual overtime budget of only \$2000 but only 12 open work orders.

One shop was observed rebuilding an engine in a '96 Chevy S-10 Pickup with 70,000 miles. Engine rebuilds are time consuming and not normally done (typically, a "crate" engine would be purchased and installed). At the same shop, a meticulous arrangement of nut and bolts in a bolt bin revealed that personnel there had a great deal of spare time.

Supervisors may be doing some minor vehicle repairs. This may account for the high number of State Labor Hours per Mechanic statistic in a few shops, if the supervisors are charging time to work orders.

Inmates are sometimes used for minor mechanical work. It is highly unlikely that inmate work is being recorded on work orders, or it might be recorded as performed by a DOT technician. Obviously, this would distort the organization's ability to evaluate shop labor requirements and may be another reason for some of the high number of State Labor Hours per Mechanic.

However, most shops show very low numbers of State Labor Hours per Mechanic.

### **Fleet Maintenance Cost, Quality, & Timeliness**

Cost control is not one of the HQ SMO fleet manager's responsibilities. Agency fleet costs are not consolidated into a single report. To the extent that cost control happens, it is at the District level and directly related to maintenance and repair.

The total cost of operating and maintaining the FDOT fleet is unclear. Despite repeated attempts to gain a clear picture of fleet costs organized into logical categories, such as labor, parts, sublet repairs, and fuel, our consultants were frustrated at the lack of readily available information on fleet costs. Sources searched included SMO Fleet Management headquarters, FDOT Office of the Comptroller, District Fleet Managers, and the DMS EMIS system. While some pieces of cost information were available from each source, we could not assemble a complete and accurate assessment of fleet maintenance costs.

A total cost approach to assessing fleet maintenance necessarily includes both direct and indirect costs. Indirect costs are unknown. Direct costs are fairly well documented in the EMIS system and include State Part Cost, Commercial Labor Cost, and Commercial Parts Cost, and State Labor Hours, but EMIS does not represent the true cost of FDOT mechanic labor (State Labor Cost). The problem with state labor cost is that the actual fully burdened cost of labor has not been calculated correctly.

Current shop rates range from \$19.26 to \$31.51 per hour. SMO Fleet Management recognizes that the rates are not accurate, and it is unclear how the rates were developed. The rates mean little to the FDOT users of vehicles and equipment because no chargeback system exists for fleet maintenance, fuel, and other fleet services, such as vehicle acquisition and disposal. Accurate rates would enable FDOT to evaluate the comparative value of in-house fleet maintenance versus commercial repair services or fully outsourced maintenance. At present, no defensible business-cost analysis is possible.

To calculate accurate shop rates, FDOT must begin by aggregating *all* costs related to the delivery of vehicle maintenance services, such as: all direct and indirect salary and

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fringe benefit costs of trades workers and appropriate maintenance, management and administration personnel; direct and indirect operating expenses; and other indirect costs. These should be calculated for each shop.

After costs are aggregated for each shop, the total cost of fleet maintenance must be divided by the projected number of State Labor Hours that will be delivered in the performance of fleet maintenance at each location. The product is the true shop rate.

For example, if we determined that the Bartow shop, with a staff of 9 (of which 6 are mechanics) had a total labor cost of \$675,000 including fringe benefits and overheads, shop costs (such as supplies, utilities, etc.), and other miscellaneous operating expenses, and that the shop produces 8,620 hours of labor, then the shop rate is ( $\$675,000 \div 8,620$ ) \$78.31 per hour. This rate would compare favorably with commercial repair shops, meaning that the FDOT shop was cost competitive. This simple example also shows that the current rates used in EMIS are likely less than half what they should be.

Many fleet organizations contract with a firm such as Mercury Associates to calculate their true shop rates in support of a logical, defensible chargeback system.

Because we were unable to gather data (a level of effort beyond the scope of this project) to determine FDOT shop labor costs, we developed some basic assumptions as to the cost of providing fleet maintenance services. Our (conservative) assumptions include:

- Shop Labor Rate: \$100 per hour<sup>5</sup>
- Parts Markup Rate: 25% added to direct cost
- Commercial Repair Markup Rate: 20% added to direct cost

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<sup>5</sup> The estimate of \$100 per hour is based on the following rates:

Avg. labor rate = \$ 20/hour

Labor markup for benefits and administrative overheads = 45%

Fully burdened labor rate = \$29/hour

Avg. annual salary = (2080 x \$29) = \$60,320/year

Total number of employees = 150

Total labor cost = (150 x \$60,320) = \$9,048,000/year

Total billable hours = 90,264

Avg. shop labor rate = ( $\$9,048,000/\text{year} \div 90,264 \text{ hours}$ ) = \$100.24 per hour

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Using those assumptions and the costs recorded in EMIS in 2006, we produced the following table:

**Table 10: Normalized Shop Costs**

DIST RICT #	SHOP #	Shop Location	TOTAL COST	VEU'S	STATE LABOR COST PER VEU	STATE PARTS COST PER VEU	SUBLET REPAIR TOTAL COST PER VEU	TOTAL COST PER VEU
1	310	Bartow	\$1,249,234	599	\$1,440	\$378	\$269	<b>\$2,087</b>
1	311	Sebring	\$0	171	\$0	\$0	\$0	<b>\$0</b>
1	312	Fort Myers	\$462,311	383	\$751	\$197	\$261	<b>\$1,209</b>
1	313	Labelle	\$201,205	147	\$847	\$246	\$280	<b>\$1,373</b>
1	314	Sarasota	\$384,214	266	\$905	\$253	\$290	<b>\$1,447</b>
1	315	Arcadia	\$256,226	147	\$1,430	\$178	\$141	<b>\$1,749</b>
2	321	Gainesville	\$1,759,357	576	\$2,108	\$492	\$456	<b>\$3,056</b>
2	322	Lake City	\$1,319,112	810	\$874	\$217	\$537	<b>\$1,629</b>
2	323	Perry	\$375,937	218	\$1,186	\$133	\$404	<b>\$1,723</b>
2	324	Jacksonville	\$397,727	366	\$296	\$0	\$790	<b>\$1,086</b>
2	326	Chiefland	\$349,018	198	\$1,124	\$190	\$453	<b>\$1,767</b>
2	327	St. Augustine	\$356,422	312	\$650	\$106	\$387	<b>\$1,143</b>
3	330	Defuniak Springs	\$468,371	220	\$1,249	\$117	\$765	<b>\$2,131</b>
3	331	Panama City	\$477,676	263	\$1,022	\$321	\$476	<b>\$1,820</b>
3	332	Midway	\$415,543	449	\$338	\$233	\$355	<b>\$926</b>
3	333	Marianna	\$175,884	369	\$253	\$59	\$165	<b>\$477</b>
3	334	Milton	\$0	63.5	\$0	\$0	\$0	<b>\$0</b>
3	335	Pensacola (Milton shop)	\$546,613	297	\$252	\$6	\$1,585	<b>\$1,844</b>
3	336	Chipley	\$267,813	181	\$1,253	\$87	\$140	<b>\$1,480</b>
4	340	Fort Pierce - FVS	\$269,279	363	\$0	\$0	\$741	<b>\$741</b>
4	341	Fort Lauderdale - FVS	\$494,305	667	\$0	\$0	\$742	<b>\$742</b>
4	346	West Palm Beach	\$518,267	521	\$565	\$184	\$247	<b>\$996</b>
5	350	Cocoa	\$276,314	164	\$934	\$249	\$507	<b>\$1,690</b>
5	351	Deland	\$702,124	470	\$871	\$233	\$392	<b>\$1,495</b>
5	352	Leesburg	\$319,851	208	\$1,168	\$161	\$209	<b>\$1,538</b>
5	353	Oviedo	\$464,695	212	\$1,316	\$289	\$587	<b>\$2,192</b>
5	354	Orlando	\$452,459	330	\$834	\$170	\$370	<b>\$1,373</b>
5	355	Ocala	\$407,472	200	\$1,558	\$169	\$315	<b>\$2,042</b>
6	360	South Dade	\$433,047	401	\$623	\$199	\$257	<b>\$1,079</b>
6	361	North Dade	\$216,489	344	\$400	\$126	\$104	<b>\$630</b>

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DISTRICT #	SHOP #	Shop Location	TOTAL COST	VEU'S	STATE LABOR COST PER VEU	STATE PARTS COST PER VEU	SUBLET REPAIR TOTAL COST PER VEU	TOTAL COST PER VEU
6	362	Marathon	\$102,609	116	\$432	\$71	\$382	\$885
6	363	District 6 Office	\$147,194	154	\$535	\$157	\$267	\$959
7	376	Tampa	\$1,163,555	686	\$950	\$268	\$477	\$1,696
7	378	Brooksville	\$69,002	272	\$218	\$18	\$18	\$253
7	379	Pinellas	\$480,568	353	\$869	\$189	\$304	\$1,361
<b>FDOT</b>			<b>\$15,979,893</b>	<b>11,489</b>	<b>\$786</b>	<b>\$181</b>	<b>\$424</b>	<b>\$1,391</b>
<b>Industry Standard</b>					<b>\$500</b>	<b>\$300</b>	<b>\$200</b>	<b>\$1,000</b>

Even though FDOT's average cost of \$1,391 per VEU is nearly 40% higher than the industry standard of around \$1,000 per VEU, *we suspect that the cost numbers used to calculate this metric do not include nearly all of the costs expended for maintenance of the FDOT fleet.* A wide variation in the shop-to-shop Total Cost per VEU contributes to our suspicion that not all costs are being captured in EMIS.

The Cost per VEU metric is also inconsistent with the cost level we would expect to see given the excessive age of the FDOT fleet and the fairly high level of utilization of vehicles and equipment. We would expect the Cost per VEU to be higher than \$1,391, and we think a complete compilation of fleet costs would likely reveal a total cost per VEU of nearly \$2,000.

There are basically two ways to reduce fleet maintenance costs. The most important and fundamental way to reduce maintenance costs is to replace vehicles more frequently, thereby avoiding many maintenance expenditures associated with an old fleet. The other way is to improve the way fleet maintenance is provided, either by making improvements in the existing fleet organization, or by strategic outsourcing to lower overall costs.

A reduction in cost per VEU from \$2,000 to \$1,000 would result in an annual cost savings of (\$1,000 per VEU x 11,489 VEU's) \$11,489,000.

A much more thorough examination of total actual costs based on financial reports is needed. We requested and received two versions of fleet cost reports from the Comptroller's office but a clear, concise, and organized summary of fleet maintenance costs remained elusive. The reason for this is that we were unable to define and submit an information request that would allow the Comptroller to provide the information we needed. Apparently no one at FDOT has previously attempted to define exactly what constitutes fleet costs, and how that information should be reported.

The *quality* of work performed on vehicle repairs can be gauged by the frequency of field breakdowns that occur. In other words, if the repair shop is doing a good job of performing PM inspections, and discovering potential problems and fixing them before

returning the vehicle to service, then a lower number of field breakdowns will occur. While eliminating all field breakdowns is impossible, tracking how many occur month-to-month and year-to-year is important for monitoring improvement or decline in the quality of service and repair.

Our review of EMIS records for 2006 revealed 4,949 instances of "Travel for Service" which consumed 6,219 hours of State employee labor. Because the FDOT fleet has approximately 5,000 vehicles and equipment (excluding trailers and miscellaneous small equipment), we might assume an average of nearly one field breakdown per vehicle occurred during 2006, which seems excessive. However, it is very difficult to determine how the various shops are interpreting the meaning of "Travel for Service," which could also mean that they are transporting a vehicle to a commercial repair shop. Consequently, the Mobile Equipment Manual should provide clear definitions regarding how to "use" the "work codes."

We understand that Shop Supervisors are responsible for quality control and that they probably recognize a recurring problem with the quality of work done by a particular employee. However, best practice fleet management requires objective measures of quality that can be recorded and tracked over time.

The timeliness of repairs is an important factor for keeping vehicles out of the shop and on the road. We did not find any shops that could report factual information regarding the timeliness of repairs, commonly known as "turnaround" time. A best practice performance measure in this area is to record the percentage of work orders that are completed within 24 hours. A typical standard (excluding accident repairs) is 70%. EMIS has the functionality to timestamp each work order from opening to closing. It can also timestamp each work item. This process is apparently not currently used by DOT. Whether EMIS presently has the capability to calculate this performance metric for reporting is unclear. Just as important are the procedures followed by shops to open, track, complete, and close work orders. Standardized work order processing procedures are needed to lay the foundation for performance monitoring.

Ideally, fleet customers should be able to log on to a fleet management information system and have read-only access to real time repair information to view the current status of any vehicle repair rather than calling the shop and disrupting work. However, this is only possible if a work order is opened when the vehicle is first delivered to the shop for service, and subsequent steps in the repair process are kept current in the information system. Typical fleet repair status codes include:

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- Waiting for a technician
- Waiting for parts
- Work in progress
- Sent to outside vendor
- Work complete – ready for pickup

EMIS possesses the functionality to indicate the status of a work order. The "Received date" indicates that the equipment was received and a work order was opened. The "Start date" indicates that work has started on the equipment. The "Parts ordered" date indicates that parts were ordered and that work is waiting on parts. The "Parts received" date indicates parts were received. The "Complete date" indicates that all work is complete - ready for pickup. There is also "Notify date and person" to indicate when and to whom a notification was sent to to pick up the equipment. EMIS has the capability to email and could be configured to email any available information to anyone, but FDOT has not asked for this capability to be enabled.

In the area of service levels, FDOT shop performance is not definitive because some common industry benchmarks are not tracked and reported regularly. The table below provides a summary of service level benchmarks that should be used by all FDOT shops.

**Table 11: Service Level Benchmarks**

Service Area	Benchmark	FDOT Performance
Fleet Availability	95%	Not Tracked
Repair Turnaround Time:		Not Tracked
Services completed within one day	60% - 80%	Not Tracked
Services completed within three days	90%	Not Tracked
Scheduled Services	50 – 66%	Not Tracked
PM Compliance	95%	Not Tracked
Repeat Repairs	<2%	Not Tracked
Technician Utilization	70%	Not Tracked

Another area of Service Level that merits effort is for shops to measure the level of satisfaction their clients have with their services. Evaluation of customer service opinions is important to fleet management in order to identify areas of service weakness and to correct misconceived perceptions.

In general, there are two approaches for fleets to measure customer service. One is to hand out a survey form to customers as they pick up a vehicle following service and ask

them to mail it to a designated manager. This is called a “passive” approach because the customer is not required to take action (and most don’t). At least one shop was found using this approach, which is commendable.

Another approach is known as an “active” survey (versus the passive approach noted above) because users are required to respond in a controlled environment. The survey is designed to measure fleet products and services in a number of categories on a scale of 1 to 5 (5 being the best performance) and allows management to generate numerical Performance Indicators which can be tracked year to year. This type of survey is usually administered once per year in a controlled environment, such as a customer focus group meeting. Action is required of the customers on the spot.

The proper use and tracking of fleet performance depends on the quality of the data in the fleet management information system. FDOT should take the following steps to implement the performance measures suggested above:

1. Define a precise meaning for each Performance Measure.
2. Determine what data elements are critical to the measures.
3. Train employees to enter key data elements accurately and consistently.
4. Focus on implementing one measure at a time.
5. Allow time for testing and verification of each measure.
6. Use graphics rather than tables to display results whenever possible.
7. Post results in plain view where employees frequently visit.

Although it may take several months to get the performance monitoring system up and running, the benefits are well worth the effort. Employee training and involvement is crucial.

After measures are established and proven, FDOT should consider publishing an annual “**State of the Fleet**” report for distribution to management, customers, and employees. This report should track key measures over a multi-year span (5 to 10 years) to identify trends in fleet size, age, cost, and other key Performance Indicators. A fleet is basically a very large consumable in that vehicles are consumed gradually by time and usage. The State of the Fleet report should help people understand the relationship existing between fleet size, age and cost, and to identify the results of changes in fleet management such as increased rates of vehicle replacement.

*“There is no guarantee of reaching a goal at a certain time, but there is a guarantee of never attaining goals that are never set.” – David McNally in Even Eagles Need a Push*

### Parts Management

FDOT shops do not manage vehicle parts like most fleets. They carry little inventory, and the parts they do carry are not managed by the fleet management information system, EMIS (in 1993, FDOT chose not to have a parts management module in EMIS because it had a warehousing software program they were using and with which they were happy). In fact, we could not find any indication that the parts that many shops keep at the garage are tracked at all in terms of receipts, issues, inventory records, min-max levels, etc. The parts typically stored for easy retrieval usually include such items as oil, filters, belts, hoses, wiper blades, bulbs, and the usual minor items. However, many shops also keep more costly items such as tires and/or batteries (things more likely to be pilfered), or the local Yard Warehouse keeps such items and tracks them in the FDOT warehouse inventory system (a good practice).

FDOT has a large fleet that is fairly homogeneous by most standards. It would be a simple matter, given a state of the art fleet management information system, to determine the fast moving (high demand) parts and to stock them in every shop or local Yard Warehouse.

At those locations that have a Yard Warehouse, it presently makes sense to establish a standard stock of parts that are tracked and financially accounted for via the existing warehouse system. If a state of the art fleet management software system were acquired, it would be better to stock parts in the fleet maintenance shop because automotive parts would be more readily available and parts management records and processes would be in place to enable more efficient operations.

Currently, mechanics spend a lot of time chasing parts. In fact, the EMIS system recorded 4,111 instances and 3,695 hours of time for the code "travel for parts," which represents 4% of the total time recorded for "State Labor Hours" in EMIS in 2006. This seems quite high insofar as most parts vendors deliver within a couple of hours of an order. This issue requires further study to reduce the estimated annual cost of "parts chasing" of over \$100,000 per year (3,695 hours x \$30 per hour). We realize that some travel for parts will always be necessary, but we think this work can be reduced by at least 50%.

One reason mechanics spend a lot of time chasing parts is because FDOT has no full time parts staff. There is no automotive parts clerk classification; however, the contingent of mechanics normally needed to support a single parts clerk is at least 8. Shops with fewer than 8 mechanics (most FDOT shops) need to find more efficient ways to get parts. All "best practices" shop management tactics should be shared with all FDOT shops. This topic shows why a great deal more communications must begin to happen among FDOT shops.

Most parts are acquired using the Purchasing Card, but purchasing authority at the shops varies widely (e.g. from \$25 to \$5,000 in District 6). When low levels of

purchasing authority are imposed, the process for acquiring parts increases in complexity and the result is delayed vehicle turnaround time. Reasonable, standardized levels of purchasing authority should be granted to all shops.

Additional details can be found in the Appendix where we present our notes and findings for the individual Districts, Headquarters (State Maintenance Office), Turnpike, and MCC.

### Recommendations

- 34. Convene a fleet maintenance task force to review the Preventive Maintenance Program with the goal of setting improved schedules, establishing uniform task lists for ABC levels of PM work, and establishing guidelines for which types of maintenance work should be performed in FDOT shops versus outside commercial repair shops. The task force should also establish expectations and quality assurance standards to ensure consistency in shop management relating to forms, parts and vendor service, purchasing, operating hours, training, shop physical plant, tools and equipment, etc. Each District should contribute one experienced maintenance representative to the task force.*
- 35. Establish a business-case analysis model for assessing whether to outsource all or any part of the fleet maintenance program. Develop a process for obtaining approval for this fundamental change in fleet maintenance. Develop performance measures pertinent to an outsourced fleet maintenance program and obtain reports of those measures regularly (a task which should be undertaken immediately for those shops already outsourced in District 4).*
- 36. Adopt a uniform process (through EMIS or otherwise) to track repair cost avoidance due to warranty work performed at no cost. Even though warranty repairs carry no direct cost, dealer shops that perform the work will provide, upon request, a cost summary “no-charge” invoice for the work that shows how much the repair would have cost had been a charge. Require all shops to collect this information to enable FDOT HQ fleet management to evaluate and compare shop performance in this area during QAR reviews. Shops showing low warranty-cost avoidance merit further investigation.*
- 37. FDOT HQ fleet management should work with DOT Fiscal to address the rules covering the purchase of vehicle repair parts and services to minimize the administrative process(es) that causes an inordinate amount of vehicle downtime.*
- 38. Use the “Work Codes” in EMIS to track instances of field breakdowns and the time and cost associated with them. The aforementioned fleet maintenance task force should carefully define how all work codes are to be used and provide examples. This information should be published in the updated version of the Mobile Equipment Manual (MEM).*

39. *The fleet maintenance task force should develop and communicate a standardized process for when and how to process work orders. Include the standards in the MEM.*
40. *Investigate the reason(s) for low productive hours per mechanic.*
41. *Establish a model for shop staffing and undertake an annual review of staffing levels based upon the model. Use the model and the review as one source of information in managing shop and maintenance program performance.*
42. *Undertake a more thorough examination of actual fleet maintenance costs based on financial reports. Simple, comprehensive fleet cost reports are needed. Performance metrics such as cost per VEU should be re-calculated each year and tracked over several years (at least a five year look-back) to determine whether costs are increasing, declining, or remaining steady. This will also provide a valuable tool to assess the effects of any fleet management changes implemented by FDOT.*
43. *Develop a system of key performance metrics and require regular calculation and tracking of the measures. Assess conformance with the performance monitoring system as part of the QAR. An annual "State of the Fleet" report should be consistently prepared. Take these steps to develop and implement the performance measures:*
  - *Define a precise meaning for each Performance Measure.*
  - *Determine what data elements are critical to the measures.*
  - *Train employees to enter key data elements accurately and consistently.*
  - *Focus on implementing one measure at a time.*
  - *Allow time for testing and verification of each measure.*
  - *Use graphics rather than tables to display results whenever possible.*
  - *Post results in plain view where employees frequently visit.*
44. *Establish and align mechanic and fleet personnel training with the performance standards against which they will be measured.*
45. *Establish reasonable, standardized levels of parts and service purchasing authority to all shops. These should be made part of the policy in the MEM.*
46. *Identify ways to improve parts management to reduce cost and improve productivity.*

### **QUALITY ASSURANCE REVIEW PROGRAM**

A critical element of any fleet management operation is that of assuring that the vehicles and equipment are safe and operable, the maintenance performed on the vehicles is efficient, effective, and within reasonable cost parameters, and finally, that the entire operation is in compliance with all applicable policies and regulations. Conformance with

these criteria should be measured regularly and actions should be taken to address deficiencies.

The Quality Assurance Review (QAR) program presently in place in FDOT is a good example of just such a program; however, the program tends to focus primarily on vehicle maintenance and is weak in other areas of fleet management.

FDOT requires each District to develop and enforce a quality control program that outlines the goals and measurement methodology to ensure that certain functions are addressed. The Districts perform internal reviews weekly and/or monthly (depending on the function) and are also subject to semi-annual reviews by the SMO and the Office of Motor Carrier Compliance (OMCC). Each District receives the results of the assessment almost immediately and actions are taken to correct any problems. The program is commendable and does not exist in most other states.

FDOT's MEM contains a description of the QAR process. However, we found a fair degree of variability among the programs that have been established by each District. The QAR program and associated policy statements have also not been updated in more than a decade to reflect changes in the fleet industry. Although the individual programs vary, they all contain the following key elements:

- Compliance with required preventative maintenance schedules;
- Review of required documentation such as work orders and shop records;
- Compliance with safety standards (federal and state regulations);
- Vehicle utilization records and audits;
- Compliance with purchasing and disposal policies;
- Inspection and operation of bulk fuel sites;
- Fleet inventory records;
- Audit of fuel cards transactions and assignments

For each of the criteria, specific thresholds have been established that must be met by the District to be judged in full compliance with the program. FDOT conducts physical inspections of equipment using OMCC to ensure that State vehicles meet the same requirements that are imposed on other public and private fleet operators.

Our review of fleet maintenance operations at each District revealed that preventive maintenance compliance was excellent, as was shop documentation. This is consistent with the adage "What gets measured, gets done". Accordingly, FDOT should expand the QAR process to include other aspects of fleet management. The following elements should be considered for inclusion in the program:

## FDOT Fleet Operations Review

**Table 12: Recommended QAR Program Elements**

Category	Measure	Suggested Definition	Standard	Current Performance
<b>Cost</b>	Total Maintenance and Repair Cost per Vehicle Equivalent per Year	Total direct M&R costs (excluding accident repair costs) incurred in a recent year / # VE's.	\$900 - \$1,200	<b>Unknown</b>
<b>Quality</b>	Field Breakdowns	Monthly combined count of road calls and tow-ins.	Location Specific	<b>Unknown</b>
<b>Quality</b>	Comebacks	Percentage of Work Orders categorized as Comeback compared to the total number of Work Orders per month.	2%	<b>Unknown</b>
<b>Timeliness</b>	Light Duty Work Orders Completed within 24 Hours	Percentage of Work Orders completed within 24 hours excluding Vendor repairs and Accident repairs.	70%	<b>Unknown</b>
<b>Customer Satisfaction</b>	Annual Customer Satisfaction Rating	Average rating on a scale of 1 to 5 based on annual survey.	3+	<b>Unknown</b>
<b>Vehicle Disposal</b>	Number of Inactive Vehicles Not Auctioned or Salvaged	Number of Vehicles and/or Equipment with zero Utilization (miles or hours) during the last 6 months that are still retained.	0	<b>Unknown</b>
<b>Vehicle Utilization</b>	Number of Vehicles Failing to Meet Minimum Utilization Standards	During the last 12 months, number of "mileage" vehicles with less than 5,000 miles usage, or equipment with less than 250 hours usage.	10% of the fleet	<b>Unknown</b>
<b>Billings and Collections</b>	Accuracy of Shop Rates	Gap Between Actual Fleet Costs and Revenue Generated from Shop Rates	+/- 10%	<b>Unknown</b>

### Recommendations

47. *Initiate a revision of the QAR Program to consolidate the language into a uniform document and ensure that any changes in policies and/or procedures have been included.*
48. *Expand the elements included in the quality assurance reviews to include fleet management performance measures that include those shown in Table 12.*
49. *Continue the current schedule of vehicle and shop inspections with improvements recommended in this report implemented to ensure no deterioration of current standards and performance.*

### FLEET FUELING

The State Procurement Office is responsible for establishing and maintaining the State's fuel contract provisioning process, and bulk fuel vendors are listed on MyFlorida. Among most Districts, fuel sources are typically determined at the District level, but fuel

is most typically ordered by shop personnel at the yards or other personnel at a fueling facility. Therefore, actual fuel purchasing practices vary among Districts and occasionally even within a District among yards.

In aggregate, FDOT Districts operate 43 bulk fuel sites; fuel is accessible 24 hours per day, seven days per week at most yards. At some yards, access is limited during non-business hours. Some facilities have 24-hour secured entrances. Most facilities stock only unleaded (87 octane as promulgated) and diesel. Propane, ethanol and B20 bio-diesel are available at very few facilities. Although Districts purchase alternative fuel vehicles (AFVs), very few yards make those alternative fuels readily available to their AFV drivers. Bulk fuel pumps are outfitted with Trak card readers and fuel cards (now Comdata) can be used to charge fuel. The fuel system monitors odometer reading and identifies data that is out of range.

For unleaded gasoline, FDOT Districts report they often pay 20 to 30 cents less per gallon than the commercial pump price by purchasing bulk. Some Districts admitted that they could get a better price if they would commit to a minimum purchase quantity. There is no mark up on fuel to cover overhead costs to provide and maintain fueling services. Most typically, District's price per gallon for chargebacks to other agencies is based on the cost of the most recent fuel added to the tank. At least one District, however, stated that it calculates a weighted average price per gallon in the tank based on the cost of gallons remaining in the tank at the time it is refilled plus the cost of new fuel added divided by total gallons.

Districts reported that even during hurricane clean-up efforts they were able to maintain sufficient fuel supplies to conduct their operations as well as to meet fuel needs of other agencies. Some yards have developed plans to ration fuel, if necessary, to ensure emergency equipment receive priority for fueling, but none of the Districts reported the need to implement those plans to date.

FDOT fuel sites are accessible to other agency personnel and some agencies refuel regularly at FDOT fuel sites. In fact, Districts report that some outside agency personnel who refuel regularly at their facilities drive 50 to 70 miles each way from their worksites to the FDOT fueling facility simply to refuel, such as from Daytona to the Deland yard.

Districts receive hard copy of other agencies' use of FDOT fuel. FDOT generates bulk fuel reports weekly and the data is available on Department mainframe tables in FOCUS format. However, historically, fuel reports from DMS do not provide sufficient detail to enable District Fleet Managers and yard finance personnel to determine whether other agencies' use of FDOT fuel was calculated and attributed accurately. Reports typically list only aggregate reimbursement by agency, but do not itemize transactions for each agency in any way that allows fleet managers to audit the report. Transactional data at bulk sites is only accessible via Comdata which has the ability to send reports upon request.

Most District Fleet Managers closely track fuel purchases and agency reimbursements and most indicated that some months their Districts comes up drastically “short” and for other months, reimbursements appear “closer to what they should be.” Based on the purchases and reimbursements tracked by one District Fleet Manager, the Fleet Manager estimated the District was under-reimbursed by approximately \$120,000 during FY 06. Other fleet managers reported that their Districts are continually shorted on reimbursements for other agencies’ fuel use during the last month of the fiscal year and state that they’ve brought the issue to the attention of FDOT fleet and finance personnel. Fleet managers speculate that some inter-departmental charges for fuel fall through the cracks at the end of the fiscal year because of delayed billing/charge reporting via the fuel card system and delayed reporting to the agency that should be receiving reimbursement. By the time an FDOT District Fleet Manager receives a report for June inter-departmental fuel charges, it’s often August or September and too late to recover for under-reimbursements if the District is able to document that the report does not include all appropriate charges for that period. Districts are hopeful that the added the transactional detail provided through the new fuel card system will eliminate this issue or help them to identify and quantify billing/reimbursement discrepancies more easily.

Last year, DMS contracted for fuel card services with Comdata, a well-known fuel card company. Previously, the State had contracted with Voyager for fuel card services, but had problems with limited acceptance of the Voyager card by commercial outlets and billing. Despite some transition-related issues, Districts report that Comdata, which is a MasterCard with individual PINs assigned to operators, allows more versatility in allowable items for purchase and where items can be purchased than was available via Voyager. However, Districts limit most users’ purchases to fuel only, but some allow a few designated personnel to purchase additional equipment-related items or services with the card. The card can be used at bulk fuel sites as well as commercial outlets. Districts review purchases daily and can access data 30 days in arrears via the TransMontaigne site.

### **Recommendations**

- 50. Impose a fuel surcharge to recover costs to build, maintain and service fueling site facilities and equipment. Via the surcharge, other agencies’ purchases can help to offset FDOT administrative and capital costs for fueling.*
- 51. Revise bulk fuel reports to provide sufficient detail to enable shop personnel and District Fleet Managers to easily identify other agencies’ fuel use to ensure FDOT is reimbursed accurately.*
- 52. Explore the feasibility of reducing fuel costs by committing to higher volume fuel purchases and leveraging the combined volume of two or three Districts.*

### FLEET INFORMATION SYSTEM

FDOT uses a large-scale integrated system known as EMIS (Equipment Management Information System) which is operated by DMS<sup>6</sup>. The system is capable of accepting most operational data (miles, repairs, fuel) along with vehicle inventory information, although it cannot capture resale information or assist with the management of automotive parts. FDOT pays DMS a fee of \$1.75 per month per vehicle for EMIS services.

EMIS has a work-order module which provides users with a simple method to log labor and parts against vehicles and equipment. One critical component missing in EMIS is a parts management and warehousing function, as discussed above. Consequently, FDOT shops lack an effective method for managing repair parts stored within the shops<sup>7</sup>. In our experience, this frequently results in over-stocked parts rooms, missing parts due to lack of accurate tracking, and inability to document the total cost of the parts inventory. We found that some state agencies, such as Forestry, are using other information systems to manage their parts inventory, which means that redundant solutions are in use.

Reliable data effectively collected and compiled is essential to the management of any fleet. However, both the State of Florida and FDOT are significantly hindered by lack of complete and reliable fleet data. Quality control of data is solely the responsibility of the agencies such as FDOT (which DMS indicates is the “best reporting agency”).

No reports are run or reviewed regularly at the statewide level. DMS meets its policy mandate to provide management reports on vehicle condition, utilization, cost, fuel consumption, maintenance, and assignment of vehicles owned by State agencies by giving agencies such as FDOT direct access to their data and the pre-designed reports they have requested.

Until FDOT addresses the issues of data input and quality and a fully integrated fleet management information system with needed modules (e.g., for parts), it can do little to improve how it currently handles fleet information. For the short term, some improvements in EMIS can be made; however, a more robust solution is required for FDOT to achieve sufficiently high levels of fleet management performance as described throughout this report.

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<sup>6</sup> Please refer to the Mercury report covering DMS fleet management for a more detailed description of the EMIS system.

<sup>7</sup> Note that some automotive parts such as tires and batteries are often stored and managed by the FDOT warehouse at the same location as the fleet shop.

### Recommendations

53. *Continue to monitor, via the QAR process, the way FDOT shops enter work order information to ensure that the data is as accurate and complete as possible.*
54. *Endorse efforts by DMS to provide an improved fleet management information system.*
55. *Work with the FDOT Comptroller's office to define and develop meaningful and comprehensive fleet management cost reports.*

## APPENDIX

## FDOT Fleet Operations Review

### UTILIZATION STATISTICS BY DISTRICT

#### Utilization for Districts 1, 2, 3, And 4

District 1					District 2				
Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg	Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg
Autos	146	9,392	3	\$36,735	Autos	162	11,581	25	\$315,206
Light Duty Van and Truck	260	14,221	43	\$843,569	Light Duty Van and Truck	346	15,202	33	\$600,217
Med-Heavy Truck	153	10,844	30	\$1,917,136	Med-Heavy Truck	247	11,136	39	\$2,332,828
Construction - Heavy	54	320	13	\$394,105	Construction - Heavy	68	308	15	\$267,783
Construction - Light	121	161	43	\$419,275	Construction - Light	130	441	96	\$1,424,095
Trailer	62	223	32	\$156,488	Trailer	73	302	32	\$216,565
Other - ATVs Boats Signs Etc	74	221	38	\$440,953	Other - ATVs Boats Signs Etc	142	152	57	\$524,620
District 3					District 4				
Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg	Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg
Autos	106	14,755	3	\$35,435	Autos	144	10,083	7	\$99,548
Light Duty Van and Truck	258	14,432	18	\$339,033	Light Duty Van and Truck	273	10,828	14	\$286,785
Med-Heavy Truck	151	12,450	20	\$1,299,419	Med-Heavy Truck	108	8,920	18	\$1,191,373
Construction - Heavy	61	296	13	\$153,884	Construction - Heavy	31	268	7	\$190,863
Construction - Light	77	183	29	\$272,385	Construction - Light	79	352	32	\$441,103
Trailer	53	264	27	\$126,934	Trailer	38	653	30	\$206,715
Other - ATVs Boats Signs Etc	94	511	62	\$917,675	Other - ATVs Boats Signs Etc	78	347	52	\$472,558

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### Utilization for Districts 5, 6, 7, and Turnpike

District 5					District 6				
Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg	Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg
Autos	131	11,009	2	\$34,623	Autos	71	7,874	3	\$39,972
Light Duty Van and Truck	287	13,640	12	\$190,436	Light Duty Van and Truck	187	9,611	14	\$195,347
Med-Heavy Truck	122	10,397	15	\$1,350,671	Med-Heavy Truck	101	8,159	17	\$1,135,191
Construction - Heavy	37	293	7	\$39,007	Construction - Heavy	16	266	2	\$56,535
Construction - Light	40	224	10	\$125,220	Construction - Light	42	218	10	\$79,005
Trailer	38	298	8	\$32,933	Trailer	27	305	13	\$55,759
Other - ATVs Boats Signs Etc	51	952	32	\$432,443	Other - ATVs Boats Signs Etc	55	335	38	\$281,755
District 7					Turnpike				
Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg	Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg
Autos	118	8,277	6	\$68,954	Autos	130	13,065	13	\$178,433
Light Duty Van and Truck	180	10,695	13	\$221,105	Light Duty Van and Truck	164	16,008	21	\$461,799
Med-Heavy Truck	108	10,693	25	\$1,240,788	Med-Heavy Truck	20	2,151	11	\$283,828
Construction - Heavy	42	327	15	\$189,296	Construction - Heavy	2	45	0	\$0
Construction - Light	88	171	20	\$235,113	Construction - Light	4	220	3	\$26,398
Trailer	32	318	12	\$69,853	Trailer	41	312	21	\$488,222
Other - ATVs Boats Signs Etc	63	173	18	\$168,513	Other - ATVs Boats Signs Etc	33	622	24	\$688,189

## FDOT Fleet Operations Review

### Utilization for Headquarters and Motor Carrier Compliance

Headquarters					Motor Carrier Compliance				
Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg	Asset Type	Asset Count	Average Annual Use	Count Less or Equal 50 % of Avg	Value of Count Less or Equal 50 % of Avg
Autos	22	14,813	4	66,077.00	Autos	247	19,732	16	\$311,554
Light Duty Van and Truck	19	11,687	3	60,006.00	Light Duty Van and Truck	28	18,933	3	\$49,321
Med-Heavy Truck	4	5,403	1	20,986.00	Med-Heavy Truck	4	19,343	1	\$39,817
Construction - Heavy	0	0	0	0.00	Construction - Heavy	0	0	0	\$0
Construction - Light	0	0	0	0.00	Construction - Light	0	0	0	\$0
Trailer	3	206	2	166,086.00	Trailer	28	83	21	\$121,197
Other - ATVs Boats Signs Etc	2	202	0	0.00	Other - ATVs Boats Signs Etc	2	3,599	0	\$0

**OTHER STATE’S FLEET MANAGEMENT AND MAINTENANCE TRENDS**

In February 2007, Mercury Associates electronically surveyed the 50 states to gain better insight into their respective fleet policies, procedures, and practices. The information in this report attachment provides the State of Florida DOT with information on some of the maintenance and repair practices and trends among peer state fleets as reported in the survey.

**Information Management State by State**

According to the survey results, most state policies are silent regarding a fleet management information system; however, several responses provided information on segments of their fleet system policies.

State	Data Capture Standards	Record Keeping Sops	Information Technology Acquisition And Administration Guidelines And Standards	Ad Hoc Management Analysis	Performance Measurement And Reporting	Program Management Auditing And Consulting
California						
Georgia						
Oregon	X		X	X		
South Carolina						
Utah	X	X	X	X	X	X
Virginia						
Washington	X	X	X	X	X	X

States generally lack detailed documentation on their fleet information management systems in their policies and procedures. Therefore, comparisons are difficult, at best. Most of the available policy statements address such issues as specific data elements agencies are required to report regularly and agency task requirements for fleet data. The states of Oregon, Georgia and Utah have the most comprehensive policy and procedure statements which define what data is to be tracked and monitored regularly.

**Fleet Management Information Systems Used by States**

A total of 27 states responded to this specific survey question about fleet systems, with 44% of the respondents reporting use of a Maximus fleet management product, 33% a home-grown system, and 22% something else. The table below documents the fleet management information systems utilized in each state.

## FDOT Fleet Operations Review

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State	Response
Alabama	Legacy-home grown
Arizona	Fleet Focus
California	Fleet Focus
Colorado	Legacy-home grown
Connecticut	Synergen
Delaware	Fleet Focus
Georgia	Maximo
Idaho	Legacy-home grown
Indiana	Fleet Focus
Louisiana	Protege by InCircuit
Michigan	Fleet Focus
Mississippi	Chevin
Missouri	Legacy-home grown
Montana	Agile Assets
Nebraska	GBA Master Series
Nevada	FleetFocus
New Mexico	Fleet Focus
New York, Thruway	Shopfax
New York, Dept. Genl. Svcs.	Chevin
North Carolina	Legacy-home grown
Oklahoma	Fleet Focus
Oregon	Fleet Focus
Pennsylvania	Legacy-home grown
South Carolina	Legacy-home grown
South Dakota	Legacy-home grown
Tennessee	Legacy-home grown
Utah	FleetFocus
Virginia	Not reported
Washington	Fleet Focus
Wisconsin	FleetFocus

### Use of Shop Productivity, Flat-rate, and Performance Tools

In today's public sector fleet environment, administrators are turning to automated tools to effectively set and monitor technician work activities and tasks, using established time standards. The private sector (i.e., auto dealerships, etc.) has been using tools like Mitchell1 *On-Demand*<sup>™</sup> (and similar products), a well-known software system that develops labor time standards for vehicle repairs based on nationwide information and parts cost estimates for vehicle repair tasks. For instance, the table below provides an example of how a product like Mitchell1 *On-Demand*<sup>™</sup> may work in a public shop environment. When a work order is created, the service "Perform Work Order Labor" would be the first task with a flat rate time of zero minutes. Then the services that need to be performed are added, each with an accurate time standard. The technician would use the mechanic time capture screen to log on to the "Perform Work Order Labor" task.

## FDOT Fleet Operations Review

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All of the technician's time would be logged against this task (i.e., all time excluding waiting for parts, lunches, breaks, and any other indirect time).

Task	Task Description	Flat Rate Time	Actual Time
99-99-99	Perform Work Order Labor	0.00	1.50
PE-30-31	Perform Electrical Charging System	0.25	0.00
PE-40-44	Perform Engine Fuel System	1.00	0.00
PE-PM-01	Perform Pm A Service	0.50	0.00
		<b>1 Hour 45 Minutes</b>	<b>1 Hour 30 Minutes</b>

This approach allows shop supervisors to capture the actual labor time produced by a technician and compare it against his/her performance without overburdening the technician with data collection chores. A summary of this data can be used to evaluate a technician's productivity levels relative to the industry and their peers, making the routine task of supervising personnel easier. The supervisor can readily monitor and assess each technician's overall contributions and mechanical abilities.

The survey questionnaire asked respondents whether they use labor capturing tools like Mitchell, Chiltons, and/or similar products. We received 34 responses:

- **26%** of those responding use an automated product like Mitchell1 *On-Demand*<sup>TM</sup> to measure technician productivity.
- **17%** stated that they do not employ a standard to measure productivity.
- **20%** of the respondents reported that they have developed an internal set of standards to monitor their technician activities and productivity.
- **20%** reported that they have completely outsourced their vehicle maintenance and repair activities.
- **17%** reported "other," which we infer to mean either the "absence of" any such tools or maintenance and repairs are "completely outsourced."

### Shop Maintenance Related Benchmarks

The table below shows several general fleet maintenance and shop operation rates, percentages and ratios provided by a number of respondents.

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State	Tech Ratio	Shop Rate\$	Direct Hrs %	Parts Markup %	Fuel Markup
California	-	-	-	-	-
Connecticut	91:1	\$23.00	-	-	-
Georgia	-	-	-	-	-
Indiana	-	\$32.00	-	10%	\$ 0.10
Missouri	71:1	\$32.00	-	30%	-
Nevada	-	\$40.00	85%	-	-
New Mexico	68:1	\$53.11	-	-	-
Oregon	196:1	\$60.00	-	40%	\$ 0.01
South Carolina	-	\$54.50	85%	25%	\$ 0.06
South Dakota	-	-	-	-	\$ 0.05
Utah	Maintenance Outsourced				\$ 0.06
Virginia	No data available				-
Washington	93:1	\$55.00	63%	-	-

Although the data is of interest, we do not recommend its use for performance benchmarking because we generally find that most states do not capture all direct and indirect costs to create a fully burdened and accurate rate based on the operations. Additionally, many factors can skew the labor rates of a shop, such as regional costs, labor union requirements, indirect overhead outside the control of the shop, and unquantifiable costs related to a state operation. Indeed, we find that some shops simply base their rates on averages of private vendor rates after surveying the market in their area and basing the state rates below the market average.

### Vehicle Maintenance and Repair

The table below summarizes a few of the states' vehicle maintenance and repair policy components.

State	Pre-trip defect repair process.	PM program develop	Work planning and schedule process	Defect reporting and service writing process	Work estimation and assign.	Maint and repair service delivery	Work MGT oversight and assign process	Road call MGT process	Field service repair	Warranty MGT process	Repair quality process
California	X	X	X	X		X	X	X		X	
Colorado	X	X	X	X	X	X	X	X	X	X	X
Georgia		X									
Oregon	X	X	X	X	X	X	X		X		
South Carolina	X	X		X		X	X		X	X	
Utah	X	X					X			X	X
Virginia	X	X									
Washington		X	X		X	X	X			X	

States engaging in maintenance and repair activities must possess a comprehensive array of policies and procedures that define and encompass all of the processes defined in the above table. For instance, few would argue that a recognized best practice in fleet management is the requirement to ensure that operators undertake pre-trip inspections of their vehicles to ensure they are in safe operating condition prior to use. Moreover, the most important aspect of performing the pre-trip inspection is the requirement to maintain the records demonstrating the pre-trip inspection actually occurred.

Below are select pre-trip policy examples from states for comparison:

- The State of Georgia vehicle policy states that each vehicle user group must develop policy requiring all operators to perform daily maintenance checks on vehicles. This policy is directed at agency management because the state is completely decentralized.
- The Commonwealth of Virginia requires that operators of state vehicles or an individual designated by the agency routinely check their vehicles to ensure proper oil level, water, and antifreeze for radiators, water for battery, wear on belts and proper inflation of tires. This service should be performed at least weekly and/or at time of fueling.
- The State of California requires each vehicle operator to conduct a pre-trip inspection of each vehicle, including visually inspecting the tires for noticeable deflation and the vehicle in general for observable signs of damage or deficiencies.
- The State of Utah policy R27-3-11(d) requires drivers to verify the condition of, and acknowledge responsibility for the care of, the vehicle prior to rental by filling out the MP-98 form provided by daily rental personnel. Conversely, Utah's policies do not include a pre-trip inspection requirement for monthly leased vehicles.

We note that having such policies does not demonstrate that they are carried out by user groups.

### **Warranty Management**

Based on our experience working with other state fleet programs, we know that several have established quality warranty management programs. For example, the states of Utah, Wisconsin, Maryland, and Georgia all use a third-party company called Automotive Resources International (ARI), which manages each state's warranty management program. In addition to managing the standard manufacturer's warranty, such third-party firms assist states with recovery of "post-warranty" repair costs that may otherwise go unnoticed. Such firms are often able to negotiate with manufacturers to obtain rebate dollars after the factory warranty expires.

**State PM Standards**

The table below shows the current PM intervals employed by select states responding to Mercury’s survey.

State	Passenger vans	Pickup trucks	Cargo vans	Sport utility vehicles	Sedans	Station wagons
Georgia		No Single PM Plan-Highly Decentralized				
Oregon	5,000	5,000	5,000	5,000	5,000	5,000
South Carolina	5,000	5,000	5,000	5,000	5,000	5,000
Utah	5,000	5,000	5,000	5,000	5,000	5,000
Virginia	6,000	6,000	6,000	6,000	6,000	6,000
Washington	5,000	5,000	5,000	5,000	5,000	5,000

Of the 23 responding states, we found only slight variances in the PM intervals shown in the table, which are based on equipment type and duty. For example, the states of Missouri, Colorado, and South Dakota all reported an interval of 3 months or 3,000 miles for vehicle classes operating in rough duty situations. Additionally the states of Alabama and Wisconsin and the Commonwealth of Pennsylvania reported PM intervals of 12,000 (all classes), 7,500 (diesel engines only), and 7,000 (all classes) miles respectively between PM services.

A clear best industry practice is to base the PM interval on the manufacturer’s recommended service interval, then adjusting where necessary (not less than required by manufacturer) to fit the specific circumstances, historical vehicle use, and wear patterns. In our experience, based on today’s manufacturers’ recommendations, improvements in vehicle quality, and technology advances, most agencies either set their PM intervals too low or too high. Generally, they base their intervals on capricious factors like ease of convenience, consistency (one-size fits all vehicles), or simply erring on the side of caution, so as not to void the manufacturer warranty.

The following are selected examples of state PM policy statements:

- The State of Washington policy 12-20-10 (12) requires each agency to establish a PM program for vehicles in their custody.
- The Commonwealth of Virginia policy section 4 (A) requires agency owned vehicles be maintained in accordance with agency policies and procedures and vehicle specific preventive maintenance schedules. Agency may contact OFMS for assistance in developing agency specific policies and procedures.
- The State of Utah R27-8-2 (1) Preventive maintenance (PM) shall be performed in accordance with the schedule set forth in the Preventive Maintenance Program Coupon Book that accompanies each full service lease vehicle. The Preventive Maintenance Program Coupon Book is located in the glove compartment of each full service lease vehicle.

- The State of Georgia’s maintenance is decentralized and DOAS policy states, each agency will develop and enforce polices to ensure all vehicles have at least the normal preventive (scheduled) maintenance performed as required by the vehicle manufacturer and that materials used meet specifications so as not to void the warranty coverage.
- The State of South Carolina Vehicle Maintenance program shall include preventive maintenance programs for all types of vehicles<sup>8</sup>.

**Fleet Maintenance Vendor Management**

Fleet maintenance vendor management includes the establishment and maintenance of a network of vendors that can meet the vehicle maintenance and repair needs of a fleet operation in an effective, efficient, safe, and environmentally responsible manner. The table below shows selected respondents’ policy components relating to this fleet function.

State	Vendor certification prequalification	Contract establishment and management	Outsourcing benefits determination	Ad hoc purchasing.	Service authorization	Contractor vendor payment	Vendor performance management
California		X	X			X	
Georgia							
Oregon	X	X			X	X	X
South Carolina		X		X			
Utah	X	X	X	X	X	X	X
Virginia		X					
Washington		X		X	X	X	

**Summary of Findings**

State fleet personnel often rely heavily on the expertise of Offices of State Procurement — which lack the maintenance knowledge — to completely manage most aspects of their vendor maintenance contracts. We generally find that each state’s Office of State Procurement works directly with state agencies to establish convenience contracts with maintenance vendors on an as-needed basis. Most states have standard contracts to purchase maintenance and repair services for tires, batteries, window glass and other select commodities. However, we find in most states a general lack of contracts throughout the state for specific vehicle maintenance and repair services.

Below are samples of states’ policies regarding vendor procurement practices:

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<sup>8</sup> § SECTION 1-11-290. South Carolina Division of Motor Vehicle Management; plan for maximally cost-effective vehicle maintenance.

## FDOT Fleet Operations Review

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The Commonwealth of Virginia’s policy requires the agency transportation officers to be responsible for monitoring and controlling the routine maintenance and repair of vehicles.

The State of Utah uses the services of a prominent third-party maintenance vendor (ARI) to manage vehicle repair and the statewide vendor network and to capture transaction data.

The State of California employs inspectors who monitor and investigate its fleet maintenance vendor complaints received from state agencies.

States that do not regularly monitor vendors are missing opportunities to obtain discounts by not leveraging their purchasing power through the establishment of a permanent vendor network and the establishment of more enterprise-wide contracts. For instance, several states studied have garnered savings by using a third-party contractor with an established vendor network to provide access to and manage the services provided by commercial vendors.

### Fleet Maintenance Parts Provisioning

The essence of the parts procurement and supply process is to get the best possible replacement parts in the hands of the mechanic as quickly as possible and at the lowest possible cost. This process directly impacts mechanic productivity and efficiency and, hence, vehicle economy, maintenance effectiveness or quality, vehicle safety and reliability, maintenance turn-around time and, vehicle availability.

State	Contract establishment and management	Management of ad hoc purchases	Vendor payment	Inventory management and control	Parts disbursement	Parts provisioning performance management
California	X		X			
Georgia						
Oregon	X		X	X	X	
South Carolina			X	X	X	
Utah						
Virginia						
Washington	X	X	X	X	X	

States’ fleet policies are largely silent on parts management. However, the fleet policies of the states of South Carolina and California both mention the importance of monitoring parts and its role in the overall fleet management process. For example the intent of the South Carolina policy is evidenced by the following statement:

- The State Vehicle Maintenance program shall include:*
- (a) central purchasing of supplies and parts;*
  - (b) an effective inventory control system;*

**Vehicle Fueling**

Fleet fueling involves the procurement, storage, and/or supply of fuel to fleet users. Depending on how an organization fuels its fleet, key processes may include the execution and management of contracts for bulk fuel purchases and/or credit cards for use at commercial fuel stations, oversight of fuel deliveries, management of fuel inventories, maintenance of fuel dispensing facilities, dispensing of fuel, and the capture of fuel consumption data. A summary of the selected states' policies are shown in the table below:

<b>State</b>	<b>Bulk fuel contract establishment and management</b>	<b>Bulk fuel inventory management</b>	<b>Commercial fuel card program management</b>	<b>Vendor payment processes</b>
California	No data	No data	X	X
Georgia	No data	No data	X	X
Oregon	X	X	X	X
South Carolina	X	X	X	X
Utah	X	X	X	X
Virginia		X	X	X
Washington			X	X

A clear best management practice relating to the management of vehicle and equipment fueling is the ability to account for each transaction that occurs. Several of the states studied have outsourced the majority of their fueling infrastructure to third-party vendors like Wright Express, Voyager, and Fuelman (and others). These third-party contracts allow the respective states more control over the management of their fuel transactions by requiring operators to enter personal ID and vehicle unit information prior to dispensing fuel. For those states that choose not to outsource their fuel to a third-party, the clear best practice is to establish an internal network that employs card readers that require the same information as private vendors.

The State of Oregon fleet policy and procedure document lists the following activities related to fuel management:

- Fuel is one of the required variables that must be accounted for as part of the cost-per-mile calculation required to determine the most economic transportation solution.
- Fuel costs are quantified as a standard variable relating to the replacement of a State vehicle.
- Each State agency to purchase vehicles to use a hierarchal process to determine the most cost-effective fuel choices for vehicles, starting with AFV selections as the first priority and gasoline options as the last.
- State agencies are to consider the average fuel costs in the efficient and economical use of State vehicles processes.

- Agencies shall provide in detail the processes required for customers to gain access to fuel for vehicle operation including such items as card assignment, site access, user authorization, and agency responsibilities.

These policies are common in most states we work with, especially when it comes to states that utilize a third-party fuel card system.

The State of Utah has a very comprehensive state-of-the-art (and well documented) fleet fueling program that has been recognized as a premier model in municipal government. Utah's fuel program is completely centralized and requires every state government entity to subscribe to and utilize the State Fuel Network. In addition, Utah offers its fuel network to school Districts, counties, cities, and other municipal government entities as a convenient means to acquire fuel for their fleet vehicles. At the present time, the State of Utah partners with about 3/4 of the counties throughout the state, 35 of the 40 school Districts and about 60 cities to maximize the economies-of-scale related to fuel purchasing. The State of Utah reported they purchase approximately 20 million gallons of fuel annually using its fuel contracts.

Likewise, the fueling policies of the states of California, Georgia, South Carolina and the Commonwealth of Virginia include (although not as detailed as Utah and Oregon) at a minimum the following topics:

- Fuel purchasing instructions and station access<sup>9</sup>,
- Type<sup>10</sup> and quality of fuels that can be acquired,
- Proper fuel accountability and penalties for unauthorized access,
- Fuel card governance, issuance and replacement,
- AFV fuel responsibilities and access.

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<sup>9</sup> Both Virginia and South Carolina require State agencies to use state fuel sites prior to using private sites.

<sup>10</sup> California policy prohibits the purchase of higher grade fuels.

### FIELD SITE REVIEW NOTES

**Organization:** DOT Headquarters

#### **Organization and General Management**

The DOT Headquarters (HQ) fleet staff fulfills a dual role. They are responsible for the overall coordination of fleet activities in the department and also provide day-to-day fleet support for DOT organizations that operate out of central DOT facilities in Tallahassee.

In terms of the central fleet role, HQ staff provides general oversight, quality assurance, some management reporting, liaison with DMS, and coordination of the fleet replacement program. Angel Birriel is the Mobile Equipment Manager for FDOT and functions as the department's central fleet manager. There are three other staff positions. Toleoa McCoy (Property Administrator) deals primarily with new vehicle purchase and auction paperwork, licenses, registrations, etc. Steve Diffenderfer (Maintenance Information Coordinator) works 70% in fleet, mostly focused on reporting and information analysis. One vacant position (title TBD) will be Angel's back-up and assume some of the day-to-day fleet coordinating duties that Angel is doing.

Angel, who was hired as the Equipment Coordinator in 1997, reports to Kristin McCrary (Program Resources Administrator), who reports to Tim Lattner (Director, Office of Maintenance). On the DOT org chart, Tim reports to the State Highway Engineer, who reports to the Asst. Secretary of Engineering and Operations, who is organizationally at the same level as the District Secretaries. Therefore, the HQ fleet manager is a number of levels down from the DOT Secretary.

Angel is responsible for keeping the Mobile Equipment Manual up to date, for QAR reviews, and for assembling required data for reporting to DMS and for coordinating purchasing/specs (all of which must be sent to DMS for approval. Kristin is responsible for allocating the \$8 million in replacement funds, with input from the Districts. Angel also manages HQ fleet. This involves assisting central HQ staff with any equipment issues.

Since DOT has been downsizing for the past 5-6 years, additions to the fleet are rare. Districts are responsible for justifying the need and making the budget request. Angel is not involved.

Most specs are prepared by DMS, by one dedicated spec writer position. DOT will prepare some specs, such as for brush chippers. DOT tries to buy turnkey vehicles. Only minor upfitting done by shops.

Angel is not involved at all with vehicle or equipment rentals or with POV.

## **FDOT Fleet Operations Review**

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HQ fleet manager conducts a Quality Assurance Review (QAR) at each District each year. The review includes a shop inspection, record inspection, and a safety inspection of around 20 trucks by DOT's Office of Motor Carrier Compliance staff.

DMS has established a comprehensive list of replacement criteria (see file on server). For the most part, criteria are very aggressive (e.g. police cars 5 yrs or 65k miles; compact pass cars 7 yrs or 70k miles; SUVs 8 yrs or 80k miles). DOT has established criteria that are longer than those of DMS. This happened many many years ago as a decision by DOT to show that they are better stewards of State funds. (Angel will provide a copy of DOT criteria).

DOT allocates \$8 million per year for replacing vehicles and equipment. This amount is first split between cars and equipment. The split is based on an old plan (Kristin will provide a copy) and the ratio in this plan has been carried forward. Then the dollars are allocated to each District based on the percentage of units that exceed replacement criteria. Actual split is based on % replacement value of units exceeding criteria. So if total replacement need is \$10 million and District 1 has \$1 million worth of vehicles that exceed criteria, they would be allocated 10% of the \$8 million. The District then is free to replace any vehicles that they want so long as they exceed criteria (additional justification is required to replace a unit that does not meet criteria).

DOT has undergone staff and fleet downsizing over the past five years (Angel will provide a history on fleet size). When Kristin started with DOT in 1999, the replacement budget was \$14 million. The \$8 million allocation was instituted in 2002 from legislative action. Kristin thinks that they are falling behind each year because \$8 million is not sufficient to meet their replacement needs (Kristen will provide a report showing historical replacement funding needs).

Districts decide which vehicles to replace. There is no ability to add to the pot of replacement funds that have been allocated to each District. If a District wants to upgrade a vehicle, they must downgrade another to come up with the funds. Also no way to finance unanticipated replacements mid-year. Very inflexible process that likely leads to poor business decisions such as buying vehicles that don't really meet a customer's needs and making expensive repairs on older vehicles that are not scheduled for replacement.

No internal charges. Do charge fuel to other State agencies. No markup is added to fuel charged to outside agencies.

Cost control is not one of HQ fleet's responsibilities. Agency fleet costs are not consolidated into a single report. To the extent that cost control happens, it is at the District level and directly related to maintenance and repair. Angel knows that shops will replace engines and transmissions on old vehicles because of the inflexible replacement funding process. Since there is no provision to replace a vehicle mid-year, there is little choice but to repair older vehicles.

## FDOT Fleet Operations Review

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Mobil Equipment Manual includes a procedure for calculating a shop labor rate (no other types of rates are mentioned). Each shop gets its own rate, which is loaded into EMIS to price labor hours posted to work orders. Rates are supposed to be updated each year. Action to update the rates was initiated after a Fleet Managers' Meeting in 2006. Rates methodology is very simplistic and appears to exclude lots of indirect and overhead costs. Current rates range from \$25 to \$55 per hour. The new rates that Angel has calculated range from \$33 to \$105 (privatized Ft Lauderdale shop). Operating rates for each class of equipment are also supposed to be calculated. These rates are used to charge equipment costs to jobs. Angel says he does not think rates have been updated in at least 10 years.

There are no formal meetings with internal customers. DOT fleet managers get together once per year. There are no regularly scheduled meetings with DMS. There is no SLA, with the exception of an agreement with DMS for the services that DOT will receive from the Equipment Management Information System (EMIS). DOT pays \$1.75 per vehicle per month for a total of around \$12,000 per month.

### Fleet Profile

DOT HQ organizations operate a relatively small fleet of cars, vans, and light trucks.

#### *Summary of DOT Headquarters Fleet*

		Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>		50	7.35	
<b>Autos</b>		22	5.11	<b>14,813</b>
<b>Light Duty Vehicles</b>		19	5.63	<b>11,687</b>
<b>Medium/Hvy Vehicles</b>		4	13.56	<b>5,403</b>
<b>Construction Vehicles</b>	<b>Heavy</b>	-0-	-0-	<b>-0-</b>
<b>Construction Vehicles</b>	<b>Light</b>	-0-	-0-	<b>-0-</b>
<b>Trailers</b>		3	18.44	
<b>"Other" Vehicles</b>		2	12.50	
<b>Total Original Acquisition Cost</b>		\$1,200,844		
<b>Number of Maintenance Shops</b>		0		
<b>Number of Fleet Maintenance Personnel</b>		0		

### **Fleet Maintenance:**

Drivers take vehicles directly to any vendor in the Tallahassee area for a PM A. There are no contracts with vendors and no driver handbook explaining how this process is supposed to work. For all other maintenance problems vehicles are taken to the District 3 Tallahassee shop, which is 10 miles one way from downtown.

<b>Organization:</b> <a href="#">DOT District 1</a>
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### **Organization and General Management:**

District 1 is located in southwestern Florida and is headquartered in Bartow. There are 4 yards with shops –Bartow, Sarasota, Arcadia and Ft. Myers. The District Fleet Manager reports to the District Maintenance Engineer. The District Fleet Manager is a liaison between District headquarters and the vehicle management and maintenance operations conducted at the yards.

As a general rule, the District conforms to the MEM and published DMS policies however they indicate that some policies and procedures are outdated and in need of revision. They use some of the DMS forms but have customized preventive maintenance forms to make them more appropriate to OEM specs.

Communications with State Maintenance office is “slow and inconsistent” and there is a feeling that many of the details could be handled more efficiently and quickly at the local level. On the other hand, communication with FDOT management is very good.

Annual business plans are developed (Tier 3 and Tier 4) with each group actively participating. Performance for fleet is reviewed monthly and is also gauged through the QAR process.

The District overall struggles with the current replacement procedures including inadequate funding, inappropriate replacement cycles, and inappropriate vehicle selections offered by the State. For example, the District would benefit greatly from the use of 12-16 yard dump trucks but are only allowed to purchase 8 yard units (a restriction that may be at the District level). The District is attempting to play a larger role in developing the vehicle specifications.

Regarding vehicle and equipment operation, the District has created a somewhat unique control method for ensuring proper operation. They have created a cross training program that trains and certifies operators on each piece of equipment. A record is kept that tracks each type of vehicle an operator is qualified to use. The supervisors ensure that an operator is not allowed to use or even move a vehicle or piece of equipment until the certification is complete.

## FDOT Fleet Operations Review

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Vehicle utilization is monitored every month by the Fleet Manager and the District Engineer. It is reported that the guidelines work reasonably well for light duty equipment but is not effective for heavy trucks and other heavy units.

### Fleet Profile

#### *Summary of District 1 Fleet*

	Number Units	of Average (years)	Age	Average Utilization
<b>Total Fleet</b>	870		7.86	
<b>Autos</b>	146		5.18	9,392
<b>Light Duty Vehicles</b>	260		5.87	14,221
<b>Medium/Hvy Vehicles</b>	153		8.84	10,884
<b>Construction Heavy Vehicles</b>	54		10.62	320
<b>Construction Light Vehicles</b>	121		10.97	161
<b>Trailers</b>	62		10.88	
<b>“Other” Vehicles</b>	74		7.19	
<b>Total Original Acquisition Cost</b>	\$21,493,713			
<b>Number of Maintenance Shops</b>	6			
<b>Number of Fleet Maintenance Personnel</b>	23			

### Fleet Maintenance:

The shops operate on a 4-day, ten hour schedule which is reportedly sufficient. The shops generally do not have any issues regarding the availability of vehicles when work is scheduled or for preventative maintenance. Some of the PM schedules have been slightly modified to suit newer vehicles however the compliance rate for getting the work done when it is due is excellent.

The District did attempt to out-source lube and oil services to “quick service” providers but felt the quality was slipping and thus brought the work back in house. Users are notified in advance when PMs are due and operations do make adequate allowances to ensure vehicles are available.

## **FDOT Fleet Operations Review**

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The shops utilize the EMIS system for managing work orders. The District reports that the system appears to meet their needs however they add the caveat that they do not have any experience with other systems and thus no frame of reference. There has been very little formal training on the system and in general, staff are self-taught over time.

The workflow varies widely from shop to shop and therefore workload management is unique at each location. Overall, the shops in the District seem to manage the work demand sufficiently with the current level of staffing.

The District allocates funds for mechanic training for mechanics at the Bartow shop and the supervising mechanic at that shop reports that the training for his staff is adequate to meet their needs. At the remaining yards visited, training ranges from sparse to none in the shops other than occasional vendor supplied orientation on new equipment. Tooling for the shops is reported to be very basic but in most cases, adequate. New tools, especially diagnostic equipment, is very limited.

The parts inventories in each of the shops are kept to a bare minimum by the direction of DOT headquarters. Only fast moving items such as filters, light bulbs, wipers and hardware are readily available. All other parts are ordered as needed by the mechanics. The shops report that the mechanics average about 1 hour per day identifying and ordering parts from local suppliers. There is no staff directly assigned to parts functions in any of the shops.

There were 4 on-site visits to evaluate the shops:

**Bartow-**The shop is fairly large and well-organized. The shop benefits greatly from the yard layout in that there is very good access to shop from either side of the building and adequate parking on both sides. The parts room is small and located at the north end of the building thus requiring the mechanics to walk a short distance. The building is in fair condition and sufficiently sized for the number vehicles assigned. This shop would likely seek outside customers (other state agencies) to optimize use of equipment and staff if a chargeback mechanism or enterprise system was enabled to allow them to allocate costs to entities outside of their own District.

**Arcadia-**The shop is fairly small, particularly the shop office area. At the time of the visit, the main shop floor had been recently treated with epoxy and was in excellent condition however the small work area does present some problems for the staff. We also noted that the lubrication bay is actually located across the yard in a different building which houses only one bay and is fairly cramped.

**Sarasota-** The shop bays are small and overhead clearance is marginal for some equipment thus requiring some work to be performed outside. The shop was exceptionally clean, almost bare of tools and supplies. Staff reports that other than the low ceilings, the shop is sufficient for their current needs. The parts storage area is

extremely small, akin to a closet and carries only the barest essentials. All other parts are delivered as needed from local suppliers. The building is in fairly good condition.

Ft. Myers-At the time of our visit, the roof was leaking badly from a recent rain and work in the shop was all but suspended. The bays are very small and somewhat disorganized. As in the other shops, the parts area is tiny and sparsely stocked. Much of the shop tools and equipment had been covered to protect from the leaking roof and could not be evaluated. The District plans to build a new facility in Fort Myers based on the design applied for the Leesburg facility which will include a new vehicle maintenance facility.

<b>Organization:</b> <a href="#">DOT District 2</a>
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### **Organization and General Management:**

District 2 is located in north central Florida and is headquartered in Lake City. There are 3 Yards with Shops – Lake City, Gainesville, and St. Augustine. Shop Superintendents report to the District Fleet Manager

The District Fleet Manager reports to the District Maintenance Engineer. Temporarily there are two employees sharing the duties of fleet manager however this is only a transitional strategy as the current Fleet Manager will retire this year.

As a general rule, District 2 uses the Mobile Equipment Manual (MEM) as a policy guideline along with other DMS policies. The Fleet Manager indicates that some of the policies, especially regarding purchasing and fuel cards, are in need of revision.

In the area of new vehicle acquisitions, the Operations Superintendents communicate their needs with the Fleet Manager. Although most replacements are like for like, vehicle models change year by year and the District does have some difficulty when the users have special requirements and specifications need to be written ad hoc.

The District uses DOT “Trade Criteria” to identify potential replacements. They feel the criteria are reasonable but funding is not. The methodology for distributing capital replacement funds does not meet their needs and in some cases, can be capricious and arbitrary.

The 2005 capital budget allocation was \$1,024,459 for both light and heavy vehicles and equipment. The funding comes from DOT HQ and is determined by a “formula”. The funding goes to the DME (District Maint. Engineer). The Fleet Manager makes the decision on allocation of funding to each Yard. They generally rotate the “priority” of funding, however, there is some input from the Shop Superintendents however the DME can change the priorities if necessary.

Throughout the year, problems may arise when equipment is retired due to an accident or catastrophic failure. There is no mechanism for the immediate replacement of these units. The criterion for “totaling” a vehicle is 80% of the replacement value. I.e. if new vehicle costs \$20K, the accident cost must be \$16K or more before it is replaced according to the Mobile Equipment Manual. Those that qualify go into storage and wait until next year for replacement. Users must then try to get another vehicle from another operation. It is reported that the District does not attempt fill needs such as this with rental equipment except on very rare occasions.

The District uses the EMIS system to provide management information on equipment. The system is generally regarded as troublesome and difficult to use. Reports are limited and system appears to meet only the minimal requirements that we would expect a large fleet operation to have. Also, the timeliness of the data entry into the system can be a problem area even though there are internal requirements for ensuring that the information is posted regularly.

The District standard for utilization is consistent with MEM policy and vehicles that fall below the stated use standards (< 100 miles per month for 5 months) are investigated and operations personnel are advised.

The District has provisions for bulk fueling and is transitioning from the Voyager cards to the new Comdata system for commercial purchases... Information from Comdata and the local tracking system (TRAK) is uploaded to the maintenance system. The data from Voyager is sparse and the hope is that the Comdata information will be more complete and timely. The local warehouses are responsible for maintaining fuel inventories.

### **Fleet Profile**

## FDOT Fleet Operations Review

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### *Summary of District 2 Fleet*

		Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>		1,169	8.02	
<b>Autos</b>		162	6.47	11,581
<b>Light Duty Vehicles</b>		346	5.41	15,202
<b>Medium/Hvy Vehicles</b>		247	8.61	11,136
<b>Construction Vehicles</b>	<b>Heavy</b>	68	10.90	308
<b>Construction Vehicles</b>	<b>Light</b>	130	10.01	441
<b>Trailers</b>		73	12.31	
<b>“Other” Vehicles</b>		143	9.67	
<b>Total Original Acquisition Cost</b>		\$28,555,057		
<b>Number of Maintenance Shops</b>		6		
<b>Number of Fleet Maintenance Personnel</b>		34		

#### **Fleet Maintenance:**

Each shop in District 2 is managed by a supervisor. In Lake City and Gainesville, the supervisors have some clerical support for customer interface, opening work orders, etc. The St. Augustine shop is much smaller than the others and thus the shop supervisor is responsible for all of the clerical work as well as shop duties.

As a rule, the shops follow prescribed practices such as opening work orders for all work, tracking mechanic efforts, and recording the use of repair parts. The shops generally do not use repair standards such as flat rates or in-house rates to manage labor hours for each job. Generally it is responsibility of the shop supervisor to keep the staff mechanics busy.

Operators come directly to shop to report problems, fill out a maintenance repair request which is then entered into the fleet system to generate a work order for the shop. When mechanic completes the work, the time and parts are reviewed by the supervisor before the work order is closed.

Parts inventories in all shops are very small, generally only stocking fast moving items such as filters and hardware. Other required parts are ordered as needed for each job. The mechanics are usually responsible for researching and ordering parts and in some

## **FDOT Fleet Operations Review**

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cases, for actually retrieving the parts from suppliers. Shops report that on average, each mechanic will spend about 1 hour per day in this process. The process appears to be inefficient and reduces the productive time in the shops.

There were three on-site visits to shops in this District to evaluate the facilities:

The Lake City shop is old, poorly arranged, and in bad condition and not conducive to performing the work required. The largest vehicle lift is outside, uncovered and thus cannot be used in the rain or windy days. It was reported that the site has been considered for upgrades or replacement several times but no action has been taken.

St Augustine shop is small and somewhat disorganized. The group working there are from Jacksonville since that shop closed. Only three people on staff with some support help from the warehouse. Could be more productive but the size of the assigned fleet may not warrant it. Shop also reports that they do nearly all of their own facilities repairs since there is only one man assigned to the whole complex.

Gainesville shop is exceptional but is somewhat underutilized. It has the potential for a great deal more work. It was originally designed to be a central rebuild center but rarely fulfills that role due to transportation cost considerations in recent years. The shop does some of fabrication. Overall layout is very good.

<b>Organization: <a href="#">DOT District 3</a></b>
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### **Organization and General Management**

District 3 operation is located in the upper northwest part of the state beginning at Tallahassee on the east and traveling west along the gulf coast toward Pensacola, where the District borders on Alabama to the west and north. The District includes several individual FDOT yard operations including one in Chipley, the location of the District office. The Mercury project team visited the following District operations and conducted interviews with District 3 fleet related management personnel: Chipley, Panama City, Milton, and Midway. Like the other Districts that we visited District 3 is independent, decentralized, and primarily operates as an autonomous unit. We did not visit the District 3 yards located in Crestview, Defuniak Springs, and Marianna. The Crestview operation will soon to be combined with the Defuniak Springs location.

The Fleet Manager for District 3 is Earl Riley, who reports to Windle Tharp, the Roadway Engineer for District 3. Earl handles the daily fleet operation activities and Windle manages the budget. Earl is the former shop supervisor for the District 3 shop in Panama City. They both agreed that the District probably has more vehicles and equipment than is needed but that there probably needed to be spares because of how old and unreliable some of the assets are, and that there was also not enough technicians to keep all of the assets available to the crews.

## FDOT Fleet Operations Review

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FDOT outsources some of their road related duties in five counties to the private sector in District 3 and there are no District shops in these counties.

With the exception of Milton which is outsourced, each of the District 3 locations operate shop facilities and perform routine vehicle maintenance services.

The District emphasizes adherence and compliance with prescribed PM inspection standards and the District staff monitors the monthly idle vehicle lists.

We observed a relative degree of inconsistency among District locations in the efforts to follow some policies. This may be due to outdated policies and their applicability to current circumstances. This in-turn forces each District and individual yards to interpret, improvise, and in some case issue local policies.

Each of the District management personnel acknowledged that they were aware of the policies and believed they were generally in compliance. Additionally, each of the operations in District 3 were generally aware of the policy-making authority regarding State fleet vehicle management issued by DMS, and most believed they were in compliance with DMS policies.

Each yard schedules a monthly safety meeting facilitated by the District Safety Officer where management has the opportunity to review all pertinent information to District personnel and equipment operators.

The fleet contact in each of the District 3 yards report directly to a Maintenance Engineer type position versus answering to an FDOT or District fleet manager responsible for fleet operations. As a result, the current management structure may diminish the overall accountability necessary to ensure adequate controls are in place to maintain vehicles in a safe, reliable, and responsible manner. District 3 does not have a written business plan in place to identify their business objectives and mission, which would include delineated tasks, metrics, benchmarks, and any other measurable goals and objectives related to the fleet.

The District does not use a formal process to determine how vehicles are justified and assigned to operators. The assignment of fleet vehicles to the operator is left up to each maintenance engineer to justify, assign, and determine the appropriate application to fulfill their yard's mission.

The District periodically rents vehicles and equipment when they determine if is more cost effective to rent. The equipment rental process takes place on an informal basis. Rentals are not tracked and there is not a negotiated contract in place to leverage purchasing power, capture economies of scale, or garner volume discounts.

### **Fuel**

Each of the locations in the District except Milton operates a bulk fueling facility providing various types of fuel products to their equipment.

The Milton location does not currently operate a bulk fuel site. Milton staff told us that a decision was made to construct a new fuel site at the Milton location for the upcoming fiscal year due to the inability to access fuel from private vendors during a recent severe hurricane.

The State recently switched from the Voyager universal fuel card to the Comdata fuel card for retail purchases. The Milton location expressed concern that the Comdata card was MasterCard based and that it was accepted everywhere and did not have as tight controls as with the closed network universal fuel cards. He gave as an example that they have to verbally tell drivers not to use the wide-spread retailer Tom Thumb because these locations do not have the ability to control purchases through the use of a personal identification number and drivers can purchase anything with the Comdata card. The decision to not use these stores was set at the District level. The senior executive in Milton still purchases fuel at Tom Thumb although he knows it is against the District policy.

Overhead costs are not captured in the fuel rates and therefore when other agencies use these sites to fuel they are buying fuel that is supplemented by FDOT. We were told that the information from the bulk fuel dispensing and purchases of retail fuel are not blended into a single report at the vehicle level.

### **Vehicle Selection and Upfitting**

Lack of adequate funding has resulted in an unintended consequence to occur at the District level which may hamper replacement and potentially increase operational costs. Like similar Districts we visited, District 3 admitted to holding back certain vehicles slated for replacement because the vehicle type they desired was not on contract in the replacement year.

This practice may actually cost FDOT more in the long-run, because it inadvertently causes yards to hold onto a potentially unsafe, unreliable and costly piece of equipment. This action can lead to increased maintenance and repair as well as an increase of operator downtime.

The District stated that they must choose from vehicles on the selector list that do not have adequate specifications for the jobs that they perform and often must do additional upfitting after the vehicle is received.

The majority of the yards in District 3 reported that they each have an established process to upfit each of their new vehicles. These unfitting activities vary among each of the yards and range from performing these services entirely in-house to the complete outsourcing to a private vendor.

The District shop in Panama City is used to perform most of the upfitting in the District.

### **Vehicle Decommissioning and Disposal**

All vehicles slated for disposal in District 3 are transported to the Marianna yard where they are stored until DMS can arrange to transport them to Tampa using a third-party contractor. DMS arranges to transport the vehicles to their disposal contractor located in the Tampa area, which is over 338 miles from the Marianna yard.

There are some issues associated with the current method in which vehicles are disposed. The Districts pay DMS a fee to transport the vehicles to Tampa but occasionally have to supply a CDL operator to drive the vehicles because the contractor does not have certified operators. These issues hamper the disposal process by subjecting it to available budget dollars or suitable personnel to perform these services.

The District stated that they have little incentive to make sure the vehicles get to Tampa for the auction because they do not receive proceeds from the sale. If sale proceeds do not cover costs for the transport, sale, and staging of the vehicle when disposed, DMS will send the District an invoice to cover these costs. This action provides no incentive for the Districts to send vehicles to auction. District 3 personnel stated that they feel that they should not pay the costs associated with transporting vehicles to Tampa and would prefer to let the equipment sit in their Marianna yard until it disintegrates.

The District said that the policy of transporting the vehicles slated for disposal not only costs FDOT unnecessary money, but it creates bad publicity with the smaller and often poorer government jurisdictions where they operate. These entities now have to travel to Tampa to purchase these vehicles and then pay to transport them back to the same locations where they could have been purchased before they were sent to Tampa.

The District would like to use the practice of trading-in vehicles to offset the cost of a new vehicle but DMS won't allow this practice. The District stated that DMS will not allow a vehicle that is identified for replacement to be removed from the replacement list by a different vehicle. Once an asset is identified to be remarketed, the exact DOT equipment number is replaced without exceptions. This has led to higher costs to FDOT when the circumstances change and another vehicle is determined to be worse than the item that was originally identified. An example of this would be if a truck is identified to be replaced but another one has an engine that needs to be overhauled. In this situation the original vehicle identified for replacement will be sent to the auction and the one with the inoperable engine will be repaired.

### **Training**

No pre-employment training or evaluation takes place to determine if a candidate is qualified to operate vehicles or equipment. Each operator is believed to be able to operate a piece of equipment based on what is written on their application for employment. An operator is trained when they are required to switch to a different piece of equipment and remedial training happens as a result of a recommendation of the Accident Review Committee.

Supervisors at each location in the District train the operators with the exception of forklift training, which takes place in Defuniak Springs for the District.

The District fleet personnel do not know if an operator is qualified to operate a vehicle or piece of equipment and believes that a list is kept regarding who is qualified by Human Resources or Safety.

### **Pre-Trip/Post-Trip Inspection and Record Keeping**

The FDOT MEM contains policies and procedures requiring all operators to perform pre-trip inspections. Several of the District 3 personnel stated that they don't believe that this is being done consistently throughout the District. However, Panama City stated that the checklists are turned-in daily and filed by the Safety Officer. The MCC visits to each yard periodically to perform gate checks and make sure operators comply with safety and CDL requirements is a significant strength exercised by FDOT.

The shops stated that they occasionally have to remind supervisors about items that should have been caught on the pre-trip.

Fluid checks are required by the operators and the District feels that the fluid checks occur more regularly than the pre-trips because drivers don't want to get stranded.

The Panama City shop uses a vendor to perform a DOT annual inspection at each PM because they felt that the vendor can do a better job of inspection than the operators.

### **Vehicle Utilization**

Utilization is captured in EMIS but District 3 staff does not like the EMIS idle vehicle utilization report because they feel that it does not accurately capture use. District 3 staff keeps their own spreadsheet on odometer readings and mileage for the previous two years.

The excessive idle report is set to identify vehicles with more than 10 idle days per month. An idle day is considered a day of no activity. With a four-ten hour day work week, vehicles can make the list if there are other circumstances surrounding low use during a particular month.

District 3 staff looks at utilization each month and questions vehicles that appear to have low use. Low use vehicles are occasionally moved around within the District.

### **Fleet Maintenance**

Each District shop works four-ten hour days, Monday through Thursday. Only light duty equipment is operated on Friday by FDOT and fleet maintenance staff does not work on Fridays. If a problem occurs on a Friday a tow truck is usually called and the vehicle is parked and left for Monday to be repaired. Occasionally a fleet person will be called in on a Friday but the staff at each location stated that this does not happen very often.

There are two Technicians in Panama, Midway, and Marianna, and one in Chipley. All Technicians have the same job classification. Work is supplemented by using inmates and who are not included in a location's headcount. The Milton location is outsourced but has three fleet employees. There are no shop employees in Defuniak Springs or Crestview.

The shop supervisors at each location make repair priority decisions by determining which crews have the most urgent need. Work is assigned according to the knowledge and physical capabilities of each Technician. The supervisors monitor the repair process and perform quality control checks but there is not a formal process to perform the quality control review. Each shop expressed concern that they can never get caught-up with their work because they don't have enough people.

None of the yards we visited use Service Level Agreements that explicitly define the services and associated standards of performance they will provide to each customer agency. Management believes customers in the District will let them know if they are not happy and management feels this is sufficient to receive timely operator input relating to the repair of equipment.

Most assets have preventative maintenance performed at 5,000 miles or 5 months. The District allows each yard to have the option to use 3,000 miles and 3 months if the assets are operated in an extreme duty area. The forms associated with the preventative maintenance inspection are very old and need updating.

We observed a high degree of compliance to the FDOT and DMS established PM schedules in each yard throughout District 3. Each District office and yard has the ability to run routine reports using EMIS listing vehicles due and overdue for PM maintenance.

The District disseminates two reports each month to the yard maintenance engineers. One list identifies the assets that are due or overdue for a PM and the second report informs yard management of the vehicles and equipment failing to meet statewide utilization standards.

## **FDOT Fleet Operations Review**

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District management stated that if PMs are not completed by the last week of the month, the fleet manager personally notifies the operator or operator's supervisor regarding compliance. As a result, it appears that these reports have had a positive impact on overall compliance in meeting FDOT's stated PM goals and objectives. (This would lead us to believe, should FDOT articulate similar goals and objectives in a written business plan that they would receive a greater degree of success in accomplishing other equally important tactical and strategic fleet related goals and objectives.)

We observed a lack of concern or effort to track other specific metrics, benchmarks, or key performance indicators relating to other aspects of each yard's assigned fleet of vehicles.

The shops use purchasing card to acquire parts, repairs, and services almost exclusively. The technicians source their own parts and pick them up if the vendor does not deliver. A few items such as wiper blades, hoses and other shop supplies are on consignment by the vendor and are reconciled on each work order. Some larger dollar items, primarily fluids, are housed in the District's yard warehouse. If an item is stored in the warehouse then the technician must get a ticket from the shop supervisor that they must give to the parts clerk and sign for anything that they receive from the warehouse.

Maintenance for vehicles owned by the Turnpike Commission and the Motor Carrier Commission is provided at no charge to those organizations because, presumably, the budgeted funds for such maintenance are in the District 3 budget. This creates a situation where the Turnpike and Motor Carrier Commissions have little incentive to replace worn out, high maintenance vehicles because the maintenance is perceived as "free".

There was an inconsistency in vendor use between the shops that we visited. While the Chipley shop does most of the work by the one technician at this location, most of the maintenance performed at Milton is outsourced. At Panama City, the PMs are outsourced and the more difficult work is performed by the two technicians and the working supervisor. We did not get specific vendor use information on the Defuniak Springs and Marianna locations.

The Milton shop has agreements with local vendors for light duty work but selects shops based on the fleet supervisor's knowledge of the area shops for work on the heavy duty equipment. He does not trust the skills of low bid vendors when it comes to repairs on complex and expensive equipment and wants the flexibility to move work to different shops if he is not satisfied with a particular vendor's services.

While considered outsourced, the Milton shop has three fleet employees which include a shop supervisor, a clerical position, and a yard driver. The yard driver and shop supervisor worked in the Milton shop before it was closed. The yard driver and

supervisor still perform minor repairs in the yard or on a job site, and the yard driver performs road calls and transports vehicles to vendors. The supervisor spends most of his time coordinating work with the field and the shops.

The Milton supervisor stated that when the shop was operational, he had specialized equipment to work on all of the location's assets and that the local shops do not have this equipment. Now the equipment must be driven or hauled to dealers in Pensacola to be serviced and that he usually makes at least one trip a week to these shops to check on the assets. He said that he is not comfortable sending the equipment out without knowing what is wrong with the equipment ahead of time so he knows whether or not the work is really required. He said that all of his analyzers and other diagnostic equipment were removed when the shop was closed.

The Milton fleet supervisor openly questioned if a cost benefit analysis had been performed when a decision was made to close the Milton shop. He stated that vehicles and equipment now take longer to be repaired and crews don't have immediate access to vehicles and equipment when they are needed like they had when there was an active shop on-site. He believed that the decision to shut down the shop has caused this location to have more vehicles that they need and to impede the work being done in the field. He also questioned the outsourcing rationale since Milton still needs three people to handle the fleet at this location while the Panama City location has four people and still has a working shop.

The District decided that the Panama City shop should outsource the "A" inspection services. This shop didn't like it at first but now thinks that it is a good process because it gives them time to work on items that require more skill than an oil change, the primary function of an "A" PM. The shop had outsourced the "C" service but brought it back into the shop because the vendors took too long to complete the work and the assets were not available when they were needed by the field.

In Panama City, the operators shuttle the vehicles to the vendor for the "A" service. The operators stop at the shop to pick up a checklist of services to be performed, and after the work is completed the vendor calls the shop supervisor for payment approval. The operator brings back the list of services, invoice and signed receipt from the vendor. Staff said that they did not determine if the cost of having the operators drive back and forth between the vendors and the time to handle the paperwork by the operator and shop staff exceeded having the work performed by the shop. According to the shop supervisor, it was done due to the cuts in staff and that the services needed to get done.

When using outsourced shops, there did not seem to be a consistency between the vendor's preventive maintenance check lists and those of the District.

**Improvements suggested by District 3 fleet management include:**

## FDOT Fleet Operations Review

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- Higher compensation for technicians;
- More technicians
- A fleet maintenance chargeback system
- Budget allocations for the Turnpike Commission and the Motor Carrier Commission and the ability to charge them for maintenance;
- Ability to charge fuel overhead;
- Increased vehicle acquisition budget;
- Stop free services for month 12 of the budget year. There is a moratorium of transfers in the last month, essentially creating one free month a year.
- Not happy with the contract service providers. They only respond when it is cost effective to them. As an example, they won't pick up just one vehicle. They make the District wait until multiple vehicles are ready for service or repair.
- Would like more control over the vehicles issued to perform FDOT functions. The statement was made that the dealers send the state vehicles that they can't sell. They get blue trucks, yellow trucks and white trucks. Extended cabs, regular cabs, CDs not requested etc.

## FDOT Fleet Operations Review

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### Fleet Profile

#### *Summary of District 3 Fleet*

	Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>	800	7.91	
<b>Autos</b>	106	5.59	<b>14,755</b>
<b>Light Duty Vehicles</b>	258	5.94	<b>14,432</b>
<b>Medium/Hvy Vehicles</b>	150	8.75	<b>12,532</b>
<b>Construction Heavy Vehicles</b>	61	11.73	<b>296</b>
<b>Construction Light Vehicles</b>	77	11.78	<b>183</b>
<b>Trailers</b>	53	9.14	
<b>“Other” Vehicles</b>	95	8.16	
<b>Total Original Acquisition Cost</b>			
	\$21,015,611		
<b>Number of Maintenance Shops</b>			
	5		
<b>Number of Fleet Maintenance Personnel</b>			
	15		

**Organization: [DOT District 4](#)**

### **Organization and General Management**

District 4 is located on the east coast of Florida and is headquartered in Ft. Lauderdale, but there is no maintenance shop at HQ. There are 3 Yards with Shops – Ft. Lauderdale, which is contracted to First Vehicle Services (FVS), Ft. Pierce, which is also contracted to First Vehicle Services, and West Palm Beach which is an in-house maintenance operation.

The District Fleet Manager reports to the District Maintenance Engineer. The Fleet Manager has two employees – a Motor Pool Mgr. and an Assistant Motor Pool Mgr. They supervise the District Motor Pool operation which includes 60 vehicles at HQ.

This District has one of the most proactive Fleet Managers found during our reviews. This is the only District that has developed a formal annual business plan with specific objectives, performance indicators, and targets. The Fleet Manager also hosts District-wide fleet meetings on a quarterly basis to discuss pertinent issues.

## **FDOT Fleet Operations Review**

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DOT Shop Superintendents report to Shop Contract Managers. They oversee the FVS operations. In reality, the Shop Superintendents communicate more with the District Fleet Manager than they do with their immediate supervisor.

In the area of new vehicle acquisitions, the Operations Superintendents communicate their needs with Shop Superintendents who in turn coordinate vehicle replacement planning and specifications with the Fleet Manager. Although most replacements are like for like, vehicle models change year by year and the District stated it badly needs training in the area of specifications.

The District uses DOT "Trade Criteria" to identify potential replacements. They feel the criteria is reasonable but funding is not. For example, they are usually only able to replace 10% to 15% of the vehicles that meet Trade Criteria. Out of 726 vehicles in the District, 329 now meet Trade Criteria at a value of \$7.5 million. In general, they must replace like with like or something close to the same Class (Fleet Code).

Current Capital budget is \$891,000 for both light and heavy vehicles and equipment. The funding comes from DOT HQ and is determined by a "formula". The funding goes to the DME (District Maint. Engineer). The Fleet Manager makes the decision on allocation of funding to each Yard. They generally rotate the "priority" of funding, however, there is a lot of input from the Shop Superintendents.

There is no point system to determine priorities. They usually replace the top priorities from each Yard, but there is some tweaking of allocations based on overall priority in the District. The use "earmarking" to identify specific vehicles for replacement and exceptions are rare.

There are several unplanned need for vehicle replacements each year due to accidents or major mechanical failures. The criteria for "totaling" a vehicle is 80% of the replacement value. I.e. if new vehicle costs \$20K, the accident cost must be \$16K or more before it is replaced according to the Mobile Equipment Manual. If it qualifies, it goes into the "bone yard" and waits until next year for replacement. Users must then try to get another vehicle from the Operations Center, or use something from the Motor Pool. Motor Pool vehicles can be loaned for long periods. They never rent to compensate for unplanned replacements.

Mileage comes from EMIS. EMIS gets data from monthly Mileage Sheets. Data is now entered into the new Motorlog system. Also have the MMS time sheets which is a labor and equipment utilization system to track costs to projects/jobs. Each Yard enters their own data into each system. According to the Fleet Manager, these two systems are "Data Entry Monsters", meaning they require a large amount of time and effort. MMS also generates the "Idle Days" report.

The District standard for utilization is 350 miles per month. If a vehicle is under-used for 3 consecutive months, the Fleet Manager investigates. The users may lose the vehicle to another yard.

The Warehouse manages fuel at five fueling locations. They have no way to charge non-District 4 users of fuel. Information on fuel inventory is emailed daily to the Fleet Manager by the Yard warehouse person. They try to keep fuel storage tanks at 35% plus capacity during storm season for emergency capability. The TRAK automated fuel management system is used at all stations. The TRAK reader reads the Comdata card.

District 4 has modified the DOT HQ directive to collect fueling receipts daily – they collect weekly. The Fleet Manager enters every single receipt into the Transmontaigne system to get data into Comdata. Every single commercial transaction must be approved at the District level before HQ will approve payment to Comdata. Data entry is very time consuming. The Fleet Manager is actually doing a manual process of Exception Reporting. The system may have that capability, but it is not being used. They still have to approve every single one. It appears that there were around 100 transactions the first month.

All maintenance for vehicles owned by the Turnpike Commission and the Motor Carrier Commission is provided at no charge to those organizations because, presumably, the budgeted funds for such maintenance are in the District 4 budget. This creates a situation where the Turnpike and Motor Carrier Commissions have little incentive to replace worn out, high maintenance vehicles because the maintenance is perceived as “free”.

Improvements suggested by District 4 fleet management include:

- Higher compensation for mechanics;
- A fleet maintenance chargeback system
- Budget allocations for the Turnpike Commission and the Motor Carrier Commission and the ability to charge them for maintenance;
- Ability to charge for fuel;
- A better vehicle acquisition budget;
- Better training from new vehicle vendors.

## FDOT Fleet Operations Review

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### Fleet Profile

#### *Summary of District 4 Fleet*

	Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>	751	7.91	
<b>Autos</b>	144	6.35	<b>10,083</b>
<b>Light Duty Vehicles</b>	273	6.34	<b>10,828</b>
<b>Medium/Hvy Vehicles</b>	108	9.72	<b>8,920</b>
<b>Construction Heavy Vehicles</b>	31	13.10	<b>268</b>
<b>Construction Light Vehicles</b>	72	8.88	<b>224</b>
<b>Trailers</b>	38	15.66	
<b>“Other” Vehicles</b>	85	6.95	
<b>Total Original Acquisition Cost</b>			
	\$16,387,108		
<b>Number of Maintenance Shops</b>	3 – note that 2 of the 3 shops are outsourced		
<b>Number of Fleet Maintenance Personnel</b>	13		

### Fleet Maintenance:

Two maintenance shops, Ft. Lauderdale and Ft. Pierce, have been outsourced to First Vehicle Services (FVS) while the West Palm Beach shop remains a DOT operation.

The first contract with FVS in Ft. Lauderdale was implemented Jan 1, 2001, apparently ordered by the District Secretary (who has since retired). It is unclear what prompted the move to outsourcing and we could not locate a business case or other justification for this action. The contract has been renewed but has never been audited according to the Fleet Manager.

At the Ft. Lauderdale Powerline Rd. Operations Center, at least three people are involved with oversight of the FVS contractor, including the Shop Superintendent, an Administrative Clerk, and the Contract Manager. The Ft. Pierces structure is similar to Ft. Lauderdale with 3 FDOT personnel having involvement with the FVS contract.

## **FDOT Fleet Operations Review**

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The FVS contractor gets paid a fixed fee for “base” services plus a variable fee for unplanned work called Special Services. At Ft. Pierce, the base rate is around \$50K per month and Special Services cost around \$12K per month. FVS gets paid extra (Special Services) for all vehicles that have exceeded Trade criteria. If a vehicle is able to be used any portion of a day and reported in MMS, it is not included in contractual downtime calculations.

The Administrative Clerk at the Ft. Lauderdale shop transposes EMIS data to the FVS system including information such as PM data, Work Orders, etc. No interface is allowed by the DOT Office of Information Systems. In other words, double data entry is required and is quite time consuming.

The wage rate for DOT mechanics seems low – starting around \$13 then going up to around \$18 for a Master Mechanic. The shop labor rate for West Palm Beach is \$23.92.

<b>Organization:</b> <a href="#">DOT District 5</a>
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### **Organization and General Management:**

District 5 is headquartered in Deland and extends from north of Daytona Beach to south of Melbourne and from the Atlantic coast to northwest of Ocala. It encompasses the following counties: Brevard, Flagler, Lake, Marion, Orange, Osceola, Seminole, Sumter, and Volusia. Vehicle maintenance operations are conducted to varying extents at six yard locations: Deland, Orlando, Oveido, Leesburg, Cocoa and Ocala.

The District Fleet Manager reports to the District Maintenance Support Engineer who then reports to the Assistant District Maintenance Engineer. The District Fleet Manager has responsibility for reviewing the District’s fleet activity and coordinating vehicle acquisitions, replacements and disposals with DOT headquarters. The District Fleet Manager acts as a liaison between the District’s headquarters and yard operations, but has no direct responsibility for or authority over how yards organize and carry out vehicle maintenance activities. Yards operate individually and virtually autonomously in administering the daily operations and maintenance of DOT vehicles. The yards view the District Fleet Manager as highly knowledgeable and a valued resource. On most issues, the yards opt to follow suggestions made by the District Fleet Manager. Fleet maintenance personnel at each yard, however, report ultimately to the yard’s supervising engineer; they do not report to the District Fleet Manager.

The District conforms to the MEM and published DMS policies and has supplemented those policies to require that employees to record the DOT unit numbers and work order numbers on purchase card transactions to ensure work orders match vehicles; therefore, the District can track that vehicles are repaired/upfitted with the specific parts that were acquired for them. Also, as a matter of standard operating procedure in addition to those specified in the MEM, the District Fleet Manager runs reports to

## **FDOT Fleet Operations Review**

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highlight mechanic errors and has implemented added checks on time-tracking and jobs. Additionally, the District Fleet manager has specified additional disposal procedures to supplement what the somewhat unclear disposal procedures outlined in the MEM. Although District Five uses most DMS forms, it has customized several to suit its needs and has worked with EMIS personnel to develop customized reports.

Communications with State Maintenance office is “adequate”; however, the District Fleet Manager feels he could be more effective if he had more authority to manage fleet activities and operations rather than just “providing guidance” to the yards on fleet issues. Other than occasional staff meetings, however, there is no formal or regularly scheduled communication between the District Fleet Manager and District Maintenance Engineer regarding fleet issues. Communication between the District Fleet Manager and FDOT fleet management is very good.

The District Fleet Manager participates in developing annual business plans (Tier 3 and Tier 4); however, his information is primarily reported up through the chain of command as he is not always included in planning sessions and staff meetings. During replacement planning, the District Fleet Manager meets with yard managers and vehicle users individually. He has set up email distributions for scheduling PMs and follows up with a delinquent pm report when necessary. He developed a District operator manual which is posted to the District website/intranet.

As with most Districts, District 5 struggles to meet equipment replacement needs with current funding levels and views that as their most pressing and challenging problem. Some processes further exacerbate the replacement challenge. For example, since implementing vehicle procurement requests through the Arriva system, customers (Districts) are locked into specifying which vehicle will be replaced by the replacement vehicle. Once that information is in the system and the replacement vehicle is on order, the Districts cannot change the vehicle designated for replacement. Therefore, if while awaiting the arrival of a the replacement vehicle, another vehicle is totaled in an accident, even if it is nearly identical to the one designated for replacement, the District cannot swap the totaled vehicle for the one that was designated to be replaced.

Regarding vehicle and equipment operation, the District Fleet Manager diligently monitors activities and regularly provides guidance to the yard maintenance personnel. He supplies information reports to his supervisor to pass along to the District Maintenance Engineer.

Vehicle utilization is monitored every month by the Fleet Manager and he discusses concerns with the yard personnel who oversee those vehicles. In general, yards are cooperative with his suggestions to swap or rotate equipment to even out utilization.

Fuel purchases are handled individually by the yards and all have bulk fuel tanks. During post-hurricane cleanup efforts, yards were able to obtain sufficient fuel, so even in emergency situations, the current approach for obtaining fuel appears to work well.

## FDOT Fleet Operations Review

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Notably, many other departments refuel at District Five sites and appear to travel significant distances simply to refuel (e.g., some Forestry vehicles domiciled in Daytona refuel frequently at Deland). District Five’s only concern with other state agencies fueling at their facilities is that the present chargeback accounting methods do not appropriately charge outside agencies for fuel used during the last month of the fiscal year.

Light equipment is not entered into EMIS because District 5 doesn’t want to pay \$1.50 per vehicle per month for this service. Due to this practice, the actual inventory is about 100 pieces of equipment more than the official inventory.

### **Fleet Profile**

Twelve years ago, the District maintained 1,250 vehicles; now it maintains approximately 850, of which, approximately 150 are tenant vehicles (e.g., Turnpike or Tollway vehicles).

### ***Summary of District 5 Fleet***

	Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>	706	6.90	
<b>Autos</b>	131	5.54	<b>11,009</b>
<b>Light Duty Vehicles</b>	287	5.17	<b>13,640</b>
<b>Medium/Hvy Vehicles</b>	122	8.86	<b>10,397</b>
<b>Construction Heavy Vehicles</b>	37	9.19	<b>293</b>
<b>Construction Light Vehicles</b>	40	8.69	<b>224</b>
<b>Trailers</b>	38	13.06	
<b>“Other” Vehicles</b>	51	7.62	
<b>Total Original Acquisition Cost</b>	\$17,335,556		
<b>Number of Maintenance Shops</b>	6		
<b>Number of Fleet Maintenance Personnel</b>	28		

### **Fleet Maintenance:**

Maintenance shops fall under the purview of District Operations Engineers and most operate on a 4-day, 7:30 to 4:30 or 5:00 schedule which most facilities interviewed stated is sufficient to meet users’ needs. The shops generally do not have any issues

regarding the availability of vehicles when work is scheduled or for preventative maintenance. Some of the PM schedules have been slightly modified to suit newer vehicles however the compliance rate for getting the work done when it is due is excellent.

The shops rely on EMIS system for managing work orders. The District personnel opinions regarding EMIS range from reasonably satisfied (“it is sufficient to meet our needs”) to moderately dissatisfied (“it’s antiquated and has rigid programming...very limited functionality”). There are only a few employees at each location who are trained to use EMIS and very little formal training on the system and in general; most staff are self-taught. Notably, the District Fleet Manager has worked closely with the EMIS programmer to assist in developing enhanced reporting capabilities.

As with other Districts, types of work performed and workflow vary widely from shop to shop and, therefore, workload management is unique at each location. Overall, the shops in the District seem to manage the work demand sufficiently with the current level of staffing and appear to have adjusted the types of work they’ll perform to the skills of mechanics, size of the shops and tools/equipment available to make repairs.

The District does not earmark funds specifically for mechanic training, as such; training is at the discretion of the yards. Mechanics report there has been little training offered in recent years. Tooling for the shops is reported to be very basic but in most cases, adequate. New tools, especially diagnostic equipment, is very limited.

The parts inventories in each of the shops are kept to a bare minimum by the direction of DOT headquarters. Only fast moving items such as filters, light bulbs, wipers and hardware are readily available. All other parts are ordered as needed by the mechanics. Responsibility for sourcing parts varies by shop; at some shops, mechanics source parts, while at others, a shop clerk or administrative assistant assists in identifying parts suppliers, obtaining prices and/or ordering parts. There is no staff directly assigned to parts functions in any of the shops. We conducted three on-site visits to evaluate the shops:

Deland- At one time, this shop had eight mechanics, but now just has three fulltime mechanics; however one had just started working there. The shop is well-organized and large with plenty of room for servicing heavy equipment. It appears to have been designed to accommodate the higher volume of vehicles that had been assigned to the District a decade earlier. There is very good access to shop from either side of the building and adequate parking. They stock very few parts in the warehouse area.

Orlando- This shop focuses on PMs, but conducts some light repair for District vehicles and tenants. It stocks very few PM parts. For the types of service conducted by this shop, the shop is outfitted and staffed at bare minimum levels.

Oveido- Bay doors for this shop are located on only one side, so ventilation is a significant problem, particularly during the warm summer months. This shop has two fulltime mechanics and one shop clerk. This was the last yard in the District to change to flex schedule and will keep mechanics at 5 days from 7 to 4:00 p.m. This shop does C level PMs, but doesn't do A or B PMs. The shop conducts light repairs, e.g., water pumps, AC work, and servicing of all small equipment. Beyond that, the shop performs a lot of diagnostics to decide where to send equipment for commercial repair. The yard may use skilled inmate labor to supplement or replace fulltime mechanics and states it could get by with one fulltime mechanic and a clerical person and supplement with inmates and/or outside vendors if/when necessary.

**Organization:** DOT District 6

### **Organization and General Management**

District 6 covers Miami-Dade County and the Florida Keys. There are four shops including a small District HQ shop.

Fleet Manager reports to District Maintenance Engineer. Fleet manager is actually the Assistant District Maintenance Engineer. He is also the budget manager for the District, in charge of facilities, purchasing, and the radio system, as well as other functions. Fleet management activities consume 30% of Toto's time. He also uses his other staff (such as Purchasing Agent) to help coordinate fleet management. Toto estimates that fleet manager role takes 0.8 of a FTE position.

Toto states that he has a good relationship with both the Agency HQ Fleet Manager and with DMS. He understands the rules and works with HQ/DMS to fulfill his responsibilities. He receives more services (i.e. specifications) from DMS than from HQ.

Definite consolidation opportunities in having all shops report to the District Fleet Manager. Shops are now operating under very different procedures and management directives. The South Dade shop had a theft scandal last year and now must have virtually all purchases approved and must get 3 quotes (even though previous staff were fired). This slows repair process way down. Toto has developed a brief procedure for District HQ shop and North Dade shop operates under different rules.

There is no business plan or annual report. No formal performance measures/targets. Toto runs Delinquent PM report and gives to all District cost center managers and to each shop. Delinquents are reportedly low, but there is no formal target. Toto also runs an open Work Order report for HQ shop (but not others). Allows 3-4 WO's per mechanic to be open. He also has a goal for turning all repairs in one day. He also runs a warehouse vs. WO report to watch tires & batteries (HQ shop only). Runs Idle days report. Runs (which comes from Miles per Gallon report to find anomalies – anything less than 10 mpg or can filter at 5 mpg. Toto chooses data filter level.

Informal communications with customers. Fleet manager relies mainly on shops to know and hear from customers. Almost all communications come/go through shops. District yards are invited to fleet meeting regarding replacements, but they always defer to the shop supervisor.

Fleet manager has one or two meetings each year with shop supervisors in conjunction with putting replacement list together.

## FDOT Fleet Operations Review

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Users communicate need for vehicles to Toto and he makes the case as part of replacement process. Vehicles do not have to be re-justified at replacement time, but the number of idle days is considered in setting replacement priorities there does not seem to be any standard for what constitutes too many idle days). No charge back system.

ALL vehicles belong to the District, not to Maintenance, Construction or others. They have a Holding Unit (location code 601) to keep all “excess” vehicles, either extra units, crashed vehicles, units awaiting auction etc. Location code 603 is used for vehicles that have been sent to auction but not yet sold.

Yards do rent construction equipment, particularly rollers. Yards pay for rentals out of their expense budget. Toto does not have to approve rentals and does not know how much is spent each year. There is no contract for rentals – have to get multiple quotes (need for quotes is subject to DOT purchasing policy and the policies of each yard). Toto says that DOT FISCAL won't allow open purchase order/master agreement style contracts. Toto stated that having a contract with one vendor for one type of construction equipment was too difficult as vendors often move equipment around and do not have the unit that a yard needs in stock where they need it. So it is easier to call around for quotes.

Yards need permission from Toto to rent a pickup. See MEM.

Use of POV requires user to fill out a form with financial justification. If not justified, user can still use POV at personal expense.

Toto chooses what type of vehicle to spec. Always goes with “smallest type useable” (i.e. Cavalier sedans, and Ranger pickups). Thinks other Districts “bend the rules”. Uses DMS specs.

Placed orders for new vehicles in July this year. July 1 is new fiscal year, but official replacement list (and funding allocation) is not released until end of August.

Has always been able to justify the equipment he asks for.

Decentralization is not necessarily the best for fleet. Causes disparity among Districts.

Works with users to develop “wish list” for next year. All 3 shops turn in their list. Then take 1<sup>st</sup> priority from every shop, then 2<sup>nd</sup>, etc.

Need standardized prioritization procedure (not policy, still need some flexibility).

The bigger the size of the “trade qualified” fleet they have, the bigger the piece of acquisition pie they get. They do not have a specific process for replacing vehicles identified for replacement – the District can replace any vehicle it chooses when the new vehicle arrives – thereby allowing the potential to “grow” the size of the “trade criteria” fleet and get more capital funding. HQ does not keep track of specific vehicles included by Districts in their replacement vehicles. Used to be able to encumber funds. Can't anymore per DOT Fiscal. Lack of communication between DOT and Fiscal.

## FDOT Fleet Operations Review

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Bridge inspection trucks, vacuum trucks, Gradealls, etc. take over one year to purchase so inability to encumber is problematic. If they order a vehicle one fiscal year and it arrives the next, they lose the funds and have to use next year's funds to pay for the vehicle. Makes the delay I getting the official replacement list out of HQ a real issue.

Never know what "our share of the pie will be".

Have adopted "trade criteria" (replacement) in DOT that is tougher than DMS.

Fleet Mgr. likes to keep a certain amount of "excess" equipment to respond to unplanned losses – usually lose about 3 vehicles per year. The more vehicles that meet trade criteria I have, the bigger the piece of pie I get. This fact causes counter-productive behavior, such as rebuilding an older vehicle rather than replacing it. This way, the older vehicle is counted as one that meets trade criteria and so helps pump up a District's allocation dollars even-though they have no intention of trading this unit. Toto also keeps older under-utilized vehicles around for the same reason.

HQ fleet manager told us that DOT tries to buy turnkey vehicles. We found this not to be true in District 6. North dad Shop Superintendent told us that pickups never come with trailer hitches/wiring, tool boxes, fire extinguishers, light bars. Shops have to install all of this equipment, which is normally charged to the equipment as maintenance. We observed major up-fitting of a welding truck where the shop was adding all welders, cranes, customer built bins etc. to a stake-bed truck. This too was charged as maintenance. Capitalizing these "minor" expenses is reportedly not allowed by DOT Fiscal. There is also no work code for upfitting in EMIS.

Safety Engineer checks driver licenses according to position requirements. One Safety Engineer in each yard and one in the District HQ office. All employees are subject to pre-employment license and motor vehicle report check.

MEM has a list of pre-trip inspection requirements for non-CDL. MEM also has minimum requirements for large trucks, but it is not the CDL list. Districts have CDL list. CDL forms kept at Districts.

Drivers have a daily checklist – they comment if something is wrong. It goes to the Supervisor of the operator, who sends it to the shop. Shop must have the checklist (complaint) plus the vehicle plus the keys.

Also do a much more complete bi-weekly inspection. DOT form created by Tony (Supt.).

Track Idle days according to own criteria. Idle days report comes from labor and equipment time report.

Odometers come for work orders and fuel.

## FDOT Fleet Operations Review

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### Fleet Profile

#### *Summary of District 6 Fleet*

	Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>	499	7.91	
<b>Autos</b>	71	6.24	<b>7,874</b>
<b>Light Duty Vehicles</b>	187	6.44	<b>9,611</b>
<b>Medium/Hvy Vehicles</b>	101	8.52	<b>8,159</b>
<b>Construction Heavy Vehicles</b>	16	10.01	<b>266</b>
<b>Construction Light Vehicles</b>	42	9.28	<b>218</b>
<b>Trailers</b>	27	11.47	
<b>“Other” Vehicles</b>	55	10.49	
<b>Total Original Acquisition Cost</b>	\$11,033,810		
<b>Number of Maintenance Shops</b>	4		
<b>Number of Fleet Maintenance Personnel</b>	20		

### Fleet Maintenance:

**North Shop** – 7 Total Staff including Superintendent, plus 3 Mech-2’s, 1 Welder Helper, 1 Shop Supervisor, 1 Shop Clerk. Around 200 vehicles maintained here. 4 Doors on each side. 4 double deep drive through bays = 8 bays. 6 lifts, 2 HD, 4 LD. Spacious bays, good condition and excellent equipment

District 6 North Shop - Warranty tracked manually. EMIS has a “Warranty” Reason code, but does not notify for possible warranty or capture warranty cost avoided. Not certified as OEM warranty center – too much variety. Ford has warranty 36/36 that covers roadside assistance including towing to the dealership if problem is under warranty. Just call 1-800 #. Vendor choice is by service, quality, location, responsiveness, price is last. Have sole source letter where available – i.e. John Deere. Fiscal allows. No contracts in place. Same reasons as with equipment rentals given. Limit for shop to approve a part or service purchase without approval (unless in an emergency situation) is \$100 per Tony’s boss. Shop is also subject to DOT Fiscal rules for getting competitive quotes for purchases above \$500 and soliciting M/BE vendors for purchases above \$1,000 (we were provided with a copy of the purchase authorization form). However, Shop Supt told us he does not do this. He has vendors he is

## FDOT Fleet Operations Review

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comfortable with (based on performance and price) and he just buys part/service, attaches invoice to purchasing form, and his boss signs. Shop Supt stated that if an auditor ever shows up, he could “produce” the required paperwork. It is clear that this shop (perhaps others) has developed a process to work around onerous purchasing/accounting rules (promulgated by DOT Fiscal) so that they don’t delay the repair process. Automotive parts are in general supply warehouse, which is run by the Division Admin Group. There are few auto parts in the warehouse, mainly tires batteries, and filters. How does a part get on a WO? If a part is issued from the warehouse, Shop Supervisor completes a request form and takes the form to the warehouse. Warehouse provides part and an issue document, which is print from their warehouse system. Shop then enters part and cost on WO into EMIS. For outside parts purchases, they created a local form for pre-authorization, get approval, and then go get part mainly based on availability and location. Part and cost is then entered into work order.

PM schedules determined by MEM. Have ABC echelons. Have checklist for techs. Supt sends out a calendar for each month to all mgmt. showing vehicles due day by day. Good Practice! Copies to multiple management levels. Scheduling done using EMIS. Then transferred to a calendar format for distribution. PM Schedule is 5 months or 5,000 miles. Checklists are a DMS form and need updating – not updated since at least 1988.

North Shop – Hours 7 am to 5:30, 5 days a week. Common sense used for priorities (i.e. cop car). Priority completely up to Supt.

North Shop: Complaint comes in the form of the daily or bi-weekly inspection form that is submitted by driver to his Supv. If any discrepancies are noted the form is forwarded to the shop and then generates the WO. Daily inspection sheet is also used for drop in customers and for MCC officers.

Send out maybe 10% of work to outside vendors.

Total overtime budget is \$2000 for year!! Currently have 12 Open Work Orders.

**HQ Shop** – 4 staff including Shop Supv, 2 Mechanics, 1 Shop Clerk. Mech Supv does not turn wrenches but does do some troubleshooting.

District HQ Shop: Shops were originally created only for PM work. Two bay shop, well equipped for two mechanics. FDOT owns all tools. Shop Supervisor claims very little outsourced except P&B alignment, transmissions, etc. (They were REBUILDING an engine in a '96 Chevy. S10 PU w/ 70,000 miles while we were there). We were told they can’t do work for other agencies due to the inability to bill interagency, but we observed fuel being dispensed to FHP, and we know the chargeback works with a 2-3 month time delay. Breakdowns are called in to shop vs. Nextel or Radio. Have a Service Truck.

## FDOT Fleet Operations Review

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Need for Hurricane response. Have around 2 breakdowns per month coded C for Road Call in EMIS.

**South Dade Shop** – did not visit

Closing **Marathon shop** (all DOT maintenance activities in the Keys are in the process of being outsourced). Will still have, Central light duty shop (at HQ), North, and South Miami.

### **General**

DOT owns hand tools. Good quality/good compliment.

Dist HQ Fleet Mgr (Toto) receives monthly expenditure reports and produces a spreadsheet budget/expenditure forecast for each cost center (includes shops).

Customer satisfaction survey started last week. Left in seat of vehicle for driver who, if complete, mails it to District HQ. New program, so no feedback yet.

<b>Organization:</b> <a href="#">DOT District 7</a>
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### **Organization and General Management:**

District 7 is headquartered in Tampa and encompasses the following counties: Citrus, Hernando, Hillsborough, Pasco, and Pinellas. Vehicle maintenance operations are conducted to varying extents at three yard locations: Tampa, Clearwater (aka “Pinellas”) and Brooksville.

The District Fleet Manager reports to the District Maintenance Engineer, however, the District intends to fill a position that would change that reporting structure, most likely with an Assistant District Maintenance Engineer. The District Fleet Manager has responsibility for reviewing the District’s fleet activity and coordinating vehicle acquisitions, replacements and disposals with DOT headquarters. The District Fleet Manager acts as a liaison between the District’s headquarters and yard operations, but has no direct responsibility for or authority over how yards organize and carry out vehicle maintenance activities. Yards operate individually and virtually autonomously in administering the daily operations and maintenance of DOT vehicles. Fleet maintenance personnel at each yard, however, report ultimately to the yard’s supervising engineer; they do not report to the District Fleet Manager.

The District conforms to the MEM and published DMS policies and makes policy information available in operator manuals and online, but indicated policy communication is “self-serve”; vehicle users need to go get the information. The overall perspective at the District is that vehicles are the responsibility the cost center manager and it’s their responsibility to ensure vehicles are maintained and users comply with

policy. The District Fleet Manager facilitates vehicle replacement and maintenance operations.

There is no formal or regularly scheduled communication between the District Fleet Manager and District Maintenance Engineer or the yard supervising engineers regarding fleet issues. During replacement planning, the District Fleet Manager meets with yard managers and (occasionally vehicle users) individually. He has set up email distributions for scheduling PMs and follows up with a delinquent pm report when necessary. He developed a District operator manual which is posted to the District website/intranet.

District 7 struggles to meet equipment replacement needs with current funding levels; the District currently has 132 vehicles eligible for replacement.

Regarding vehicle and equipment operation, the District Fleet Manager monitors activities and regularly provides guidance to the yard maintenance personnel. Every equipment operator must perform a “preflight” inspection first thing in the morning. The Fleet Manager is typically onsite in the Tampa yard to assist operators with easy-fixes to get equipment on the road in the mornings, such as airing tires, jumping batteries or changing wiper blades. Each month, the safety committee does “out the gate” checks.

The Fleet Manager reviews vehicle utilization via vehicle logs and down-time reports in MMS and when he notes low utilization, he brings it to the attention of the yard personnel who oversee those vehicles. Cost center managers are typically cooperative with his suggestions to swap or rotate equipment to even out utilization.

Cost center managers assist with writing vehicle specs and upfitting requests and the District occasionally purchases vehicles off contract to get special equipment not available via the State contract.

Fuel purchases are handled individually by the yards and all have bulk fuel tanks (all but one are above-ground). The Fleet Manager has attempted to reconcile fuel purchases with DOT use and reimbursements from outside agency fueling. However, he does not receive sufficient detail relative to inter-agency reimbursements to determine whether other agencies’ use of their fuel have been calculated and attributed accurately. He has tracked fuel purchases and agency reimbursements and has noted that some months his District comes up significantly “short” and for other months, reimbursements appear “closer to what they should be.” Based on the purchases and reimbursements he tracked, the Fleet Manager estimates that the District was under-reimbursed by approximately \$120,000 during FY 06.

### **Fleet Profile**

## FDOT Fleet Operations Review

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District maintains approximately 750 vehicles, including tenants (e.g., Turnpike or Tollway vehicles); most maintenance is conducted at the Tampa maintenance facility, which maintains 432 of the District's 631 pieces of equipment.

### *Summary of District 7 Fleet*

		Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>		631	8.40	
<b>Autos</b>		118	6.68	<b>8,277</b>
<b>Light Duty Vehicles</b>		180	5.91	<b>10,695</b>
<b>Medium/Hvy Vehicles</b>		108	7.86	<b>10,693</b>
<b>Construction Vehicles</b>	<b>Heavy</b>	42	11.04	<b>327</b>
<b>Construction Vehicles</b>	<b>Light</b>	88	10.60	<b>171</b>
<b>Trailers</b>		32	14.58	
<b>"Other" Vehicles</b>		63	11.59	
<b>Total Original Acquisition Cost</b>		\$14,849,496		
<b>Number of Maintenance Shops</b>		3		
<b>Number of Fleet Maintenance Personnel</b>		17		

### Fleet Maintenance:

Maintenance activities are conducted at two yards – Tampa and Pinellas. Maintenance activities at Brooksville are conducted almost entirely by commercial vendors. Although the Pinellas shop (located in Clearwater) is only 23 miles from the Tampa yard, the trip between the yards, in moderate traffic, is 45 minutes to an hour and often exceeds an hour during "high tourist season." The Tampa shop operates on a 4-day, 7:00 to 5:30 schedule and Pinellas operates on a 4-day, 7:00 to 4:30 schedule which both facilities interviewed stated their schedules sufficient to meet users' needs.

The vast majority of equipment operates from the Tampa yard and, therefore, that maintenance facility is larger and better equipped than the Pinellas facility. The Tampa yard services 432 pieces of equipment and focuses on PMs and standard repairs and sublets some repairs, depending on complexity, need for specialized tools/equipment, warranty or scheduling. Tampa mechanics log time on time cards, but not necessarily by activity and have no set production targets; shop foreman estimates current productivity at 70% to 75%. He reports that mechanics spend approximately 10% to

15% of time sourcing parts. The Tampa shop can and has supplemented maintenance staff with inmate labor; however, it notes that quality of service from inmates has been inconsistent. Shop personnel reported frustration with limits on ability to purchase parts or repair services to only those sources listed on MyFlorida. The note one specific instance in which they were directed to use a particular body shop because it was low-bid, but that vendor didn't even have a real garage facility. The shop would like more latitude for sourcing parts and repair services.

In contrast, the Pinellas shop contracts for PMs (mostly contracted to the City of Clearwater) and performs many repairs in-house with only one fulltime mechanic, a shop supervisor who also performs some mechanic duties, and a shop clerk/administrative assistant. Pinellas appears to operate on a shoe-string budget, but manages to provide an adequate level of service to its users. In fact, a few months before our interview, Pinellas had begun surveying customers to assess satisfaction with the quality and timeliness of service. From the surveys they had received at the time of our interview, customers reported high satisfaction with the service they receive at Pinellas. Overall, both shops appear to have adjusted the types of work they'll perform to the skills of mechanics, size of the shops and tools/equipment available to make repairs.

Both shops rely on EMIS system for managing work orders and maintain a lot of paper files as back-up documentation due to overlaps and gaps in the EMIS, MMS and procurement systems. The District reports that the system appears to meet their needs, but there are only a few employees at each location who are trained to use EMIS. There has been very little formal training on the system and in general, staff are self-taught.

The District does not earmark funds specifically for mechanic training, as such; training is at the discretion of the yards. Pinellas, in particular, does not recall any allocation for mechanic training being offered in the past several years. Tooling for the shops is basic but in most cases, adequate for the types of work each performs.

<b>Organization:</b> <a href="#">DOT Motor Carrier Compliance</a>
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### **Organization and General Management**

Motor Carrier Compliance (MCC) is a law enforcement arm of FDOT and operates throughout the State. MCC does not operate any of its own vehicle maintenance facilities and uses FDOT shops that reside within the Districts. During our visit we met with the MCC Lieutenant and the Fleet Manager.

In addition to the standard SMO established policies, MCC sets many of their own individual policies as they relate to law enforcement duties. Although MCC is a section of FDOT they have a unique reporting responsibility that connects them with State law enforcement regarding situations requiring an emergency management response. The

## **FDOT Fleet Operations Review**

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net effect is that MCC has a greater degree of written policy pertaining to Law Enforcement responsibilities versus the standard FDOT activities relating to agency vehicle use.

MCC operation communication is much more structured and more frequent in which policies and procedures are promulgated, disseminated, discussed and monitored among vehicle operators. As an example, the MCC Fleet Manager stated that he meets with District MCC vehicle operators on a regular basis, and usually meets with each lieutenant every 2 weeks. The MCC fleet manager also travels through the area and meets face-to-face with the MCC field supervisors within District 3 on a regular basis. MCC feels this is critical because, it is the responsibility of the field supervisors to communicate directly with each vehicle operator in the District. This appears to be a significant strength within communication practices used by MCC fleet management.

MCC does not currently have a business plan in place; however, they are currently developing a business plan outlining the division's fleet goals and objectives. The overall plan will align individual fleet goals with MCC's overall business objectives. We were told that the business plan is at the Tier 2 stage of completion, and fleet objectives will be articulated at Tier 3.

A significant strength in MCC is their consistent use of structured exception reports to monitor various vehicle activities in the division. The Fleet Manager appears to have a grasp on the importance of using reports to manage their fleet vehicles. MCC uses EMIS reports for PM compliance, which is also sent out to the MCC contacts in the field on a monthly basis. A monthly vehicle inventory report is also sent to users for auditing and validation purposes to make sure the vehicle is still in the possession of the agency. MCC also uses exception reports to monitor activities such as fuel type usage (i.e. premium versus unleaded, etc.) and a monthly utilization report.

The MCC Fleet Manager not only handles fleet responsibilities, but also has other responsibilities such as leasing of facilities and risk management related activities.

The MCC Fleet Manager determines which vehicles need to be justified for replacement and how they are assigned to operators. Every officer in MCC is assigned a vehicle to use over its life cycle and the individual officers are responsible to take care of their own vehicle. Since MCC primarily uses one type of vehicle, a police cruiser, the assignment of such is easily managed compared to the other District applications.

MCC replaces their law enforcement vehicles at an interval between 90,000 and 120,000 miles. They report that the actual replacement age has been decreasing the past few years, which is saving money, reducing downtime, and potentially increasing officer productivity.

Within MCC, vehicles are also funded outside the normal process. MCC receives most of their funding from federal USDOT grants to purchase many of their fleet vehicles.

MCC also obtains several vehicles each year from drug related seizure activities. The only drawback from obtaining vehicles in MCC by these non-traditional methods is the potential net effect to the operations and maintenance budget. For instance, if not properly tracked and budgeted during each budget cycle, the likeliness of maintaining adequate funds to repair and maintain the vehicles may be deficient. This may not affect MCC directly because FDOT funds all of the O & M dollars to maintain vehicles.

MCC stated that it normally takes weeks to get tags for new vehicles and that sometimes it takes several months. The MCC Fleet Manager suggested that there should not be any charges for tags since it is all state money. MCC does not receive many equipment manuals and District 3 often has to request them for MCC.

The MCC Fleet Manager was very complementary of the DMS staff and their ability to provide adequate specifications and vehicles for to meet the needs of the division. The MCC Fleet Manager suggested that DMS consider multiple year contracts to enhance vehicle pricing and lower administration costs related to vehicle specification and contract establishment.

MCC has their new vehicles drop shipped to a private vendor in Panama City to perform the upfitting of law enforcement related equipment. The MCC Fleet Manager reported that he personally travels to Panama City to inspect every vehicle prior to delivery to the division and before they pay the invoice. The MCC upfitting process takes about 4-6 weeks to complete and they feel it is effective and suits their needs. The depreciation costs could be extensive if this process is not optimized and monitored efficiently.

MCC stated that State statute allows their division to circumvent the DMS Surplus process and they are allowed to sell their own vehicles. MCC management conducts their own local auctions in association with DMS.

MCC has personnel with CDLs who to operate equipment that requires them to possess a CDL but does not require it for all operators.

MCC drivers perform a pre-trip inspection but is not stated in the policy. The MCC Fleet Manager stated that it will be included in the new policy draft.

Preventive maintenance is performed at either 5,000 miles or 5 months on MCC vehicles. Mercury questioned if this should be at 3,000 miles due to severe duty operations and suggested that MCC review the owner's manual to make sure that their police vehicle were still covered under warranty using the 5,000 mile PM schedule. MCC performs four "A" services and one "C" service.

The MCC Fleet Manager produces a second PM report after one is sent from FDOT. The FDOT report is run on the first of the month and then MCC runs a second one on the fourteenth of the month. MCC believes that the list is more accurate by waiting the additional two weeks. EMIS emails PMs to designated people and the email list is updated by the MCC Fleet Manager regularly as people leave the MCC.

## FDOT Fleet Operations Review

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MCC vehicles have top priority at the FDOT shops but now MCC has spare vehicles in many locations. MCC can rotate vehicles now but this was not done much in the past because of radio disparities in different parts of the state. The MCC fleet manager reviews fuel exception reports each month and has identified some double charges as a result.

### Fleet Profile

#### *Summary of Motor Carrier Compliance Fleet*

		Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>		309	3.85	
<b>Autos</b>		247	3.34	<b>19,732</b>
<b>Light Duty Vehicles</b>		28	4.33	<b>18,933</b>
<b>Medium/Hvy Vehicles</b>		4	7.83	<b>19,343</b>
<b>Construction Vehicles</b>	<b>Heavy</b>	-0-	-0-	<b>-0-</b>
<b>Construction Vehicles</b>	<b>Light</b>	-0-	-0-	<b>-0-</b>
<b>Trailers</b>		28	6.79	
<b>“Other” Vehicles</b>		2	7.17	
<b>Total Original Acquisition Cost</b>		\$6,521,415		
<b>Number of Maintenance Shops</b>		-0-		
<b>Number of Fleet Maintenance Personnel</b>		-0-		

#### **Improvements suggested by MCC fleet management:**

- Require Highway Safety and Motor Vehicle to take a purchasing card to re-license and tag motor vehicles when they are due. Agencies have to use a purchase order. The vehicles are rolling on the street before the tags are delivered and they can't get a fuel card without tags. Sometimes it takes over 6 weeks to get tags delivered. They use the old vehicle fuel card for the new car until the plates show up. This forces them to hold onto the old vehicle longer until the tags show up.
- The MCC Fleet Manager suggested that there should not be any charges for tags since it is all state money.

### Organization: Turnpike Enterprise

#### **Organization and General Management**

The Turnpike Enterprise operates a fleet of around 294 Light Duty vehicles, plus a few Medium/Heavy Trucks, Construction Equipment, etc. The fleet is centrally managed and is staffed by a Fleet Manager who reports to the Maintenance Engineer. An Administrative Assistant supports the Fleet Manager with data input and reporting.

Contractors are allowed by contract in some cases to drive DOT vehicles. The responsibility/liability is unclear, or the DOT contract folks are unaware of or ignoring the policy that prohibits this.

New vehicle funding is a problem. They can usually replace less than 10% of the fleet. Around 35% to 40% of the fleet meets Trade Criteria. Highest priority is vehicles wrecked, unrepeatably, etc. The Fleet Manager sends requests out to regions and they do some preliminary ranking of potential replacement vehicles. They earmark vehicles and cannot substitute other vehicles later according to what they perceive as policy but they were not sure where the policy is.

Some minor upfitting of new vehicles is done by the Districts which is likely charged to maintenance.

They have a few vehicles that have low utilization but investigation of low use vehicles is not being done. Instead, they rotate high/low utilization vehicles on a regular basis.

Turnpike vehicles are assigned to a DOT District shop for maintenance management purposes. DOT District shops get funding for maintenance according to the vehicles 'assigned' to their shop.

We requested that Jeff Jeffrey.shweky@dot.state.fl.us try to get information from Turnpike finance regarding maintenance and fueling charges and how the TE (Turnpike Enterprise) pays for these products and services. After repeated attempts, Jeff reported that the Turnpike finance group was unable to provide information regarding fleet costs.

Top changes needed:

- Would like to control their own maintenance – not use District shops.
- Need more replacement funding and/or leasing options (they had begun a leasing study, but did not finish).
- Still mailing hard copy of mileage log and send out to users. Why don't users just get it online? Would love to see automated mileage recording. Having trouble complying with mileage logs – too labor intensive.

## FDOT Fleet Operations Review

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- Get rid of the gas receipts (something the Department of Financial Services may disagree with) because every charge is listed on the Transmontaign system. It is a good system and receipt management is not needed.

They are now an 'Enterprise' and would like to act like one with vehicles.

### **Fleet Profile**

#### *Summary of Turnpike Enterprise Fleet*

	Number of Units	Average Age (years)	Average Utilization
<b>Total Fleet</b>	394	5.94	
<b>Autos</b>	130	5.04	<b>13,065</b>
<b>Light Duty Vehicles</b>	164	5.36	<b>16,008</b>
<b>Medium/Hvy Vehicles</b>	20	5.95	<b>2,150</b>
<b>Construction Heavy Vehicles</b>	2	8.71	<b>45</b>
<b>Construction Light Vehicles</b>	4	7.73	<b>220</b>
<b>Trailers</b>	41	9.97	
<b>"Other" Vehicles</b>	33	6.72	
<b>Total Original Acquisition Cost</b>			
	\$7,901,257		
<b>Number of Maintenance Shops</b>			
<b>Number of Fleet Maintenance Personnel</b>			

### **Fleet Maintenance:**

The Turnpike Enterprise outsources all vehicle maintenance, mostly to FDOT District shops.

## FDOT Fleet Operations Review

### LIFE CYCLE COST ANALYSIS RESULTS

<b>Class 60 Sedans</b>	Column1	Column2	Column3	Column4	Column5	Column6	Column7
Replacement Cycle in Years:	1	2	3	4	5	6	7
Inflation Factor	1.00	1.03	1.06	1.09	1.13	1.16	1.19
Meter at replacement	8,595	17,190	25,785	34,380	42,975	51,570	60,165
Depreciation Schedule	0.70	0.57	0.47	0.39	0.32	0.26	0.21
<b>CAPITAL COST</b>							
Projected Net Residual Value	\$ 10,200	\$ 8,306	\$ 6,849	\$ 5,683	\$ 4,663	\$ 3,789	\$ 3,060
Plus Capital Equipment Sold with Vehicle							
Total Residual Value	\$ 10,200	\$ 8,306	\$ 6,849	\$ 5,683	\$ 4,663	\$ 3,789	\$ 3,060
Annual Depreciation	\$ 4,371	\$ 1,894	\$ 1,457	\$ 1,166	\$ 1,020	\$ 874	\$ 729
Cumulative Depreciation	\$ 4,371	\$ 6,266	\$ 7,723	\$ 8,889	\$ 9,909	\$ 10,783	\$ 11,511
Annualized In-Servicing and Decommissioning Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Costs	\$ 4,371	\$ 1,894	\$ 1,457	\$ 1,166	\$ 1,020	\$ 874	\$ 729
<b>Average Annual Depreciation</b>	<b>\$ 4,371</b>	<b>\$ 3,133</b>	<b>\$ 2,574</b>	<b>\$ 2,222</b>	<b>\$ 1,982</b>	<b>\$ 1,797</b>	<b>\$ 1,644</b>
<b>OPERATING COSTS</b>							
Mean Annual M&R Cost from EMS (uninflated)		\$ 516	\$ 344	\$ 516	\$ 945	\$ 774	\$ 1,031
Extrapolated Annual Maintenance and Repair Cost (uninflated)	\$ 152	\$ 317	\$ 486	\$ 659	\$ 834	\$ 1,011	\$ 1,190
Extrapolated Annual Maintenance and Repair Cost	\$ 152	\$ 326	\$ 516	\$ 720	\$ 939	\$ 1,172	\$ 1,421
Annual Fuel Cost (uninflated)	\$ 651	\$ 658	\$ 664	\$ 671	\$ 678	\$ 685	\$ 691
Annual Fuel Cost	\$ 651	\$ 678	\$ 705	\$ 733	\$ 763	\$ 794	\$ 826
Total Annual Operating Cost	\$ 803	\$ 1,004	\$ 1,220	\$ 1,453	\$ 1,701	\$ 1,966	\$ 2,247
Cumulative Operating Cost	\$ 803	\$ 1,807	\$ 3,028	\$ 4,481	\$ 6,182	\$ 8,148	\$ 10,394
<b>Average Annual Operating Cost</b>	<b>\$ 803</b>	<b>\$ 904</b>	<b>\$ 1,009</b>	<b>\$ 1,120</b>	<b>\$ 1,236</b>	<b>\$ 1,358</b>	<b>\$ 1,485</b>
<b>TOTAL ASSET COST</b>							
Annual Total Cost	\$ 5,175	\$ 2,898	\$ 2,678	\$ 2,619	\$ 2,721	\$ 2,840	\$ 2,975
Cumulative Total Cost	\$ 5,175	\$ 8,073	\$ 10,750	\$ 13,369	\$ 16,091	\$ 18,931	\$ 21,906
<b>Average Annual Total Cost</b>	<b>\$ 5,175</b>	<b>\$ 4,036</b>	<b>\$ 3,583</b>	<b>\$ 3,342</b>	<b>\$ 3,218</b>	<b>\$ 3,155</b>	<b>\$ 3,129</b>
NPV of Cumulative Total Cost	\$ 4,882	\$ 7,616	\$ 10,142	\$ 12,612	\$ 15,180	\$ 17,859	\$ 20,666
Equivalent Annual Cost	\$ 5,028	\$ 3,980	\$ 3,585	\$ 3,393	\$ 3,315	\$ 3,297	\$ 3,317
Cost Savings (per vehicle) by Replacing in this Year	\$ (884)	\$ 164	\$ 559	\$ 751	\$ 830	\$ 848	\$ 828
<b>Total Cost Savings (all vehicles) by Replacing in this Year</b>	<b>\$ (322,620)</b>	<b>\$ 60,011</b>	<b>\$ 204,065</b>	<b>\$ 274,286</b>	<b>\$ 302,942</b>	<b>\$ 309,451</b>	<b>\$ 302,057</b>

## FDOT Fleet Operations Review

<b>Class 500 Pickups</b>							
<b>Replacement Cycle in Years:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Inflation Factor	1.00	1.03	1.06	1.09	1.13	1.16	1.19
Meter at replacement	12,416	24,832	37,248	49,664	62,080	74,496	86,912
Depreciation Schedule	0.70	0.57	0.47	0.39	0.32	0.26	0.21
<b>CAPITAL COST</b>							
Projected Net Residual Value	\$ 12,902	\$ 10,506	\$ 8,663	\$ 7,188	\$ 5,898	\$ 4,792	\$ 3,871
Plus Capital Equipment Sold with Vehicle							
Total Residual Value	\$ 12,902	\$ 10,506	\$ 8,663	\$ 7,188	\$ 5,898	\$ 4,792	\$ 3,871
Annual Depreciation	\$ 5,529	\$ 2,396	\$ 1,843	\$ 1,475	\$ 1,290	\$ 1,106	\$ 922
Cumulative Depreciation	\$ 5,529	\$ 7,925	\$ 9,769	\$ 11,243	\$ 12,533	\$ 13,639	\$ 14,561
Annualized In-Servicing and Decommissioning Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Costs	\$ 5,529	\$ 2,396	\$ 1,843	\$ 1,475	\$ 1,290	\$ 1,106	\$ 922
<b>Average Annual Depreciation</b>	\$ 5,529	\$ 3,963	\$ 3,256	\$ 2,811	\$ 2,507	\$ 2,273	\$ 2,080
<b>OPERATING COSTS</b>							
Mean Annual M&R Cost from EMS (uninflated)		\$ 1,242	\$ 745	\$ 1,614	\$ 1,242	\$ 1,490	\$ 1,738
Extrapolated Annual Maintenance and Repair Cost (uninflated)	\$ 546	\$ 863	\$ 1,129	\$ 1,365	\$ 1,582	\$ 1,785	\$ 1,976
Extrapolated Annual Maintenance and Repair Cost	\$ 546	\$ 889	\$ 1,197	\$ 1,492	\$ 1,781	\$ 2,069	\$ 2,360
Annual Fuel Cost (uninflated)	\$ 1,741	\$ 1,759	\$ 1,776	\$ 1,794	\$ 1,812	\$ 1,830	\$ 1,848
Annual Fuel Cost	\$ 1,741	\$ 1,811	\$ 1,884	\$ 1,960	\$ 2,039	\$ 2,122	\$ 2,207
Total Annual Operating Cost	\$ 2,287	\$ 2,701	\$ 3,082	\$ 3,452	\$ 3,820	\$ 4,191	\$ 4,567
Cumulative Operating Cost	\$ 2,287	\$ 4,988	\$ 8,070	\$ 11,522	\$ 15,342	\$ 19,533	\$ 24,100
<b>Average Annual Operating Cost</b>	\$ 2,287	\$ 2,494	\$ 2,690	\$ 2,881	\$ 3,068	\$ 3,256	\$ 3,443
<b>TOTAL ASSET COST</b>							
Annual Total Cost	\$ 7,817	\$ 5,097	\$ 4,925	\$ 4,927	\$ 5,110	\$ 5,297	\$ 5,488
Cumulative Total Cost	\$ 7,817	\$ 12,914	\$ 17,839	\$ 22,765	\$ 27,876	\$ 33,172	\$ 38,661
<b>Average Annual Total Cost</b>	\$ 7,817	\$ 6,457	\$ 5,946	\$ 5,691	\$ 5,575	\$ 5,529	\$ 5,523
NPV of Cumulative Total Cost	\$ 7,374	\$ 12,183	\$ 16,829	\$ 21,477	\$ 26,298	\$ 31,295	\$ 36,472
<b>Equivalent Annual Cost</b>	\$ 7,596	\$ 6,367	\$ 5,950	\$ 5,778	\$ 5,742	\$ 5,777	\$ 5,854
<b>Cost Savings (per vehicle) by Replacing in this Year</b>	\$ (922)	\$ 307	\$ 724	\$ 896	\$ 931	\$ 897	\$ 820
<b>Total Cost Savings (all vehicles) by Replacing in this Year</b>	\$	\$	\$	\$	\$	\$	\$

## FDOT Fleet Operations Review

	(304,233)	101,252	238,936	295,603	307,345	295,912	270,458
<b>Class 550 Pickups</b>							
<b>Replacement Cycle in Years:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Inflation Factor	1.00	1.03	1.06	1.09	1.13	1.16	1.19
Meter at replacement	9,836	19,672	29,508	39,344	49,180	59,016	68,852
Depreciation Schedule	0.7	0.6	0.5	0.41	0.32	0.24	0.19
<b>CAPITAL COST</b>							
Projected Net Residual Value	\$ 11,392	\$ 9,765	\$ 8,137	\$ 6,672	\$ 5,208	\$ 3,906	\$ 3,092
Plus Capital Equipment Sold with Vehicle							
Total Residual Value	\$ 11,392	\$ 9,765	\$ 8,137	\$ 6,672	\$ 5,208	\$ 3,906	\$ 3,092
Annual Depreciation	\$ 4,882	\$ 1,627	\$ 1,627	\$ 1,465	\$ 1,465	\$ 1,302	\$ 814
Cumulative Depreciation	\$ 4,882	\$ 6,510	\$ 8,137	\$ 9,602	\$ 11,067	\$ 12,369	\$ 13,182
Annualized In-Servicing and Decommissioning Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Costs	\$ 4,882	\$ 1,627	\$ 1,627	\$ 1,465	\$ 1,465	\$ 1,302	\$ 814
<b>Average Annual Depreciation</b>	<b>\$ 4,882</b>	<b>\$ 3,255</b>	<b>\$ 2,712</b>	<b>\$ 2,400</b>	<b>\$ 2,213</b>	<b>\$ 2,061</b>	<b>\$ 1,883</b>
<b>OPERATING COSTS</b>							
Mean Annual M&R Cost from EMS (uninflated)		\$ 556		\$ 714	\$ 953	\$ 1,191	\$ 1,588
Extrapolated Annual Maintenance and Repair Cost (uninflated)	\$ 402	\$ 714	\$ 999	\$ 1,268	\$ 1,526	\$ 1,775	\$ 2,017
Extrapolated Annual Maintenance and Repair Cost	\$ 402	\$ 735	\$ 1,060	\$ 1,386	\$ 1,717	\$ 2,058	\$ 2,408
Annual Fuel Cost (uninflated)	\$ 1,202	\$ 1,214	\$ 1,226	\$ 1,238	\$ 1,250	\$ 1,263	\$ 1,275
Annual Fuel Cost	\$ 1,202	\$ 1,250	\$ 1,300	\$ 1,353	\$ 1,407	\$ 1,464	\$ 1,523
Total Annual Operating Cost	\$ 1,603	\$ 1,985	\$ 2,360	\$ 2,738	\$ 3,125	\$ 3,522	\$ 3,931
Cumulative Operating Cost	\$ 1,603	\$ 3,588	\$ 5,948	\$ 8,686	\$ 11,811	\$ 15,333	\$ 19,264
<b>Average Annual Operating Cost</b>	<b>\$ 1,603</b>	<b>\$ 1,794</b>	<b>\$ 1,983</b>	<b>\$ 2,172</b>	<b>\$ 2,362</b>	<b>\$ 2,555</b>	<b>\$ 2,752</b>
<b>TOTAL ASSET COST</b>							
Annual Total Cost	\$ 6,485	\$ 3,612	\$ 3,987	\$ 4,203	\$ 4,589	\$ 4,824	\$ 4,745
Cumulative Total Cost	\$ 6,485	\$ 10,098	\$ 14,085	\$ 18,288	\$ 22,877	\$ 27,701	\$ 32,446
<b>Average Annual Total Cost</b>	<b>\$ 6,485</b>	<b>\$ 5,049</b>	<b>\$ 4,695</b>	<b>\$ 4,572</b>	<b>\$ 4,575</b>	<b>\$ 4,617</b>	<b>\$ 4,635</b>
<b>NPV of Cumulative Total Cost</b>	<b>\$ 6,118</b>	<b>\$ 9,526</b>	<b>\$ 13,288</b>	<b>\$ 17,253</b>	<b>\$ 21,583</b>	<b>\$ 26,133</b>	<b>\$ 30,610</b>
<b>Equivalent Annual Cost</b>	<b>\$ 6,302</b>	<b>\$ 4,978</b>	<b>\$ 4,698</b>	<b>\$ 4,642</b>	<b>\$ 4,713</b>	<b>\$ 4,824</b>	<b>\$ 4,913</b>
<b>Cost Savings (per vehicle) by Replacing in this Year</b>	<b>\$ 606</b>	<b>\$ 1,930</b>	<b>\$ 2,210</b>	<b>\$ 2,267</b>	<b>\$ 2,195</b>	<b>\$ 2,084</b>	<b>\$ 1,995</b>
<b>Total Cost Savings (all vehicles) by Replacing in this Year</b>	<b>\$ 166,708</b>	<b>\$ 530,631</b>	<b>\$ 607,854</b>	<b>\$ 623,294</b>	<b>\$ 603,737</b>	<b>\$ 573,086</b>	<b>\$ 548,627</b>

## FDOT Fleet Operations Review

<b>Class 1101 M Trucks</b>							
<b>Replacement Cycle in Years:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Inflation Factor	1.00	1.03	1.06	1.09	1.13	1.16	1.19
Meter at replacement	10,177	20,354	30,531	40,708	50,885	61,062	71,239
Depreciation Schedule	0.70	0.60	0.50	0.44	0.38	0.34	0.30
<b>CAPITAL COST</b>							
Projected Net Residual Value	\$ 38,061	\$ 32,624	\$ 27,187	\$ 23,924	\$ 20,662	\$ 18,487	\$ 16,312
Plus Capital Equipment Sold with Vehicle							
Total Residual Value	\$ 38,061	\$ 32,624	\$ 27,187	\$ 23,924	\$ 20,662	\$ 18,487	\$ 16,312
Annual Depreciation	\$ 16,312	\$ 5,437	\$ 5,437	\$ 3,262	\$ 3,262	\$ 2,175	\$ 2,175
Cumulative Depreciation	\$ 16,312	\$ 21,749	\$ 27,187	\$ 30,449	\$ 33,711	\$ 35,886	\$ 38,061
Annualized In-Servicing and Decommissioning Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Costs	\$ 16,312	\$ 5,437	\$ 5,437	\$ 3,262	\$ 3,262	\$ 2,175	\$ 2,175
<b>Average Annual Depreciation</b>	\$ 16,312	\$ 10,875	\$ 9,062	\$ 7,612	\$ 6,742	\$ 5,981	\$ 5,437
<b>OPERATING COSTS</b>							
Mean Annual M&R Cost from EMS (uninflated)		\$ 4,376	\$ 2,646	\$ 5,089		\$ 3,053	\$ 3,460
Extrapolated Annual Maintenance and Repair Cost (uninflated)	\$ 3,088	\$ 3,752	\$ 4,205	\$ 4,560	\$ 4,855	\$ 5,111	\$ 5,337
Extrapolated Annual Maintenance and Repair Cost	\$ 3,088	\$ 3,865	\$ 4,462	\$ 4,983	\$ 5,464	\$ 5,924	\$ 6,373
Annual Fuel Cost (uninflated)	\$ 3,095	\$ 3,126	\$ 3,157	\$ 3,189	\$ 3,221	\$ 3,253	\$ 3,285
Annual Fuel Cost	\$ 3,095	\$ 3,220	\$ 3,349	\$ 3,484	\$ 3,625	\$ 3,771	\$ 3,923
Total Annual Operating Cost	\$ 6,183	\$ 7,084	\$ 7,811	\$ 8,467	\$ 9,089	\$ 9,695	\$ 10,295
Cumulative Operating Cost	\$ 6,183	\$ 13,267	\$ 21,078	\$ 29,545	\$ 38,634	\$ 48,329	\$ 58,625
<b>Average Annual Operating Cost</b>	\$ 6,183	\$ 6,634	\$ 7,026	\$ 7,386	\$ 7,727	\$ 8,055	\$ 8,375
<b>TOTAL ASSET COST</b>							
Annual Total Cost	\$ 22,495	\$ 12,522	\$ 13,248	\$ 11,729	\$ 12,352	\$ 11,870	\$ 12,470
Cumulative Total Cost	\$ 22,495	\$ 35,016	\$ 48,265	\$ 59,994	\$ 72,346	\$ 84,216	\$ 96,686
<b>Average Annual Total Cost</b>	\$ 22,495	\$ 17,508	\$ 16,088	\$ 14,999	\$ 14,469	\$ 14,036	\$ 13,812
<b>NPV of Cumulative Total Cost</b>	\$ 21,221	\$ 33,034	\$ 45,533	\$ 56,598	\$ 68,251	\$ 79,449	\$ 91,213
<b>Equivalent Annual Cost</b>	\$ 21,858	\$ 17,264	\$ 16,097	\$ 15,226	\$ 14,903	\$ 14,666	\$ 14,640
<b>Cost Savings (per vehicle) by Replacing in this Year</b>	\$ (4,420)	\$ 174	\$ 1,341	\$ 2,212	\$ 2,536	\$ 2,772	\$ 2,798
<b>Total Cost Savings (all vehicles) by Replacing in this Year</b>	\$	\$	\$	\$	\$	\$	\$

## FDOT Fleet Operations Review

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	(1,197,693)	47,250	363,486	599,464	687,161	751,322	758,302
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## FDOT Fleet Operations Review

<b>Class 1510 Dump Trucks</b>							
<b>Replacement Cycle in Years:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Inflation Factor	1.00	1.03	1.06	1.09	1.13	1.16	1.19
Meter at replacement	11,350	22,700	34,050	45,400	56,750	68,100	79,450
Depreciation Schedule	0.80	0.70	0.60	0.52	0.46	0.43	0.40
<b>CAPITAL COST</b>							
Projected Net Residual Value	\$ 55,696	\$ 48,734	\$ 41,772	\$ 36,202	\$ 32,025	\$ 29,937	\$ 27,848
Plus Capital Equipment Sold with Vehicle							
Total Residual Value	\$ 55,696	\$ 48,734	\$ 41,772	\$ 36,202	\$ 32,025	\$ 29,937	\$ 27,848
Annual Depreciation	\$ 13,924	\$ 6,962	\$ 6,962	\$ 5,570	\$ 4,177	\$ 2,089	\$ 2,089
Cumulative Depreciation	\$ 13,924	\$ 20,886	\$ 27,848	\$ 33,418	\$ 37,595	\$ 39,683	\$ 41,772
Annualized In-Servicing and Decommissioning Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Costs	\$ 13,924	\$ 6,962	\$ 6,962	\$ 5,570	\$ 4,177	\$ 2,089	\$ 2,089
<b>Average Annual Depreciation</b>	\$ 13,924	\$ 10,443	\$ 9,283	\$ 8,354	\$ 7,519	\$ 6,614	\$ 5,967
<b>OPERATING COSTS</b>							
Mean Annual M&R Cost from EMS (uninflated)		\$ 2,168	\$ 3,195		\$ 5,362	\$ 5,705	\$ 6,389
Extrapolated Annual Maintenance and Repair Cost (uninflated)	\$ 2,245	\$ 3,327	\$ 4,187	\$ 4,930	\$ 5,595	\$ 6,205	\$ 6,773
Extrapolated Annual Maintenance and Repair Cost	\$ 2,245	\$ 3,426	\$ 4,442	\$ 5,387	\$ 6,298	\$ 7,194	\$ 8,087
Annual Fuel Cost (uninflated)	\$ 3,692	\$ 3,729	\$ 3,766	\$ 3,804	\$ 3,842	\$ 3,880	\$ 3,919
Annual Fuel Cost	\$ 3,692	\$ 3,841	\$ 3,995	\$ 4,156	\$ 4,324	\$ 4,498	\$ 4,679
Total Annual Operating Cost	\$ 5,936	\$ 7,267	\$ 8,438	\$ 9,543	\$ 10,621	\$ 11,692	\$ 12,766
Cumulative Operating Cost	\$ 5,936	\$ 13,203	\$ 21,641	\$ 31,184	\$ 41,805	\$ 53,497	\$ 66,263
<b>Average Annual Operating Cost</b>	\$ 5,936	\$ 6,602	\$ 7,214	\$ 7,796	\$ 8,361	\$ 8,916	\$ 9,466
<b>TOTAL ASSET COST</b>							
Annual Total Cost	\$ 19,860	\$ 14,229	\$ 15,400	\$ 15,113	\$ 14,799	\$ 13,780	\$ 14,855
Cumulative Total Cost	\$ 19,860	\$ 34,089	\$ 49,489	\$ 64,602	\$ 79,400	\$ 93,180	\$ 108,035
<b>Average Annual Total Cost</b>	\$ 19,860	\$ 17,045	\$ 16,496	\$ 16,150	\$ 15,880	\$ 15,530	\$ 15,434
<b>NPV of Cumulative Total Cost</b>	\$ 18,736	\$ 32,160	\$ 46,688	\$ 60,945	\$ 74,906	\$ 87,906	\$ 101,920
<b>Equivalent Annual Cost</b>	\$ 19,298	\$ 16,807	\$ 16,505	\$ 16,396	\$ 16,356	\$ 16,227	\$ 16,359
<b>Cost Savings (per vehicle) by Replacing in this Year</b>	\$ 6,648	\$ 9,139	\$ 9,441	\$ 9,550	\$ 9,590	\$ 9,719	\$ 9,587
<b>Total Cost Savings (all vehicles) by Replacing in this Year</b>	\$	\$	\$	\$	\$	\$	\$

## FDOT Fleet Operations Review

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	1,236,471	1,699,859	1,755,947	1,776,340	1,783,742	1,807,698	1,783,228
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## FDOT Fleet Operations Review

<b>Class 2310 Loaders</b>							
<b>Replacement Cycle in Years:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Inflation Factor	1.00	1.03	1.06	1.09	1.13	1.16	1.19
Meter at replacement	321	642	963	1,284	1,605	1,926	2,247
Depreciation Schedule	0.88	0.78	0.70	0.64	0.60	0.56	0.53
<b>CAPITAL COST</b>							
Projected Net Residual Value	\$ 92,973	\$ 82,408	\$ 73,956	\$ 67,616	\$ 62,862	\$ 59,164	\$ 55,995
Plus Capital Equipment Sold with Vehicle							
Total Residual Value	\$ 92,973	\$ 82,408	\$ 73,956	\$ 67,616	\$ 62,862	\$ 59,164	\$ 55,995
Annual Depreciation	\$ 12,678	\$ 10,565	\$ 8,452	\$ 6,339	\$ 4,754	\$ 3,698	\$ 3,170
Cumulative Depreciation	\$ 12,678	\$ 23,243	\$ 31,695	\$ 38,034	\$ 42,789	\$ 46,486	\$ 49,656
Annualized In-Servicing and Decommissioning Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Costs	\$ 12,678	\$ 10,565	\$ 8,452	\$ 6,339	\$ 4,754	\$ 3,698	\$ 3,170
<b>Average Annual Depreciation</b>	\$ 12,678	\$ 11,622	\$ 10,565	\$ 9,509	\$ 8,558	\$ 7,748	\$ 7,094
<b>OPERATING COSTS</b>							
Mean Annual M&R Cost from EMS (uninflated)						\$ 2,886	
Extrapolated Annual Maintenance and Repair Cost (uninflated)	\$ 833	\$ 1,731	\$ 2,656	\$ 3,599	\$ 4,556	\$ 5,523	\$ 6,499
Extrapolated Annual Maintenance and Repair Cost	\$ 833	\$ 1,783	\$ 2,818	\$ 3,933	\$ 5,127	\$ 6,403	\$ 7,760
Annual Fuel Cost (uninflated)	\$ 1,104	\$ 1,115	\$ 1,126	\$ 1,138	\$ 1,149	\$ 1,161	\$ 1,172
Annual Fuel Cost	\$ 1,104	\$ 1,149	\$ 1,195	\$ 1,243	\$ 1,293	\$ 1,345	\$ 1,400
Total Annual Operating Cost	\$ 1,937	\$ 2,932	\$ 4,013	\$ 5,176	\$ 6,421	\$ 7,748	\$ 9,160
Cumulative Operating Cost	\$ 1,937	\$ 4,869	\$ 8,882	\$ 14,058	\$ 20,479	\$ 28,227	\$ 37,387
<b>Average Annual Operating Cost</b>	\$ 1,937	\$ 2,434	\$ 2,961	\$ 3,515	\$ 4,096	\$ 4,704	\$ 5,341
<b>TOTAL ASSET COST</b>							
Annual Total Cost	\$ 14,615	\$ 13,497	\$ 12,465	\$ 11,515	\$ 11,175	\$ 11,446	\$ 12,330
Cumulative Total Cost	\$ 14,615	\$ 28,112	\$ 40,577	\$ 52,092	\$ 63,267	\$ 74,713	\$ 87,043
<b>Average Annual Total Cost</b>	\$ 14,615	\$ 14,056	\$ 13,526	\$ 13,023	\$ 12,653	\$ 12,452	\$ 12,435
<b>NPV of Cumulative Total Cost</b>	\$ 13,788	\$ 26,521	\$ 38,280	\$ 49,144	\$ 59,686	\$ 70,484	\$ 82,116
<b>Equivalent Annual Cost</b>	\$ 14,201	\$ 13,860	\$ 13,533	\$ 13,221	\$ 13,033	\$ 13,011	\$ 13,180
<b>Cost Savings (per vehicle) by Replacing in this Year</b>	\$ 19,743	\$ 20,085	\$ 20,411	\$ 20,724	\$ 20,912	\$ 20,933	\$ 20,764
<b>Total Cost Savings (all vehicles) by Replacing in this Year</b>	\$	\$	\$	\$	\$	\$	\$

**FDOT Fleet Operations Review**

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	1,125,366	1,144,824	1,163,448	1,181,245	1,191,974	1,193,203	1,183,575
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**END OF REPORT**



## Centralizing Vehicle Fleet Operations and Implementing Cost-Saving Strategies Could Reduce State Spending

### *at a glance*

State law requires the Department of Management Services (DMS) to manage the state's vehicle fleet, but the department has delegated much of its authority to agencies and primarily serves an advisory role. This decentralized system hinders coordination, which reduces efficiency and increases costs. The current system also limits DMS's ability to optimize the use of the existing fleet, develop a uniform model for replacing the state's numerous aging vehicles, and implement statewide fuel and maintenance management contracts. In addition, some agency practices, such as assigning vehicles to employees that do not meet mileage use thresholds and providing mileage reimbursements to staff that extensively drive personal vehicles, may also increase state costs.

There are several options for improving fleet management and reducing costs, including centralizing all fleet operations under a single agency, centralizing some fleet operations under a single agency, requiring all agencies to use statewide fuel and fleet maintenance contracts, and outsourcing additional fleet services.

### Scope

The Legislature directed OPPAGA to examine state agency fleet programs to identify options for reducing costs and centralizing vehicle fleet management, an operational model that has been used to varying degrees in other states.

### Background

State agencies use vehicles to perform a range of activities to support their missions. The state owns over 26,000 vehicles, ranging from heavy construction equipment, trucks, and mowers to cars, vans, and pickup trucks. Employees use these vehicles to perform a wide variety of agency functions, including construction and road

maintenance, regulatory activities such as child protective services and hotel and restaurant inspections, and law enforcement activities such as probation and parole supervision. This report evaluates the management of cars and light trucks used by agencies.

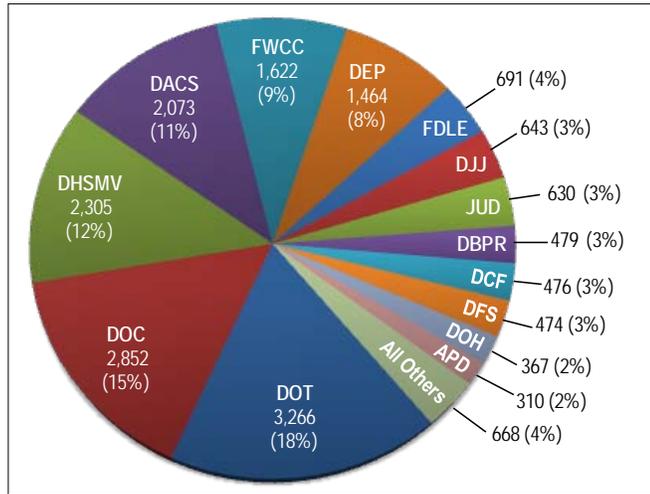
State law charges the Department of Management Services (DMS) with adopting and enforcing rules and regulations for motor vehicles.<sup>1</sup> The department's Bureau of Vehicles and Watercraft Management facilitates the acquisition of vehicles through state term contracts, approves vehicle purchases, develops fleet replacement criteria, and coordinates disposal of used and surplus vehicles. In addition, agencies record statewide information on vehicle location, usage, and maintenance in DMS's Equipment Management Information System (EMIS).

As shown in Exhibit 1, 30 agencies own 18,320 cars and light trucks.<sup>2</sup> The Department of Transportation owns the most cars and light trucks, with 3,266, while the Department of Citrus owns the least, with 1. The state spent \$51,402,606 to operate agency vehicles in Fiscal Year 2009-10. During this period, agencies spent \$12,619,107 to acquire 719 cars and light trucks. Agencies operate vehicle motor pools that serve employees on an as-needed basis and also assign vehicles to specified employees.

<sup>1</sup> Section 287.16, *F.S.*

<sup>2</sup> The inventory recorded in EMIS is as of February 10, 2011. Any vehicle up to one ton is considered a car or light truck, including SUVs.

**Exhibit 1  
Thirty State Agencies Currently Own and Operate  
More Than 18,000 Cars and Light Trucks**



Acronym	Agency
APD	Agency for Persons with Disabilities
DACS	Department of Agriculture and Consumer Services
DBPR	Department of Business and Professional Regulation
DCF	Department of Children and Families
DOC	Department of Corrections
DEP	Department of Environmental Protection
DFS	Department of Financial Services
FWCC	Fish and Wildlife Conservation Commission
DOH	Department of Health
DHSMV	Department of Highway Safety and Motor Vehicles
JUD	Judiciary
DJJ	Department of Juvenile Justice
FDLE	Department of Law Enforcement
DOT	Department of Transportation

All others includes the following: Agency for Health Care Administration, Agency for Workforce Innovation, Department of Citrus, Department of Community Affairs, Department of Education, Executive Office of the Governor, Department of Legal Affairs, Department of the Lottery, Department of Management Services, Department of Military Affairs, Parole Commission, Public Service Commission, Department of Revenue, School for the Deaf and the Blind, Department of State, and Department of Veterans' Affairs.

Source: Department of Management Services' Equipment Management Information System.

## Findings

***The state's fleet program is decentralized across multiple agencies, which reduces efficiency and increases costs***

State agencies independently manage their vehicle fleets. Although the Department of Management Services (DMS) has authority to manage fleet operations, it has delegated much of its authority to state agencies and serves only in

an advisory role. This decentralized system hinders coordination, which reduces efficiency and increases costs.

DMS engages in limited state-level fleet management, with day-to-day vehicle operations decentralized to agencies. State law authorizes DMS to establish and operate central facilities for the acquisition, disposal, operation, maintenance, repair, storage, supervision, control, and regulation of all state-owned motor vehicles.<sup>3</sup> However, historically the department has adopted the role of facilitator rather than manager, assisting agencies by determining motor vehicles to be included on state contracts; developing technical bid specifications; evaluating contracts; and generating vehicle replacement guidelines.<sup>4</sup> The department also approves agency requests for vehicle purchase and disposal and conducts breakeven analyses for deciding whether to assign state-owned vehicles to employees.

Due to DMS's approach to fleet management, decisions concerning operations and management of state-owned vehicles are delegated to 30 state agencies. This decentralized model gives agencies discretion on how to manage their fleets, which produces a wide variety of policies and procedures. According to an independent review of the state's fleet program, these inconsistencies result in poor overall management, unnecessary fleet expenditures, duplication of effort, and agencies spending resources on activities that are not central to their core missions.<sup>5</sup>

In addition, many agencies do not have fleet managers and often lack the expertise to effectively manage their own fleets. For example, a DMS survey found that there are only 19 fleet managers statewide, located at seven state agencies.<sup>6</sup> The number of fleet management personnel varies significantly by agency, ranging from one (the Department of Financial Services

<sup>3</sup> Section 287.16(2), F.S.

<sup>4</sup> For Fiscal Year 2009-10, the Legislature appropriated the Bureau of Vehicles and Watercraft Management \$1,765,841 and seven full-time equivalent positions; three of the positions are for fleet management.

<sup>5</sup> *Report on Fleet Management for the Florida Department of Management Services*, Mercury Associates, Inc., April 2007.

<sup>6</sup> The agencies are the Department of Corrections (7), the Department of Financial Services (1), the Department of Highway Safety and Motor Vehicles (1), the Department of Juvenile Justice (1), the Department of the Lottery (1), and the Department of Transportation (8).

and three other agencies) to eight (the Department of Transportation).

The current vehicle funding approach is decentralized, limiting options for acquiring vehicles. The state has no strategic plan for acquiring vehicles for state use. DMS negotiates state term contracts for different classes of vehicles based on technical specifications provided by agencies, but each agency justifies its funding needs to the Legislature and can purchase vehicles outside the contract. In addition, agency requests to replace vehicles are independent of each other, and individual agencies are responsible for funding these acquisitions through the annual budget request process. The result is an uncoordinated series of incremental purchasing decisions.

The current system of financing acquisitions also uses a "pay-before-you-go" approach rather than "pay-as-you-go" options for acquiring vehicles. Such options include centralized fleet leasing and low interest financing that could be offered through the Department of Financial Services' equipment financing program.<sup>7</sup> The pay-as-you-go method, which the private sector often uses, would allow the state to pay for vehicles over time.<sup>8</sup> Taking advantage of these financing options would enable the state to use funding for other critical needs by reducing the upfront capital requirements for replacement vehicles.

Agencies are not always required to use statewide fuel and maintenance contracts. Two of the biggest cost drivers for fleet programs are maintenance and fuel. For example, two of the agencies with the largest fleets, the Department of Highway Safety and Motor Vehicles and the Department of Transportation, reported spending \$9 million on maintenance and repairs for 5,571 vehicles and \$13 million on fuel in Fiscal Year 2009-10.

Currently, each agency is responsible for independently obtaining maintenance and repair services. However, this system does not take

<sup>7</sup> The Consolidated Equipment Financing Program is available to state agencies and universities for the purchase of equipment at low, tax-exempt interest rates (from 2.08% to 2.60% depending on the term), which are normally much lower than vendor or third-party financing. Cars and light trucks are not currently included in the program.

<sup>8</sup> Section 287.14(5), *F.S.*, states that agencies cannot acquire vehicles on deferred payment contracts without first getting approval from the Governor and Legislature.

advantage of possible volume discounts based on the state's fleet size and costs savings realized from professional management of maintenance services. Further, in tight budget years agencies may choose to defer maintenance, which can lead to higher future costs.

To help agencies lower these costs, DMS recently executed a statewide maintenance management contract and engaged a new fuel card vendor. The fuel card is available to all state agencies, while the department is implementing a pilot project to introduce the maintenance contract to three agencies before going statewide—the Department of Highway Safety and Motor Vehicles, the Department of Management Services, and the Department of Transportation. While savings from these efforts cannot yet be determined, the state may not achieve maximum savings because not all agencies use the fuel card and the maintenance contract is optional.

Data limitations reduce the usefulness of the centralized fleet information system for funding and operations decisions. DMS operates the Equipment Management Information System (EMIS), which it developed in 1974 and has updated over time. Agencies are responsible for adding all equipment to the system and reporting monthly on the condition, utilization, cost, fuel consumption, maintenance, and assignment of all motor vehicles. The department uses EMIS data to produce reports on the status of agency fleets. However, DMS staff reports that agencies do not always enter reliable data into the system, which diminishes its validity and usefulness to policymakers when making decisions about fleet program operations and funding.

In addition, DMS staff reports that EMIS contains some vehicles that are not being effectively utilized by agencies (e.g., vehicles with low annual mileage). However, the department has not used its existing statutory authority to regularly monitor the utilization data and request that agencies reassign underutilized vehicles to employees that drive more extensively or transfer them to other departments.

DMS staff also acknowledges that the department should develop a data system to track personal vehicle use when mileage is reimbursed for official state use and to monitor vehicle utilization. The department is statutorily required to calculate

a breakeven analysis to determine whether it is more cost-effective to use a state-owned vehicle or a personal vehicle, but there is no centralized system to monitor use.

**Several agency practices increase fleet costs**

Some agency practices increase state fleet costs, including allowing vehicles to significantly exceed replacement criteria, assigning vehicles to employees that do not meet mileage use thresholds, reimbursing employees that drive extensively for the use of private vehicles, and allowing the use of vehicles for unwarranted commuting miles.

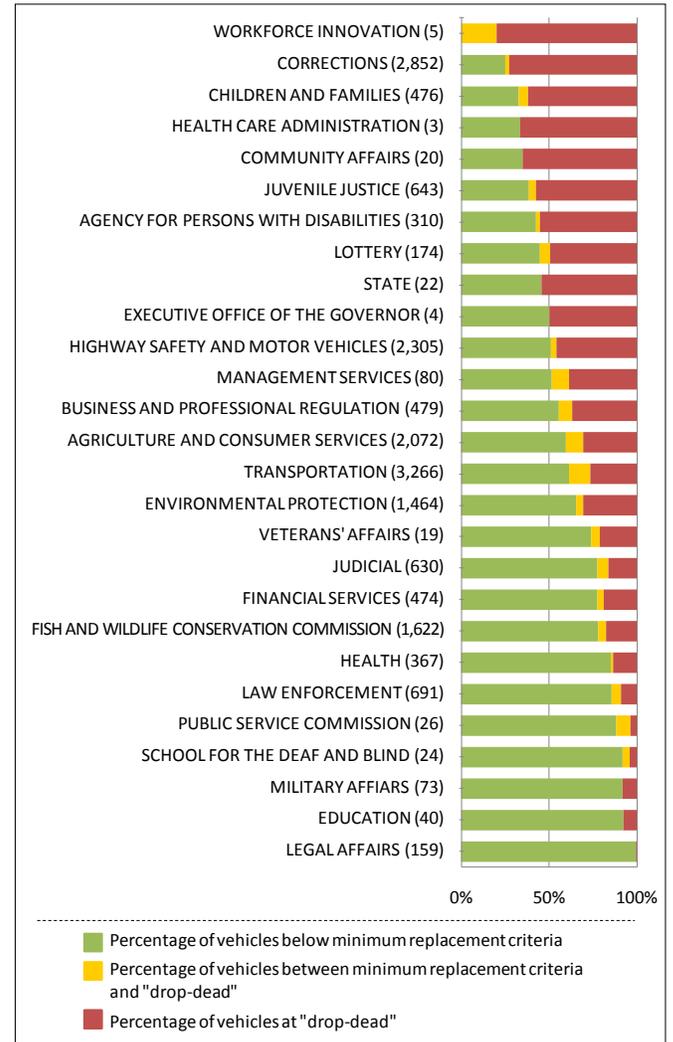
Many agency fleets exceed the recommended replacement criteria. The lack of a uniform approach for fleet replacement was the most pressing problem identified in a 2007 review of Florida’s fleet. This issue remains unresolved, with DMS data showing that 7,932 (43%) of the state's cars and light trucks meet or exceed the minimum replacement criteria of 300 points based on a combination of factors such as age, mileage, and repair history. At least 6,849 (37%) of these vehicles are designated “drop-dead” status, meaning the vehicle is at or near the end of its life cycle.<sup>9</sup> Exhibit 2 shows the distribution of vehicles that meet or exceed replacement criteria, by agency. The Agency for Workforce Innovation has the highest percentage of vehicles that exceed replacement criteria, at 100%, while the Department of Legal Affairs has one vehicle that exceeds the replacement criteria.

DMS currently does not have a process to prioritize replacement of vehicles designated as drop-dead status.<sup>10</sup> Although the department has created replacement guidelines, the numerous agencies are in control of replacement priorities and funding requests. Furthermore, there are sometimes valid reasons for keeping a vehicle that exceeds the replacement criteria. For example, the Department of Corrections uses older vehicles for prison perimeter surveillance; these vehicles accumulate few miles but continue to operate cost-effectively because of limited mileage accumulation.

<sup>9</sup> The criteria are 120,000 miles or 12 years for cars and light trucks and 80,000 miles or 8 years for pursuit vehicles.

<sup>10</sup> Points are assigned for factors such as age, mileage, and repair history. If the vehicle exceeds the replacement criteria for miles and age (120,000 miles or 12 years for cars and light trucks up to ½ ton), it is designated “drop-dead” status and is eligible for replacement regardless of any other factors.

**Exhibit 2  
A Substantial Percentage of Agencies' Vehicles Exceed the State's Replacement Criteria<sup>1</sup>**



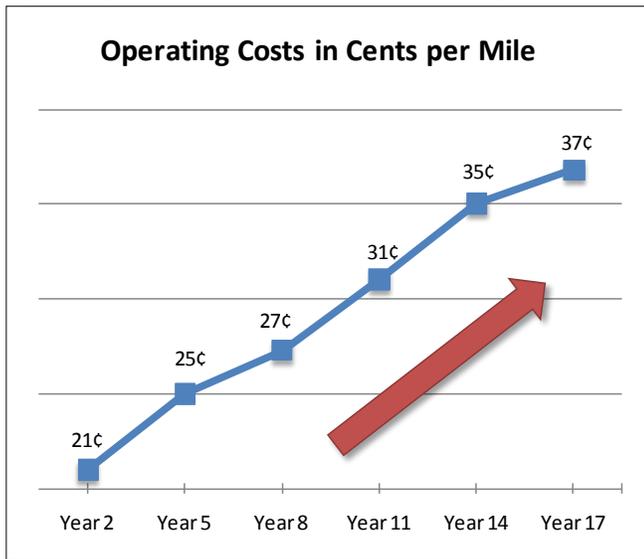
<sup>1</sup> The number beside the agency name above refers to the number of cars and light trucks owned by the agency.

Source: Department of Management Services' Equipment Management Information System.

However, experts generally agree that as fleets age, per mile maintenance, repair, and fuel costs increase. Exhibit 3 shows that Florida’s vehicle operating costs have risen as the fleet ages. Average operating costs during the second year of vehicle ownership are 21 cents per mile, but they steadily increase over time, with a 17-year old vehicle incurring costs of more than 37 cents per mile.<sup>11</sup>

<sup>11</sup> Per mile costs includes fuel, maintenance, and repair. It does not include capital costs or insurance.

**Exhibit 3  
Operating Costs Increases as Vehicles Age**



Source: Department of Management Services.

Agency vehicle assignments do not always make the most cost-effective use of assets. Two agency assignment practices increase state costs for providing vehicle transportation: assigning vehicles to employees that drive less than the breakeven point for use of personal vehicles and not assigning vehicles to employees that are required to drive extensively.

State law gives priority for assigning state vehicles to employees who drive over 10,000 miles annually.<sup>12, 13</sup> The Legislature established this requirement to help ensure that the state effectively uses its vehicle fleet. An agency head may waive this requirement on an annual basis if provided written justification for the assignment. DMS analysis of agency data shows that 30% (2,230) of the vehicles that are typically assigned to individuals (e.g., law enforcement and employees whose home is their office) were driven less than 10,000 miles during Fiscal Year 2009-10.<sup>14</sup>

Conversely, failure to assign vehicles to employees that extensively drive personal vehicles on state business can also increase state transportation costs.

In Fiscal Year 2009-10, the state reimbursed \$4.1 million to 761 employees that drove more than 10,000 miles in their personal vehicles. It is generally more cost-effective for the state to provide a state-owned vehicle to employees that drive their personal vehicles this extensively. DMS calculated the breakeven point for assignment of a state-owned vehicle at 7,448 miles driven for a 2010 Ford Fusion, the type of vehicle most state employees require.

However, some agencies allow state employees to use their personal vehicles on state business because of the age and condition of their fleet. For example, the Department of Children and Families allows its employees to drive personal vehicles because 89% of headquarters/region vehicles and 77% of institution vehicles meet or exceed the replacement criteria. In Fiscal Year 2009-10, the department spent \$5.3 million on employee mileage reimbursement and over \$1 million on auto insurance reimbursement for employees that use their personal vehicle to transport clients when conducting child and adult protective investigations.

Some employees use state vehicles for unwarranted commuting miles. Another cost driver for fleets is employees using assigned vehicles to commute from home to their offices. Most state vehicles are assigned to personnel that do not regularly commute to a work site; these employees either patrol assigned areas or work at various work sites during the day.

However, our analysis of agency commuting mileage data shows that some employees accrue more commuting miles than miles driven on official state business.<sup>15</sup> For example, of the 1,277 state vehicles assigned to individuals who use the vehicles for commuting, agency-supplied data shows that 344 vehicles (27%) were driven more commuting miles than official state miles. If these employees were required to reimburse the state for commuting miles at the current statutory

<sup>12</sup> Section 287.17, F.S.

<sup>13</sup> Commuting mileage incidental to the use of a vehicle must be excluded from calculating official state mileage.

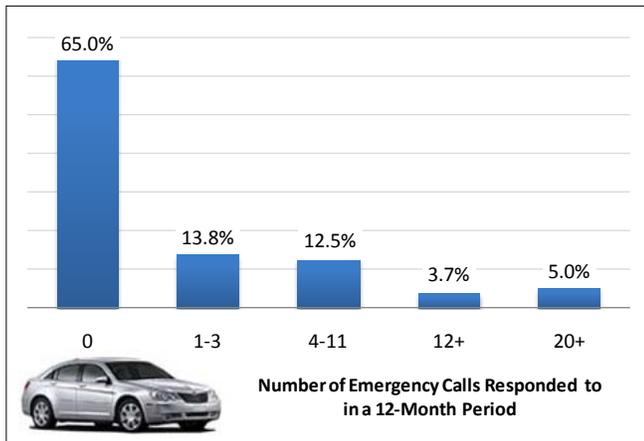
<sup>14</sup> Includes official state miles and other miles such as commuting for 7,413 assigned vehicles reported by agencies.

<sup>15</sup> Agencies reporting commuting mileage include the Department of Agriculture and Consumer Services, the Department of Business and Professional Regulation, the Department of Corrections, the Department of Environmental Protection, the Department of Financial Services, the Department of Highway Safety and Motor Vehicles, the Department of Legal Affairs, the Department of Management Services, the Department of Military Affairs, the Department of Transportation, and the Fish and Wildlife Conservation Commission.

mileage reimbursement rate (44.5 cents per mile), the state would have recovered more than \$2.9 million based on 6.6 million commuting miles driven in Fiscal Year 2009-10.

Agencies report that one reason they allow employees to commute in state cars is so that they can respond to emergencies. However, agency-reported data shows that most of these individuals do not routinely respond to emergencies from their homes. Of the 1,277 vehicles used for commuting, 79% responded to three or fewer emergencies in a 12-month period (see Exhibit 4).<sup>16</sup>

**Exhibit 4  
Few Employees Who Use State Vehicles to Commute Respond to Emergencies**



Source: OPPAGA analysis of agency-provided data.

***The federal government and some states have centralized fleet management and adopted other cost-saving strategies***

The federal General Services Administration (GSA) and several states have taken steps to centralize fleet management and adopted other strategies to reduce costs. Centralized fleet management has allowed these entities to implement cost-saving strategies such as consolidated vehicle acquisition through leasing and bank financing, bulk fuel purchasing, fuel cards, and outsourced maintenance. Several states also offer web-based tools for making decisions about the most cost-effective method to obtain a vehicle.

<sup>16</sup> In Georgia, to justify commuting miles from home to an office, an employee must show that he or she responded to 10 or more emergencies in a 6-month period.

The federal government and some states offer a range of fleet options, depending on agency need. Several states have centralized fleet management programs that offer options that Florida’s decentralized system does not. One such option is the use of pay-as-you-go financing for acquiring vehicles for both short- and long-term use. Centralized procurement allows consolidated acquisition of all motor vehicle types to achieve maximum benefits and economies of scale. Bank financing or leasing reduces the amount of capital needed up front for acquiring vehicles so that states can use funds for other critical needs.

The GSA, Michigan, and Virginia all offer centralized pay-as-you-go options for acquiring or leasing vehicles.<sup>17</sup> Virginia’s acquisition program finances vehicle purchases with significant savings due to economies of scale and then leases the vehicles to agencies, typically for 84 months. The program bills agencies fixed rates to recover all fixed and variable costs and to provide a revenue stream for vehicle replacement.

In addition, the GSA, Michigan, and Georgia use fleet leasing programs to supply agencies cars and trucks. The GSA acts as a third party for fleet leasing so that agencies can lease vehicles on a pay-as-you-go system for either short- or long-term use. Similarly, Michigan finances vehicles through leasing and recoups the lease costs through a chargeback system to agencies. Agencies lease the vehicles from fleet services through an internal lease program that allows the state to accumulate cash reserves for replacement vehicles. The rates charged to agencies include a fixed fee and per-mile rate. The fixed fee includes projected lease cost, new vehicle orders, projected resale proceeds, and self-insurance for liability claims. The per-mile costs reflect the variable operating costs of fuel, maintenance expenses, and administrative charges.

Georgia is currently piloting a program of leasing vehicles directly from a leasing company. In 2007, the state outsourced its in-house motor pool operation to a private vendor because some pool

<sup>17</sup> The GSA provides centralized fleet management for 75 federal agencies and 217,000 vehicles. The GSA is not an exclusive source of vehicles for federal agencies; agencies may also contract with a private fleet management firm or lease vehicles from commercial sources.

vehicles had high mileage and were unreliable. With the private vendor's continuous renewal of vehicles, unreliability is less of an issue. The state also implemented a pilot program at one agency for vehicle replacement through long-term leases (e.g., 60 months). The short-term lease for the motor pool program costs approximately 46 cents per mile, and the long-term program costs about 41 cents per mile.

Several states use a centralized model for fuel and maintenance; others use web-based tools to guide fleet decisions. The Virginia Office of Fleet Management Services has a fuel card contract for purchases from commercial retail providers and participates in the statewide bulk gasoline and diesel fuel program. Georgia has concentrated on increasing agency participation in its statewide fuel and maintenance contracts.<sup>18</sup> The state's fleet managers stress compliance with fuel cards and the maintenance contract and encourage accurate data entry in the state's new fleet data system.<sup>19</sup> In 2009, Georgia realized \$555,335 in savings, with a 33% rate of agency compliance with the maintenance contract; the state also saves on discounted fuel purchases.

These states also offer web-based calculators to assist agency managers with determining whether it is more cost-effective to acquire a vehicle for long-term use, allow use of a private vehicle, or lease or rent a car for short-term use. For example, Virginia offers a calculator for determining whether to assign a vehicle to an employee based on its life-cycle costs or to have an employee use a private vehicle based on estimated mileage and reimbursement costs. Managers also monitor mileage usage quarterly; if an assigned vehicle does not meet the mileage threshold, it can be reassigned to another employee or agency. For short-term travel, Georgia, Michigan, and Virginia offer employees a web-based trip calculator to determine whether it is more cost-effective to rent a car or drive their own vehicle. If it is more cost-effective to rent, the employee is directed online to the contracted rental agency.

<sup>18</sup> Georgia statewide maintenance contract also includes the technical colleges and university system fleet of vehicles.

<sup>19</sup> Governor Sunny Perdue's Commission for a New Georgia Fleet Task Force Recommendations, April 13, 2004.

### ***Several opportunities exist to improve fleet management and reduce costs***

There are several options the Legislature could consider for improving state fleet management and reducing costs, including centralizing all fleet operations under one agency, centralizing some fleet operations under one agency, requiring use of statewide fuel and fleet maintenance contracts, and outsourcing additional fleet services. Each option has advantages and disadvantages, as described in Exhibit 5.

Option 1: Centralize all fleet operations under one agency. The Legislature could consider consolidating management of all state agency vehicles into one statewide fleet program with uniform standards for procurement, assignment, utilization, maintenance, and disposal. Centralization would improve efficiency and could reduce costs by leveraging the state's buying power.

Since the Department of Management Services currently has statutory authority to manage the fleet program, it may be the most appropriate agency in which to centralize statewide fleet management. The primary disadvantage of using DMS as the lead agency is that, historically, it has adopted a service rather than regulatory stance with other state agencies.

As an alternative, the Department of Transportation could oversee statewide fleet management; the department currently has the largest fleet (3,266 vehicles) and employs eight fleet managers. To perform this function, the Legislature would need to grant the department additional statutory authority.

If the Legislature were to consolidate fleet management, the designated lead agency would need to address several issues.

***Policies, procedures, and data management.*** To improve fleet management, the lead agency should develop a comprehensive fleet improvement plan and uniform policies and procedures to cover all aspects of fleet management, and improve data collection and monitoring systems. The agency would need to implement uniform policies for vehicle acquisition, assignment, commuting miles, use of private vehicles, and reassignment of underutilized vehicles to agencies that need them.

Policies should also describe driver responsibilities for the care and operation of state vehicles.

In addition, because data analysis and feedback to agencies is essential to cost-effective fleet management, the current fleet data system should be improved. For Fiscal Year 2010-11, DMS estimates the cost of operating the Equipment Management and Inventory System will be \$314,000. To substantially lower recurring costs, DMS plans to use existing resources to improve the system to make it web-based and more user friendly at a projected cost of \$161,000.<sup>20</sup> A web-based calculator could also be added as part of system improvement to assist agencies in making choices about the most cost-effective vehicle choice.

**Financial Management.** To implement centralized control of the fleet and improve financial management, the Legislature could consider modifying the budgeting process so that funding for vehicle replacement goes to a central agency rather than individual agencies. This approach would simplify funding and would transfer control of the licensing and registration of all new state agency vehicles to the central agency, which would make it easier to reassign underutilized vehicles across agencies.

In addition, the lead agency should develop a fleet funding plan based on a business case analysis of options depending on required vehicle use. The plan may include a mix of funding alternatives, including cash purchases of some vehicles, financed purchases, and short- and long-term lease options (see Appendix A for an example of options).

The Legislature may also wish to create an internal lease model similar to that used by Virginia and Michigan to lease vehicles to agencies on a chargeback system. The internal lease model could be used to fund vehicle replacement with either bank financing (e.g., expanding the use of the Florida Consolidated Equipment Financing Program to car and light truck purchases) or leasing options. Virginia uses bank financing and Michigan purchases vehicles directly from the manufacturer using the government fleet price. The state then sells the

vehicles to a private vendor at the government price and leases them back on a 5-year lease at interest rates that vary from 1.2% to 2%. At the end of the term, the vendor remarkets the vehicle and gives the proceeds to the state. The advantages of financing programs are that they leverage appropriated dollars, provide predictable vehicle replacement schedules, and lower operating expenses. However, fleet management experts report that leases typically incur a higher cost of capital than other debt financing approaches.

Option 2: Centralize some fleet functions under one agency. Rather than centralize all fleet operations at once, the Legislature may wish to use the approach that Georgia adopted, centralizing some operations for immediate cost savings.

Georgia was experiencing fleet issues similar to Florida's current situation—significant expenditures for maintenance costs on outdated vehicles and reimbursements for privately used vehicles. Recognizing the challenges of centralizing operations, including agency resistance, changing the budgeting process, and a lack of reliable data to perform accurate cost analysis, Georgia chose to primarily focus on improving its centralized tracking and oversight and lowering its operating costs. The state purchased an off-the-shelf fleet management data system to help determine the condition of the fleet as a whole before implementing a long-term improvement plan. State fleet managers also focused on improving agency use of statewide fuel and maintenance contracts. These actions saved the state \$555,335 in 2009.

Option 3: Require agencies to use current statewide fuel and fleet maintenance contracts. The Legislature could require agencies to use the statewide fuel and maintenance contracts unless agencies are able to justify not doing so. The fuel card negotiated by DMS saves 1.45% off the total invoice before federal excise taxes (18.3 cents per gallon for gasoline and 24.3 cents for diesel) are deducted. Although there is no cost for agencies to use the current fuel card contract, some choose other alternatives. If all agencies were required to use the fuel card, DMS reports it could save the state \$478,500 based on \$33 million spent on car

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<sup>20</sup> DMS estimates recurring costs would be approximately \$40,000 annually.

and light truck commercial retail fuel costs in Fiscal Year 2009-10.

Similarly, the state would likely achieve savings on repairs if all agencies used the maintenance contract. For example, if the state attained reductions of between 10% and 20% in maintenance costs, we estimate that the state could have saved between \$950,000 and \$1.9 million in Fiscal Year 2009-10.<sup>21</sup> However, agencies using the maintenance program are required to pay \$5.70 per vehicle per month to access a centralized call center to schedule maintenance with the vendor's statewide network of garages. Agencies also receive other services such as consolidated billing, discounts on repairs, follow-up on warranty work, and denial of unnecessary repairs. We estimate the annual enrollment costs for approximately 11,000 vehicles (60% enrollment) to be \$752,400.<sup>22</sup>

Option 4: Outsource additional fleet services. The Legislature could consider outsourcing additional fleet services. For example, private vendors offer services such as vehicle leasing, short-term rental, fuel and maintenance management, and data management. Other states, like Michigan, achieved cost savings by contracting with one vendor for leasing services, maintenance, and fuel management.<sup>23</sup>

**Leasing.** Florida could replace aging vehicles by using a leasing program. Leasing decreases the state's upfront capital investment for vehicle replacement. However, a major disadvantage is that the state pays more for the vehicles over time because of capital costs.

If it wished to phase in a leasing model, the Legislature could consider piloting a lease program with the Department of Children and Families as an alternative to purchasing vehicles to refresh the aging fleet or continuing to rely on employees' use of personal vehicles. Through leasing, the department may improve the

reliability of its fleet and save some of the \$5.3 million in reimbursement costs and \$1 million in costs for subsidizing staff car insurance.

**Short-term rental.** To reduce the age and size of the state's vehicle fleet, the Legislature could consider outsourcing short-term rentals for agency pool vehicles by directing DMS to obtain vehicles directly from a private vendor, bank, or commercial finance company. Georgia reduced the size of its pool fleet and improved vehicle reliability by outsourcing to a private rental company. The state pays 46 cents per mile for short-term rentals and 41 cents per mile for long-term rentals.

If Florida reduced the size of its pool fleet by 10% (902) by replacing state-owned vehicles with those from the state's current rental car vendor, for example, it could avoid spending \$10.7 million in replacement costs in Fiscal Year 2011-12. However, in Fiscal Year 2012-13 and Fiscal Year 2013-14, the ongoing rental costs would be \$1.9 million per year.

**Data management.** Both fuel card and maintenance management vendors currently under contract with DMS can provide the state with extensive data to measure fleet performance. Data includes fleet size, fuel costs, maintenance and repair costs, and total miles driven. This data can be used to establish performance benchmarks for mileage per vehicle, total cost per mile, average miles per gallon, and average vehicle age. DMS should determine whether using these data management services would be less expensive than spending \$348,880 in Fiscal Year 2011-12 to provide fleet information through the EMIS system.

<sup>21</sup> The savings estimate is based on \$15.8 million in maintenance and repair costs and assumes that 60% of state agencies comply with the maintenance contract. We used 60% because that was the level of compliance Georgia's mandatory program achieved.

<sup>22</sup> Both the Department of Transportation and the Department of Agriculture and Consumer Services' Division of Forestry have shop services and may not fully participate.

<sup>23</sup> Michigan requested bids for fuel, maintenance and leasing services and one company won the bids for all three services.

**Exhibit 5**

**The Legislature Could Consider Four Options to Improve Fleet Management**

Option	Advantages	Disadvantages
<b>Option 1 – Centralize all fleet operations under one agency</b>		
Assign fleet management responsibilities to one lead agency	<ul style="list-style-type: none"> <li>▪ Eliminates inefficiencies, duplication, and inconsistent policies from 30 agencies managing independent programs</li> <li>▪ Offers a statewide fleet program with one set of operating standards for procurement, assignment, utilization, maintenance, and disposal</li> <li>▪ Leverages the state's buying power through centralized purchasing for all motor vehicle needs</li> <li>▪ Increases acquisition options including bank financing and leasing for procuring vehicles on a predictable replacement schedule</li> <li>▪ Allows central entity to reassign vehicles among agencies as needed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Agency resistance to losing control over the budgets and vehicles used by their staff</li> <li>▪ Time needed to create a comprehensive fleet improvement plan</li> <li>▪ Costs to operate the data system (\$348,880 for Fiscal Year 2011-12) to perform accurate cost analysis</li> <li>▪ Requires change in the budget process to direct all funding to a central agency</li> <li>▪ Effort required to create and enforce policies regarding acquisition, assignment, commuting miles, use of private vehicles, and reassignment of underutilized vehicles</li> <li>▪ Requires reorganization of fleet staff across state agencies; some may be transferred from other agencies to the lead agency</li> </ul>
<b>Option 2 – Centralize some fleet functions under one agency</b>		
<p>Centralize and implement statewide fuel and maintenance contracts</p> <p>Improve centralized tracking and oversight functions through improved data management and feedback to agencies</p>	<ul style="list-style-type: none"> <li>▪ Increases potential for immediate cost savings from discounts on outsourced fuel and maintenance services</li> <li>▪ Provides lead agency the opportunity to determine the condition of the fleet as a whole and then design an improvement plan</li> <li>▪ Improves accountability for fleet operating costs and ensures the state's investment in vehicles is maintained</li> </ul>	<ul style="list-style-type: none"> <li>▪ Costs to operate the data system (\$348,880 for Fiscal Year 2011-12) to perform accurate cost analysis</li> <li>▪ Agency resistance to using maintenance and fuel contracts due to costs and inconvenience</li> <li>▪ Policies regarding data input and use of fuel and maintenance contracts</li> <li>▪ Need for agency staff training on use of statewide contracts and other fleet management processes</li> </ul>
<b>Option 3 – Require agencies to use statewide fuel and maintenance contracts</b>		
Require agencies to use the current statewide fuel and maintenance contracts unless agencies are able to justify not doing so	<ul style="list-style-type: none"> <li>▪ Allows for immediate savings on commercial fuel and maintenance services, potentially \$478,500 for fuel and between \$950,000 and \$1.9 million on maintenance based on 10% and 20% reductions, respectively</li> </ul>	<ul style="list-style-type: none"> <li>▪ Some of the savings would be offset by \$752,400 for annual maintenance enrollment costs of \$5.70 per vehicle per month for approximately 11,000 cars and light trucks</li> <li>▪ Need for fleet managers to monitor agency use and compliance of statewide contracts</li> </ul>
<b>Option 4 – Outsource additional fleet services</b>		
Contract with vendors for fleet rental or leasing services	<ul style="list-style-type: none"> <li>▪ Allows for rapid increases/decreases of vehicles to meet operational needs</li> <li>▪ Increases potential for cost savings by not reimbursing employees for use of private vehicles</li> <li>▪ Improves accountability and the ability to set benchmarks from better vendor data on operating costs</li> <li>▪ Potential to reduce some administrative costs through outsourcing some services</li> <li>▪ Improves reliability of vehicle fleets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Costs of capital over time is generally more expensive for financing/leasing vehicles than cash purchase</li> <li>▪ Outsourcing data management limits the state's ability to resume management if vendor prices rise</li> <li>▪ Need for managers to create and enforce policies regarding acquisition, assignment, commuting miles, use of private vehicles, and reassignment of underutilized vehicles</li> </ul>

Source: OPPAGA analysis.

OPPAGA supports the Florida Legislature by providing data, evaluative research, and objective analyses that assist legislative budget and policy deliberations. This project was conducted in accordance with applicable evaluation standards. Copies of this report in print or alternate accessible format may be obtained by telephone (850/488-0021), by FAX (850/487-3804), in person, or by mail (OPPAGA Report Production, Claude Pepper Building, Room 312, 111 W. Madison St., Tallahassee, FL 32399-1475). Cover photo by Mark Foley.

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## Appendix A

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### Vehicle Replacement Options

The Legislature could consider several options for financing vehicle fleet replacement. Many state agencies have aging vehicle fleets that include numerous cars and trucks that exceed Department of Management Services' (DMS) recommended replacement criteria. To address this issue, the Legislature may wish to consider several options related to vehicle acquisition, including

- continuing to reimburse employees for use of their personal vehicles;
- continuing to replace vehicles using annual appropriations (i.e., "pay before you go") as funds permit; and
- authorizing agencies to use the Department of Financial Services' Consolidated Equipment Financing Program (i.e., "pay as you go") as a primary method for acquiring new vehicles.

To illustrate how state costs can vary depending on how the state pays for the use of vehicles, we developed three scenarios that include the cash flow requirements and total cost of implementing these options.<sup>24</sup> Our scenarios are based on the state acquiring compact and mid-size sedans on an ongoing basis over a 12-year period. We identified life cycle costs for each scenario to allow a better comparison of cash flow requirements. Life cycle costing is an approach that focuses on all costs incurred during an asset's life through its disposal. We projected that these vehicles would be driven approximately 15,000 miles per year and sold at auction when they are six years old and reach 90,000 miles. We held all costs in terms of current dollars and assumed the reimbursement rate for personal mileage would remain at the current rate (i.e., 44.5 cents per mile).

Table A-1 shows the 12-year annual cash flow requirements under the three scenarios. The table demonstrates that cash purchasing is the least expensive approach but requires significant upfront funding. Purchasing vehicles using the Consolidated Equipment Financing Program requires lower upfront cash outlays and is less costly than reimbursing employees for use of their personal vehicles. However, a drawback to financing vehicles is that it is more expensive over time due to required loan payments in future years. The most costly option is reimbursing state employees for the use of personnel vehicles to conduct state business.

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<sup>24</sup> We also considered including long-term vehicle leasing in our analysis of potential options. However, direct comparisons of cash flows were not possible due to varying terms and conditions relating to the imputed interest rate, vehicle replacement criteria, and annual mileage usage. However, we concluded that annual leasing costs and cash flows would be similar to the state's use of the Consolidated Equipment Financing Program.

**Table A-1  
Financing Vehicle Purchases Provides the Greatest Cash Relief in the Early Years, but It Costs More Over Time Than the Cash Purchase of Vehicles<sup>1, 2, 3, 4</sup>**

Year	Number of Compact Vehicles	Number of Mid-Size Vehicles	Total New Vehicles per Year	Annual Cash Requirements		
				Option 1 Personal Use	Option 2 Cash Purchase	Option 3 Finance Purchase
Year 1	400	600	1,000	\$6,675,000	\$16,587,342	\$5,082,724
Year 2	400	600	1,000	13,350,000	19,122,283	10,165,449
Year 3	350	450	800	18,690,000	18,317,761	14,224,222
Year 4	350	450	800	24,030,000	20,341,538	18,282,995
Year 5	350	450	800	29,370,000	22,365,316	22,341,768
Year 6	350	450	800	34,710,000	21,589,094	23,600,255
Year 7	400	600	1,000	34,710,000	24,417,394	23,600,255
Year 8	400	600	1,000	34,710,000	25,007,394	24,190,326
Year 9	350	450	800	34,710,000	22,179,094	24,190,326
Year 10	350	450	800	34,710,000	22,179,094	24,190,326
Year 11	350	450	800	34,710,000	22,179,094	24,190,326
Year 12	350	450	800	34,710,000	21,589,094	23,600,255
<b>Total Cash Outlays</b>				<b>\$335,085,000</b>	<b>\$255,874,497</b>	<b>\$237,659,228</b>
Future Obligations (Years 13 to 17)				-	-	31,037,718
<b>Grand Total</b>				<b>\$335,085,000</b>	<b>\$255,874,497</b>	<b>\$268,696,947</b>

<sup>1</sup> Our life cycle cost analysis assumed that all vehicles would be purchased at the beginning of each fiscal year. Financing payments would be made monthly for a period of 72 months. We used a Consolidated Equipment Financing Program interest rate from the week ending February 11, 2011, of 2.81%, which included an additional 0.25% (2.56% plus 0.25%) interest charge because the financing period was extended an additional 12 months beyond the normal 60-month financing period. Therefore, loans in year two will be paid off in year seven; loans in year three will be paid off in year eight, and so forth.

<sup>2</sup> Vehicle purchase prices were from the state term contract for both a compact (\$13,696) and mid-size (\$14,290) vehicle.

<sup>3</sup> We used the Environmental Protection Agency combined fuel economy estimates and a \$3.143 cost for a gallon of gasoline to estimate fuel costs. The cost for gasoline was the average price per gallon of regular gasoline in Florida for February 21, 2011.

<sup>4</sup> Department of Management Services staff provided salvage value estimates; actual salvage values may vary significantly from estimates depending on factors such as use, maintenance, and demand for vehicles at the end of their life cycles.

Source: OPPAGA analysis.

There are advantages and disadvantages associated with using different funding approaches for vehicle purchases. The three options for funding vehicle replacement that we examined have varying advantages, disadvantages, and fiscal impacts.

**Reimbursing employees for personal vehicle use.** The primary advantage of reimbursing employees for driving their personal vehicle for official state business is that the state does not have to purchase, buy, fuel, insure, or maintain state-owned vehicles. This option does not require initial cash outlays as compared to outright vehicle purchases. The occasional use of personal vehicles or the use of personal vehicles for relatively short trips at a reimbursement rate of \$.445 per mile is also more cost-effective than buying vehicles. However, a major disadvantage is that excessive mileage significantly increases costs. When personal vehicles are used more extensively (higher mileage) for state business, the reimbursement costs are significantly higher than if a state-owned vehicle was used. For example, the state can own and operate compact or mid-size vehicles at an estimated cost of \$.29 to \$.30 per mile over its useful life compared to the personal mileage reimbursement rate of \$.445.

**Purchasing vehicles with annual appropriations.** The primary advantages of using the lump sum cash purchase approach for buying vehicles is that it is the lowest life-cost option and does not commit future Legislatures to long-term funding. The primary disadvantage is that it requires high upfront cash outlays, which can be particularly problematic when there are revenue shortfalls. Another disadvantage is that lump sum cash purchase approach requires current taxpayers to fund all acquisition costs in advance for vehicles that will be used in subsequent years.

**Financing vehicle purchases.** The primary advantage of financing purchases is that it does not require a large upfront cash outlay. Agencies can acquire more vehicles without immediately incurring the full cost. In addition, the cash flow more closely aligns to a vehicle’s useful life. The primary disadvantage is that the interest paid on the loans increases the total cost of vehicles. Furthermore, financing purchases reduces legislative flexibility in making future funding decisions because the state will be committed to funding payments over the financing term and future cash flow requirements will increase significantly before leveling off.