

Lines of Business

LOB #297:

VEHICLE MAINTENANCE AND MANAGEMENT

Purpose

DVS works to ensure that departments and agencies have the fleet means to support their missions while also maintaining fleet levels that are appropriate to actual program and service requirements. DVS provides centralized maintenance and repair services on vehicles and equipment owned by Fairfax County and FCPS that are in conformance with all federal, state, and County policies, regulations, and procedures. In addition, DVS is responsible for acquiring and disposing of vehicles and equipment, performing preventative maintenance, ensuring safety recalls are completed and complying with environmental permits for all four maintenance facilities. When possible, increased fuel efficiency and reduced emissions requirements are included in vehicle specifications to be economically responsible and good environmental stewards.

Description

Under the Vehicle Maintenance and Management LOB, approximately 178 mechanics service and maintain 5,902 vehicles and pieces of equipment (including 1,610 school buses) and approximately 30 material management specialists' purchase and stock approximately 5,200 parts at four facilities. Roadside emergency repair services are provided at competitive rates and administrative staff manages a motor pool of 43 vehicles. This LOB is comprised of five discrete programs: maintenance and operations, parts, quality control, motor pool and environment. The five programs are strategically bundled within the organizational structure to ensure DVS preserves the value of the vehicle and equipment investment while maintaining high standards for quality and safety.

Maintenance and Operations

County employees provide vehicle maintenance and repair services to customer agencies. Professional mechanics are trained to perform scheduled and non-scheduled (emergency repairs) work on most vehicles and equipment, and build specialty vehicles to customer specifications. Services range from State inspections, oil changes, and tire replacements to body work, decals and troubleshooting transmission and engine issues. DVS coordinates recalls and warranty work or significant repairs (i.e. accident damage) with contracted commercial vendors.

The maintenance and operations program is responsible for the configuration and up fit of new vehicles for the FCPD and Office of the Sheriff. The objective is to provide both agencies with safe and reliable vehicles that are configured to perform their mission effectively and efficiently. FCPD and the Sheriff work together to maintain a balance of operational flexibility and logistical manageability. In addition, for every new vehicle that is built another vehicle is stripped of police and sheriff specific decals and interiors before it is sold at public auctions for other municipalities.

All new vehicles are registered, inspected, and provided County decals by DVS staff. At the end of the vehicle or equipment's useful life, all decals are removed and DVS works with the DPSM to sell them.

Department of Vehicle Services

Parts

Supply, inventory and inventory control are the backbone of support activities to the main function of vehicle repair and maintenance. The parts section operates as a separate program and is responsible for ordering, receiving, issuing and disposing of stock. This program stocks items ranging from common items such as tires, batteries, fuel, oil, to more unique items such as jockey pumps for fire and rescue apparatus and bumpers and windshields for school buses and fire and rescue apparatus. In addition, parts issues contracts for work to be performed by outside vendors to include recycling and reuse contracts.

Quality Control

The Quality Control program is responsible for ensuring that vehicles purchased and maintained by DVS adhere to a defined set of quality criteria. The program supports DVS' mission of providing customers with vehicles and equipment that are available to users when they are needed; reliable when they are in use; safe to operate; and maintained in an environmentally responsible manner.

Environment

DVS participates in the Virginia Environmental Excellence Program ("VEEP"). VEEP was established by DEQ to encourage environmental performance. The program encourages "facilities and organizations within the Commonwealth that have strong environmental records to go above and beyond their legal requirements." DVS submits an annual report on environmental progress at all four maintenance facilities.

DVS also participates in the Virginia Pollutant Discharge Elimination System Permit Program and maintains one permit for each of the four maintenance facilities. DVS contracts with an environmental specialist to perform quarterly visual monitoring and semi-annual monitoring of maintenance facility Stormwater utility outfalls at all four maintenance facilities. Discharge Monitoring Reports (DMR) are reviewed by the Superintendent at each facility, certified and submitted to the DEQ.

Motor Pool

The Motor Pool program is comprised of 43 vehicles based at the Government Center that are shared among staff. Motor pool vehicles are available for hourly/daily rental to agencies with programs that require predictable but limited use of a vehicle and whose needs do not justify an agency-owned vehicle. In addition, motor pool vehicles are utilized by County employees for unpredictable use to include attending meetings, training, and other events. Customers pay for use of the Motor Pool with two charges: an hourly fee, with an 8 hour/day maximum, and a mileage charge.

DVS Customers for Vehicle Maintenance and Management

Vehicle Maintenance and Management customers are comprised of General Fund and Non General Fund agencies and FCPS. The following chart represents the vehicles maintained by DVS as of the end of FY 2015:

Category	Number of Vehicles	Percentage of Fleet
County	3,489	59%
Public Safety	1,810	31%
Non-Public Safety	1,027	17%
Other	652	11%
FCPS	2,413	41%
TOTAL	5,902	

DVS does not maintain Connector buses, FASTRAN buses, Fairfax Water Authority vehicles, and FRD equipment (e.g. ladders, pumps, hoses, etc.). DVS maintains the largest municipal fleet in the state of Virginia and the 10th largest school bus fleet in the nation (School Bus Fleet magazine "Top 100 School District Fleets of 2014").

Department of Vehicle Services

Locations and Hours of Operation

DVS has four maintenance facilities and a centrally located administrative office. The Jermantown and West Ox facilities are located in the central part of the County along I-66, and the Newington and Alban facilities are located on the southeast end of the County along the I-95 corridor. All maintenance facilities are open Monday through Friday from 5:30 a.m. to 10:00 p.m. Staff are deemed essential personnel. In addition, County staff performs some maintenance at police stations, fire stations and at customer work sites.

The Central Motor Pool desk, located in the Government Center is open from 7:00 a.m. to 4:30 p.m., Monday through Friday; however, with prior arrangements, customers can pick up vehicles 24 hours a day. Vehicles at the Motor Pool satellite location at the DVS Jermantown Maintenance Facility are available 5:30 a.m. to 10:30 p.m., Monday through Friday.

Benefits

Administering the County's vehicle fleet requires consideration of many issues including the environment (emissions and waste by-products associated with vehicle maintenance), vehicle safety (state requirements for school bus inspections, state safety inspection requirements, etc.) and automotive technology (mechanics associated with alternatively fueled engines, safety equipment, computerization, recycled products, etc.).

County agencies contract with DVS to perform all maintenance and repair services for their vehicles and equipment. Therefore, DVS is responsible for administering preventive maintenance schedules, and ensuring that all vehicles have current State and Emission Inspections, meet Federal, State and local safety standards, and have valid license tags (State and County). In addition, DVS audits contractors to verify they are performing in accordance with required federal, state and local regulations. As a result, the County receives a cost-effective, centralized and orderly process for County agencies to maintain their vehicles in safe and good working order. County agencies who provide direct services to the residents of Fairfax County can continue to provide direct services without the worry of vehicle maintenance, which falls outside their stated mission. The community can rest assured that when they call for services from any County agency - to include public safety and public works - the vehicles will reach the final destination without a potential breakdown.

Outsourced Services

Currently, approximately 11.7 percent of County vehicle maintenance work is performed by outside contractors when deemed more efficient. It is important to note that this includes recall and warranty work that must be performed off site. Typical jobs that are contracted to commercial vendors (beyond recall and warranty work) include engines repairs, transmission repairs or replacements, light vehicle body work and windshield repairs.

Since Connector and FASTRAN services were formed, contractors have been responsible for maintenance. However, DVS manages the FASTRAN Reserve Fund discussed in LOB #298, Vehicle/Equipment Replacement Funds and provides fuel to Connector and FASTRAN as discussed in LOB #299, Fuel Operations. If maintenance and repair services for Connector and FASTRAN were included, the percentage of vehicle maintenance work performed by contractors would rise to approximately 35 percent.

Economies of Scale

A centralized Vehicle Maintenance and Management program is beneficial in achieving economies of scale, which are obtainable because of the large volume of work performed directly by DVS. If not centrally administered, economies of scale would not be realized for opportunities such as: aligning workload, available resources to meet dynamic and unique requirements, analyzing vehicle repair data, procuring replacement parts in bulk, and more. Additionally, centralized services ensure County, state and federal policies and regulations are interpreted consistently and effectively, application of new technologies and

Department of Vehicle Services

parts are identified and implemented, and customers can focus on their lines of business without interruption.

Mandates

Programs within LOB #297, Vehicle Maintenance and Management are not mandated; however, because the County chooses to provide vehicle maintenance and management services, it must be performed in accordance with the federal and state guidelines outlined below.

Federal

Title CFR 49-396.3, Federal Highway Administration, the Departments of Transportation and Homeland Security - Inspection, Repair and Maintenance of Motor Vehicles, requires that vehicles or motor vehicle equipment must be maintained in such a manner as to ensure a condition that protects the public against unreasonable risk of accidents.

All mechanics and supervisors employed by Fairfax County are required to have a current Commercial Drivers License (CDL). Therefore, DVS must comply with the following Federal and County mandates.

The Commercial Motor Vehicle Safety Act of 1986 (CMV) was signed into law on October 27, 1986. The goal of the Act is to improve highway safety by ensuring that drivers of large trucks and buses are qualified to operate those vehicles and to remove unsafe and unqualified drivers from the highways. The Act retained the State's right to issue a driver's license, but established minimum national standards that states must meet when licensing CMV drivers. A person shall not drive a commercial motor vehicle unless he/she is physically qualified to do so and, has on his/her person the original, or a photographic copy, of a medical examiner's certificate that he/she is physically qualified to drive a commercial motor vehicle.

The County's CDL program was established to comply with federal regulations. The Omnibus Transportation Employee Testing Act of 1991 prohibits covered employees from being under the influence of drugs while working and requires drug and alcohol testing for CDL holders and other covered workers. The Department of Transportation (DOT) publishes rules on who must conduct drug and alcohol tests, how to conduct those tests and what procedures to use when testing.

Fairfax County CDL program requirements apply to those who drive a County commercial vehicle, regardless of the duration or frequency of such driving. The program includes those who drive for a training program or test driving (after repair) purposes. The program covers regular drivers, backup drivers and temporary employees who are required to hold the CDL.

Commonwealth of Virginia

Code of Virginia: 46.2 Motor Vehicles, Chapter 10: Motor Vehicle and Equipment Safety, §46.2-1157, requires all vehicles to submit to an inspection of its mechanisms and equipment within 12 months of the month of the first inspection and at least 12 months thereafter.

Code of Virginia: 46.2 Motor Vehicles, Chapter 10: Motor Vehicle and Equipment Safety, §46.2-1178, provides guidance on the administration and scope of emissions inspection program. The code requires all small vehicles with gasoline engines to have emission inspections biennially by qualified inspectors. Inspectors are located at all four DVS maintenance facilities and are certified by DEQ.

Board of Education transportation regulations: 8VAC20-70-130, Maintenance Inspection, requires all school buses and activity buses used to transport pupils to and from school and/or school activities to be inspected and maintained by competent mechanics at least once every 45 school days, or every 5,000 miles. This interval changed from every 30 operating days/2,500 miles in September 2012. DVS ensures compliance with the regulation.

Department of Vehicle Services

Other

LOB #297, Vehicle Maintenance and Management is responsible for ensuring all warranties established by manufacturer remain operational and protect the passengers and public against unreasonable risk of accidents.

Trends and Challenges

Trends

Application of New Technologies

Many types of diagnostic software are required to diagnose and repair vehicle issues today and the application and training of new technologies is an ongoing trend and challenge for DVS. Technicians use most of this technology in DVS facilities today; however, in the near future, DVS may be required to purchase new technology to include oscilloscopes. An oscilloscope is an electrical testing device used to measure the frequency of an electrical signal over time, and display waveform signals in a graph. An oscilloscope is used by engineers, technicians, medical professionals, and educators for testing, measuring, and inspecting.

Environmental Stewardship

DVS recycles waste antifreeze and tires, and sells waste oil to a contractor for recycling. Certain types of auto parts are recycled or remanufactured for another use. This program embraces the EPA's environmental sustainability guidance of reusing products when possible. The department continues to seek innovative ways to increase revenue and green practices in solid waste management.

Police

During FY 2014, DVS acquired the additional responsibility of purchasing and stocking all parts for new Police vehicle up-fits. Previously, the FCPD purchased all parts and components required to build police vehicles beyond that built by the original equipment manufacturer. The County has realized greater accountability and cost savings by shifting the procurement and management of these materials to DVS. This programmatic change resulted in a substantial increase in parts expenditures, but has ensured standardized configurations and availability of parts. In FY 2013 actual expenditures for parts were \$7.2 million, or \$2.6 million less when compared to the FY2015 actual of \$9.8 million.

Certified Mechanics

The National Institute for Automotive Service Excellence (ASE) promotes excellence in automotive repair and service. ASE tests and certifies automotive professionals, which provides tangible proof of their technical knowledge. DVS recently implemented an ASE bonus program that incentivizes operational staff to acquire ASE certifications. The overarching goal is for all mechanics to have one ASE certification.

Infrastructure Changes Required to Support Growth

In June 2013, the renovation and expansion to the Newington maintenance facility was completed. The Newington facility was transformed into a more productive structure to support current and future vehicle maintenance needs for County and FCPS vehicles.

As part of this renovation, significant consideration was given to promoting environmentally sound business practices. The modern LEED-certified (Leadership in Energy and Environmental Design) facility offers enhanced production and capacity for the current and future fleet that includes school buses, public safety vehicles and heavy equipment. The new facility includes several green building design and technology features including sun-tracking skylights, clerestory windows, glazing in overhead doors, light sensors/monitoring, waterless urinals, automatic faucets, dual-flush water closets, bio-retention ponds, filters, energy efficient equipment and waterproofing/air barrier systems.

Department of Vehicle Services

The Newington facility was designed to ensure no increase in runoff with most of the roof rain water being captured for vehicle washing. In addition, indoor environmental quality is achieved through natural light, low volatile organic compound (VOC) finishes and materials, and a vehicle exhaust extraction system to maintain healthy indoor air. Additionally, building materials with recycled content were purchased regionally within a 500 miles radius of the project site. The new facility also includes a new automotive paint booth, wash bay, recessed lifts, above ground lifts, portable lifts, infrared heating, fans and waste oil boilers.

DVS is currently working with the Office of Capital Facilities to make similar improvements to the three remaining maintenance facilities.

Challenges (past and future)

FCPS Fleet

Between FY 2011 and FY 2015, the FCPS fleet has grown from 2,260 vehicles to 2,413 vehicles, representing an increase of 7 percent. The change in bell schedules for the 2015-2016 school year added 46 additional buses and DVS added 2/2.0 FTE mechanics to support the additional maintenance requirements. In addition, approximately \$100,000 of parts inventory was added to accommodate the additional buses.

FCPS requested that older buses remain in the fleet as reserve vehicles. The replacement criteria for school buses are 12 years regardless of mileage. As of August 2015, approximately 51.2 percent of the school bus fleet meets or exceeds the replacement criteria. This is significant as maintenance costs increase sharply with age and parts are harder to obtain for older buses.

Succession Planning

The retirement of tenured employees and difficulty finding qualified mechanics to fill vacancies is an ongoing challenge that makes it difficult to maintain an optimal vehicle availability rate while recruiting and training new less knowledgeable staff. This is expected to peak in FY 2016, however.

Fiscal Year	# Retirement Eligible	% of LOB Staff
2014	20	8%
2015	21	8%
2016	31	12%
2017	14	5%
2018	13	5%

DVS has primarily depended on senior mechanics to train newly hired mechanics. Recently, DVS has jump started training efforts to strengthen the development of less experienced new hires by sending mechanics off site to training sponsored by manufacturers and bringing technical experts to the maintenance facilities. When possible, video streaming is used to make classes available to mechanics at different facilities thus reducing travel time.

Department of Vehicle Services

Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
LOB #297: Vehicle Maintenance and Management			
FUNDING			
<u>Expenditures:</u>			
Compensation	\$13,795,230	\$14,263,835	\$15,767,114
Benefits	5,878,548	6,294,608	6,345,008
Operating Expenses	19,032,565	19,655,878	20,199,555
Capital Equipment	134,202	0	235,146
Total Expenditures	\$38,840,545	\$40,214,321	\$42,546,823
<u>Transfers Out:</u>			
Transfer Out to General Fund	\$1,224,931	\$0	\$0
Total Transfers Out	\$1,224,931	\$0	\$0
Total Revenue	\$37,303,325	\$40,581,299	\$42,460,887
POSITIONS			
Authorized Positions/Full-Time Equivalents (FTEs)			
<u>Positions:</u>			
Regular	256 / 256	256 / 256	258 / 258
Total Positions	256 / 256	256 / 256	258 / 258

Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Units maintained by DVS	5,741	5,862	5,902	5,944	5,986
Vehicle equivalents maintained by DVS	22,126	22,345	22,668	22,818	22,958
Maintenance Cost per vehicle Equivalent	\$1,614	\$1,734	\$1,773	\$1,846	\$1,882
Parts inventory value per vehicle	\$341.00	\$449.00	\$500.00	\$511.00	\$523.00
Parts inventory fill rate	91.1%	94.1%	86.5%	90.0%	90.0%
Parts inventory turnover	5.09	3.13	4.56	5.00	5.00
Parts Inventory Accuracy	95.7%	86.8%	93.9%	95.0%	95.0%
Vehicle availability rate	97.7%	96.8%	96.9%	96.0%	96.0%
Percent of customers satisfied	97%	98%	98%	98%	98%

The Vehicle Maintenance and Management metrics reflect the department's challenges in maintaining a growing and aging fleet, increasing costs for parts, and maintaining a fully staffed and experienced workforce. While DVS efficiency ratios are becoming higher over time, they continue to compare favorably when benchmarked against other jurisdictions.

Department of Vehicle Services

One metric used by DVS to measure the efficiency of services is to compare the maintenance cost per mile for different vehicle classes. Maintenance costs per mile include labor, parts, overhead and, when needed, commercial repairs. Trends reflect that, with the exception of medium vehicles, the cost per mile for all categories has increased slightly over the past three years. However, as seen in the table below, Fairfax County vehicle maintenance costs compare favorably with other large jurisdictions (FY2014 International City/County Managers Association (ICMA) data on maintenance cost per mile and preventive and other fleet maintenance expenditures per vehicle).

FY2014 ICMA Fleet Expenditures per Mile Driven

Jurisdiction	Police Vehicles	Light Vehicles	Medium Vehicles
Miami Dade, FL	\$0.23	\$0.28	\$0.71
<i>Fairfax County, VA</i>	<i>\$0.31</i>	<i>\$0.20</i>	<i>\$0.39</i>
Oklahoma City, OK	\$0.38	\$0.29	\$1.09
Scottsdale, AZ	\$0.38	\$0.26	\$0.70

On a macro level, the maintenance cost per vehicle is also trending upward. The trend is consistent with the cost per mile for vehicle class categories and may be attributed to fewer mechanics, an aging and growing vehicle fleet and increases in parts. However, as seen in the table below, Fairfax County costs continue to compare favorably with other large jurisdictions.

FY2014 ICMA Preventive and Other Fleet Maintenance Expenditures per Vehicle

Jurisdiction	Police Vehicles	Light Vehicles	Medium Vehicles
Miami Dade, FL	\$2,554	\$2,097	\$4,102
<i>Fairfax County, VA</i>	<i>\$3,815</i>	<i>\$1,879</i>	<i>\$3,117</i>
Oklahoma City, OK	\$5,265	\$1,243	\$5,267
Scottsdale, AZ	\$4,188	\$2,240	NA

Expenditures per vehicle are impacted by mechanics available to maintain vehicles.

DVS anticipates the number of vehicle equivalents in the fleet to rise as the number of school buses and other vehicles continue to increase. DVS calculates vehicle equivalent ratios by reviewing the size and composition of the fleet to determine the number of mechanics-to-units required to operate the fleet. Then, maintenance and repair requirements of a vehicle class are analyzed against a base vehicle class. DVS uses a sedan. Therefore, a police cruiser, which has greater maintenance and repair needs than a sedan, has a higher vehicle equivalent. Below is a list of vehicle equivalents for DVS.

Vehicle Type	Vehicle Equivalent	Vehicles Maintained Per Mechanic
Sedan	1.0	100
Police Cruiser	2.2	46
School Bus	4.8	21
Heavy Fire Apparatus	10.7	9
Transfer Tractor	7.6	13
¾ Ton Van	1.1	90

Department of Vehicle Services

Currently, every DVS mechanic maintains approximately 100 “vehicle equivalents” per year. As the number of vehicles increases, there is a corresponding increase in staffing requirements or a reduction in vehicle availability rate. As staffing is reduced, “billable hours” or charges are reduced thus impacting the overall DVS budget.

As an internal service fund, DVS charges for all work performed directly on a vehicle (or for an agency) by mechanics. This also enables the County to more accurately reflect true program costs in other agency budgets. While the labor rate has increased over the past few years due to higher operating and personnel costs, the DVS labor rate compares favorably with other local jurisdictions. DVS’s labor rate has historically been, and continues to remain, lower than rates charged by neighboring municipalities.

Hourly Labor Rates

Jurisdiction	Hourly Rate
Washington DC Average ¹	\$96.38
Arlington County	\$79.00
Prince William County	\$71.00
Fairfax County	\$65.50
Prince George County	\$65.00

¹ Ranges from \$65 to \$132, as reflected in the 2014 WMABA labor rate survey of collision repair centers. (Hammer & Dolly, WMABA, January 2015.)