STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
FLEET MANAGEMENT

PERFORMANCE AUDIT REPORT
NOVEMBER 2014

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To The Fiscal Committee Of The General Court:

We conducted a performance audit of the Department of Transportation's (DOT) fleet management to address the recommendation made to you by the joint Legislative Performance Audit and Oversight Committee. We conducted the audit in accordance with generally accepted government auditing standards. Those standards require we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions. The evidence we obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The purpose of the audit was to assess how efficiently and effectively the DOT managed its fleet of vehicles and equipment during State fiscal years (SFY) 2009 to 2014. We also provided trend information for the ten-year period of SFYs 2005 to 2014.

Office of Legislative Budget Assistant

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November 2014

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ABBREVIATIONS

DAS	Department Of Administrative Services
DOT	Department Of Transportation
G&C	Governor And Council
LPAOC	Legislative Performance Audit And Oversight Committee
M5	FleetFocus M5
MATS	Managing Assets For Transportation Systems
Northeastern	Northeastern University Center For Strategic Studies
SFY	State Fiscal Year

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EXECUTIVE SUMMARY

In general, the Department of Transportation (DOT) effectively managed and utilized its fleet of construction equipment and vehicles with some pieces of equipment showing low utilization. With a few exceptions, the size of the DOT's fleet remained relatively stable from State fiscal years (SFY) 2005 and 2014. DOT officials and staff throughout the agency reported the fleet, including rented and leased equipment, was generally the right size and composition to fulfill the Department's mission. However, the DOT did not have a count of the number of rented vehicles and equipment used to augment its own fleet, thereby making it difficult to comprehensively assess what resources it used to accomplish its tasks during the audit period.

While the DOT's fleet appeared to be adequate to fulfill its mission, the main concern expressed by DOT personnel was the reliability of the fleet as it continues to age. Since 2005, the average age of the equipment fleet increased by 1.5 years, while the percent of equipment at or beyond the established replacement age (the age and number of hours or miles at which a piece of equipment or vehicle will be considered for replacement) increased significantly. At the end of SFY 2014, approximately one-third of the State's six-wheeled trucks and one-fifth of the ten-wheeled trucks used primarily for plowing were at or beyond the established replacement age. Similarly, over half of the DOT's vehicle fleet was at or past the established replacement age. As equipment becomes older, breakdowns become more frequent, potentially affecting the Department's ability to operate efficiently and with equipment available when needed.

We found the DOT's fleet as a whole was utilized effectively and the DOT used opportunities to share equipment. However, we found variations in heavy truck utilization (i.e., six-wheeled and ten-wheeled trucks used mainly for plowing), one-ton trucks, and pickup trucks. Opportunities may exist to better cross-utilize these vehicles.

Reviewing whether the DOT's fleet is the right size and composition to perform its responsibilities is critical in assisting the Department to achieve its mission effectively and efficiently. Ensuring reliability and limiting downtime is essential. As funding to replace vehicles and equipment remained relatively flat from SFYs 2012 and 2014 and the fleet continued to age, the DOT faced critical decisions on how best to manage its fleet, especially construction equipment. The DOT's priority was to replace heavy trucks; however, the age and condition of certain pieces of equipment such as graders, cranes, and loaders worsened. While we found the number of vehicles and equipment met the DOT's needs, the aging fleet's reliability will be a significant factor in determining whether this number will remain appropriate in the future.

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RECOMMENDATION SUMMARY

Observation Number	Page	Legislative Action Required?	Recommendation	Agency Response
1	17	N	Periodically conduct an analysis on the size and composition of the fleet.	Concur
2	19	Y	Consider whether current controls on fleet purchases are representative of legislative intent.	Concur
3	22	N	Establish formal utilization guidelines for fleet management, analyze utilization, and explore opportunities for increased usage.	Concur
4	25	N	Track rented equipment in one system.	Concur
5	26	N	Ensure all bureaus report commuting miles consistently and in compliance with State guidance. Work with the Department of Administrative Services to review reporting of mileage for field-based positions.	Concur

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BACKGROUND

RSA 21-L established the Department of Transportation (DOT) in 1985 to plan, develop, and maintain a State transportation network. The DOT's mission is to provide "transportation excellence enhancing the quality of life in New Hampshire." The DOT's stated purpose is to "provide safe and secure mobility and travel options for all of the state's residents, visitors, and goods movement, through a transportation system and services that are well maintained, efficient, reliable, and provide seamless interstate and intrastate connectivity." According to DOT personnel, the Department's main priority is winter operations and most activities year-round support winter operations. For example, trimming trees during the summer helps melt snow and ice in the winter. However, the DOT staffed its operations at summer maintenance activity levels, so trucks and drivers must be contracted during the winter.

State Highway System

Under RSA 21-L, the DOT is responsible for constructing, reconstructing, and maintaining the State highway system, including both primary highways and secondary highways, the turnpikes, and the interstate system. New Hampshire's highway system encompassed over 9,300 lane miles of roadways consisting of existing highways on the primary and secondary system, boat access roads, and other recreational roads within State reservations. From 2005 to 2014 the State's highway system did not experience significant change in the number of lane miles. New construction on the highway system, including the turnpikes, increased the State's total lane miles by less than 40 lane miles overall during this ten-year period; less than a one percent increase. The majority of this increase was to the turnpike system.

The State's highway system received funding primarily from the gasoline road tolls (commonly known as the gas tax), vehicle registration fees, and motor vehicle fines. Federal funds also make up a substantial portion of the DOT's revenues accounting for approximately 39 percent of the DOT's $508[1] million in revenue in State fiscal year (SFY) 2014.

Turnpike System

The Bureau of Turnpikes constructs, maintains, and operates toll roads, including toll plazas and bridges over those roads. The turnpike system comprises 89 miles of limited access highways consisting of the Spaulding Turnpike and the Blue Star Turnpike (collectively known as the Eastern Turnpike) and the Central Turnpike (commonly known as the F.E. Everett Turnpike). The system contains 655 lane miles, 49 interchanges, 170 bridges, nine toll plazas with 84 toll lanes, and five maintenance facilities. The system also operates three rest stops, five park and ride facilities, and a recreational park in Dover. Each turnpike is described below.

- The 33.2 mile Spaulding Turnpike (NH 16) extends from Portsmouth to Exit 18 in Milton and is the primary north-south artery in the eastern part of the State. It connects the cities

[1] Source: Unaudited Comprehensive Annual Financial Report, September 30, 2014.

of Portsmouth, Dover, and Rochester. The Spaulding has two toll plazas located in Dover and Rochester.

- The 16.2 mile Blue Star Turnpike (I-95) extends from the Massachusetts state line in Seabrook to the Maine state line in Portsmouth. The Blue Star Turnpike runs parallel to the seacoast and serves as the major artery for tourists traveling along this area of the State. There are two toll plazas located in Hampton.
- The 39.5 mile F.E. Everett Turnpike extends from the Massachusetts state line in Nashua to Exit 14 in Concord. The turnpike includes a portion of I-93 and I-293 and connects the major cities of Concord, Manchester, and Nashua. The Turnpike contains five toll plazas in Hooksett, Bedford, and Merrimack.

The turnpike system is an enterprise fund of the State of New Hampshire. The majority of the turnpike system's operating revenues come from toll collections. Other sources include the sale of transponders, toll violation fees, and federal revenue. Non-operating revenue comes from interest on investments, rental income, and sales of land and equipment. In SFY 2014, the system collected approximately $119.3[2] million in operating revenue. State law requires toll collections to be used exclusively for the operation, construction, reconstruction, and maintenance of the turnpike system.

Department Of Transportation

DOT divisions with assigned equipment and vehicles include the Divisions of Operations; Project Development; Aeronautics, Rail, and Transit; and Finance. Their responsibilities are discussed below.

Division Of Operations

The Division of Operations maintains and supervises the State's transportation network; maintains DOT equipment; and issues applicable permits, registrations, and licenses. The Division of Operations is further divided into the Bureaus of Highway Maintenance, Bridge Maintenance, Traffic, Turnpikes, and Mechanical Services. All bureaus have locations throughout the State.

- *Highway Maintenance:* Bureau personnel are responsible for maintaining the approximately 8,700 lane miles throughout State's highway system with the exception of the turnpikes. Highway Maintenance patrol sheds located throughout the State are responsible for snow and ice removal, guardrail repair, road repair (e.g., patching potholes and preparing roads for paving), cutting and maintaining road shoulders, clearing ditches and catch basins, mowing, tree trimming, litter and debris removal, and a variety of other activities. Patrol areas typically encompass approximately 100 lane miles of roadway.

[2] Source: Unaudited 2014 Turnpikes System Financial Statement.

The Bureau's operations are split among six district offices located in Lancaster, Enfield, Gilford, Swanzey, Bedford, and Durham. Each Highway Maintenance district contains between 12 and 18 patrol sheds, totaling 87 patrol section sheds throughout the State. Each patrol shed is assigned a variety of equipment to accomplish their tasks including plow trucks, loaders, and mowers. Patrol shed staff also provide support to other DOT bureaus including Bridge Maintenance, Bridge Design, Traffic, Construction, and the Traffic Management Center. In addition to maintenance, the Bureau oversees applications for driveway access, encroachment, excavation, and parades.

- *Bridge Maintenance*: The Bureau is responsible for maintaining the State's system of highway bridges, including their repair and rehabilitation. Bridge Maintenance personnel are divided into 12 crews. Most crews were assigned five pieces of equipment including two pickup trucks, one dump truck, a crane truck, and a skid steer loader. The Bureau also maintains a facility in Franklin where its shared equipment is located.

- *Traffic:* Bureau personnel are responsible for maintaining signs, traffic signals, and pavement markings on the State's highways and bridges. The Bureau's equipment includes pickup trucks, sedans, vans, bucket trucks, striper trucks, box trucks, and heavy trucks, most of which are stored in Concord; however, the Bureau has two remote crews and equipment at the Swanzey and Lancaster Highway Maintenance district offices.

- *Turnpikes*: This Bureau functions similarly to the Bureau of Highway Maintenance but focuses on the turnpike system. Maintenance personnel are divided into five maintenance sheds located in Dover, North Hampton, Nashua, Merrimack, and Hooksett. Because of the differing funding sources and laws, Turnpikes equipment cannot be shared with the rest of the DOT without inter-agency billing.

- *Mechanical Services*: The Bureau is responsible for acquiring, maintaining, assembling, and disposing of the DOT's equipment and vehicles. Most preventive maintenance and repairs are performed in-house by Bureau mechanics and technicians. Mechanical Services operates a central garage located in Concord and six satellite garages in Enfield, Lancaster, North Hampton, Twin Mountain, Ossipee, and Swanzey. The Bureau tracks work orders and cost information using its fleet management information system, and also keeps track of the assets themselves.

  Mechanical Services owns most of the DOT's fleet and assigns vehicles and equipment to the individual divisions and bureaus for their use. The fleet consists of vehicles such as sedans, pickup trucks, vans, and box trucks; six-wheeled and ten-wheeled trucks; and equipment such as loaders, graders, backhoes, and cranes. The Bureau also maintains and manages towable equipment such as towable plows, graders, sweepers, rollers, and chippers.

  The Bureau of Mechanical Services manages the fleet by establishing replacement standards and generates a list of vehicles and equipment exceeding the standards as candidates for replacement based on age, miles or hours of use, and condition.

Division Of Project Development

The Division of Project Development conducts planning and design, materials research and testing, and property acquisition, as well as supervises the DOT's construction projects except air navigation facilities. It consists of seven bureaus: Bridge Design, Construction, Environment, Highway Design, Materials and Research, Planning and Community Assistance, and Right-of-Way. While the Division's personnel utilize some construction equipment, the majority of the Division's fleet inventory consists of sedans and pick-up trucks. Each bureau is discussed below.

- *Bridge Design*: This Bureau is responsible for designing and preparing plans for bridge rehabilitation and replacement, as well as inspecting and rating the condition of all public bridges, including municipally owned bridges. The Bureau has a total of five vehicles all assigned to the bridge inspection team, four of which are assigned to eight inspectors working in teams of two throughout the State.

- *Construction:* Personnel oversee highway-related projects throughout the State, conduct inspections on State roadways, and test work completed by contracted construction companies. Bureau personnel utilize sedans and light-duty pickup trucks and are assigned to specific areas of the State.

- *Environment:* Personnel are responsible for evaluating the impact construction projects have on natural, cultural, and socioeconomic resources. Personnel also act as liaisons between the DOT and federal, state, and local environmental organizations. The Bureau is assigned three sedans and one pickup truck.

- *Highway Design*: Personnel are responsible for developing plans for constructing and rehabilitating roadways. Personnel are split into roadside design crews, survey crews, and in-house design personnel. Most personnel are located in Concord; however, survey personnel are further divided into ten crews located in Concord, Swanzey, Enfield, Lancaster, Gilford, and Dover. The Bureau's fleet consists of sedans, pickup trucks, and sport utility vehicles.

- *Materials and Resear*ch: The Bureau oversees the DOT's research program, maintains the list of qualified products for use in road construction projects, collects subsurface and pavement condition data, and assesses the condition of bridge decks and structural steel coatings. The Bureau has pickup trucks, a backhoe, drill rigs, heavy trucks, and vans to transport samples for testing.

- *Planning and Community Assistance*: Personnel provide technical and financial assistance to communities, regional planning commissions, other divisions, and State agencies in managing their transportation systems. The Bureau is assigned cargo and passenger vans and a pickup truck.

- *Right-of-Way*: Personnel in the Bureau work to acquire private property rights necessary to expand or improve the existing transportation system. The Bureau is assigned three sedans to perform its duties.

Division Of Aeronautics, Rail, And Transit

The Division is responsible for planning, constructing and maintaining air navigation facilities; coordinating aircraft search and rescue missions; assisting in civil aircraft incident investigations; assisting municipalities in planning, acquiring, constructing, maintaining, operating, and improving safety at facilities; planning, designing, and facilitating construction; and servicing rail and transit facilities. The Division is divided into two bureaus.

The Aeronautics Bureau oversees the State's 25 public airports, as well as the 82 heliports and seaplane bases located across the State. Aeronautics also works with the federal government to maintain a safe air transportation system. The Rail and Transit Bureau manages the State's 459 miles of active railroad, conducts rail safety inspections, and oversees public transportation consisting of 11 local bus systems, as well as bicycle and pedestrian transportation.

The Division is assigned one van equipped with federally required airport inspection equipment, two pooled sedans, a truck assigned to the rail inspector, and a sport utility vehicle customized to travel on railroad tracks.

Division Of Finance

The Division is responsible for DOT-wide financial management and budgetary control, bonding, accounts payable and receivable, federal billing, purchasing, contracts and grant management, and reporting of inventory. The Division is assigned one pooled sedan.

DOT Equipment And Vehicles

State law authorizes the DOT to purchase equipment necessary for operating its motor vehicle and construction equipment fleet. The DOT must prepare an equipment acquisition plan each biennium and present it as part of its budget request. Once the State budget is passed, the DOT is also required to submit an acquisition plan, along with monthly status updates, for approval by the Capital Budget Overview Committee and the Governor and Council for equipment purchased by the Bureau of Mechanical Services.

According to its inventory, at the end of SFY 2014, the DOT had 1,179 vehicles and pieces of equipment in its inventory. Table 1 summarizes the DOT's vehicles and equipment by type, average age, and average meter reading. The average age of all types of vehicles in the DOT's fleet was at least five years old and vehicles averaged over 100,000 miles. With the exception of backhoes, the newest category of equipment averaged six years, while the Department's cranes averaged 26 years old. Starting in March 2014, the DOT began leasing 50 backhoes, significantly reducing the average age of the backhoes in its inventory.

Table 1

DOT Equipment And Vehicle Fleet By Type,
As Of June 30, 2014

Type	Count[1]	Average Age In Years	Average Ending Meter
Equipment (Meter In Hours Unless Noted)			
Six-Wheeled Truck[2]	303	7	5,124
Loader	85	12	4,616
Ten-Wheeled Truck[3]	78	8	4,360
Mower	62	7	1,446
Backhoe[4]	58	2	349
Grader	22	18	7,294
Skid Steer Loader	15	7	1,556
Roller	14	6	282
Patrol Truck	13	8	5,645
Crane[5]	8	26	2,195
One-Ton Truck (Miles)	55	7	104,935
Striper Truck (Miles)[6]	5	14	171,421
Sweeper (Miles)	4	12	68,799
Other Equipment[7]	12	13	
Equipment Subtotal	***734***		
Vehicles (Meter In Miles)			
Pickup Truck	298	5	113,917
Sedan	122	6	115,362
Sport Utility Vehicle	15	9	131,883
Passenger Van	5	8	107,962
Other Vehicles[8]	5	9	191,713
Vehicle Subtotal	***445***		
Total Vehicles And Equipment	**1,179**		

Notes:
[1] "Count" is a snapshot of the equipment and vehicle inventory at the end of the fiscal year. Due to timing of when a new truck is being "built" to replace an existing truck, these numbers may fluctuate slightly.
[2] "Six-Wheeled Truck" also includes a car carrier, mobile core drill, and paint van.
[3] "Ten-Wheeled Truck" also includes a bridge inspection vehicle, eductor, and three tractor trucks.
[4] The DOT began leasing 50 backhoes in March 2014 which significantly reduced this category's average age and ending meter. In SFY 2013, the DOT's ten backhoes averaged ten years old. The seven backhoes with recorded ending meter readings averaged 2,645 hours at the end of SFY 2013.
[5] One crane is mounted on a ten-wheeled truck; however for comparison purposes it is categorized with the remainder of the cranes.
[6] Striper trucks are ten-wheeled trucks; however, they are metered in miles instead of hours and have a different function than other ten-wheeled trucks.
[7] "Other Equipment" consists of fork lifts and box trucks.
[8] "Other Vehicles" includes a road analysis vehicle and utility vehicles.

Source: LBA analysis of DOT SFY 2014 year-end inventory data.

Equipment Needs Committee

In 2002, DOT management formed the Equipment Needs Committee to help develop and implement a comprehensive plan to ensure the DOT was "maximizing the use of equipment funds relative to acquisitions, utilization, and maintenance to best suit the needs of the Department as a whole." The Committee included representatives from the Divisions of Finance, Operations, and Project Development who are the main users of the fleet. The Committee facilitated communication among DOT bureaus to prioritize purchases regarding the level of resources available and is a venue for bureau representatives to voice their opinions and collaborate with one another. Meetings typically involved discussions regarding equipment specifications, maintenance efficiency, proposed acquisition plans, and exploring options to acquire equipment. Subcommittees were established to examine issues such as leasing and renting equipment.

Fleet Management Systems

The DOT relied on four main software applications to support its fleet management function. FleetFocus M5 (M5) is a commercial off-the-shelf fleet management system which the DOT used to capture vehicle information, including maintenance records and costs. The DOT also used a system called Managing Assets for Transportation Systems (MATS) to track vehicle and equipment usage. MATS uploads vehicle and equipment meter readings into M5 bi-weekly. Fuel usage is tracked using the Orpak Fuel Management System, which tracks fuel issued to vehicles and equipment and uploads usage to M5 monthly. The Vehicle Use Authorization system was used to classify drivers.

A business system analyst located at the Bureau of Mechanical Services was responsible for working with fleet management and overseeing the M5 system, including creating reports, pulling data, supporting end users, introducing new modules not currently being used and integrating them into current business practices. The Department of Information Technology was responsible for managing the computer hardware and operating system supporting M5. The DOT has used the software to track its equipment since 1998.

Recent Fleet Evaluation

In 2012, the DOT hired Northeastern University's Center for Strategic Studies (Northeastern) to conduct a review of its fleet management and Bureau of Mechanical Services. The results of this study, *Opportunity Screening Of Mechanical Services And Fleet Management*, were issued in February 2013. The study found the Bureau had a state-of-the-art repair facility and talented and dedicated mechanical staff. In fact, Northeastern reported the Bureau's diligent fleet maintenance and restoration program had kept the Department's aging fleet in service with acceptable down-time levels. However, it also found the DOT's aging fleet to be a threat to the Department's ability to respond to snow and road maintenance needs. Weaknesses identified by the Northeastern study included:

- no management reporting,
- bureaucratic and outdated procurement practices,

- over- and under-utilized equipment and vehicles due to lack of metrics and management,
- lack of vehicle lifecycle cost analysis, and
- an aging fleet due to lack of funding.

Northeastern's other significant findings included:

- Northeastern's analysis of fleet age, usage and life-to-date maintenance indicated that in excess of one-third of the fleet should be considered for replacement.
- Systematic culling and reassignment of equipment based on utilization is an important component of overall fleet management and was not aggressively managed. The DOT lacked a properly defined and funded comprehensive fleet replacement program based on sound principles to ensure service levels with acceptable reliability and performance.
- Unlike other states, the DOT did not have a formal vehicle replacement policy supported by life-cycle analysis and funding plan.
- Ad-hoc reports prepared in the past had been flawed with erroneous repair cost data, had questionable methodology, were overly complicated and extremely time consuming to create.

According to DOT officials, the Department made some changes as a result of the study, including hiring a financial analyst, standardizing repair service codes, and it was in the process of creating a "dashboard" to enable management to review maintenance cost data.

Report Focus

Although the DOT had a multitude of equipment and vehicles, we focused our efforts on passenger vehicles and large pieces of equipment. Therefore, our audit addressed equipment which was driven on roadways, was self-propelled, and had a license plate. We excluded trailers, trailer-mounted equipment, compressors, message boards, detachable snow plows, and towable equipment from our review. While we provided trend information on age and inventory of the DOT's fleet from SFY 2005 to 2014, our detailed audit work focused on SFYs 2009 through 2014. The remainder of this report provides additional information and recommendations to address the questions we were asked to consider, which can be found in Appendix A at the end of this report.

FLEET INVENTORY AND AGE

How much has the Department of Transportation's (DOT) vehicle and equipment fleet changed between State fiscal years (SFY) 2005 and 2014, and is the size of the fleet appropriate for DOT's responsibilities?

The DOT's vehicle and construction equipment fleets remained relatively stable from SFYs 2005 to 2014. The most notable increase in fleet size occurred as a result of the DOT purchasing equipment to replace items which had been previously rented, and therefore had not been counted as part of past inventory. The composition of the DOT's fleet experienced very little change since SFY 2005. However, we found the process in place for Legislative and Governor and Council (G&C) review of fleet purchases may contain exemptions which could allow the DOT's fleet size to grow without Legislative oversight.

We found the DOT has not conducted an analysis to determine whether changes in the State's transportation system may warrant modifications to the composition of the fleet. The last time such an analysis was conducted was in 2007, seven years ago. Despite the lack of periodic analysis, most DOT personnel, including management, stated the fleet was generally the right size and composition to fulfill the Department's mission. DOT personnel reported, with the ability to rent additional equipment on an as-needed basis, the Department's needs were generally met. We found the DOT was heavily dependent on rented and leased equipment to supplement its fleet, including plow trucks and other construction equipment. During SFY 2014, the DOT spent approximately $13.2 million to rent or lease equipment and hire plow trucks. In contrast, it spent $2.5 million to replace equipment in SFY 2014.

While the fleet appeared to fulfill the needs of the DOT, personnel expressed concern over the reliability of the fleet as it continued to age. We found a high percentage of the DOT's vehicles and equipment increased in average age since SFY 2005, with many vehicles and equipment at or beyond DOT-established replacement age.

Fleet Inventory And Composition

Between SFYs 2005 and 2014, the DOT's equipment fleet grew by 135 pieces while its vehicle fleet decreased by 13. While the DOT tracked the number of hours used, it did not have a physical count of the number of rented vehicles and equipment used to augment its own fleet, complicating a comprehensive assessment of what resources actually were used to accomplish its tasks during the audit period. As shown in Table 2, the largest increases in construction equipment were backhoes, tractor mowers, six-wheeled trucks, and rollers. However, the majority of this growth was attributed to a shift in the way the DOT acquired equipment. While the DOT's fleet management system, FleetFocus M5 (M5), tracked all leased and purchased equipment, it did not track equipment on long- or short-term rental agreements. Therefore, these pieces of equipment were not recorded or reported as part of the inventory. In 2014, in lieu of renting, the DOT began to lease 50 backhoes, resulting in the equipment being tracked as part of its inventory. A similar process occurred in 2010 when the DOT purchased mowers and rollers to replace those it rented in the past.

Table 2

DOT Inventory[1], SFYs 2005 To 2014

	2005	2009	2011	2013	2014	Net Change
Equipment						
Backhoe[2]	21	10	10	10	58	37
Mower	30	43	56	60	62	32
Six-Wheeled Truck[3]	277	297	320	293	303	26
Roller	2	5	13	13	14	12
Skid-Steer Loader	4	12	15	15	15	11
Ten-Wheeled Truck[4]	68	83	78	75	78	10
Box Truck	0	4	6	6	6	6
Loader	80	92	84	85	85	5
One-Ton Truck	53	53	54	53	55	2
Fork Lift	4	5	5	6	6	2
Striper Truck[5]	5	5	5	5	5	0
Crane[6]	8	8	8	8	8	0
Patrol Truck	14	15	16	12	13	-1
Sweeper	6	5	4	4	4	-2
Grader	27	23	22	22	22	-5
Equipment Subtotal	***599***	***660***	***696***	***667***	***734***	***135***
Vehicles						
Passenger Van	1	4	5	5	5	4
Pickup Truck	297	277	293	278	298	1
Road Analysis Vehicle	2	2	2	2	2	0
Sport Utility Vehicle	17	19	18	15	15	-2
Sedan	128	122	138	122	122	-6
Utility Vehicle	13	7	3	3	3	-10
Vehicle Subtotal	***458***	***431***	***459***	***425***	***445***	***-13***
Total Vehicles And Equipment	**1,057**	**1,091**	**1,155**	**1,092**	**1,179**	

Notes:
[1] Inventory count is a snapshot of equipment and vehicles in the DOT's inventory at the end of each fiscal year. Due to timing of when a new truck is being "built" to replace an existing truck, these numbers may fluctuate slightly.
[2] The DOT began leasing 50 backhoes to replace rented backhoes in March 2014.
[3] "Six Wheeled Trucks" also consists of one car carrier, mobile core drill, and a paint van
[4] "Ten-Wheeled Truck" also includes one bridge inspection vehicle, eductor, and three tractor trucks.
[5] Striper trucks are ten-wheeled trucks; however, they are metered in miles instead of hours and have a different function than other ten-wheeled trucks.
[6] One crane is mounted on a ten-wheeled truck; however for comparison purposes it is categorized with the remainder of the cranes.

Source: LBA analysis of DOT inventory data.

As shown in Table 2, the vehicle fleet has remained relatively consistent in size over the past ten fiscal years, showing a slight decline from SFY 2005 to 2014. The vehicle fleet had some minor adjustments in the composition over the past ten fiscal years. While the number of passenger vans increased slightly, the DOT has decreased the number of sedans, sport utility vehicles, and utility vehicles in its fleet.

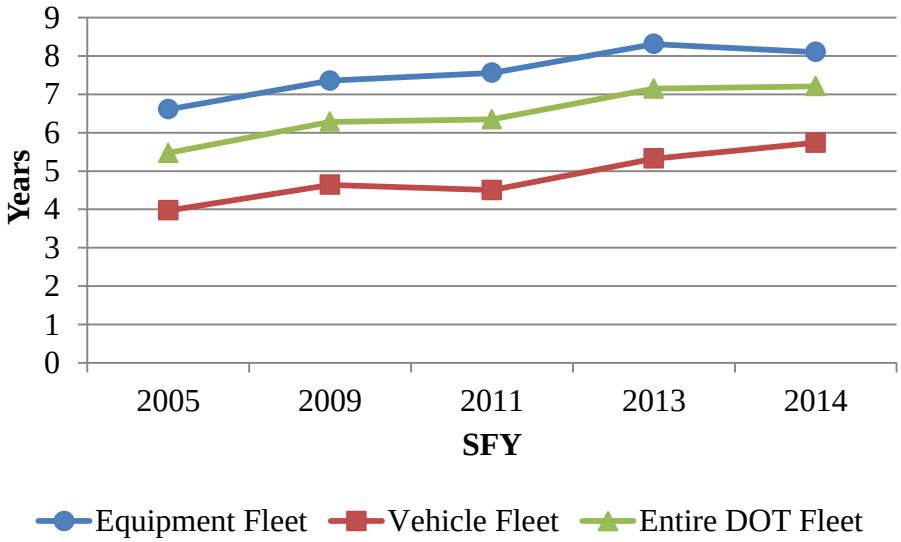
We found the DOT relied heavily on contracted plow trucks and drivers to supplement its winter maintenance fleet, with over half of its plow fleet comprised of private contractors. During SFY 2014, the Bureaus of Highway Maintenance and Turnpikes used 420 contractors to plow roads throughout the State and maintained 322 of its own plow trucks. The Bureau of Turnpikes relied more heavily on contracted plow trucks than the Bureau of Highway Maintenance, with two-thirds of Turnpikes' plow trucks being contracted.

Fleet Age

The main concern expressed by DOT personnel was the reliability of the fleet as it continues to age. Figure 1 shows the increase in the average age of the DOT's fleet. We found the construction equipment fleet aged, on average, 1.5 years from SFYs 2005 to 2014 with loaders experiencing a 5.5 year increase in average age. Heavy trucks increased in average age by one year for the six-wheeled trucks and 2.5 years for ten-wheeled trucks. A majority of these heavy trucks were used to plow. Additionally, we found vehicles increased in average age by two years. The Bureau of Turnpikes' fleet appeared to be an exception. In SFY 2014, its fleet was, on average, two years newer than the rest of the DOT. In fact, the Bureau of Mechanical Services bought equipment Turnpikes surplused to replace similar equipment that was in worse condition.

Figure 1

Changes In Fleet Age,
SFYs 2005 To 2014



Source: LBA analysis of DOT fleet data.

The Bureau of Mechanical Services established criteria for determining when a piece of equipment or vehicle should be replaced. For example, according to these criteria, a six-wheeled truck should be considered for replacement at ten years old, a ten-wheeled truck at 12 years, and sedans and pickup trucks at five years. These criteria were used for equipment and vehicles in all bureaus except the Bureau of Turnpikes, which established its own replacement criteria. In SFY 2012, Turnpikes extended the number of years for vehicle or equipment replacement, bringing it more in line with, or exceeding some, replacement schedules for the rest of the DOT.

From SFYs 2005 to 2014, we found a 14 percent increase in the amount of equipment at or beyond the Mechanical Services-established replacement age. Particularly, we found 14 percent of six-wheeled trucks were ten years or older in SFY 2005, but by SFY 2014 this had increased to 36 percent. Ten-wheeled trucks experienced a similar increase with ten percent at 12 years or older in SFY 2005; by SFY 2014, 22 percent were at or exceeded the criteria. In SFY 2014, over half of the DOT's vehicle fleet was at or past the established replacement age. DOT personnel stated as age increases, so does the risk of the vehicle or equipment experiencing a breakdown. We found equipment nine years or older was likely to experience three times as many breakdowns as equipment between zero and four years old, and almost two times as many breakdowns as equipment between five and eight years old. We could not determine the impact on DOT operations; however, because the Bureau of Mechanical Services did not have any data regarding the number of days of service lost due to breakdowns.

Budget Impacts On Fleet Management

According to DOT officials, the Department's budget has had a significant effect on how it manages its fleet of vehicles and equipment. The budget impacts the DOT's decisions regarding fleet acquisition, maintenance, and disposal and affects how the Department accomplishes its goals for planning, developing, and maintaining a transportation network providing for safe and convenient movement of people and goods. Budget constraints can result in a number of difficult management decisions affecting the Department's ability to replace equipment and vehicles on a set schedule. Additional challenges include:

- Equipment must be kept longer than its useful life, which can increase repair costs and decrease resale value.
- New equipment cannot be purchased so the potentially more costly options of leasing or renting are used.
- Hiring private plow trucks and operators is necessary to supplement DOT staffing and heavy trucks.
- Non-winter maintenance work such as mowing, shimming roads, paving, cutting shoulders, and cleaning ditches, grading, and reconstructing roadways may not be done on an established schedule.

With the exception of the Bureau of Turnpikes, the Bureau of Mechanical Services purchased most of the vehicles and heavy equipment used by other DOT bureaus. Mechanical Services' expenditures for replacing or acquiring new equipment has not been consistent as shown in Table 3. The DOT reported its fleet was aging because new equipment appropriations had not been adequate to replace old equipment. The Department's concerns were supported by the February

2013 Northeastern study. Among its findings was that the "[l]ack of [a] properly defined and funded fleet replacement program has resulted in an aging fleet that could potentially lead to significant service level disruptions." Further, the report noted the DOT's funding is based on what it termed as "short-term affordability versus long-term needs" and the DOT's "aging fleet is in need of significant catch-up funding."

Table 3

Bureau Of Mechanical Services
New Equipment Expenditures, SFYs 2004 To 2014

State Fiscal Year	Expenditures[1]
2004	$0
2005	4,628,000
2006	4,500,000
2007	4,502,000
2008	41,000
2009	2,127,000
2010	3,493,000
2011	6,460,000
2012	2,467,000
2013	2,603,000
2014	2,500,000

Note:
[1] Expenditures reportedly included small amounts of non-fleet expenditures.

Source: LBA analysis of unaudited Bureau of Mechanical Services' reported expenditures.

Observation No. 1

Periodically Review Fleet Size And Composition

For more than seven years the DOT has not formally analyzed its fleet of needed vehicles and equipment for each bureau to determine the right number and mix. The most recent analysis by any DOT division or bureau of equipment and vehicles needed to effectively and efficiently accomplish its mission was in 2007.

All bureaus reported analyzing which vehicles or pieces of equipment should be replaced on a yearly basis and analyzing whether to rent equipment which is not available in the DOT's inventory. Division Directors and Bureau Administrators reported they do not analyze whether they have the right size and composition of vehicles and equipment to fulfill their mission. According to Division Directors and Bureau Administrators, they only focus on replacing their existing fleet with the same type of vehicle or equipment.

Despite the absence of formal analyses, most personnel in the field including shed foremen, District Engineers, and District Maintenance Supervisors reported the fleet generally fulfills their needs. However, personnel identified changing conditions in the State's transportation system necessitated the need for different types of equipment, and some equipment available was not always the right fit for the job. For example, personnel identified a need for smaller trucks than what was readily available to plow the increased number of roundabouts. Additionally, smaller trucks were more efficient for smaller road repair jobs which did not require larger trucks.

The Bureau of Mechanical Services was responsible for centrally managing the DOT's fleet, including determining which vehicles and equipment were sent to State surplus. However, it did not analyze whether the equipment assigned to each bureau adequately fulfilled a bureau's mission. The DOT also had an Equipment Needs Committee to facilitate identification of equipment and vehicle needs throughout the DOT. However, the Committee had not recently conducted a Department-wide analysis of the fleet. According to the Northeastern study, the Equipment Needs Committee would be able to make decisions on vehicle needs and rightsizing the fleet with the goal of reducing the overall size without compromising service levels once the DOT improved reporting on vehicle utilization and lifecycle costing.

Proactive fleet management is essential to controlling costs and ensuring resources are used prudently. Size and composition are the primary factors driving fleet costs. Federal, state, and industry literature considers comprehensive assessment to determine the appropriate size and composition of an entity's fleet (i.e., fleet right-sizing study) as one of the best practices a fleet manager can employ. Federal guidelines require agency managers to analyze their fleet operations to ensure they have the required types and numbers of vehicles needed to meet the agency's mission.

Recommendation:

We recommend the DOT periodically conduct a right-sizing analysis to determine whether divisions and bureaus have the appropriate number and mix of vehicles and equipment to fulfill their mission. The analysis should include identifying any changes to the DOT's mission and transportation system, and whether efficiencies can be gained by employing alternate types of equipment.

Auditee Response:

We concur.

As a matter of practice, the Department informally reviews fleet size and composition on a regular basis. The Department will now periodically conduct a more formal, documented, right sizing analysis of existing and contemplated equipment needs to further enhance efficiencies and include as part of this analysis, alternate types of equipment as the Department's needs change. In 2012, the Department hired Northeastern University's Center for Strategic Studies to conduct a study and make recommendations on fleet management.

Observation No. 2

Review Controls Over DOT Fleet Purchases

Controls over the DOT's vehicles and heavy equipment purchases were fragmented. New equipment purchases were dependent on appropriations in the State budget and approval by the Department of Administrative Services (DAS). Depending on the type of equipment bought and which DOT bureau made the purchase, additional controls may apply as shown in Table 4. While the DOT obtained required approvals, the additional controls may not be sufficient when certain types of equipment and most DOT bureaus were exempt from those requirements.

Table 4

Additional Controls Over DOT Fleet Purchases

DOT Bureau	Type Of Equipment	Mechanical Services Fleet Acquisition Plan Must Obtain Capital Budget Overview Committee And G&C Approvals	DAS Confirms DOT Request Conforms To Mechanical Service Fleet Acquisition Plan	DAS Ensures Requests Are Within Authorized Vehicle Fleet Size
Mechanical Services	Vehicles And Light Trucks	Yes	Yes	Yes
Mechanical Services	Heavy Equipment	Yes	Plow Trucks Only[1]	None
Other DOT Bureaus	Vehicles And Light Trucks	None	None	Yes
Other DOT Bureaus	Heavy Equipment	None	None	None

Notes: [1] Other heavy equipment such as loaders, cranes, graders, and mowers were not reviewed by the DAS.

Source: LBA analysis of State statutes.

Bureau Of Mechanical Services Fleet Acquisition Plan

Since 1988, a budgetary footnote for Class 30 expenditures (equipment new/replacement) has required the Bureau of Mechanical Services to submit a fleet acquisition plan for additional review and approval. As a result, when the Bureau of Mechanical Services purchased sedans for use by other DOT units, it needed to identify the number of sedans it planned to buy and estimate the costs in an acquisition plan requiring approval by both the Capital Budget Overview Committee and G&C. The DAS confirmed whether the Bureau's requests to purchase vehicles, light duty trucks, and plow trucks were consistent with the approved acquisition plan.

Authorized Fleet Size For Passenger Vehicles

The Legislature placed additional controls over all agencies purchasing vehicles and light duty trucks by requiring the DAS to review those purchase requests against the agency's authorized fleet size. The DAS determined the total allowable number of authorized passenger vehicles and light duty trucks for every agency and reviewed whether new purchases would exceed these limits. This control affected every DOT bureau, but not other components of the DOT fleet, such as heavy equipment.

Equipment Fleet Can Grow Without Oversight

The DOT increased its equipment fleet without the additional G&C or the Capital Budget Overview Committee approvals. For example, in SFY 2012 the Bureau of Highway Maintenance purchased some mowers under a lease-to-own agreement to replace rented mowers. Payments were made from the Bureau's Class 22 appropriation (rents and leases) and a final payment was made from its Class 30 appropriation. These additions to the DOT's equipment fleet were not required to be part of an acquisition plan because they were not bought by the Bureau of Mechanical Services, yet they increased the size of the DOT equipment fleet.

When the Bureau of Turnpikes purchased heavy equipment, such as plow trucks, the only approvals required were from the DOT as long as funds had been budgeted.

Recommendation:

The Legislature may wish to consider whether the controls it has placed over DOT fleet purchases encompass all the bureaus and types of equipment the Legislature wants reviewed.

Auditee Response:

We concur.

The Department has followed legislative requirements and has these requirements in place for fleet procurement. The Department however, agrees with the observation that State law is not consistent in its application of equipment purchases oversight.

FLEET UTILIZATION

Was construction equipment utilized effectively, was vehicle use consistent with business needs, and do opportunities exist to improve fleet utilization?

In general, we found the Department of Transportation (DOT) consistently used its vehicles and heavy equipment. Average utilization from State fiscal years (SFY) 2009 to 2014 was stable for the majority of the DOT's fleet with some fluctuation in equipment such as fork lifts, drills, and cranes. We found a minor decline in average utilization for commonly used six-wheeled trucks, approximately 30 hours annually per truck. However, during this period, the DOT added 26 six-wheeled trucks to its inventory. The DOT's vehicles were used slightly more in 2014 compared to 2009. For example, DOT sedans increased from an average utilization of 13,868 miles in SFY 2009 to 15,580 miles in SFY 2014.

Industry practices recommend fleet managers set utilization guidelines to manage their fleet. The DOT did not establish annual utilization guidelines, nor did it analyze usage on an agency-wide basis. We identified some categories of equipment with large fluctuations in average utilization during SFY 2014; however, some variation in utilization by different bureaus may be reasonable given the nature of their responsibilities and needs. We also found the DOT could further improve management of its fleet by improving tracking of equipment it rents, which could be used to make more informed renting, leasing, or purchasing decisions in the future.

Equipment Sharing

While there was no formal process in place, we found short-term equipment sharing among most divisions and bureaus was common. Division directors, bureau administrators, and field personnel reported they could request equipment and vehicles from other bureaus as needed and the informal process made sharing simple without unnecessary hurdles. However, if equipment was needed for longer-term use, usually more than one month, the change in user was documented in M5 to ensure better accountability for maintenance and repairs.

Some specialty pieces of equipment were designated as shared equipment within a bureau or within a geographic area. For instance the Bureau of Bridge Maintenance had a large crane truck which was shared among its maintenance crews for projects requiring a longer reach. Similarly, the Bureau of Highway Maintenance maintained equipment such as graders which are shared among the patrol sheds within a district. We found Highway Maintenance patrol sheds shared equipment within their district frequently. For instance, during our visits to patrol sheds, we found equipment assigned to one patrol shed was being used at another patrol shed within the district. While equipment sharing was also possible across district lines for patrol sheds in close proximity to each other, distance was identified as the most common barrier to sharing equipment across district lines. For example, if the patrol shed in Lancaster (District 1) required a piece of equipment assigned to Exeter (District 6) which was not being used at the time, the cost to transport it may outweigh the benefits of sharing.

We found significant barriers to sharing equipment between the Bureau of Turnpikes and the rest of the DOT. Because statute requires tolls collected to be used exclusively for the operation of the turnpike system, other DOT bureaus could not utilize Bureau of Turnpikes equipment without being billed, making sharing difficult.

Observation No. 3

Adopt Formal Guidelines And Review Fleet Utilization

The DOT had some equipment which appeared to have low utilization when compared to the rest of its fleet. While some variations in utilization by different bureaus may be reasonable given the nature of their responsibilities and needs, we observed most of the equipment with relatively low utilization was assigned to the Bureaus of Turnpikes and Bridge Maintenance. We found the Bureau of Turnpikes had four ten-wheeled trucks and ten six-wheeled trucks with low utilization, while the Bureau of Bridge Maintenance had nine one-ton trucks and nine pickup trucks with low utilization when compared to the rest of the DOT.

While the DOT established replacement criteria (the age and number of hours or miles at which a piece of equipment or vehicle will be considered for replacement at the end of its life) for its fleet of equipment and vehicles, it had not established formal annual utilization guidelines (the number of miles or hours each year a piece of equipment should be used). Utilization guidelines are used in fleet management to target vehicle under- or over-use during the year so action can be taken to improve utilization.

Additionally, analysis of DOT's fleet utilization was decentralized. Individual bureaus within the DOT, the users of the fleet, were responsible for analyzing usage of their equipment and vehicles, making it difficult for the DOT to identify opportunities to increase utilization by moving equipment and vehicles between divisions and bureaus. Centralized analysis of how much vehicles and equipment are used can provide a broader perspective for comparing the performance of the fleet. While the Bureau of Mechanical Services manages and maintains the DOT fleet, neither it nor anyone else in the DOT analyzes utilization at a Department-wide level. Instead, Mechanical Services personnel stated the user of the equipment is in the best position to assess the utilization of their fleet.

Large Variations In Utilization For Some Equipment

Our analysis of the DOT's fleet identified large variations in annual utilization by equipment and vehicle type. For example, we found variations of over 1,000 hours in use for six-wheeled trucks, ten-wheeled trucks, and patrol trucks; as well as variations of over 10,000 miles for pickup trucks, sedans, one-ton trucks, and sport utility vehicles. Table 5 shows the range of utilization for the most commonly used vehicles and equipment. Without centralized utilization analysis, the DOT risked the chance of being unable to identify opportunities for improving fleet efficiency.

Table 5

Range Of Annual Equipment And Vehicle Utilization By Type, SFY 2014

Equipment Or Vehicle Type	Minimum Usage[1]	Maximum Usage
Usage Recorded In Miles		
Pickup Truck	44	66,750
Sedan	4,964[2]	34,950
One-Ton Truck	2,207	61,706
Sport Utility Vehicle	2,754	20,917
Sweeper	3,760	6,810
Striper Truck	5,302	14,181
Usage Recorded In Hours		
Motor Grader	0	605
Patrol Truck	0	1,029
Six-Wheeled Truck	8	1,288
Ten-Wheeled Truck	32	1,170
Skid Steer Loader	71	342

Notes: [1] Only vehicles and equipment in service for the entire fiscal year were included in this analysis.
[2] This is the second lowest usage for sedans. The sedan with the lowest utilization was a compressed natural gas vehicle with 1,514 miles.

Source: LBA analysis of DOT SFY 2014 inventory.

Bureau Of Turnpikes

In the absence of established utilization guidelines, we compared each equipment and vehicle type against the average utilization for that category. Vehicles and equipment that used less than 50 percent of this average were considered to have low utilization when compared to the rest of the fleet. The Bureau of Turnpikes, on average, used its six-wheeled and ten-wheeled trucks approximately one-third less compared to other DOT bureaus with heavy trucks in SFY 2014. We found the Bureau of Turnpikes used its heavy trucks similar to the Bureau of Highway Maintenance during the winter (January, February, and March), but these trucks were used less than half as much during the summer. We identified two pieces of equipment with low utilization within the Bureau of Turnpikes that were purchased with federal funds which placed restrictions on their use. According to the Bureau of Turnpikes Administrator, the Bureau performed fewer activities during the summer requiring large trucks. The Bureau owned smaller trucks which were used more often than its larger trucks for summer maintenance. Additionally, the roads on the turnpike system require less maintenance as they are built to accommodate higher traffic volumes and vehicle speeds. The turnpikes maintenance facilities are also responsible for smaller maintenance areas than highway maintenance patrol sheds, resulting in shorter travel time to job

sites. During our visits to Highway Maintenance patrol sheds and Turnpikes maintenance facilities in July and August, we found trucks at most patrol sheds were at job sites; however, the Turnpikes facilities we visited had most of their equipment parked at the facility during our visit. During a visit to one Turnpike maintenance facility, we found all eight of the maintenance facility's six-wheeled trucks and two of the three ten-wheeled trucks were parked at the maintenance facility. During this time period, the Bureau was in the process of building a new maintenance facility and expanding its fleet on the Eastern Turnpike.

Bureau Of Bridge Maintenance

According to the Bureau Administrator, bridge maintenance crews tended to work at the same construction site for "a couple" of months on average. It is common for one-ton trucks and pickup trucks to be parked at and used on the construction site for the duration of a project**.** During our interviews with Bureau of Highway Maintenance personnel, they commonly identified the need for a one-ton truck to help with both summer and winter maintenance projects. During the audit period, the Bureau of Highway Maintenance hired private contractors to perform some of these tasks.

Industry Practice

Establishing utilization guidelines and reviewing actual utilization is an industry standard in government fleet management. Several states with climates similar to New Hampshire, including Pennsylvania, Michigan, and Minnesota have formal utilization standards for their vehicles and equipment. The Northeastern University study commissioned by the DOT found systematic culling and reassignment of equipment based on utilization is an important component of overall fleet management and was not aggressively managed by the DOT. The study found the DOT lacked a properly defined and funded comprehensive fleet replacement program based on sound principles to ensure acceptable reliability and performance levels. Without formal fleet utilization guidelines, the Department had not established the foundation required to effectively manage utilization of its fleet. By not comparing utilization to established guidelines, the DOT was missing out on opportunities to identify ways to increase utilization of its current resources.

Recommendations:

We recommend DOT management:

- **establish formal annual utilization guidelines in order to better manage its fleet,**
- **analyze utilization at a Department-wide level to determine whether opportunities exist to increase utilization of its fleet, and**
- **explore ways to increase cross-utilization of equipment.**

Auditee Response:

We concur.

The Department in practice does make available equipment (fleet and other), bureau to bureau when a request is made and the equipment item is available. We agree this process could be further enhanced for equipment that is used for similar purposes. The Department encourages optimized utilization of Department equipment and has developed procedural and billing methods to accommodate.

The Department will establish guidelines and explore other ways within existing funding levels to increase cross-utilization of similar equipment. The Department carefully tracks usage over the life of the vehicle and if necessary will reassign to insure usage and age are optimized.

Differences in types of equipment and usage exist and may not always provide opportunity for cross-utilization from one job function or bureau to bureau. One reason for this is many of the department's trucks are specialized based on job function (bridge, stripping, signs) and are equipped with specific tools and boxes, frames and beds, booms, power set-ups, etc. Cross-utilization of vehicles between fund categories (Highway vs. Turnpike) can also be challenging. Bond holders require Turnpike System vehicles to be used for turnpike maintenance needs only or the System must be compensated for equipment use.

These differences in fund and function create utilization challenges. However, the Department agrees that a more formal utilization guideline should be established with the goal of optimizing fleet utilization for similar use vehicles. It should be noted that further streamlining cross-utilization of equipment between funds may require legislative authority.

Observation No. 4

Track Utilization Of Rented Equipment

The DOT did not track usage for all its rented equipment in one place to support decision-making. The Managing Assets for Transportation Systems (MATS) captured three-quarters of all DOT rentals – only those with formal rental agreements. MATS, however, did not record data for ad hoc rentals secured by field personnel. For ad hoc rentals, DOT management must rely on financial records where the only information captured was the total amount of the invoice and the vendor. We attempted to ascertain rented equipment the DOT used to supplement its owned vehicles and equipment during the audit period. The DOT's financial records indicated approximately $2.5 million in ad hoc equipment rentals during SFY 2013. However, the records could not be used to identify the type of equipment rented or the equipment's actual usage.

Since rented equipment is marked as 'rented' in MATS, meter readings were not captured with the same method as State-owned equipment. Therefore, the meter readings were not fed to M5, the DOT's fleet management information system, or displayed in the DOT's quarterly vehicle report.

Quantifying usage is important to inform decision-makers of equipment needs. Without knowing the utilization of rented equipment, decision-makers may be unable to make well-informed fleet management decisions.

Recommendation:

We recommend DOT management track the number and usage of all its rented equipment with one system.

Auditee Response:

We concur.

The Department employs FleetFocus (M5) fleet management system software to track equipment that the Department owns, leases, and lease purchases whereas the Department has an interest in tracking usage, preventative maintenance and repairs. The Department also uses Managing Assets for Transportation Systems (MATS) software to track usage (hours and/or miles) of all state owned, leased, lease purchase and rented equipment. The Department will continue to improve the quality of the information in these systems and will continue to refine our reports to provide more valuable information when considering fleet utilization and costs.

Non-Business Use Of DOT Vehicles

State law requires agencies to report all personal use of State vehicles to the Department of Administrative Services (DAS). This included commuting miles. In 2010 the DAS issued guidance for State agencies on what constitutes commuting miles. Following the DAS' instruction, the DOT issued its own guidance defining commuting (non-business) miles. "Commuter miles" mean mileage traveled from an employee home to the regular place of business or first place of business or last place of official business to an employee home, whichever is less, for each day of travel. For employees with a field-based position the mileage traveling from home to a job site or construction site should be recorded as non-business miles per DOT written guidance. Further, if a DOT vehicle's non-business miles accounted for more than 20 percent of its total mileage a waiver must be submitted to the DAS justifying the need to retain the vehicle.

The DOT did not consistently report non-business miles because some DOT bureaus used a modified definition of non-business miles. While the DOT did not comply with State policies, the reasoning used by these bureaus was not without some merit.

Observation No. 5

Consistently Report Non-Business Mileage

Not all DOT bureaus reported non-business vehicle use consistent with State or DOT policies. Statute required State employees report all "personal use," including commuting miles, of any State-owned vehicle. Additionally, it allowed the DAS to reassign or surplus vehicles with non-business miles exceeding the established threshold unless the agency had an approved waiver from the Vehicle Utilization Committee to retain the vehicle.

Under the DAS policy, employees with field-based positions must report miles traveled from their homes to the first place of business (jobsite) and travel from the last place of business to their homes as non-business use. The DOT defined commuting miles as "mileage traveled from an employee home to the regular place of business or first place of business or last place of official business to an employee home (residence), whichever is less, for each day of travel."

Between SFYs 2011 and 2013, the DOT decreased its non-business mileage, and subsequently the number of waiver requests, as shown in Table 6. Much of the reduction was a result of how one DOT bureau calculated non-business miles during SFY 2013.

Table 6

Business And Non-Business Miles Driven By DOT Passenger Vehicles
By State Fiscal Year

	2011	2012	2013
Total Non-Business Miles Traveled	1,523,897	1,162,165	635,777
Total Miles Traveled	9,787,318	9,753,850	9,613,728
Percent of Non-Business Miles	16	12	7
Non-Business Waiver Requests[1]	178	99	42

Notes: [1] The non-business miles threshold requiring an agency to seek a waiver from the Vehicle Utilization Committee increased from 15 to 20 percent in December 2011.

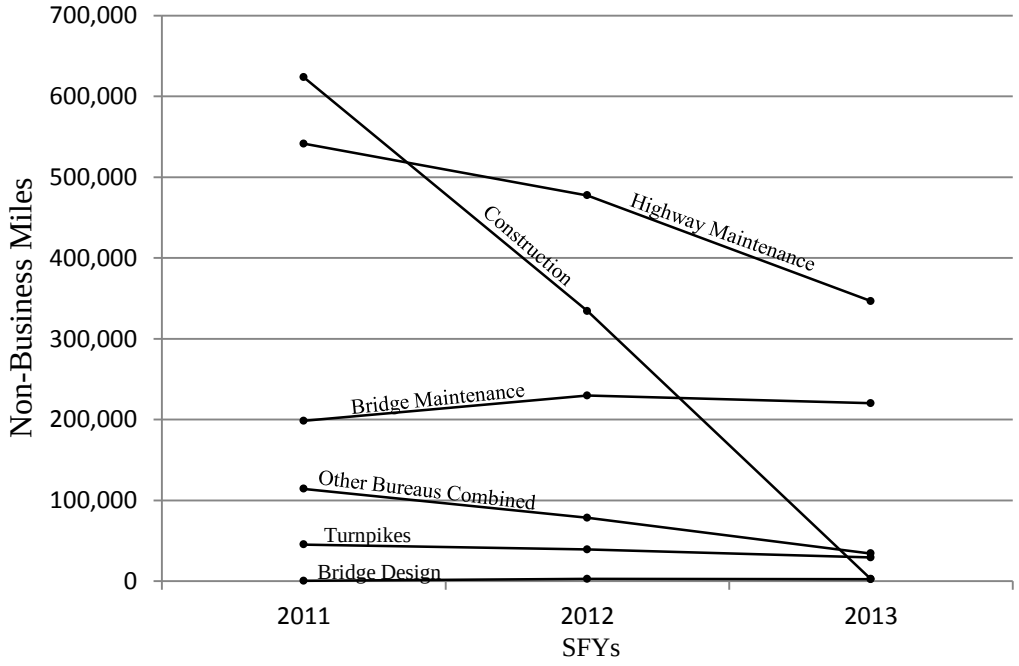
Source: LBA analysis of DOT and DAS data.

The majority of the Bureau of Construction's personnel were primarily based at construction sites and not in an office. The DAS provided the following guidance regarding field-based positions: if an employee worked out of his or her home and did not have an office-based position and drove a State vehicle from home to work (or vice versa), it was considered non-business use.

The DOT did not ensure its bureaus consistently followed the DAS's or its own definition of non-business use. In fact, the Bureau of Construction saw a 99.5 percent decrease in non-business miles (621,091 miles) between SFYs 2011 and 2013 by using a modified definition of non-business use. Figure 2 shows this decrease compared with other DOT bureaus. Irrespective of DOT and DAS policy, the Bureau of Construction allowed personnel to report as business miles all miles for which the DOT would be required to reimburse an employee if a private vehicle was used. A DAS official acknowledged knowing about this and confirmed there is logic in this interpretation, but current written policy did not support this. Additionally, the Bureau of Bridge Design appears to record non-business miles in the same manner as the Bureau of Construction. We note the Bureau of Environment also employed field-based personnel similar to the Bureau of Construction and Bridge Design; however, these employees reported non-business use consistent with the DOT policy.

Figure 2

Change In Non-Business Miles Driven By DOT Bureaus, SFYs 2011 To 2013



Source: LBA analysis of DOT data.

The Bureau of Turnpikes allowed personnel to stop recording non-business mileage once an employee entered the turnpike, which does not conform to either DAS or DOT stated policy. For example, if an employee lived five miles from the turnpike but was assigned to a maintenance facility 15 miles away, the employee recorded only the five miles before entering the turnpike as non-business use. The Bureau of Turnpikes reported a decrease in non-business miles of approximately 41 percent from SFYs 2011 to 2013, dropping from 45,440 to 26,921.

The variance in reporting non-business or commuting miles appeared to derive from differing interpretation and implementation of current policies established by the DOT and DAS. By not consistently reporting non-business use according to established policies, the Bureaus of Construction and Turnpikes may have avoided review by the Vehicle Utilization Committee and created an inaccurate basis on which decision-makers could analyze the miles traveled by the fleet as a whole.

Policies May Inflate Non-Business Miles

The Legislature has shown an interest in identifying personal use of State vehicles. However, the requirement to report some field-based employees' travel from home to a job site as non-business use may be misleading. Under these policies, considering all travel in State-owned vehicles from a residence to a job site as non-business use is questionable when employees could be reimbursed for such travel if they used their own vehicles.

Recommendations:

We recommend the DOT ensure all of its bureaus are interpreting DAS and DOT reporting of non-business miles polices in a consistent manner, including reviewing the appropriateness of allowing:

- **the Bureau of Turnpikes to report non-business miles from home to when employees first enter the turnpike system, instead of when they reach their assigned work shed; and**
- **bureaus to modify the definition of non-business miles.**

We also recommend the DOT work with the DAS to determine the appropriateness of reporting all mileage of field-based positions as non-business miles under current policies.

Auditee Response:

We concur.

The Department will review and update current written policy to enhance consistency of reporting non-business (commuting) miles. The current practice for field-based personnel to leave from home and travel directly to job sites in State construction vehicles saves the State of NH time and money for project oversight statewide. The Department will seek clarification and work with the Department of Administrative Services on this policy.

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OTHER ISSUES AND CONCERNS

In this section, we present issues we consider noteworthy but not developed into formal observations. The Department of Transportation (DOT) and the Legislature may wish to consider whether these issues and concerns deserve further study or action.

Motorist Service Patrol

In a public-private partnership, the DOT, along with sponsorship from a commercial insurance company, operated motorist service patrols on I-95, part of the Spaulding Turnpike, and the F.E. Everett Turnpike. The motorist service patrol assisted motorists with mechanical issues such as flat tires, low fuel, jump starts, and the occasional need to push vehicles out of harm's way to safer locations. The motorist service patrol was staffed with DOT employees driving vehicles with both the DOT and the insurer's logo. The DOT reported this program was effective in other states in reducing safety hazards and traffic disruptions due to immobilized vehicles and assisted in the overall safety of the turnpike. The program was piloted in May 2011 and was expanded to two one-ton trucks in State fiscal year (SFY) 2014. The program will expand to four vehicles by the end of SFY 2015. A service patrol vehicle is shown in Figure 3.

Figure 3

Motorist Service Patrol Vehicle

Source: Photo taken by LBA staff during a field visit.

The purchase price of each vehicle was estimated at $43,500 and annual fuel, maintenance, and repair costs were estimated at an additional $21,000 per vehicle. Labor was expected to cost an additional $31,600 per vehicle. The DOT secured a total of $91,200 in sponsorship to offset program costs of the two vehicles it operated during SFY 2014. The sponsorship will increase to $127,200 by the end of SFY 2015 to accommodate the two additional vehicles. We note the program operates out of the Bureau of Turnpikes and the funds used to purchase the vehicles were from the Turnpikes fund.

During our audit, we found equipment needed to meet what the DOT considered its main priority, winter maintenance, increased in age. Additionally, the percent of vehicles at or beyond the age recommended for replacement had increased. DOT management reported it required additional funding to replace its aging fleet and help ensure its priorities were accomplished.

We suggest the DOT and the Legislature review whether this is the most prudent use of the DOT's equipment budget.

APPENDIX A
OBJECTIVES, SCOPE, AND METHODOLOGY

Objective And Scope

In April 2014 the Fiscal Committee of the General Court approved a joint Legislative Performance Audit and Oversight Committee (LPAOC) recommendation for a performance audit of the Department of Transportation (DOT). We held an entrance conference with the DOT in May 2014. The LPAOC approved the audit scope in June 2014. Our detailed audit work focused on SFYs 2009 through 2014 and answered the following question:

How efficiently and effectively did the DOT manage its vehicle and equipment fleet?

To answer this question we sought to determine the following:

1. whether the size of the DOT's vehicle and equipment fleet was appropriate for its responsibilities,
2. how much the DOT's vehicle and equipment fleet has changed over a ten-year period,
3. if construction equipment was efficiently utilized,
4. if vehicle acquisition and use were consistent with business needs, and
5. whether opportunities exist to improve vehicle and equipment fleet utilization.

Although the DOT had a multitude of equipment and vehicles, we focused our efforts on passenger vehicles and large pieces of equipment rather than towable equipment. Therefore, our audit addressed equipment that was driven on roadways, was self-propelled, and had a license plate. We excluded trailers, trailer-mounted equipment, compressors, message boards, detachable snow plows, and other types of towable equipment and attachments.

Methodology

To gain a general understanding of fleet management, we reviewed:

- our 2008 statewide *Fleet Management Performance Audit* report, federal audits and publications, audits of other states' departments of transportation and fleet management, and articles on leading national practices; and
- statewide policy directives from the Department of Administrative Services (DAS).

To gain a general understanding of the New Hampshire's DOT fleet operations, we:

- reviewed State laws, Administrative Rules, policies and procedures, DOT's website information, organizational charts, financial information related to the DOT's fleet operations, and employee job descriptions;

- reviewed vehicle inventory and utilization reports for SFYs 2005 through 2014; DOT equipment acquisition plans for SFYs 2013 through 2015, Equipment Needs Committee information and minutes, DOT annual reports**,** non-business use waivers, and locations of DOT facilities;
- interviewed DOT management, division directors and assistant directors; DOT bureau administrators and assistant administrators; DOT Bureau of Highway Maintenance District Engineers, equipment supervisors, patrol shed foremen, assistant patrol shed foremen; DOT Bureau of Turnpikes Equipment Supervisor, and maintenance facility foremen and assistant foremen; and DOT personnel regarding software used to manage the fleet;
- reviewed consultant studies commissioned by the DOT;
- interviewed LBA Budget Officers**,** and DAS personnel responsible for statewide fleet management;
- assessed and reviewed potential risks of fraud in DOT operations; and
- conducted site visits to observe vehicles and equipment at 12 Highway Maintenance patrol sheds, three satellite garages, five Highway Maintenance district offices, two bridge crews, the Bridge Maintenance supply yard in Franklin, and three Bureau of Turnpikes maintenance facilities.

To determine if DOT's fleet was appropriate for its responsibilities, changes in fleet size and composition, equipment and vehicle utilization, and whether opportunities exist to improve utilization, we:

- analyzed DOT vehicle and equipment inventory data for SFYs 2005 to 2014;
- analyzed DOT data for SFYs 2009 to 2014 to determine average utilization by type and identified vehicles and equipment with high and low utilization;
- reviewed statutory history to determine whether DOT responsibilities and lane miles have changed since 2005;
- reviewed data on leased and rented equipment, statements of appropriation, and other budget documents;
- reviewed meter readings on vehicles and equipment assigned to DOT bureaus;
- attended Equipment Needs Committee meetings, and reviewed meeting minutes;
- reviewed DOT's fleet acquisition plans and monthly status updates; and
- analyzed data on business and non-business use of vehicles and reviewed non-business use waivers to determine the reasons for allowing personnel to continue to retain these vehicles.